THE UNIVERSITY OF HULL

HEALTH SYSTEMS THINKING: THE NEED FOR A MORE

CRITICAL APPROACH

being a Thesis submitted for the Degree of

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by

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Abstract

The present study intends to bring more insights and added value to Health Systems Thinking using systems ideas. It inquires about the current state of Health Systems Thinking, analyses different strengths of alternative systems approaches, and suggests what systems thinking can offer in order to improve the current understanding and the technical performance of Health Systems. It does not intend to develop a blue print model but rather a more critical approach to deal with some of the intractable problems encountered in current health sector reforms. The thesis is not expected to serve public health practitioners only but also systems thinking theorists, particularly those interested in social systems and pluralism in management sciences. Specifically, this thesis aims at analysing the current state of Health Systems Thinking; explores what other systems approaches can offer to enlighten health systems; and yields knowledge on Critical Health Systems Thinking. To achieve these aims the researcher articulated the study on the basis of the definition of health by the World Health Organisation, the interconnectedness among key health determinants and the global health challenges with particular emphasis in Sub-Saharan Africa. Critical Systems Thinking is the theoretical framework in which knowledge about systems is expressed and the current state of Health Systems Thinking is the area of concern in relation to which the researcher has aspirations. The methodology consists in two major steps conducting thought experiments in the context of three scenarios from the researcher's own experience. The first step uses Jackson's four major systems approaches and associated methodologies and yields learning about the current state of Health Systems Thinking; and the second step, using Critical Systems Practice in mode 2, generates a more critical approach to Health Systems Thinking.

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List of Abbreviations

AIDS…………………………………..……….Acquired Immunodeficiency Syndrome

AFRO…………………………………………..African Regional Office of WHO

AMS…………………………………………Army Medical Services

CATWOE……Customers, Actors, Transformation, Weltanschauung, Owners, Environment

CBoH…………………………………….…...Community Board of Health

CM……………………………………………Conceptual Model

CDS……………………………………………Center of Diseases Surveillance

CHS……………………………………………Community Health Services

COM…………………………………………..Community

CHW…………………………………………..Community Health Worker

CSH……………………………………………..Critical Systems Heuristics

CST…………………………………………….Critical Systems Thinking

CSP……………………………………………..Critical Systems Practice

DALY……………………………………………Disability Adjusted Life Years

DC……………………………………………..District Council

DH…………………………………………….District Hospital

DHB…………………………………………………..District Health Board

DHDT………………………………………………District Health Development Team

DH……………………………………………….District Hospital

DHO………………………………………………..District Health Office

DOTS………………………………………..Direct Observed Treatment Short-course

ESA…………………………………………….Emancipatory Systems Approach

GDP…………………………………………….Goss Domestic Product

GOVT……………………………………………..Government

GST…………………………………………….General Systems Theory

HAC…………………………………………….Hospital Advisory Committee

HIV……………………………………………..Human Immunodeficiency Virus

HP……………………………………………….Health Post

HC……………………………………………….Health Centre

HCC…………………………………………….Health Centre Committee

HS……………………………………………….Health System

HP……………………………………………….Health Post

HRIT…………………………………………….Health Reform Implementation Team

IDP…………………………………………….Internal Displaced people

IP……………………………………………….Interactive Planning

IS……………………………………………….Intervention System

IRS…………………………………………….Intellectual Resources System

LP……………………………………………………..Local Population

LHD………………………………………………….Local Health District

MAL………………………………………………...Malaria

MCDSS………………………….Ministry of Community Development and Social Services

MGT……………………………………………….…Management

MINDEF……………………………………………..Ministry of Defence

MOH……………………………………………….Ministry of Health

NGO………………………………………………….Non Governmental Organisation

NHC……………………………………………….Neighbourhood Health Committee

NHS………………………………………………….National Health Service

OC………………………………………………..Organizational Cybernetics

OMS………………………………………………….Organisation Mondiale de la Santé

OMI…………………………………………………..Other Ministries

PCS………………………………………………...Problem-context System

PHC…………………………………………………Primary Health Care

PHA………………………………………………….Provincial Health Authority

PSA…………………………………………………Post-modern Systems Approach

SOSM………………………………………………..System of Systems Methodologies

SSM………………………………………………...Soft Systems Methodology

SHA………………………………………………...Sub-district Health Authority

SAST……………………………………. Strategic Assumption Surfacing and Testing

STI…………………………………………..Sexually Transmitted Infection

TBA……………………………………..……Traditional Birth Attendant

TRM……………………………………………….Traditional Medicine

TSI……………………………………………….Total Systems Intervention

TUB………………………………………………..Tuberculosis

UFP………………………………………………….User Fee Policy

USSR…………………………………………..Union of the Soviet and Socialist Republics

USD……………………………………………………United States Dollar

UNGA……………………………………………United Nations General Assembly

UNICEF…………………………………………..United Nations Infant an Children Fund

VP………………………………………………….Vertical Programme

VSM………………………………………………Viable System Model

WHO……………………………………………………….World Health Organisation

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CHAPTER 1

1. INTRODUCTION

1.1. Background

Public Health is "the science and art of preventing disease, prolonging life, and promoting mental and physical health and efficiency through the organized community efforts for the sanitation of the environment, the control of communicable infections, and the education of the individual in personal hygiene, the organization of medical and nursing services for the early and preventive treatment of disease. It includes the development of social machinery to ensure to every individual a standard of living adequate for the maintenance of health, so organizing these benefits as to enable every citizen to realize his birthright of health and longevity"(WHO 1952). This definition, after more than 50 years, remains relevant despite a few attempts to update it in light of recent political, environmental, behavioural, cultural, scientific and technological developments.

Health systems are in principle meant to promote and improve public health. However, the way the term health system is currently perceived and used is vague and

inconsistent, giving room for confusion. There is a need to sharpen the definition of "health system" to enhance the clarity of its concept and make it socially more relevant.

This introductory chapter on Challenges in Health Development focuses on the general context of health status and health services in the world with particular emphasis in Sub-Sahara Africa where weak health systems and the burden of disease both communicable and non-communicable diseases create a major constraint to human development. Reference is made to the key health determinants such as the political context, socio-economic and demographic conditions, the environment and the health systems. Malaria, HIV/AIDS and tuberculosis, chronic diseases, maternal and child health are referred as the most serious public health problems in the African region for which more adequate management is required. This chapter, in general alludes to the current thinking about these issues. It refers to an extensive study on health sector reforms in Sub-Saharan Africa conducted by Lambo and Sambo (2003) and the key problems and constraints encountered. It recognises the complexity and diversity of health systems and the way health system is currently perceived. It raises the key research questions and the methodology that has been used. Finally, it provides the summary of the 12 chapters that make-up the roadmap of the thesis.

The developmental methodology will be based on Critical Systems Thinking (CST) with particular emphasis on Jackson's 4 Key Paradigms and Mingers's 4 As Approach for step one of the research; and Creative Systems Practice and SSM mode 2 for step two. At the end the research is expected to yield contributions for a more coherent pluralism in health management.

1.2. Aims of the research

The present study intends to bring more insight and added value to Health Systems thinking using critical systems thinking. It aspires to use systems ideas in public health and cross-fertilize public health and systems thinking. This study will inquire about the current state of Health Systems thinking, analyse different strengths of alternative systems approaches, and realize what systems thinking can offer in order to improve the current understanding and the technical performance of Health Systems; the ultimate aim being to make them more responsive to people's health needs and expectations. The dynamic nature and complexity of Health Systems call for eclectic managerial work across the boundaries of the Health Systems and due consideration to the influence of the key determinants of health. The thesis is not intended to serve public health practitioners only but also systems thinking theorists, particularly those interested in social systems and pluralism in management sciences.

The study will challenge the current state of Health Systems Thinking and contribute for a more critical approach. It will recognize the influence of history and culture of people in current assumptions and practices; and envision and conceptualize alternatives that can disrupt routines and set up new style of thought. It does not intend to develop a blue print model but rather a more comprehensive approach to deal with some of the intractable problems found in the current practice. The research study is expected to reveal some hidden realities of Health Systems and make them clear for political scrutiny and decision-making.

In general the study wants to address health management problems that compromise the efficiency and effectiveness of public health policies, strategies, plans and interventions. The study should bring new insights, ideas and opinions on how to improve ongoing and

future health reform processes that ultimately should contribute towards better health outcomes.

To address these types of problems, it is proposed that systems thinking can provide new ideas and methods to improve the current understanding of Health Systems and develop a more critical approach to enhance its technical performance.

Specifically, this thesis asks the following research questions:

1. What is the current state of Health Systems Thinking; its strengths and deficiencies?
2. What other systems approaches can offer to enlighten health systems?
3. How could we generate knowledge on critical Health Systems Thinking?

Therefore, the expected results of the study are: a) the analysis of the current state of Health Systems Thinking; b) judgments on what other system approaches can offer to enlighten current Health Systems Thinking, and c) knowledge on critical Health Systems Thinking in light of Critical Systems Thinking *theory* and my own *experience*.

1.3. Global health challenges

The health status of the majority of the world's population remains poor despite huge progress in health science and technology. The Executive Board of the World Health Organization (1973), following a careful study of the world situation, concluded that in many countries, health services were seriously deficient in achieving their goal of improving people's health. Most of the world's population had only limited access to health services or no access at all. The major constraints were related to emphasis on high technology centrally

located in main cities and often not relevant to people's needs and local realities, coupled with very weak inter-sectoral collaboration and poor community participation in health development issues, and imbalance among promotive, preventive, curative and rehabilitative care. Other restrictive conditions are related to inadequate funding of health services amidst cost escalation; technical and allocation inefficiencies in the use of the available resources, and low health service coverage in peripheral areas. Health sector reforms have been introduced in various countries with a view to addressing the above-mentioned setbacks in order to enhance the relevance of Health Systems to people's needs and socio-economic realities.

Health systems in the world have attained different levels of development. This has been determined by the degree of socio-economic development of countries, resource allocation, management capacity and technical-scientific developments in the field of health. WHO (1999) recognizes that in general, health development is directly related to economic development, and vice-versa. In relation to its main features, in the past, Health Systems were characterized by rigid bureaucratic and centralized administrations, a curative orientation, inequities between the rich and poor, and non-responsiveness to people's needs. Health systems remain in dynamic process of change, therefore, public health managers have to deal with multiple problem-contexts in this changing world.

A further issue is that weak managerial skills in health organizations and the narrow vision of health, sometimes limited to the scope of medicine, are among factors contributing to the failure of health reforms. The holistic definition of health as a state of complete physical, mental and social well-being, and not only the absence of disease or infirmity (OMS

2001), and the role of health in development, create more challenges and calls for a more systemic approach to health reform. The internal environment of Health Systems needs also to be re-thought and re-adapted to meet the challenges imposed by the changing external environment. It is proposed here that the application of new research methodologies contributes to expand the knowledge basis particularly in terms of: defining the key objects of Health Systems (HS), defining HS boundaries, addressing health determinants, accommodating the contexts of change (environmental, technological, demographic and epidemiological transitions) and being more responsive to people's expectations.

At the policy level, fundamental issues are systematically raised: first, the health sector, in the context of development, is usually considered as non-productive and resource consuming, and therefore not prioritised in terms of resource allocation. Secondly, how best to ensure sustainable heath care financing without exacerbating existing inequities? Thirdly, why haven't the global policies, goals and initiatives led to meaningful changes in the health status of local communities? So, what are the systems issues underlying these public health matters?

1.4. The Context in Sub-Saharan Africa - an example

During the last 40 years, Health Systems evolved through a changing environment. In Sub-Saharan Africa, four benchmarks triggered in-depth health policy reforms within a new development agenda: the end of colonialism by the 1960s, the structural adjustment programs by the end of the 70s, the end of the cold war (and start of political democratization) by the end of the 80s and globalization by the end of the 90s.

During the first years of independence in the early 60s and 70s, the generally stable political environment and the favourable economic conditions that prevailed in African countries made it possible for most of them to achieve considerable socio-economic development. In the health sector, the main achievements were related to the expansion of health care services to rural areas, the development of human resources for health, and improvement in the health status of populations.

By the end of the 70s and 80s, *adverse international macroeconomic conditions* led most African countries to adopt Structural Adjustment Programmes aimed at stabilizing their economies. New economic policy measures usually included currency devaluation, reduction of government spending, changes in pricing policies, trade liberalization, among other measures, which restricted government spending on social sectors. Therefore, it produced a negative impact on health status, particularly of low-income people. The *emergence of the HIV/AIDS pandemic* in the early 80's has further eroded the health status and economic productivity in Africa.

By the end of the 80s up to the early 90s, the end of the cold war triggered a process of democratization in most African countries, increasing the participation of people in the political arena as well as in the process of development. At the same time, the number of *man-made disasters increased*, particularly due to political instability in countries, leading to internal displacement of thousands of people and forcing others to become refugees. This further aggravated the prevalence, depth and severity of poverty and became a matter of public and international concern.

The end of the 90s and beginning of the 21st century has witnessed increased flow of information and commodities (goods and services) and movement of people in medium and high-income African countries. Low-income countries did not enjoy most of the benefits of globalization due to weak economies and poor connectivity in communication.

The next section focuses on the problem situation and role of key determinants of health, namely the political context, socio-economic conditions, demographic setting, environment, and health system itself.

1.4.1. Reference to Determinants of Health in Sub-Saharan Africa

1.4.1.1. *Political context*

Political stability is a very important condition for health development. Man-made disasters, particularly civil strife and armed conflicts are responsible for about 50% of internally displaced persons (IDPs) in the world and 50% of the world's 14 million refugees. There is a broad international consensus that the global population of IDPs stood between 27-32 million in 1999: up to 16 million in Africa, 6-7 million in Asia, 5 million in Europe (predominantly in the former Yugoslavia and the Caucasus region) and 3 million in the Americas (Merson, Black et al. 2001). Most of IDPs and refugees face insecurity and stress, and lack of food, potable water, shelter and sanitation facilities, which directly expose them, and increase their vulnerability, to outbreaks of epidemics. Typically, they experience high mortality in the emergency phase following their migration. In children, deaths result from

malnutrition, diarrhoea and infectious diseases; in adults, communicable and non-communicable diseases, injuries and violence and psychological distress are the highest contributors to their disease burden. Refugee populations are particularly susceptible to psychosomatic complaints and psychological disturbances, owing to the disruption of their emotional, cultural, and economic environments, and to the feeling of being caught in an impasse (Perrin 1996). Effects of armed conflicts and political violence on health services are translated into limited availability of resources, weak organization and management of health care delivery services, poor economic support to Health Systems and poor quality of care. Briefly, political insecurity, overcrowding and a high number of sick individuals increases health needs and reduces health system response to population needs (Perrin 1996). Today, Africa is the continent with the greatest humanitarian needs. Moreover, the consequences of armed conflicts are seriously undermining Africa's efforts to achieve stability, sustainable development and prosperity for its people. Disaster-related mortality is a growing public health concern in the African region and has a statistically significant negative effect on the gross domestic product per capita (GDP). Currently, the world is concerned with global public health security. In its 2007 World Health Report, WHO explores a range of threats to global health, as defined by the International Health Regulations (WHO, 2005). The report states that threats to public health security, be they epidemics of infectious diseases, natural disasters, chemical emergencies or certain other acute health events, can be traced to one or more of these causes. The causes may be natural, environmental, industrial, accidental or deliberate but – more often than not – they are related to human behaviour. It recognizes the importance to discuss in subsequent publications, the more fundamental causes of health security embedded in the social and political environments that foster inequities within and between groups of people. It asserts that a collateral impact of armed conflict is often the

destruction or weakening of health systems, resulting in their diminished capacity to detect, prevent and respond to infectious diseases outbreaks, which in turn reduces the concerned population's access to health care (Chan and Heymann 2007).

1.4.1.2. Socio-economic conditions

Human rights are freedoms and entitlements concerned with the protection of the inherent dignity and equality of every human being. They include civil, political, economic, social and cultural rights. The international community has accepted the position that human rights are universal, indivisible, interdependent and interrelated according to the Vienna Declaration and Programme of Action of 1993 (Hunt, Steward et al. 2007). Hunt (2007) recognizes the links between Health and Human Rights and refers to Mann (1994) who asserted that health and human rights are connected in a number of ways:

- Health can be adversely affected by human rights abuses and violations, such as torture, slavery, forced labour, violence and harmful traditional practices;

- The design and/or implementation of public health policies and programmes can result either in the promotion or violation of human rights;

Taking steps to respect, protect, and fulfil human rights can reduce vulnerability to, and the impact of, ill health.

Human rights that have a particularly close relationship with health include the rights to health, non-discrimination, privacy, water, education, information, food, and the right to enjoy the benefit of scientific progress and its applications. Therefore, the health of

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individuals and people is determined by multiple factors that are interdependent and interrelated.

For example, there are direct links between economic performance and health indicators such as life expectancy (Jamison 1999; WHO 2002). In African countries there is sufficient evidence both at macroeconomic and microeconomic levels that income is strongly correlated with health outcomes (Sambo, Mwikisa et al. 2004). Also, health inequalities within and across the income groupings of countries are a reflection of the underlying inequalities in the distribution of various health determinants, e.g. access to potable water, sanitation and essential drugs. Currently, in the African region, there is a negative relationship between economic development and health inequalities and vice versa (Sambo, Mwikisa et al. 2004). This view is opposed by some researchers such as Deaton (2001) who argued that the relationships between income and health inequalities are not as strong as mentioned because the key is in distinguishing the relationships between income and health and other health determining factors. Deaton recognizes that individual income plays a critical role in poor settings and countries in determining individual health status; but, as country economies grow, they are more able to improve the factors that determine health status such as water and sanitation, nutrition, environment and education, such that the importance of individual income in determining health status declines.

The economic downturn in developed countries which followed the oil shocks of 1973 and 1979 ultimately led to a profound world recession that left many of the economies of the countries in the African Region almost in total disarray (Lambo and Sambo 2003). Huge national debts, among other factors, forced most of them to embark on economic

reform measures. One of these reforms involved the development and implementation of structural adjustment, whose components included currency devaluation, cuts in government spending and trade liberalisation. The social sectors, particularly health and education, were hardest hit by the consequences of economic decline and the way economic reform programmes were implemented. Not only did the measures slow the pace of health development in most African countries, they also weakened their Health Systems to the point of near collapse (Lambo and Sambo 2003)

Nevertheless in the context of the African region, economic and financial crisis (in spite of economic reforms) have led to increased levels of unemployment, poverty, under-funding of health and other social sectors, low salaries, lack of motivation of health professionals and increased inequalities in health and health determinants (Sambo 2007). These compromised the overall performance of health systems. Development policies that include investments in health, education and other social sectors, should normally lead to improvement in maternal and child health, and decrease in communicable diseases and malnutrition. Lack of long-term investment plans, under-funding, and poor management of existing resources denies Health Systems important inputs like human capital, financial resources and technologies at a time when demands are increasing. Other health determinants such as illiteracy, particularly among women, unhealthy life-styles and behaviours such as tobacco and drug abuse contribute significantly to ill health (Sambo 2007). Persons who are in poor health, less frequently move up and more frequently move down the social ladder, than healthy persons.

1.4.1.3. Demographic conditions

Demography is determined in part by health status and has a direct effect on economic growth due to the way it affects the structure of the population, in particular those of working age (Jamison 1999). Changes in population size and distribution; including birth rates, death rates and configuration of the population pyramid have an influence on health status and health services organization; and certain health problems, conditions or injuries may influence demographic patterns. The phenomena of refugees, internally displaced people, migration of people from rural to urban areas and the serious decline in life expectancy are the main features of the demographic determinant in the African context. Some factors, such as the continued location of most capitals in the former colonial capitals, the state-centered model of development and centralized administrative and political systems, have characterized countries in the decades after independence. Similarly, the constraints on the development of secondary cities and small towns arising from colonial neglect of peasant agriculture and the exclusion of indigenous populations from many business activities were reinforced in the years after independence by continued neglect of peasant agriculture, general shortage of credit, poor infrastructure and heavy handed government regulation (Rakodi 1997). The inexistence or failure of urbanization plans led to illegal, anarchic and informal development of cities and compromised the extension of water, electricity, solid waste collection and sanitation services, and road networks (Rakodi 1997). Increase in the population of urban areas and growing urban slums have had negative effects in both environment and health (Rakodi 1997).

1.4.1.4. Environmental conditions

The 1999 World Health Report states that climate change in the world is already manifesting adverse health effects. Ozone depletion and global warming have direct health impacts such as increase in vector, water and food borne diseases. Geography, particularly tropical location, is highly correlated with disease burden, which in turn affects economic performance (Jamison 1999). Climate change particularly drought, is affecting agriculture in certain areas with all its attendant consequences of food insecurity, hunger, starvation, malnutrition and disease. In certain countries undergoing economic growth, air pollution due to industry and urban transportation is becoming a health hazard; adding the phenomena of sea pollution in oil producing countries (Jamison 1999). WHO (2006) has estimated that around a quarter of the global disease burden is associated with environmental risk factors. Unsafe water sources, poor access to safe drinking water, indoors and outdoors air pollution, unhygienic or unsafe food, poor sanitation, inadequate waste disposal and no vector control measures are identified among the key environmental risks to human health in most of countries in Africa where vulnerability to climate change is high and adaptive capacity is slow (UNEP 2008). Whereas Africa continues to cope with traditional environmental risk factors to human health, the continent in addition now has to deal with new and emerging environmental challenges to public health, all in a context of strained health systems (UNEP 2008) .

1.4.1.5. Health Services/Systems

The health system is a very important determinant of the health status of a population. In most African countries, health care delivery is organized within the context of National Health Services (NHS) and Ministries of Health are responsible for overall health policy

development and management. The public sector plays an important role particularly in preventive care and in the control of endemic diseases and epidemics. The Executive Board of the World Health Organisation, following the Organisational Study on Methods of promoting the development of basic health services (WHO, EB51/WP/1, 1973) concluded that most of the world population had only limited access to health services or no access at all; health services put emphasis on high technology centrally located in many cities and often not relevant to people's needs and local realities; and also evidence of imbalance among promotive, preventive, curative and rehabilitative health care. These conclusions were consistent with the realities in Sub-Saharan Africa, particularly in rural areas. Non-profit and NGO (non governmental organization) institutions together with the most peripheral health units of National Health Services play an important role in the delivery of essential health care. Communities are increasingly aware of their responsibilities and community initiatives are taking place for improvement of health. Health systems are still predominantly centralized in terms of policy development, management of resources and delivery of quality health care. Nevertheless, the decisive role lies in Government with responsibility that ranges from creating an enabling environment for leadership and management of the health development process, within evolving socio-economic contexts to deliver the essential public health interventions.

1.4.2. Health status of people in Sub-Saharan Africa

This section provides an overview of the health status of the populations in Sub-Saharan Africa, as result of the interaction of the above-mentioned key health determinants. Communicable diseases remain the core of public health problems, despite the significant

scientific and technological progress in diseases prevention and control worldwide. Malaria, tuberculosis, HIV-AIDS, diarrhoeal diseases and acute respiratory infections are amongst the most significant public health problems and they put lives and development of millions of Africans at risk. Diseases with epidemic potential such as cholera, measles, cerebrum-spinal meningitis, yellow fever, hemorrhagic fevers and plague are recurrent, with millions of people exposed to them every year and with very high case fatality rates.

"Neglected Diseases" also known as poverty-related diseases or tropical diseases such as lymphatic filariasis, tuberculosis, schistosomiasis, helminthíasis, onchocerciasis, leprosy, buruli ulcer and cancrum oris affect almost exclusively poor and powerless people living in rural parts of low-income countries. The health impact of these neglected diseases is measured by severe and permanent disabilities and deformities in almost 1 billion people (Kindhauser, WHO/CDS, 2003). These diseases inflict an enormous economic burden on affected communities owing to lost productivity and high costs associated with long-term care, which in turn contributes to the entrenched cycle of poverty and ill-health for neglected populations (Kindhauser, WHO/CDS, 2003). Hunt (2007) considers that neglected diseases are complex phenomena that arise on one hand from a failure to correct the severely imbalanced research and development agenda, and on the other hand, from the fact that existing health care technologies are not reaching all those who need them. Both failures reflect the powerlessness of those afflicted with, and most vulnerable to, neglected diseases.

Brief details will be provided on the six most serious health problems and conditions in Sub-Saharan Africa: malaria, HIV/AIDS, tuberculosis, non-communicable diseases, child health and maternal health.

1.4.2.1. Malaria

Malaria is a vector-transmitted disease that is predominant in the tropics, in a more or less well defined area, that Gentilini designates as the "world's poverty belt" from South-America to Western Pacific region. About 74% of African people live in malaria endemic areas. Malaria has a serious impact on morbidity, mortality and economic productivity of countries. In Sub-Saharan Africa, it accounts for more than one million deaths per year (Gentilini 1993). Malaria is one of the most common causes of illness and death among children in Sub-saharan Africa. Severe malaria is often associated with co-morbid conditions such as bacterial infections, HIV and malnutrition. In endemic areas, including Southeast Asia, the Indian sub-continent and most of Africa, malaria has been responsible for as many as 30% of all deaths among displaced populations (Merson, Black et al. 2001). Key problems of control and prevention of malaria are related to late diagnosis and treatment, drug resistance, deficient management of human ecology, vector resistance to insecticides and high costs of alternative products. Successive initiatives and programmes, have so far revealed very little progress in reducing the problem in sub-Saharan Africa. Countries that were successful in eliminating malaria from their territory shared some important commonalities such as: political stability; firm political and financial commitment to malaria eradication; good organizational and technical infrastructure; high quality of training and personnel; fully developed, functional general health services; absence of internal and external conflicts; and absence of major population movements from neighbouring malarious countries (WHO 2008). WHO recognized that the basic requirements for achieving and sustaining malaria control are: integration of malaria control into a reasonably well-established health system; an uninterrupted, continued effort; and research into new and improved tools (WHO 2008)

1.4.2.2 HIV/AIDS

Infection by the Human Immunodeficiency Virus and AIDS is the biggest public health threat and the leading cause of mortality in Sub-Saharan Africa. The infection is mainly transmitted by heterosexual activity. Other modes of transmission are related to skin piercing practices, blood transfusion, and mother-to-child transmission. From the estimated 40 million cases of people living with HIV/AIDS in the world, 28.5 million are in Sub-Saharan Africa, which remains by far the worst affected region in the world. In Southern Africa, where the epidemic is the most severe in the world, HIV prevalence among pregnant women in urban areas is still rising, for example in Botswana (38.5% in 1997 to 44.9% in 2001), Zimbabwe (29% in 1997 to 35% in 2000), Namibia (26% in 1998 to 29.6% in 2000), Swaziland from 30.3% to 32.3% in the same period, and South Africa about 24.8% in 2001(UNAIDS 2002). On the other hand, there is an increasing number of HIV positive cases in children due to transmission from HIV infected mothers. The estimated number of children orphaned by AIDS living in the region is 11 million. HIV/AIDS epidemic has had disastrous effects on African society through its destruction of individuals and families. It includes increased crude mortality, reduction of life-expectancy, increasing number of orphans, increase in diseases burden, absenteeism and loss of productivity, increasing demand for health care and human welfare and overloading of "health infrastructure" (Sambo 2006). HIV-AIDS and other Sexually Transmitted Infections (STIs) are major problems among emergency-affected populations from high prevalence areas. The key problems for prevention are related to public information, health education and change of sexual behaviour. There is no cure for AIDS. Anti-retrovirus treatments can serve to extend life.

1.4.2.3. Tuberculosis

Tuberculosis (TB) was highly prevalent in Europe during the industrial revolution, although the prevalence decreased since the beginning of the 20th century simultaneously with the improvement of working and life conditions (Gentilini 1993). In poor countries, tuberculosis does not show evidence of regression. TB accounts for 2.9 million deaths per year worldwide. The incidence rate of TB has been rising quickly in the former Soviet countries by 6% per year from 1997-2000 and in eastern and southern African countries by 5% a year (WHO 2002). The relative risk of developing active TB for a HIV positive individual infected with Mycobacterium Tuberculosis has been estimated to be as much as 100 times higher than in a HIV negative individual (Diwan, Thorson et al. 1998). TB is a leading killer of people living with HIV; and given the correlation between HIV infection and the incidence of TB, close collaboration between HIV/AIDS and TB programmes is essential (Anderson and Maher 2001). Sub-Saharan Africa and the Caribbean are the most affected with a total of 3 million cases of double HIV/BK infection in 1990 (Gentilini 1993). A cost-effective strategy called DOTS (Direct Observed Treatment Short-course) has been recommended by WHO and adopted worldwide for TB control. Documented treatment success rates under DOTS varied from 73% in Africa to 92% in West Pacific Region. The constraints for DOTS expansion most commonly identified are: lack of qualified staff, insufficient preparation for decentralization, non compliance of the private sector, inadequate health infrastructure, weak political commitment and under-funding (Blanc, Bleed et al. 2003).

1.4.2.4. Non-communicable diseases

Although regarded as a burden to industrialized countries, chronic diseases are expected to alter the health of the rest of the world over the next decade. In 1990 chronic diseases superseded communicable diseases as the cause of death in all areas of the world, except Sub-Saharan Africa and the Middle East (Merson, Black et al. 2001). Diabetes, cancers, cardiovascular diseases and asthma are on the increase. Accidental injuries and wars increase the risk of disabilities, mainly caused by land mines, amongst other types of violence. Chronic diseases may also increase given the lack of access to medical care that typically occurs in conflict settings. Rapid and uncontrolled population growth in urban areas contribute to create environments conducive to social disruption, psycho-social problems, alcohol and tobacco abuse, trafficking and consumption of illicit drugs, prostitution, child abuse and domestic violence, all of which affect mental health and social well-being.

1.4.2.5. Maternal Health

The estimated number of maternal deaths in 1995 for the world was 515,000; over half occurred in Africa where maternal mortality rate is the highest, about 1000 deaths per 100,000 live births (Hill, AbouZahr et al. 1995). Three major delays constrain safe motherhood. First, in deciding to seek care, people may not recognize the signs of danger; second, poor roads, poor communication networks and lack of transport may delay in reaching the health facility; third, in receiving care after arriving at the facility people may face inadequately skilled attendants, lack of equipment, drugs and supplies and a poor referral system (WHO/AFRO 2002). There is evidence that 75% of the maternal deaths are preventable. In spite of that, too many women die from birth-related complications. Maternal deaths have also indirect causes such as poor quality of life, and low socio-economic status of

women. Poverty and illiteracy increase the risk of maternal death particularly in remote rural areas. It is likely that the levels of maternal mortality in Sub-Saharan Africa, already the highest in the world, have remained unchanged or even deteriorated (UNICEF 1995). Persistent high maternal mortality rates are related with low socio-economic status of women and weak performance of Health Systems. The implementation of maternal and newborn health programmes in sub-Saharan Africa are confronted by many challenges: lack of national commitment and financial support; poor partners coordination; weak health systems, especially for referrals and obstetric and neonatal emergencies; poor management of medicines, family planning commodities and equipment; and weak development and management of national human resources for health (WHO/AFRO 2008) .

1.4.2.6. Child Health

Infant mortality rate is about 82 deaths per 1,000 live births average in the world, about 173 per 1000 live births in Sub-Saharan Africa and about 7 per 1000 live births in industrialized countries (UNICEF 1990). In Sub-Saharan Africa, communicable diseases, and malnutrition as an aggravating factor mainly characterize patterns of morbidity and mortality in children. Immunization is one of the most cost-effective health interventions in medicine, it saves about 3 million lives and prevents 750,000 children from developing disabilities each year (Sambo 2002). During the last 25 years, it contributed to the reduction of infant mortality in Sub-Saharan Africa. Nevertheless, millions of children still do not have access to immunization services, due to little investment in this area. Successful campaigns for poliomyelitis eradication demonstrated that most children can be reached, when and wherever

resources are made available and activities take place with active involvement of communities.

1.5. Current thinking about Health Challenges and Reforms

A health phenomenon is complex. Health condition is related to health determinants. Some of these determinants are changing and some of the changes cannot be foreseen, therefore there is a degree of uncertainty in relation to factors that influence health. Diversity is another feature of Health Systems with different stakeholders carrying different interests and influencing the way health actions are processed and consequently affecting health outcomes.

The Commission on Social Determinants of Health recognizes the importance of intersectoral action for improved health and argues that health care is just one of the social determinants of health status; but the high burden of illness responsible for appalling premature loss of life arises in large part because of the conditions in which people are born, grow, live and work. It asserts that a toxic combination of poor social policies, unfair economic arrangements and bad politics, is in large measure responsible for the fact that a majority of people in the world do not enjoy the good health that is biologically possible; and as consequence, social injustice is killing people on a grand scale (Marmot, Friel et al. 2008).

With the increasing access of people to Information and Communication Technologies the awareness about recent health sciences breakthroughs and technological developments is higher as is people's aspirations for their health.

The implementation of heath sector reforms aiming at improving the performance of Health Systems and ultimately the health status of people is still far from universal access to quality health care and the achievement of the highest possible level of health. Some of the intractable problems are related with governance, financing, resource management, logistics, intersectoral collaboration, coordination, consensus building, information systems and community participation.

A study entitled *Health Sector Reform in sub-Saharan Africa: A synthesis of country experiences* conducted by Lambo and Sambo (2003) made an analysis of 39 country reports. It reported that most health sector reforms occurred in the following **contexts** in order of frequency:

- Health systems and services delivery factors: poverty and inequities in access, poor quality of care, inadequate community participation, uncoordinated action of health stakeholders, existence of vertical programmes, inadequate financing, lack of drugs and supplies, poorly motivated health workers, institutional weakness and lack of responsiveness to the consumer's expectations.

- Health problems factors: deterioration of health indicators/poor health status of people, increasing demand for services, emerging diseases e.g. HIV/AIDS and other epidemiological changes.

- Political/ideological and policy factors: no clear definition of roles and functions, disasters, new international health initiatives, democratization and change in political leadership, donors/partners-driven reforms and public sector reforms.

- Economic factors: economic crisis and macroeconomic reforms, rapid economic growth, inadequate resources and inefficiencies in resource utilization.

The same study reveals that most of the reforms **contents** aim at the following policy objectives by order of preference: improve access and coverage – equity; improve the quality of health services; improve the health status of the population; improve efficiency; mobilize more resources for health; improve community participation and consumer satisfaction; and revitalize local/district health systems.

In terms of reform **process** the study considered the health reform process in six different stages: stage 0 – no reform, stage 1 – heath sector appraisal, stage 2 – health sector plans, stage 3 – achieving consensus, stage 4 – funding, stage 5 – implementation of reform agenda, and stage 6 – actual implementation. It was found that the country benchmarks have not generally followed the six developmental stages as indicated above. It was also clear that the process is not linear; it involves a long period of learning; and that consensus building among all stakeholders throughout the process is important.

In relation to the **actors,** the authors learnt that Governments has a leading role in driving the process; partners can play a crucial role; social participation is critical and the involvement of health staff is also extremely important.

The study revealed that the most significant factors constraining the implementation of health sector reforms have been: inadequate human resources, inadequate financial resources, political instability and civil strife, inadequate institutional capacity, resistance to change even by potential beneficiaries, increasing poverty, lack of an appropriate health

information system, lack of national policy/plan/legislation/guidelines, ineffective

intersectoral collaboration and inadequate participation of people (Lambo and Sambo 2003)

Many of these issues seem to be systemic problems in a broad sense. The type of

health problems can range from biomedical to social nature. *Biomedical problems* are related

to research and development of new health technologies for diagnosis and treatment and

prevention of diseases. *Social and managerial problems* are associated with limited progress

towards predefined goals; issues of inter-sectoral coordination; and a lack of synergy among a

health system's components. Problems and complications arise from competing interactions

between different stakeholders, inadequate management of human ecology, high level of

illiteracy particularly among woman, the absolute poverty of most of people and weak

capacities (human, institutional and people) for better management and improved response to

local health needs. Most of the problems facing Health Systems are inter-related and call for a

systems approach.

Although public health problems are complex and interrelated, current health policy

design, planning and practice are not maximizing the use of systems ideas and methods. The

current literature on health systems reveals different models with some success in its

application but also with shortcomings in both goal attainment and accommodating people's

views. On the other hand, there are no clear criteria in defining what should be inside a health

system and what belongs to its environment. Health system boundary judgment remains a

critical issue still open for debate, and it is not clear who should define the boundary. The

epistemic vagueness could be reduced as we bring more insights into the understanding of

health systems thinking. Because of its unclear theory and the limitation of its current

perceptions, Health System concepts remain vague. Alternative social arrangements could empower health system actors and promote effective community participation in health policy development, health system design and management of health services; this could improve the overall performance of the health systems and its response to people's health needs and expectations.

1.6 Chapter Summaries

To address these research questions the researcher proposes to articulate the study according to the following chapters:

Chapter 1 has referred to ***Introduction***. It focused on the holistic definition of health, the interconnectedness and inter-actions among key health determinants. The *content* takes into account the general context of health, health determinants and health status. The example of sub-Saharan Africa is mentioned. It provides insights on the complexity and diversity of health phenomena in a changing environment. Finally, it reminds us that health problems are interdependent and calls for a systems approach to health care. In *conclusion*, the chapter explains that health and disease do not result from biomedical facts alone but are a product of a particular set of social, environmental, economic and political circumstances. The current theory underpinning Health Systems overlooks the relevance of psychological and social aspects of individuals and communities. For example, biomedical factors alone cannot explain health inequalities between different socio-economic groups. The chapter argues for the need of a more comprehensive medicine that looks at the patient background and not only to the disease process. This is the argument for exploring social perspectives, meaning to find broader views of looking at health, and trying to understand its place in the social world. This

is done not with the aim of optimizing health systems, but enhancing its current interpretation and learning.

       Chapter 2 presents the ***Research Methodology*** to address the challenges of Chapter 1. It focuses on the contribution of the technical improvement of health systems. What do we do? How do we get it right? What can systems thinking offer to improve health systems current thinking? The *content* mentions an innovative, exploratory and qualitative research method that is considered relevant for this study. Critical Systems Thinking is the theoretical framework in which knowledge about systems is expressed in this dissertation. The current state of health systems thinking is the area of concern in relation to which the researcher has aspirations. The procedure will take <u>two major steps</u> conducting thought experiments in the context of scenarios A, B and C from researcher's own experience. *Firstly*, using Jackson's four major paradigms and associated methodologies combined with Mingers's 4 As Approach (Jackson 1991; Mingers and Gill 1997; Jackson 2000; Jackson 2003) and it yields the first output of the study: "<u>learning about the current state of HS Thinking</u>". *Secondly*, using Critical Systems Practice following SSM mode 2 (Checkland and Holwell 1998; Checkland and Scholes 1999; Jackson 2003)to make a critical inquiry of the researcher's own experience and this will yield the second output of the study: "<u>critical Health Systems thinking</u>". In conclusion, it asserts that the selected methodology is neither interpretive action research nor a positivist classical method, but an innovative combination of methodologies inspired by Jackson and Keys's System Of Systems Methodologies, Flood and Jackson's Total Systems Interventions, Jackson's Critical Systems Practice, Checkland's SSM mode 2 and Mingers's 4 As Approach (Jackson and Keys 1984; Flood and Jackson 1991; Mingers and Gill 1997; Checkland and Holwell 1998; Checkland and Scholes 1999; Jackson 2003).

Chapter 3 is a *Review of Systems Literature*. It focuses on the systems thinking movement. The *content* provides an overview on systems ideas and the main strands of systems thinking theory. Particular emphasis is put on Critical Systems Thinking (CST) and related meta-methodologies namely System of Systems Methodologies (SOSM) and Total Systems Intervention (TSI). In *conclusion*, it shows that systems ideas bring light to the current understanding of health systems, including elements for conceptual clarification. The chapter provides the necessary background for the understanding of forthcoming chapters. In addition, it builds a solid ground for the creative construction of a critical alternative.

Chapter 4 is a review of the *Literature of Health Systems* (HS). It focuses on the way people have addressed health systems. The content presents the main features of HS philosophy, theory, methodology and practice. It provides different views on health systems, the thinkers involved and levels of application. Two main ideological developments are mentioned: The Classic Universalism that emerged in the late seventies and the New Universalism that has been apparent since the late nineties. In regards to HS theory, the discipline of public health has developed since the 1840s and went through two main steps: the Old Public Health up to 1970s and the New Public Health since 1978. HS practice relates to successive generations of Health Sector Reforms aiming at adapting Health Systems to different contexts of change. In conclusion, it realizes that HS is an important but confused field, with unclear boundaries, overlaps and multiple interpretations of terms and therefore requiring conceptual clarification. The way Health Systems are currently understood may contribute to its weak performance. This justifies the focus of the research, looking at the current understanding and exploring what other approaches and methodologies can offer to make Health Systems more relevant in theory and practice. It makes relevant the need for a

more critical approach. On the other hand, HS thinking has had trouble in moving from ideology and theory to methodology and application. Systems approaches and related methodologies could help in creative problem solving and contribute to close the gap between HS goals and performance.

Chapter 5 presents the *Analysis of Health Systems Literature*. It focuses on the argument that the use of systems ideas in health is rather confused, but primarily functionalist. The philosophy of *primary health care* and the *new public health* theory and the practice of *health sector reforms* are reviewed in light of systems thinking theory. The scarcity of consistent methodologies in HS thinking is notorious, excepting for biomedical sciences. The field of Health Systems (HS) is summarized and the current concept of Health Systems is explained. A background is provided on hard and soft strands of thinking within Health Systems. The researcher considers the conditions for the existence of a problem (Ackoff 1978) and then explores Jackson and Key's grid (Jackson and Keys 1984). This will bring about the classification of problem-contexts we want to address in Health Systems practice; and provide hints on related approaches, methodologies, methods and tools. The justification of the argument is made based on the limitations of the functionalist systems approach. The dominant methodologies are based on functionalist strands, and there is a need for new methodologies consistent with the current systemic knowledge. It entails a paradigm shift from biomedical (mechanistic/reductionist) Health System to a social (holistic) Health System view that takes into account the environmental, social and political dimensions of health. It is proposed that the CST, multi-methodology approach will provide health analysts relevant advice and tools that will help in addressing, in a more flexible manner, the diversity and complexity of Health Systems in a world of permanent change. In conclusion, an analysis

of the field of HS based on CST reveals that HS is important but confused and primarily based in functionalist systems thinking. Systems ideas will enhance the understanding of current HS Thinking and open-up its interpretation and learning. The next chapters will provide more details about this.

Chapter 6 presents the ***three health scenarios in Health Systems practice and what actually happened in practice***. The scenarios are related to three issues/problems: a) Vertical Programmes versus Integrated Approach of Programmes in Health Sector Reforms; b) Application of User Fees Policy in the context of Health Sector Reform; and c) Health System's response to crisis/manmade disasters.

Chapter 7 presents the Thought Experiments using a ***Functionalist Systems Approach*** and what might have happened in the three scenarios using this approach. It focuses on what the Functionalist Systems Approach can offer to enlighten current HS Thinking. The content involves a general description of the functionalist philosophy, theory and specific methodology. It proposes the relevance of functionalist methodology (ies) to HS problem-contexts. It provides a summary of strengths and weaknesses. It affords a critique, of what it yields when applied to the Area of Concern, the Framework of Ideas and then back to the Methodology itself. It describes a thought experiment about what would have happened if the researcher had the full armoury of the functionalist approach at his disposal. In conclusion, it throws light on how the Functionalist Systems Approach can offer elements to enrich the theory, methodology and practice of HS Thinking.

Chapter 8 presents the Thought Experiments using the ***Interpretive Systems Approach*** and what might have happened in the three scenarios using this approach. It

focuses on what the Interpretive Systems Approach can offer to enlighten current HS Thinking. It focuses particularly on what Soft Systems thinking can offer to enlighten current HS Thinking. The content describes the philosophy, theory and specific methodology of the interpretive approach. It clarifies the relevance of the SS methodology to HS problem-contexts. It summarizes the strengths and weaknesses and brings forward a critique on what the SS approach yields when applied to the Area of Concern, the Framework of Ideas and then back to the Methodology itself. It describes a thought experiment about what would have happened if the researcher had the full armoury of the interpretive approach at his disposal. In conclusion, it reveals what the Interpretive Systems Approach can offer to enrich the philosophy, theory, methodology and practice of HS Thinking.

Chapter 9 presents the Thought Experiments using the ***Emancipatory Systems Approach*** (ESA) and what might have happened in the three scenarios using this approach. It focuses on what ESA can offer to enlighten current HS Thinking. The *content* provides a general description of the philosophy, theory and specific (or related) methodology for an emancipator systems approach. It proposes the relevance of the specific methodology to health systems. It provides a summary of strengths and weaknesses and discloses a critique and learning on what it yields when applied to the Area of Concern, the Framework of Ideas and then going back to Methodology itself. It finally describes a thought experiment about what would have happened in the three scenarios if the researcher had the full armoury of ESA at his disposal. In conclusion, it demonstrates what the Emancipatory Systems Approach can offer to enlighten HS philosophy and theory.

Chapter 10 presents the Thought Experiments using the *Post-modern Systems Approach* (PSA) and what might have happened in the three scenarios using this approach. It focuses on what PSA can offer to enlighten current HS Thinking. The content describes the philosophy, theory and specific (or related) methodology of a post-modern systems approach. It finds out the relevance of the specific methodology to health systems. It summarizes the strengths and weaknesses of the approach and brings about the critique and learning on what it yields when applied to the Area of Concern, the Framework of Ideas and back to the Methodology itself. Finally, it describes a thought experiment reflecting what would have happened if the researcher had the full armoury of the post-modern approach at his disposal. In conclusion, it verifies how the Post-Modern Systems Approach can offer elements to enlighten HS ideology and theory.

Chapter 11 presents the Thought Experiments using *Critical Systems Practice*. It brings about new insights on current thinking and practice and defines the theoretical framework of *Creative Holism*, corresponding to the final outcome of the study.

Chapter 12 summarizes the key findings of the study and provides the conclusions. It contains the key answers to the research questions. It also refers to the limitations of the study and provides directions for future research. Finally it shows to which extent Critical Systems Thinking and Critical Systems Practice are relevant to public health management.

1.7. Summary

The chapter has proposed that health and disease are not the result of biomedical facts alone but a product of a particular set of social, environmental, economic and political

circumstances. The current theory underpinning Health Systems overlooks the relevance of psychological and social aspects of individuals; both health staff and communities. For example biomedical factors alone cannot explain health inequalities between different socio-economic groups, there is a need to look more critically to other health determinants than the health sector alone. The chapter argues for the need to recognize the interconnectedness between the different health determinants; to recognize the patient background rather than the disease process alone. The argument is to explore social perspectives, to find broader views of looking at health not with the aim of optimizing health systems, but enhancing its current interpretation and learning. Finally, it maps out the content of the dissertation in 12 chapters.

CHAPTER 2

2. *RESEARCH METHODOLOGY*

2.1. Introduction

Midgley (2003) reminds us that General Systems Theory (GST) suggests that we can go beyond the boundaries of narrow specific disciplines and look at things as units made up of organised elements (Midgley 2003). This view is consistent with the definition of system as a set of objects together with relationships between the objects and between their attributes (Hall and Fagen 1956). Boulding (1956) in his work entitled *The Skeleton of Science* proposes a nine levels *system of systems* that lies somewhere between the static structures – called the level of frameworks, goes through social systems including human life and society in all its complexity and richness and ends up to transcendental systems. Boulding (1956) argues, "One advantage of exhibiting a hierarchy of systems in this way is that it gives us some idea of the present gaps in both theoretical and empirical knowledge". The author of the *The Skeleton of Science* advocates that GST is the skeleton of science because it aims at providing a framework or structure of systems on which to fill up the flesh and blood of particular disciplines or subject matters, in a systematic and coherent body of knowledge (Boulding 1956). The aim of this study is to learn about health systems and contribute to its improvement. What do we do? How do we get it right? What can systems theory offer to improve current health systems thinking and practice? Growth of knowledge about health and health systems gave room to different more specialised health disciplines, different professions and presents different types of problems arising from different contexts at

different levels. Economic, social, cultural, environmental, and technological contexts can influence physical, mental, and social aspects of health. We can address health at different levels of cell, tissues, organs, organism, individual human beings, family, society, nation, continent and global, depending on our perspective. This study focuses on national health systems, their philosophy, theory, methodology and practice, and the way we can improve the delivery of health services and ultimately achieve a better health status of people.

2.2. Research Questions

The research aims at learning about the current state of Health Systems Thinking in light of systems ideas and develops a more critical approach that would contribute in improving the performance of health systems. The study will address the following specific questions:

- What is the current state of Health Systems Thinking?
- What other systems approaches can offer to enlighten health systems?
- How could we yield knowledge on critical Health Systems Thinking?

The expected results of the study are: a) the analysis of the current state of Health Systems Thinking; b) judgments on what other system approaches can offer to enlighten current Health Systems Thinking, and c) knowledge on critical Health Systems Thinking in light of Critical Systems Thinking *theory* and the researcher's own *experience*. This study will therefore answer how to improve theory based on experience, and improve further practice.

2.3. The Argument for Qualitative Research Method

A systems approach in health services has been taking shape since the adoption of the Health-for-All strategy (WHO, 1981) that reinforced the growing acceptance of the complexity of promoting health and preventing disease. Fran Baum alludes to Krieger (1994) who asserted that the growing realization that health and illness reflect the structure, culture, power relationships, economy and politics of a society has resulted in public health seeking to understand more about health and disease than the immediate cause of any particular disease. In spite of that, research on health of the population is still dominated by experimental designs based on simplistic notions of causality that try to remove the variation and complexity of real-life health and disease processes. Baum (2002) explained that epidemiological methods are modelled in the laboratory and operated by establishing and testing hypotheses through carefully designed research methods; essentially a deductive process. Despite some remarkable successes with this approach in discovering the pattern and aetiology of diseases, he argues that such an approach is less well equipped for understanding the complexities of many aspects of health.

Baum highlights the criticisms from social scientists, often exasperated that epidemiologists do not go beyond describing the possible causes of disease to consider in more detail the social, economic and political factors that shape the disease. This became contentious, as epidemiologists typically had no experience of social science or qualitative methods, perceiving laboratory-based science as the gold standard for research. Checkland (1998) underscored this viewpoint; that positivism is very much the dominant scientific research paradigm. While recognizing that the methods of natural science are extremely

productive in enabling external observers to discover the regularities of the natural universe, Checkland regrets its irrelevance for human affairs.

Another related criticism is that the classical scientific methods deny human agency and creativity in order to identify social laws as a basis for prediction. In this context, scientific approaches are criticized for producing an "empty universalism" by abstracting from the complexity of particular societies and their historically and culturally specific circumstances (Taylor 2002). Despite these arguments, Taylor recognizes Hammersley's (1995) warning that quantitative research has often been more influential than qualitative in influencing policy-makers. However, the limitation of studying complex real social events in the laboratory is an obvious problem.

Qualitative analysis would enhance both critical and creative thinking; boost the current epidemiological and demographic research methods on one hand while also complementing existing methodologies on social research and health services research. It would also offer insights to enhance understanding of Health Systems and provide a meaningful guide for action in health systems practice. Moreover, it would give more grounding to extend the knowledge about Health Systems theory and generate other specific and relevant areas for research. Indeed this research study intends to explore the "current health system thinking" in order to learn more about it and formulate specific questions that future research could address.

Based on techniques and procedures for developing grounded theory (Strauss and Corbin 1998), I want to be creative, open-minded, and flexible, and explore systems theory, and in particular, critical system thinking to interrogate current Health Systems Thinking and develop a more critical approach. As an *exploratory researcher*, I will fundamentally use qualitative data from my own experience.

A qualitative research method has been selected because of the nature of the research problem and feasibility of the method. In this case, qualitative research methodology will be used to explore the current state of health systems thinking and learn about possible contributions of Jackson's four key systems thinking approaches and the use of Critical systems Practice to enhance the understanding and improve the technical performance of health systems.

While positivist approaches have brought scientific rigour and the generation of new health technologies for solving diseases related health problems, functionalist-based biomedical research fails to address vested interests of different health stakeholders and the mental, behavioural, and social traits of those health personnel and people. Reductionist health approaches do not address the scope of health as "the state of complete physical, mental and social well-being and not only the absence of disease or infirmity" as defined by the World Health Organization (OMS 2001). The new public health calls for a more holistic perception of health systems; therefore, research methodologies should be developed and applied accordingly. The current demands of the new public health should be responded with a greater choice of research tools capable of going beyond positivist grounds of science. Combinations of research methodologies will certainly enhance the findings of research by

providing a fuller and more complete picture of the matter that is being studied (Denscombe 2007).

2.4. Explorative Research goals

Newman (2000) considers that social research is how a person finds out something new and original about the social world. He refers to a collection of methods systematically used to produce knowledge through what he describes as an exciting process of discovery requiring persistence, personal integrity, tolerance for ambiguity, interaction with others and pride in doing quality work. Newman considers social theory from a scientific grounding, as systems of inter-connected abstractions or ideas that condense and organize knowledge about the social world. He considers that basic research is the source of most new scientific ideas and ways of thinking about the world. According to its goals, he classifies basic research as *Exploratory*, *Descriptive* and *Explanatory* (Newman 2000).

Table 1.2 Classification of Research Goals.
Source: Lawrence Newman, (2000).

Exploratory	Descriptive	Explanatory
▪ Become familiar with the basic facts, setting and concerns.	▪ Provide a detail highly accurate picture	▪ Test a theory's prediction or principles
▪ Create a general mental picture of conditions.	▪ Locate new data that contradict past data	▪ Elaborate and enrich a theory's explanation
▪ Formulate and focus questions for future research	▪ Create a set of categories or classify types	▪ Extend a theory to new issues or topics
▪ Generate new ideas, conjectures or hypothesis	▪ Clarify a sequence of steps or stages	▪ Support or refute an explanation or prediction
▪ Determine the feasibility of conducting research	▪ Document a causal process or mechanism	▪ Link issues or topics with a general principle
▪ Develop techniques for measuring and locating future data	▪ Report on the background or context of a situation	▪ Determine which of several explanations the best is.

The current research is classified as *exploratory* because it intends to learn more about the current state of health systems thinking and become more familiar with basic facts, setting and concerns related to health systems. The research also looks at generating new ideas and hypothesis for more functional health systems; determine the feasibility of conducting research in health using social methods and formulating questions for future research.

As a public health practitioner and manager involved in health development, I have 12 years of experience at community level, ambulatory clinics, hospitals, provinces, and at the central level in a country. This has been enriched with an additional 20 years of international experience as a public health expert and consultant. This is the contribution brought by my experience.

2.5. Making the case for Thought Experiments

Denscombe (2007) defines an experiment as an empirical investigation under controlled conditions designed to examine the properties of, and relationship between specific factors; while Sorensen (1992) defines an experiment as a procedure for answering or raising a question about the relationship between variables by varying one (or more) of them and tracking any response by the other or others. For both definitions it implies the execution of experience with appropriate equipment, tools and material. The aim of any experiment is to answer or raise its question rationally. Sorensen (1992) considers *thought experiment* as an experiment that claims to achieve its aim without the benefit of execution. What makes an experimental design a thought experiment is the way it is presented to the audience – as a design that aims to convince or puzzle in its own right. The thought experimenter need not actually believe what he is inviting others to believe. This is different from the work of a fraudulent experimenter who secretly intends to undertake a persuasive work without execution; and recreation speculator who takes intrinsic pleasure in working out the consequences of hypothetical events. The difference is that the aim of a thought experiment is enlightenment. Many of the heuristics used to identify procedures as experiments, are also used to identify thought experiments. Thus the typical thought experiment scores high on

scientific content, hypothesis testing and manipulation (Sorensen 1992). Denscombe (2007) raises the issue of reflexivity concerning the relationship between the researcher and the social world; this is an anti-positivist view according to which, there is no prospect of the social researcher achieving an entirely objective position from which to study the social world. The argument is that the researcher can never stand outside the social world they are studying in order to gain ground from which to view things from a perspective that is not contaminated by contact with that social world. According to reflexivity concept, our sense making about the social world and the meaning we give to events and situations are shaped by our experience as social beings and the legacy of the values, norms and concepts we have assimilated during our lifetime (Denscombe 2007)

I decided to conduct thought experiments using my own experience, records and other relevant material, after consideration of two other options that could be either interviews or an action-research project.

Interviews are undertaken by conducting surveys aiming to collect information as accurately as possible, after using questionnaires (Bowling and Ebrahim 2005). Research on interviewing has demonstrated that people respond differently depending on how they perceive the person asking the questions (Denscombe 2007). Different modalities of interviews are currently considered: the use of postal and self-administered questionnaires, internet interviews, face-to-face interviews (either unstructured interviews or focus group) and telephone interviews according to the nature of the study and its suitability (Bowling 1997; Bowling and Ebrahim 2005; Denscombe 2007).

Postal and self-administrated questionnaires are commonly used to cover a large population, geographically spread and tend to be less expensive than other types of interview. It is convenient when the issues are sensitive and questions are straightforward and simple and the population is hundred percent literate in a common language. This was not considered for the current study because of the complexity of the subject, the heterogeneity of the target population and absence of a functional mailing system in the geographic area where the research took place (Bowling and Ebrahim 2005).

Face to face interviews is recommended as a method when detailed answers are required with more depth details, and it gives the possibility of using open-ended questions and can provide full responses even on complex topics. It requires well-trained interviewers and gives the option of checking inconsistencies or misinterpretations. Nevertheless it has also inconveniences such as the high cost and the potential risk of interviewer bias, particularly if interpreters are used (Bowling and Ebrahim 2005; Denscombe 2007).

Interviews conducted by telephone are commonly used for small and undemanding questionnaires; they are limited to people that have access to telephone and are available to take calls. Their main advantage is to be cheap; it does not involve travelling of interviewers and its associated costs (Bowling and Ebrahim 2005).

I preferred thought experiments instead of interviews as a method because I wanted to use my own experience in public health to interrogate the current state of health systems thinking; and learn how systems thinking could enlighten the current situation. This implied an exploratory approach, making a retrospective analysis of what actually occurred in my past experience as a public health expert and using systems thinking's current armoury to realize

what could have happened. Such backward-looking study of public health practice gives me the opportunity of postulating what might have happened if I was in possession of the systems thinking arsenal in terms of philosophy, theory, methodology and practice.

Since I was in possession of relevant records and wanted to used problem driven methodologies to make sense of what actually happened, I considered thought experiments as a suitable methodological approach to achieve the objectives of the study. I did not need to conduct surveys to collect information that was already available and enough for the study purpose, any survey in connexion with the study should have been face-to-face and would not provide added value because I used the most recent literature on public health and systems thinking to inform the study. Also in terms of cost benefit it would not be interesting because of the need to have a representative sample and variety of health-stakeholders to be interviewed and the high cost of such undertaking in terms of number of interviewers and travel, besides the issue of availability of interviewees. While face-to-face interviews would expand the study in terms of update and depth of information, I believe that in terms of reliability and insights the gains would be doubtful because I would need to stick to the specific context and the specific individuals involved in the different interviews and rely on wisdom and interpretation of the informants. Postal and self-administered questionnaires, Internet interviews and telephone interviews would be excluded because of lack of coverage and accessibility in the region where the research took place. Interviews would also limit still more the scope of application of the study in terms of addressing global public health matters. These arguments favoured my option for thought experiments.

Action research is usually used in small-scale social research projects not only to gain better understanding of problems but also to improve practice; the two processes of research and action are incorporated (Denscombe 2007). Defining characteristics of Action research are the following: *practical* because it deals with issues in working settings; *change* because it is an aspect considered as part of research; *cyclical process* because research generates findings that generate changes that are implemented and evaluated and entered in further research; and *participation* because practitioners are actively involved in the research process. This contributes to professional development of practitioners and strengthens the institutional capacity (Denscombe 2007). Midgley (2000) reminds us that Rahman (1991) considered Participatory Action Research (PAR) as "a philosophy and style of work with the people to promote people's empowerment for changing their immediate environment – social and physical – in their favour". Furthermore, Midgley expresses his point of view that action researchers are making strides on power issues while the use of methodological pluralism is not sufficiently explored. Nevertheless, he recognises that "in recent years there has been a growing dialogue between action researchers and critical systems thinkers"(Midgley 2000).

I preferred the thought experiment (TE) approach against Action research (AR) because of the global scope and complex nature of the study. Also, AR would involve putting other professionals of different institutions with an extra burden of work and these people would have their vested interest in the findings. On the other hand the ownership of an AR process could become contestable because of active involvement of other practitioners. Nevertheless it could offer an opportunity of promoting the use of methodological pluralism in Action research. Finally, if I compare TE with AR, the defining characteristics that make

AR different are *participation* (instead of researcher driven process) and the *practical* aspects at working setting (instead of retrospective active thinking of what happened).

The option of Thought Experiments was also motivated by the willingness of conducting research about my own experience as public health expert by making a retrospective study of past health sector reform events. I intended to yield learning by postulating what might have happened if I was in possession of the system thinking armoury.

Because of the above-mentioned reasons, I made the choice of conducting Thought Experiments as valid and suitable methodological approach rather than interviews or action research.

2.6. Multi-methodology in two Steps

The current thesis will first make the description of three health system scenarios A, B and C about what actually happened (Chapter 6). This will be followed by thought experiments in two steps in the context of the three scenarios. The underpinning framework of ideas is Critical Systems Thinking. During **step 1** of the methodology, I made the option of thought experiments interrogating Jackson's four major approaches against three scenarios to learn about the current state of health systems thinking and what systems approaches can offer to enlighten health systems. The process of active thinking for each scenario and approach will follow Mingers 4 As approach: *Appreciation* of the situation as I experienced; *Analysis* of the underlying constraints generating the problem situation; *Assessment* of the

ways in which the situation could be other than it was; and *Action* about what could have

been undertaken to bring about relevant changes (Mingers and Gill 1997). Step 1 of the

methodology will appear as follows: functionalist systems approach in Chapter 7; interpretive

systems approach in Chapter 8; emancipatory systems approach in Chapter 9; and post-

modern systems approach in Chapter 10. A second round of thought experiments will be

conducted during **step 2** using Critical Systems Practice mode2 as a multimethodology

following SSM mode2, to develop a more critical approach for health systems thinking. The

process of active thinking for each scenario will include the following phases: *Creativity* that

will surface ideas about the problem situation, *Choice* which will consider alternative ways of

addressing the issues and concerns, *Implementation* that will look at the process of change

and *Reflection* that will deal with new learning and areas for future research. Step 2 will be

described in chapter 11 dedicated to thought experiments using Critical systems Approach.

Table 2.2 - Research Methodology, summary

	Step 1	Step 2
Framework of Ideas	▪ Critical Systems Thinking	▪ Critical Systems Thinking
Methodology	▪ Jackson's 4 Paradigms ▪ Mingers's 4 As approach	▪ Critical Systems Practice mode2 (Following SSM mode2)
Area of Concern	▪ Current state of Health Systems thinking	▪ Critical Health Systems thinking

2.6.1. Thought Experiments using Jackson's Key Methodologies to interrogate the current state of Health Systems thinking - Step 1

"Neither the ideas nor the experiences are prime, since each creates and modifies the other. P Checkland, 1998"

The **THEORY** used in this step is critical systems thinking, which corresponds to the more developed theoretical framework of ideas (F) in which knowledge about systems is expressed. It will provide the epistemological source of what counts as knowledge in Health Systems Thinking, and therefore it will define the lessons learned. Neglecting this declaration in advance would expose the proposed methodology to positivist critics. The first part of this study consists in testing the relevance of Jackson's key paradigms and various system methods in the Health Systems discipline (Jackson 1991; Jackson 2000; Jackson 2003). I am using the definition of *paradigm* as " a very general worldview based on a set of fundamental philosophical assumptions that define the nature of possible research and intervention" (Mingers 1997). There are different social paradigms that could be used to conduct the thought experiments aiming at interrogating the current state of health systems. I considered as alternatives (see section 3.5) Jackson's Key Paradigms (Jackson and Keys 1984; Jackson 1991; Jackson 1999; Jackson 2000; Jackson 2003); Alvesson and Deetz's Social Sciences Perspectives (Alvesson and Deetz 2000; Jackson 2000); Newman's Social Research Approaches (Newman 2000); Burrell and Morgan's Social Paradigms (Jackson 2000). The choice of Jackson's key paradigms has been made based on a number of arguments. First, it is consistent with the more developed theoretical framework, critical systems thinking;

providing a framework of paradigms that enables integration of literature. Secondly, the

creator of the selected paradigmatic approach has authority in the particular area of systems

thinking in which I am working. Thirdly, Jackson (1992) has previously successfully tested

this approach providing an internal validation for it.

Figure 1 Thought Experiments Step 1 - Using Jackson's key methodologies to interrogate Health
Systems Thinking.
Source, adapted from Checkland, (1999)
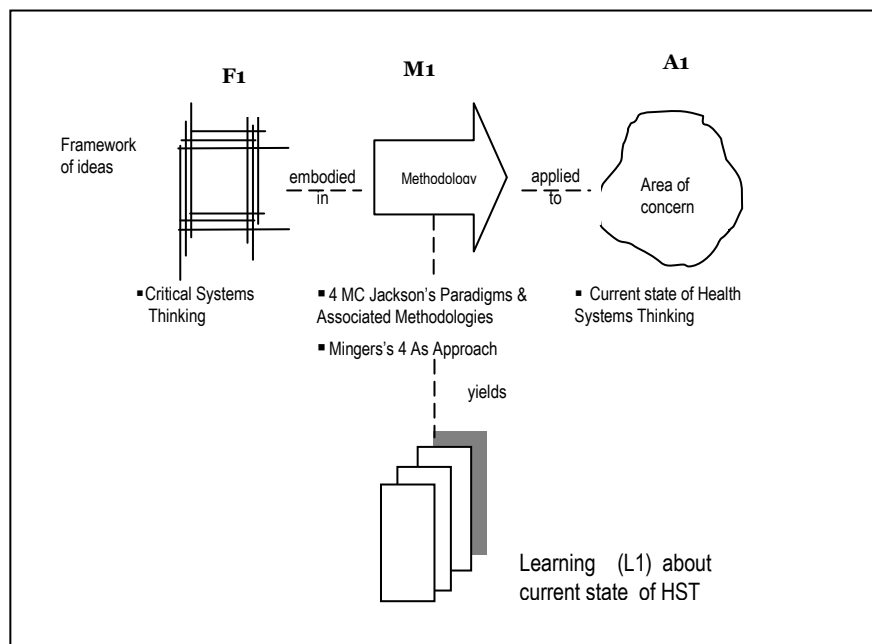
I am using the term **METHODOLOGY** as "a structured set of guidelines or activities

to assist an individual in undertaking research or intervention" (Mingers 1997). A

methodology is usually developed within a specific social theory or paradigm and embodies

the philosophical principles and underpinnings of the related paradigm. Step 1 will consist of

how to go about investigating the research questions 1 and 2: what is the current state of

health systems thinking? And what other systems approaches can offer to enlighten health systems? I will test Jackson's four paradigms and related methodologies; and for each alternative approach thought experiments will be conducted in three different scenarios A, B and C. The methodology will link Jackson's Key Paradigms and related methodologies with Mingers's 4As-multimethodology approach (Mingers and Gill 1997). To check the impact of each one of the paradigms and methodologies in Health Systems thinking, I will use my expertise and experience. However, it is necessary to negotiate my role as researcher vis-à-vis my own experience. To address this requirement, I will identify problematic situations faced in the real-world, apply the methodology in thought experiments, reflecting on experience in health systems work, explore metaphors; make reference to literature that shows good practice and even make reference to where these methodologies have failed.

Using critical systems thinking as the theoretical framework of this study and considering the complexity of public health, I considered the use of *methodological pluralism* for a more critical analysis of the current state of health systems. Some options have been explored, for example *Mixing Methods: Developing Systemic Intervention* (Midgley 1997; Midgley 2000; Midgley 2006); *Critiquing Multimethodology as Metamethodology: Working Towards Pragmatic Pluralism* (White and Taket 1997); Mingers's 4 As Stages of Critical Reflection – *Towards Critical Pluralism* (Mingers 1997); *System of Systems Methodologies* (Jackson and Keys 1984); *Total Sytems Intervention* (Jackson and Keys 1984; Flood and Jackson 1991; Jackson 1991; Mingers and Gill 1997; Jackson 2000); and *Critical Systems Practice* (Jackson 2003).

I preferred to use Jackson's Critical Systems Practice (CSP) as a pluralist framework after considering both the value and inconveniences of other pluralist frameworks. Why CSP? First, I wanted to be consistent with the paradigmatic approach selected for step one of the study. Secondly, Jackson was, together with Mingers, one of the initiators of critical systems thinking, independently of a similar project by Ulrich in 1983 (Midgley, 2003). Third, Jackson's CSP is a recent, consistent and relevant multimethodology that evolved from earlier stages of thinking and practice in which the same critical systems thinker was involved, I am referring to SOSM and TSI as previous stages of CSP. Fourth, CSP gives me the possibility of being creative, combining different methods and methodologies and even mixing parts of different methodologies in a consistent manner and according to the problem situation. Fifth, I could say that CSP does not reject other above-mentioned pluralistic frameworks and I am also testing how consistent "Mingers's 4 As Stages of Critical Reflection" is with "Jackson's Critical Systems Practice" in terms of phases (not dimensions) of a structured research or intervention. Finally, the literature on critical systems thinking considers different approaches to combine and mix methods; there is no single multimethodology to inspire critical research. There is room for future research on public health and systems thinking to test other pluralist frameworks; explore new mixing and combination of methodologies, methods, techniques and tools; and developing a new and perhaps more ideal multimethodology for critical research.

The **PRACTICE** of step 1 of the dissertation relates directly to its area of interest or area of concern (A). The area of concern is *the current state of Health Systems Thinking*. This is the less developed theoretical framework encompassing concerns, issues and

problems perceived in theory and practice in relation to which the researcher has aspirations. Some of the theoretical issues are related to: little evidence on the current state of Health Systems Thinking; absence of universally accepted health systems theory with definitions of related concepts that are consistent and mutually reinforcing; different understandings and inconsistent use of current terminology; no agreement about health systems boundaries and criteria to establish them; and the fact that public health theorists and practitioners often perceive Health Systems in a fragmented way. In summary, step 1 of the methodology should answer to the fundamental questions: How is health currently perceived in systems terms? What could other system approaches offer to enlighten current Health Systems Thinking?

Once the Framework of ideas (F), the methodology (M) and the area of concern (A) are defined, we start STEP-1 interventions that will fundamentally yield knowledge *about the current status of Health Systems Thinking* and how other functionalist, interpretive, emancipatory and post-modern approaches could enlighten health systems discipline. Therefore, Thought Experiments will yield the understanding of Health Systems Thinking in light of Jackson's four major paradigms and this will be the input for the next step - 2, which is thought experiments with the application of Critical Systems Practice to develop a more critical approach in health systems thinking.

Table 3.2 Step 1 - Guidelines to conduct Thought Experiments using Jackson's four Paradigms and Mingers 4 As Approach

Methodologies / Methodological stages	SYSTEMS METHODOLOGY			
	A – Functionalist **VSM**	B – Interpretive **SSM**	C – Emancipatory **CSH**	D – Post modern **PSA**
Appreciation	Systemic real-world context; Mapping HS into VSM	Messy real-world context; exploring and expressing HS problem situations using Rich Pictures and Analysis 1,2,3	The real world can be systemic but alienating to individuals or oppressing social groups. Consideration of who is involved in HS design: 12 boundary questions on the "is" mode.	The real world is constructed in such way that particular groups or individuals are marginalized. Exploration of discourses used in HS specific contexts.
Analysis	Diagnosis of health problems conducted in systems terms according to VSM logic	Creative analysis of HS using RDs, CATWOE, 5Es and building conceptual models	Discovery of who is disadvantaged or disempowered by current HS situation.	Revealing who is marginalized by existing power/knowledge of HS structures.
Assessment	Redesigning HS according to VSM logic	Comparison of possible ideal-type of HS models; and debate about feasible and desirable change	Challenging the boundary assumptions by according to the disadvantaged polemical employment of boundary judgment. Consideration of who should be involved in HS design: 12 boundary questions on the "ought" mode	Use of diverse forms of pluralism to surface subjugated discourses and to allow marginalized voices to be heard and to allow HS relevant stakeholders to express their diversity.
Action	Expert's recommendations for systematic interventions and change *Aim: improving HS goal-seeking and viability*	Ideas and Methodologies to improve HS real-world problem situations *Aim: exploring HS purposes, alleviating unease and generating learning.*	Systemic process of intervention through free and open debate involving participation of all; conducted in such way that alienated and/or oppressed take responsibility for their own liberation, empowerment & emancipation. *Aim: ensuring HS fairness*	The process of intervention is local strategizing and subversion in an endeavour to encourage HS diversity & creativity. *Aim: promoting HS diversity*

Table 4.2 - Application of Mingers 4As Approach to interrogate VSM, SSM, CSH and Panda against Scenarios A, B and C.

MINGERS (1997) 4 As	BEERS (1974) VSM	CHECKLAND (1981) SSM	ULRICH (1983) CSH	TAKE and WHITE (2000) PANDA
APPRECIATION (understand how the situation is)	**Mapping** the real world **into VSM** (system identification).	**Finding out** about problem situation.	**Mapping** the real world **into CSH is mode** (to realize who is involved in the design of the system).	**Exploration of discourses** used in the problem – situation.
ANALYSIS (explain why the situation is as it is)	Use **VSM diagnostic mode*** to check existing structures and processes.	Choosing relevant systems (Root Definitions) and building <u>Conceptual Models</u>.	Discovery of who is <u>disadvantaged</u> or <u>disempowered</u>.	Revealing <u>who is marginalized</u> by current power/knowledge. (DEBUNKING!!)
ASSESSMENT (explore the potential for change)	Use **VSM design mode*** to understand what had gone wrong and propose <u>alternative options</u>.	**Comparison** of **Models and** the **real world** <u>Options</u>	Use **CSH ought mode** for boundary judgements and make options about <u>who should be involved</u> in the design.	<u>Identifying, researching</u> and <u>comparing **options**</u>. (DEBATE)
ACTION (recommendations to bring about the change)	**Recommendations** to bring about the change and **improving goal seeking and viability**.	**Recommendations** to changes that are systematically desirable and culturally feasible to **address pluralism in health, explore purposes and accommodate differences**.	**Recommendations** out of free and open debate with participation of all – towards liberation, empowerment and emancipation, **ensuring fairness**.	**Recommendations** out of local strategizing and subversion in an endeavour to **promote diversity**.

2.6. 2 Thought Experiments using Creative Systems Practice mode2 to yield a more critical approach in Health Systems thinking (STEP 2)

The researcher will declare the framework of ideas, the methodology and the area of concern before entering the current state of health systems thinking (L1) in the world of his experience. Then he takes part in thought experiments on the basis of scenarios A, B and C and using Critical Systems Practice mode2 following SSM mode2. This will result in the generation of Critical Health Systems Thinking (L2. It will also produce new research themes.

Figure 2 Research methodology Step 2 – Using Critical Systems Practice mode2 and following Checkland's SSM mode 2, for enquiring researcher's own experience

L1- Current state of Health
        Systems Thinking

F2 – Critical Systems Thinking

M2 – Way of doing the
        Thought Experiments

A2 – The world of own
        experience

L2 – Critical Health Systems
        Thinking

i) The world of own experience

ii) Real world as understood by health practitioners

iii) Actual real world

Enters L1

New Research Themes

declares F2, M2 and A2

researcher

How useful "new" critical Health Systems Health Systems Thinking might be?

Why does one

Take part in

i) Thought experiments

ii) Interviews and dialogues

iii) Action-research project

Reflect upon the involvement

Research findings: L2
Critical Health Systems Thinking

Figure 3 The research roadmap.
Inspired from M Jackson, P Checkland and J Mingers.

Research Questions

1. What is the current state of Health Systems Thinking?
2. What other systems approaches can offer to enlighten health systems?
3. How could we yield knowledge on critical Health Systems Thinking?

What actually happened

i) Background   *ii*) Situation Analysis   *iii*) Discussion   *iv*) Recommendation

Step1: 4As process of intervention

(Jackson +Mingers)

i) Appreciation   *ii*) Analysis   *iii*) Assessment   *iv*) Action

Express HS problem situations as experienced: Scenarios A, B & C

Explain why the situation was as it was: Scenarios A, B & C

Explore the potential for change: Compare models & real world Scenarios A, B & C

New ideas/hypothesis, methodologies/techniques to improve current situation; new research themes

Jackson's 4 key Systems Approaches

- **FSA/ Type A** (aim: improving HS goal-seeking & viability) — **OC / VSM**
- **ISA/ Type B** (aim: exploring HS purposes) — **SSM – m2** | Rich Pictures | Analysis 1, 2, 3 | Root Definition / CATWOE | Conceptual Models
- **ESA/ Type C** (aim: ensuring HS fairness) — **CSH** Boundary judgements + 12 *is* and *ought* Questions
- **PSA/ Type D** aim: promoting HS diversity — **PSA**

Critical Systems Practice

Step 2: (TSI: Flood & Jackson,1991; CSP Jackson, 2003)

i) Creativity   *ii*) Choice   *iii*) Implementation   *iv*) Reflection

	i) Creativity	*ii*) Choice	*iii*) Implementation	*iv*) Reflection
Task -	Identify concerns, issues & problems.	Choose methodology (ies), methods, models & techniques.	Implement specific positive change.	To yield learning about the problem situation, methodology, M, T & T used.
Tools -	Perspectives of 4 paradigms receive proper attention	Methods for revealing strengths & weaknesses of methodologies, M, T & T.	Selected methodologies, M, T & T according to the logic of CSP.	Clear understanding about the current state of knowledge
Outcome -	Dominant & dependant concerns, issues & problems.	Dominant & dependent methodology (ies) for use.	Highly relevant & coordinated change.	Research findings eg. improving the meta methodology

The proposed methodology may be subject to criticism for reasons that I want to mention in advance. The study may be limited by the fact that some important data and information for appreciation, analysis, assessment and action were not captured when things actually happened. Secondly, problems with memory and records may have occurred. Thirdly, when scenarios A, B and C happened I was not armoured with systems thinking theory and methodologies and had different understanding of problem contexts and possible solutions, therefore the format of data and information captured may not suit the research roadmap and selected methodologies. Moreover, the innovative problem-driven research multi-methodology based on Mingers 4As approach and Critical Systems Practice illustrates the development of skills with one example method and I may miss the expertise or details of more specific methods.

2.7. Summary

In the current chapter, the key research questions have been restated and a special case has been made for qualitative research methods (Newman 1991; Baum 2002), exploratory research goals (Newman 1991) and thought experiments (Sorensen 1992). The study will consist in thought experiments for *systematic exploration of problem-situations encountered in Health Systems practice* – scenarios A, B and C; using Jackson's 4 key paradigms and Critical Systems Practice multimethodology. In summary, step 1 of the methodology consists in a learning and exploratory process, in which the researcher will interrogate the current status of Health Systems Thinking using Jackson's 4 key paradigms combined with Mingers's 4 As approach. Step 2 will combine CSP mode2 following SSM mode2 to develop a more critical approach for health systems thinking.

CHAPTER 3

3. REVIEW OF SYSTEMS LITERATURE

3.1 Introduction

This chapter gives an overview on systems thinking in general as well as the key system approaches and related methodologies for this dissertation. It provides insights related to the content of the following chapters and provides insights on the way Health Systems are currently perceived. Fundamentally, this review will clarify how systems ideas could be useful in improving current Health Systems Thinking. The chapter will have the following structure: a) *systems ideas* – the history of systems thinking, the emergence of General Systems Theory, cybernetics, complexity and systems thinking in social sciences; b) *systems methodologies* – the functionalistic, interpretive, emancipatory and postmodern system approaches; c) *critical systems thinking* and *multi-methodology*; d) *exploration of different paradigms* and e) *exploration of different metaphors*.

3.2. Systems Ideas

M'Pherson (1974) asserts that the formal philosophical basis of holism derived on one hand from the classical philosophy of the Greeks that reflected the animistic and theological concepts; and from the accumulation of knowledge that generated the specialization and different disciplines that became narrow departments of knowledge with their own boundaries. This is what he designates "dichotomy between scientific reductionism and holistic metaphysics". M'Pherson argues that the concept of wholeness (*gestalt* in Germany) in the structure and behaviour of a natural, biological or societal organisation is poorly conveyed by the word *system* loosely used in common English(M'Pherson 1974).

Midgley (2003) suggests that the emergence of general systems theory (GST) in the mid-twentieth Century aimed at going beyond the boundaries of narrow disciplines and look at organisations as systems; what he considers as an antidote to scientific reductionism. Midgley (2003) presents systems movement in four major chapters: *first*, GST, Cybernetics and Complexity; *second*, Systems Theories and Modelling; *third*, Second Order Cybernetics, Systemic Therapy and Soft Systems Thinking; and *fourth*, Critical Systems Thinking and Systemic Perspectives on Ethics, Power and Pluralism (Midgley 2003).

Carvallo (1992) suggests that Bertalanffy (1973) claims that it was he who introduced the idea of a General Systems Theory (GST), and also suggests that Mattesich (1978) recognizes that it would be far more fair to assign this honour to Bogdanov, whose work about systems approach appeared about 16 years before von Bertalanffy's first system-

theoretic notions (Carvallo 1992). While recognizing the historical role of Bogdanov in the roots of GST, Midgley (2003) says that it is more important to recognize the significant role of both authors than speculating on the origins of twentieth century systems thinking. Bogdanov's writings reflect the interest of social change within a general theory of organisation, while Bertalanffy emphasized the mathematical nature of GST for scientific understanding, without linking it to social action (Midgley 2003).

According to Bogdanov's Tektology, no professional can live wholly and exclusively inside his speciality: his knowledge and experience inevitably go beyond it and have relations and communications with other disciplines. He advocates that organizations have three facets – things, people and ideas; and amongst the three, the organisation of things, by its very object, is the least complicated. Dealing with people and ideas is far more complex; and social process requires mutual coordination and adaptation of all three facets, then the need of a science that would embrace all of them together. Tektology should provide the scientific approach to arrange the organizational experiences of human kind in an integrated manner (Bogdanov 1910-1913).

Ludwig von Bertalanffy (1950), scientist and biologist, devoted his career to providing contributions to the theory of biology, and later on philosophy. In his work, "The Modern Theories of Development", Bertalanffy (1933) argues that the fundamental problem for modern biology is the discovery of "the laws of biological systems to which the ingredient parts and processes are subordinated". He concluded that higher levels of organization involve new laws that are not deducible from the laws appropriate to the lower levels. In 1950, in his essay "The Theory of Open Systems in Physics and Biology", Bertalanffy gave

birth to the General Systems Theory. He brought-up clearly the concepts of open systems – in the sense of exchanges of material with the environment, in which both positive and negative entropy occurs, with a regulation through a feed-back mechanism that tends to maintain the homeostasis of the system, and closed systems characterized by irreversible processes with tendency to increase positive entropy. He appealed for the universal significance of system theory and made clear his belief in the fundamental unit of sciences. Von Bertalanffy's work on GST was written and disseminated in the western world between 1930 and 1960 (Midgley 2003). According to Bertalanffy (1956), the aims of GST are to look for "integration in the various sciences, natural and social; such integration seems to be centred in a general theory of systems; such theory may be an important means for aiming at exact theory in the non-physical fields of science; developing unifying principles running vertically through the universes of the individual sciences, this theory brings us nearer to the goal of the unity of science; this can lead to a much needed integration in scientific education" (Bertalanffy 1956). It is important to note that General Systems Theory (GST) does not look at the cultural and sociological phenomena from a biological standpoint. It emphasizes the common and meaningful aspects and enables the transfer of models from one discipline to other. Systems thinking emerged in the 1940s as alternative to the mechanistic thinking that could not explain biological phenomena. By 1970 the systems movement had defined clear ideas about systems and their attributes such as elements, relationships, boundary, input, output, process, feedback, environment, homeostasis, control and others. However, systems thinking at the beginning of the 70s was still dominated by the positivism and functionalism characteristic of the traditional version of the scientific method (Jackson 2000).

Hall and Fagen (1956) define system as "a set of objects together with relationships between the objects and between their attributes". They distinguish two major categories of systems, natural systems and man-made systems. In order to provide more consistency to their definition, the authors further elaborated on the concepts of: objects – as parts or components of a system; attributes – that are properties of objects; relationships – representing what tie the system together, and make the notion of system useful; and environment – that is "the set of all objects a change in whose attributes affect the system and also those objects whose attributes are changed by the behaviour of the system". A system together with its environment makes up the universe of all things of interest in a given context (Hall and Fagen 1956).

Holistic thinking started by 1940 with the publication of Norbert Wiener's much considered book on *Cybernetics* in which he defines cybernetics as "the science of control and communication in the animal and the machine"; arguing that this new science dealing with general laws governing control processes had application to many different disciplines (Jackson 2003). Jackson (2000) underscores the value of cybernetics as interdisciplinary science because it embeds three key concepts: *control* whether in the mechanical, biological or political domains; *information* that shows the way in which the process evolves in relation to pre-set goals, and enables corrective actions whenever necessary; and the *communication* that relates the information with the function of control.

Norbert Wiener (1948), wrote the first book on the subject and gave the classic definition of cybernetics – "the science of control and communication in the animal and the machine"(Beer 1985). Stafford Beer, in 1959, was the first to apply cybernetics to

management in any comprehensive fashion, and he proposes the Viable System Model (Beer 1985; Jackson 2000).

Mario Bunge (1977) presents the work on *General Systems and Holism* in which the author argues that General System is neither atomistic nor holistic because it presupposes the analysis of a system into its components and their interrelations for understanding of the emergent properties and behaviour of the totality, GS could be rather systemic (Bunge 1977).

M'Pherson (1974) in his work entitled *A Perspective on Systems Science and Systems Philosophy* defines systems science as "the ordered arrangement of knowledge acquired from the study of systems (gestalten) in the observable world, together with the application of this knowledge to the design of man-made systems", and defines systems philosophy as " a perspective philosophy seeking the connections between different theories, and probing the ultimate implications of the systems paradigm". This author argues that GST is on the borderline between science and philosophy; and endorses Bertalanffy's view that we are still postulating about GST and it is currently an expectation rather that an established new discipline (M'Pherson 1974).

Systems Thinking in Social Sciences

Lilienfeld (1978) elaborates on the historical emergence of systems thinking, and its contribution to the scientific revolution that gave birth to elites of new scientists and technocrats. He recognizes the role of systems thinking in strengthening bureaucracy and the rigidity of the administration because of looking at society as a system. Finally, Lilienfeld argues that systems' thinking serves a powerful ideological function. Lilienfeld (1978) notes

that the mechanical model of society, which is based on rationalist physics, was developed in the 18th and first half of the 19th Century. The organic model that put emphasis on process, structure and synergy provided insights to modern systems thinking. The biological model of society is represented by functionalism, having as main features the order, cooperation and consensus. The process model was advocated by Buckley, Marx and Engels, that according to Lilienfeld, are forerunners of General Systems Theory in social sciences. Parsons' model over emphasizes order and control, and tends to label change as problematic. Parsons disregards the existence of abnormalities, contradictions or even conflicts; therefore, he cannot explain change. In terms of regulation, the model is a mix of homeostasis and equilibrium (Lilienfeld 1978) .

Jackson (2000) argues "The most famous part of Parsons and Smelser's equilibrium-function model is the elaboration of the four functional imperatives that must be adequately fulfilled for a system by its subsystems if that system is to continue to exist". The four functional imperatives are **adaptation** related to the interaction of the system with its external environment, **goal attainment** related with definition of goals, mobilization and management of resources for concrete achievements, **integration** related with capacities for internal coordination of efforts, and **latency** ensuring a minimum of strain and tension to motivate the actors towards quality work and success (AGIL mnemonic). He asserts that Parsons's thinking was better grasped when he applied it in his study of organizations as systems. Here the organizations were classified according to the functional imperatives as follows: economic organizations oriented to the adaptive function; political organizations oriented to the goal attainment function; integrative organizations oriented to the integrative function; and latency organizations oriented to the pattern maintenance function. Midgley (2003)

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reminds that one of the major contributions from Parsons was the hybrid concept of <u>structural functionalism</u> that reconciles " *functionalism* – the idea that every observable social behaviour has a function to perform, with *structuralism* – the idea that social behaviours, rather than being directly functional, are expressions of deep underlying structures in social systems " (Midgley 2003)

Homans sees a system in terms of "reciprocal relationships of all its parts, regardless of the structure in which these interrelations are manifested" (Lilienfeld 1978). According to him, the control, problems, structure and changes are implicit in the system concept; he rejects the structure-function model of biology. His weakness is the mechanical-derived notion of equilibrium.

Buckley (late 60s early 70s) is one of the most well known sociologists in the GST movement. Lilienfeld said that Buckley's merit was not solely the application of systems concepts into sociology but exploring the usefulness of systems thinking in different social contexts. He looked at sociological theory from the systems point of view, rather than looking at society from a systems point of view.

Lilienfeld (1978) challenges the cybernetic approach to deal with social goal-seeking concept that asserts that governments may set goals, establish administrative machinery for achieving goals, and receive feed-back information on goal achievement or goal deviation. Nevertheless, in this area, sociological theory was still underdeveloped. Buckley (1967) foresaw a revision of the sociological theory in the systems/cybernetic direction; but since then sociology has made little progress in the use of systems thinking (Lilienfeld 1978).

3.3. Systems Methodologies

3.3.1. Functionalist Systems Thinking

The interest of functionalist paradigm is in ensuring the efficient engineering of systems to achieve known goals (Jackson 2006). Under the functionalistic view, systems emerge as reality unrelated to us as observers. Functionalist research methods are similar to those used in natural sciences and by experts to improve technical efficiency or efficacy of systems and its ability to adapt and survive. According to Morgan's classification (Morgan 1997) , the root metaphors of this approach are: a) mechanism, that sees the world as mechanistic, operating under physical laws and therefore being completely determined; b) organicism, that sees the world as organisms, type of complex systems made up of parts in close interrelationships, which primary aim is survival; c) and formism, that has similarity as its metaphor, and sees the world as ideal forms of specific objects (Morgan 1997). Looking at the underlying epistemology, we can consider two main functionalistic strands. The *positivist viewpoint:* saying that the empirical observation of a system will reveal the law-like relations between its different parts governing its behaviour; and the *structuralist judgment,* according to which an in-depth description is necessary of the structures and mechanisms of the system, to generate an observable phenomena. Much of systems thinking remains dominated by the functionalistic paradigm (Jackson 2000). Bausch (1997) in his work entitled *The Habermas/Luhman Debate and Subsequent Habermasian Perspectives on Systems Theory*, reminds us of Cohen's (1989) definition of Functionalism as "a doctrine which asserts that the principal task of sociology and social anthropology is to examine the contribution which social items make to the social and cultural life of human collectivities"(Bausch 1997).

For the purposes of this study, I will adopt Jackson's criteria of capturing and systematizing the different functionalistic strands. So we should consider under functionalist the approach: the "organizations-as-systems", "hard systems thinking", "system dynamics", "organizational cybernetics", "living systems theory", and "complexity theory".

3.3.1.1. Organizations-as-Systems

According to Jackson (2000) this thinking is inspired within the disciplines of sociology and management and organizational theory. It has two main components: first, Barnard's systems thinking dominated by the mechanical analogy and Pareto's sociology that realizes society as a system in equilibrium. Second, the contingency theory dominated by the organismic analogy employed in sociology by Durkheim and Spencer, that sees society as an interconnected whole capable of adaptation and evolution, and with parts fulfilling the needs of the whole (Jackson 2000).

3.3.1.1.1. Barnard's System Thinking

Barnard (1948) argues that organizations are co-operative systems in which individuals have to co-operate; and underscores that co-operative systems will persist as long as they are effective and efficient. He links effectiveness to the accomplishment of a system's purpose/goal; and relates efficiency to the need to provide individuals who co-operate a surplus of satisfactions. According to this theory, effectiveness and efficiency are achieved through interactions among people managed by both formal and informal structures of the organization. Barnard's mechanist view relies on three essential executive functions: the

organizational communication, cooperative motivation and inculcating the idea of common purpose at all levels of the organization.

3.3.1.1.2. Contingency Theory

Based upon the organicism root metaphor, this thesis emerged in the 1970s. It considers an organization as a whole integrating series of interdependent subsystems; each of them exhibiting imperative functions within the context of a viable and efficient organization. Kast and Rosenzweig (1981) identify four subsystems of significance: the goal, human, technical and managerial subsystems. The *goal subsystem* is concerned with overall purpose and objectives, and is closely interrelated to other internal subsystems. Goals are also determined by the context of the system's environment. Therefore, in a stable environment, managers can set static goals; but in highly uncertain and turbulent environments, goals have to be more flexible and multiple. The *human subsystem* deals with people in the organization, their leadership, interaction and motivation. The role of human beings in organizations has acquired the status of a functional imperative. Human relations thinkers advocate that attention should be given to informal groups in job designs and participation in decision-making. The *technical subsystem* is concerned with the kind of technology used to ensure the performance of the production. In other words, the transformation process of inputs (matter, energy and information) into outputs (product, services and information). The *managerial subsystem* coordinates the other subsystems and looks at the interaction with the environment. It is clearly a functional imperative of efficient and effective management (Kast and Rosenzweig 1981).

Contingency theorists argue that different environmental conditions and different types of relationship will require different types of organization structure for high performance to be achieved and sustained (Burns and Stalker 1961). Stable environments require mechanistic traditional organizational structures that are unsuitable in times of rapid technological, political or demographic change. Turbulent and uncertain environments require organismic structure – more adaptive management systems with greater flexibility, and demanding more commitment from its members.

Mechanistic structures exhibit specialization, interdependence of tasks, strict, vertical communication, tight job descriptions and hierarchy with top-down communication. Organismic structures are less formal in relation to task definition; they admit greater task interdependence, continual redefinition of duties, top-down as well as bottom-up communications and greater decentralization in decision-making (Burns and Stalker 1961). The contingency theory research approach is positivist. The main criticism of this approach relates to relative neglect of organizational politics.

3.3.1.1.3 Socio-technical systems theory

This theory, brought by Emery, Rice and Trist in 1940s, was based on empirical investigations that helped to shape the organizations-as-systems perspective. It views organizations as striving towards primary tasks that can best be realized if their social, technological and economic dimensions are jointly optimized and if they are seen as open systems fitting in their environments. The concept of primary tasks relates to the essential task it has to perform, in order to survive. One of the innovations of socio-technical systems thinking by Emery and Trist was presented in the 1965 article The *Casual Texture of*

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Organizational Environments, in which Emery and Trist accepted von Bertalanffy's open system idea, but felt that it neglected to deal with process in environments that are themselves among the determinants of an organization's performance. They added the concept of casual *texture of the environment* that refers to the degree of system connectedness that exists in the environment itself. Under this theory, they consider four types of environment: first, the placid-randomized environment which is homogenous in character; second, the placid-clustered environment which is diverse with no connection between its parts; third, the disturbed-reactive environment which is dynamic, in which there is connection between environmental parts and a number of organizations of the same type compete. Finally, the turbulent fields environment with inter connectedness of the environment components and increasing interaction of organizations. In turbulent fields, the environment takes on its own dynamic. This makes the management of an organization extremely difficult since it increases uncertainty and actions are unpredictable. Organizations must adopt flexible structures to improve their adaptive capabilities. On the other hand, organizations need to embark on joint collaboration with others to seek solutions; and the development of shared values could be an advantage.

Fox (1995) is a social-technical thinker who reviewed the socio-technical process putting emphasis on an "initial scan" stage. This implies asking questions about the organization's mission, the managerial philosophy, underlying values and the relationship of the organization with other stakeholders and the larger environments. He shares the principle that design should be an interactive process and based on action research. The question "how can we improve upon the way we operate?" is always open.

Organizations-as-systems sees survival rather than goal attainment as the main purpose of the system. Processes operate to support structures. The organization is seen as an integrated whole, the survival of which benefits all participants. The power of some groups to control the organization is hidden, since the organization is regarded as pursuing its own purposes. It fails to deliver scientific explanations for the statistical correlations discovered in processes and it cannot clearly explain change and conflict. However, the approach provides a rich picture of organizations and helps in understanding their structure. It looks at all the subsystems, their relationships, the interactions between the subsystems and the environment.

3.3.1.2. Hard Systems Thinking

This strand of systems theory was developed in parallel with OAS, but was willing to set up methodologies for real-world problem solving, using system ideas in a much more applied way. Jackson includes in this category operational research, systems analysis and systems engineering.

3.3.1.2.1. Operational research

This approach has been defined comprehensively for the first time by Churchman, Ackoff and Arnoff in 1957, as a systems approach responding to the overall problems of complex organizations, through the application of methods of science.

According to Jackson (2000) the phases of an operational research project are said to be: formulating the problem, constructing a mathematical model to represent the system under study, deriving a solution from the model, testing the model and the solution derived

from it, establishing controls over the solution, and putting the solution to work. A new strand of OR emerged very recently in UK under the designation of "soft OR", which was an attempt to take OR approach in an interpretative direction, as a response to the failings of hard systems thinking.

2.3.1.2.2. System's analysis

Quade (1963) defined systems analysis as a "course of action by systematically examining the costs, effectiveness and risks of alternative policies and strategies, and designing additional ones if those examined are found wanting" (Jackson 2000).

3.3.1.2.3. Systems engineering

Jenkins (1972) considers that the purpose of systems engineering is to ensure the optimal use of resources, the main ones being men, money, machines and materials. This can be achieved through a methodology incorporating four basic phases: <u>system analysis</u> in which the real world is taken to consist of systems and examined in systems terms; <u>systems design</u> in which the future environment of system is focused; and the <u>implementation</u> and <u>operation</u> phases which involve the construction, operation and testing of the system in the real world. Jenkins draws his systems concept from engineering, biology and cybernetics putting emphasis on the notions of optimization, hierarchy and feedback.

Each of the three strands of hard systems thinking is rather similar than different. Four main criticisms are referred to by Jackson (2000):

- First, the machine metaphor is dominant and the objectives need to be clarified at an early stage.

- Second, it fails to pay special attention to the characteristics of the human component; people are treated as components to be engineered just like other mechanical parts of the system, putting the system before people and their perceptions.

- Third, it recognizes complexity, but still believes that systems are simple enough to be represented in mathematical models.

- Fourth, the complicated mathematical modelling discourages ordinary people from believing that they might have anything useful to contribute to decision-making. It suggests that experts using the latest tools and techniques can solve differences of opinion and interest, thus conflict is hidden.

Nevertheless, Jackson (2000) recognizes that hard approaches have registered some significant achievements and there are problem situations in which hard systems methodologies yields the most satisfactory results.

3.3.1.2.3. System Dynamics

Forrester (1971) pioneered System Dynamics. He sees systems as feedback processes exhibiting a specific and orderly structure. Its methods apply to complex systems wherever we find them.

Modelling in system dynamics implies recognition of the following elements: the boundary of the system, the basic structural elements, the level variables and the rate variables. In establishing the boundary of the system the analyst needs to identify which elements are interacting to produce the behaviour that is being investigated.

The methodology involves two stages. The human (early) stage that consists of defining the problem, identifying the underlying factors and establishing the feedback loops which relate elements, information and decisions. This is followed by the computer (other) stage that involves building the computer model, testing it, modifying it if necessary and experimenting using the model to explore different effects. One of the key criticisms of interpretive thinkers to systems dynamicists is that the subjective intentions of human beings carrying different values and conceptions of reality cannot be captured in computer modelling (Jackson 2000). Nevertheless it is recognized that this approach can provide insights for managers in many circumstances, for example a critical systems thinker may wish to combine the strengths of Systems Dynamics with what other systems approaches have revealed to do better (Jackson 2003)

3.3.1.4. Organizational Cybernetics

Cybernetics thinking yielded two main strands of models. First, the *management cybernetic* model is roughly equivalent to hard system thinking and is based on the input-transformation-output scheme: the goal is determined outside the system and the management affects the regulation. Second, the *Viable System Model* (VSM) developed by Beer's (1972). Beer's cybernetic approach defines knowledge as knowledge of laws and principles, which apply to the natural and social worlds. He tends to regard all complex systems as

being natural and social in terms of the same "brain" metaphor. He argues that cybernetics, as the science of the effective organization, is aimed at identifying laws and principles of control that apply to all kinds of complex systems,(Flood and Romm 1996). According to this approach, a system is viable if it is capable of responding to environmental changes, even if the changes were not foreseen at the time when the system was designed.

Beer (1959) suggested the Viable System Model (VSM) as a general model applicable to all systems, which comprises five elements: implementation, coordination, control, development and policy. The author of the Viable System reminds us "a model is neither true nor false, it is more or less useful" (Beer 1985).

Fig. 4 – The Viable System Model, Beer (1985)
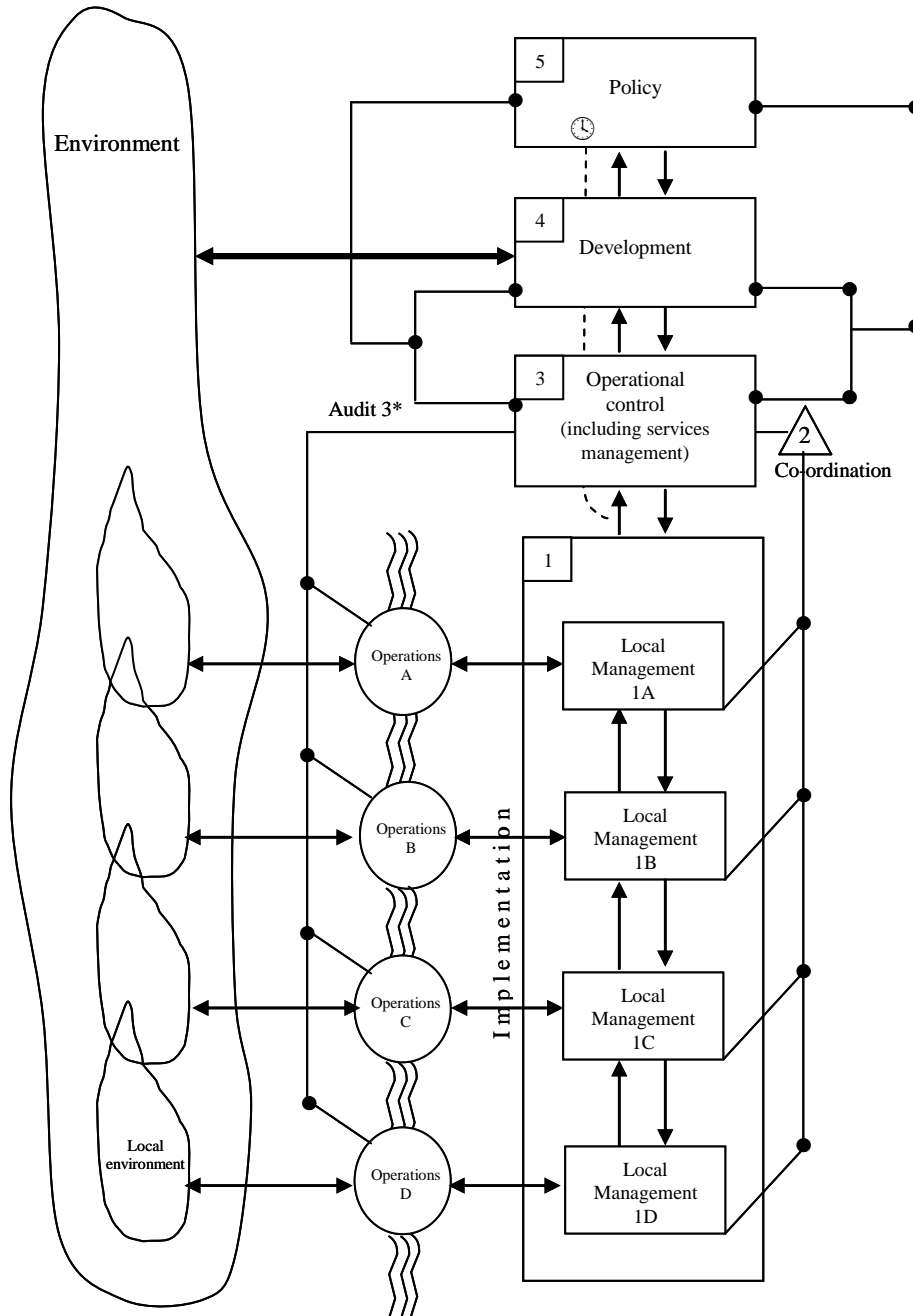
Jackson (2000) asserts that Organisational Cybernetics draws its strengths from the machine, organism, and brain metaphors. He argues that VSM in management practice can be very useful. First, because it deals with organizations whose parts are both vertically and horizontally interdependent. Secondly, the VSM source of control is spread throughout the architecture of the system. Thirdly, it offers a suitable starting point for the design of information systems. Fourth, according to the model the system is in close inter-relationship with its environment. Fifth, VSM can be made effectively as a diagnostic tool to make specific recommendations for improving the performance of organizations. Finally, the model provides powerful cybernetic arguments for granting maximum autonomy to the parts of the organization and for democratic definition of goals (Jackson 2000). Jackson (2003) remembers that VSM is a model rather than a methodology and he argues that it can be used in a *design mode* aiming to ensure that organisations are constructed according to good cybernetic principles, or in a *diagnostic mode* aiming to check structures and processes of an existing system (Jackson 2003).

3.3.1.5. Living Systems Theory

Miller (1978) pioneered this theory about systems that can be observed, including their structures and processes. His model proposed eight hierarchical levels of living systems: cell, organ, organism, group, organization, community, society and supranational systems. All of them having in common that they are open systems, they have subsystems (twenty-one, addressing matter, information and energy functions of the system) and that they have purposes and goals (Jackson 2000).

3.3.1.6. Complexity Theory

This theory aims to provide a coherent theoretical framework in which disorder, unpredictability and uncertainty can be appreciated and understood. According to this philosophy the specific future of an organizational system in unpredictable because non-linear feedback loops can be generated and provoke unforeseen patterns or behaviour leading to chaos (Jackson 2000). Because prediction is impossible, long-term planning is equally impossible; and this suggests that the strategic planning process is useless if not damaging. The argument is that an ambiguous uncertain world requires the opposite (Jackson 2000).

In this spirit, and according to Jackson's views, Wheatley (1992) came up with the idea that managers should shape organizations through *concepts*, not through elaborated rules or plans. Morgan (1997) similarly emphasizes the need to manage through the creation of *new concepts* helping to shape emerging processes of self-organization. This could get us away from rigid and prescriptive models. Briefly, Stacey (1993) considers that complexity theory is about "positively using instability and crisis to generate new perspectives, provoking continual questioning and organizational learning through which unknowable futures can be created and discovered". In his early work, he sought the "levers" that would allow managers to achieve an optimum "edge of chaos" state of learning in their organisations – a clearly functionalist positivism. More recently he has tried to shift complexity theory into a more interpretive position (Jackson 2000).

3.3.1.7. Critique of the functionalist systems approach

All varieties of the systems approaches studied in this section are objectivist and study systems from the outside. They seek the causal regularities that govern systems behaviour. They believe that human beings can be understood scientifically and dealt with as component parts of the system; and they prefer quantitative techniques of analysis. None of the strands seeks to understand subjectively the point of view and intentions of the human beings who construct the systems – the interpretive position. Some of them such as systems engineering, contingency theory and systems dynamics are based on positivist epistemology; others such as organizational cybernetics, autopoiesis and complexity theory are closer to structuralist epistemology (Jackson 2000).

3.3.2. Soft Systems Thinking or Interpretive Systems Approach

The Interpretative paradigm takes its name from the fact that it believes that social systems, such as organisations, result from purposes people have and that this in turn, stems from the interpretations they make of the situations in which they find themselves (Jackson 2006). This philosophy puts forward the place and role of people in systems rather than technology, structure or organization. In contrast to the functionalist approach, its primary area of concern is perceptions, values, beliefs and interests (Jackson 2000; Jackson 2003; Jackson 2006). Rather than taking a passive role, people are seen as the driving force in a system's performance. Interpretive system theory is one of the most productive and enduring in the systems thinking movement. Soft systems ideas dominated systems thinking in the late 1970s and early 1980s, followed by critical systems thinking in the late 1980s. This section

will provide highlights of the contributions provided by Churchman, Mason and Mitroff, Ackoff and Checkland.

3.3.2.1. Churchman's social systems design

Churchman's (1970) philosophical ideas highlight the way of looking at the world through other people's views, but recognizing that the individual's world perceptions are restricted and resistant to change. He concludes with a call for a dialectical debate in three steps: *thesis* corresponding to the prevailing world view made by decision-makers; *anti-thesis* consisting in raising alternative proposals; and *synthesis* relating to evaluation of elements of both world-views and enhancing the appreciation. With two different views, Churchman intends to enrich the final perception of things. For him bringing about change, means changing the worldview of people. According to Jackson (2000), his philosophy does not foresee ways of dealing with conflicts of power and structure.

3.3.2.2. Mason and Mitroff's strategic assumption surfacing and testing (SAST)

Mason and Mitroff's methodology (1981) focuses a manager's attention on the relationship between the *participants* involved in the problem context; it plays down the characteristics of the *system* that constitutes the problem context. Therefore, the "machine", "organism" and "brain" metaphors are less evident; and emphasis is put on "culture" and "coalition" metaphors. These metaphors will be explained in greater detail in the following sections.

The methodology is designed for messy contexts characterized by sets of highly inter-dependent problems. It focuses in problem formulation and structuring rather than problem solving. Strategic Assumption Surfacing and Testing is sustained by four articulated principles (Jackson 1991; Jackson 2000; Jackson 2003):

- <u>Adversity</u> – judgments about ill-structured problems are best made after consideration of opposing perspectives,

- <u>Participation</u> – involvement of different groups and levels of the organization, to optimize the knowledge and resources distributed around individuals and groups in the organization;

- <u>Integration</u> – differences encountered in the adversarial and participatory processes, must be brought together again in a higher order of synthesis, for appropriate action;

- <u>Managerial mind supporting</u> – exposure of managers to different assumptions will give them deeper understanding of the organization, its policies and problems.

3.3.2.3. Ackoff's social systems sciences

Ackoff (1977) considered that hard systems thinking, with emphasis on optimization and objectivity was leaving out the important social issues of the age. In a world of rapid changes and multiple values, the emphasis had to be put on learning and adapting. In this context, he called for an open interaction and wide participation of all stakeholders in planning and design of a system.

Ackoff moved from operations research and created "social systems sciences" (S3). According to this philosophy, organizations should be considered as social systems serving three sets of purposes: *control* in relation to the organization itself; *humanization* in relation

to different parts and levels of the organization; and *enviromentalization* in relation to the atmosphere in which they evolve.

Interactive planning (IP) is the specific approach recommended by Ackoff to translate his philosophy into practice. IP is based in three principles (Jackson 2000; Jackson 2003):

- *Participative* – the process of planning is more important than the product; and the involvement of stakeholders bring them more insights about the organisation and the role they can play in it.
- *Continuity* – no plan can predict everything in advance, so plans should be constantly revised. Stakeholders' values can change and unexpected events may occur.
- *Holistic* – planning should take place simultaneously and interdependently for as many parts and levels of the organization as it is possible (Flood and Jackson 1991; Jackson 2000).

Ackoff (1975) did not accept the structural aspects of social reality and argued that the main constraint to people's development is people themselves, due to their limited ability to think creatively. He denies the existence of fundamental conflict between decision-makers and community. For Ackoff, the conflict is always at the ideological level and solved essentially with ideological manipulation.

3.3.2.4. Checkland's soft systems methodology (SSM)

Checkland proposes that organizations are made-up of individuals possessing different evaluations of the situation they are in. Their evaluation will overlap to some extent, but there will usually be differences among world views to give raise to issues that have to be

managed (Flood and Jackson 1991). Checkland (1983) clearly expressed the distinction between hard and soft systems. Initially, working on the hard concept of systems engineering he conceived the world to be systemic, made-up of a set of systems in which some of them would need to be engineered to work better. While working as a systems engineer, he realized that hard systems thinking was limited in terms of coping with world complexities, in particular social and human meanings and behaviours. From the new way of looking at the world, as being complex, Checkland realized that it is rather the process of improving the world that is systemic. For him, 'system' as a concept is better reserved for ordered, abstract thinking about the world rather than a way of stating how the world is (Flood and Jackson 1991).

This could clarify the fundamental current confusion between 'system' as a concept and as object. Under this view, there are two paradigms in systems thinking. The *hard paradigm* in which the real world is assumed to be systemic and the methodologies we use to investigate that reality are systemic; and the *soft paradigm* in which the real world is problematical but the process to enquire into it and related methodologies may be systemic. This transfers the notion of "systemicity" from the real world to the process of inquiring about it (systems thinking). Soft systems thinking subsumes (includes) hard systems thinking as a special case (Checkland and Holwell 1998). Checkland (1999) recognizes four most fundamental system ideas: emergence, hierarchy, communication and control. He emphasizes that the entity as a whole has so-called 'emergent properties', properties that are properties of the whole and are meaningful only at the level of the whole (Checkland and Scholes 1999).

There are four main principles to be observed when employing SSM.

- First, is a *learning system* that leads to purposeful action in a continuous cycle, rather than seeking to achieve preset goals.

- Secondly, *cultural feasibility* is peculiar and key feature; in particular the idea of the cohesiveness of social rules and practices.

- Thirdly, *the principle of participation* to say that without guaranteed participation of those involved, any application of SSM must be invalid on its own terms.

- Fourth, the *two modes of thought*, the specific context (real world thinking) and the systems thinking (abstract world) and shift from one mode to the other as required (Flood and Jackson 1991).

The underlying methodology is Checkland's SSM that consists of a seven stage process of inquiry (Flood and Jackson 1991; Jackson 1991; Checkland and Scholes 1999; Jackson 2003):

Figure 5 The conventional seven-stage model of SSM.
Source: Checkland, (1999)

Problem situation considered problematic

Action to Improve the Problem situation

Changes: systemically desirable culturally feasible

Problem situation expressed

Comparison of models and real world

Real World

Systems Thinking About Real World

Root definitions of relevant purposeful activity systems

Conceptual Models of the systems (holons) named in the root definitions

- <u>Stages 1 and 2</u> – are interrelated and aim at finding out the problem in two steps: at
  stage 1 the problem situation is unstructured and consists of getting information about
  structure and processes by observation – rich pictures (reminding that the complexity
  of human affairs is always a complexity of multiple interacting relationships) or other
  ways of capturing a set of relevant view points or relevant systems. Stage 2
  corresponds to the problem situation expressed – interfacing the two modes of
  thought: systems thinking and "real world thinking". Themes of context-related "real
  world" thinking become relevant systems thinking.

- Stage 3 corresponds to formulating root definitions, and is concerned with expanding each of the relevant viewpoints or systems into concise and well-formulated verbal statements. Is an idealized view of what a relevant system should be. The aim is to draw out the essence of what is to be done, why it is to be done, who is to do it, who is to benefit or suffer from it and what environmental constraints limit the action and activities. This is achieved by formulating statements around six elements:

  Customers – victims or beneficiaries of the purposeful activity;

  Actors – those who do the activities;

  Transformation process – the purposeful activity that transforms input into output;

  Worldview – that makes the transformation meaningful;

  Owners – those who could stop the transformation; and

  Environmental constraints – the elements outside the system that are taken as given.

- Stage 4 is about building conceptual models – consists in defining the activities, which the ideal system must do in order to fulfil the requirements of the root definition. The usual feature is to have a number of verbs in one sub-system concerned with the operations of the system, and a couple of other verbs in another sub-system concerned with monitoring and controlling.

- Stage 5 is about comparing models and reality – the aim is to generate debate about possible changes that could be made to yield improvements in the problem situation. This stage may generate new knowledge.

- <u>Stage 6</u> – Defining Changes – it is about constructing models, but not as blueprints for design. The models are meant for generating meaningful debates where participants discuss potential improvements that are worthy for consideration.

- <u>Stage 7</u> – Taking Action – meaning implementing changes that are both desirable and feasible. Changes can be classified as attitudinal, structural and procedural.

Figure 6 An outline of the process of SSM
Source: Checkland (1999 10A.3)
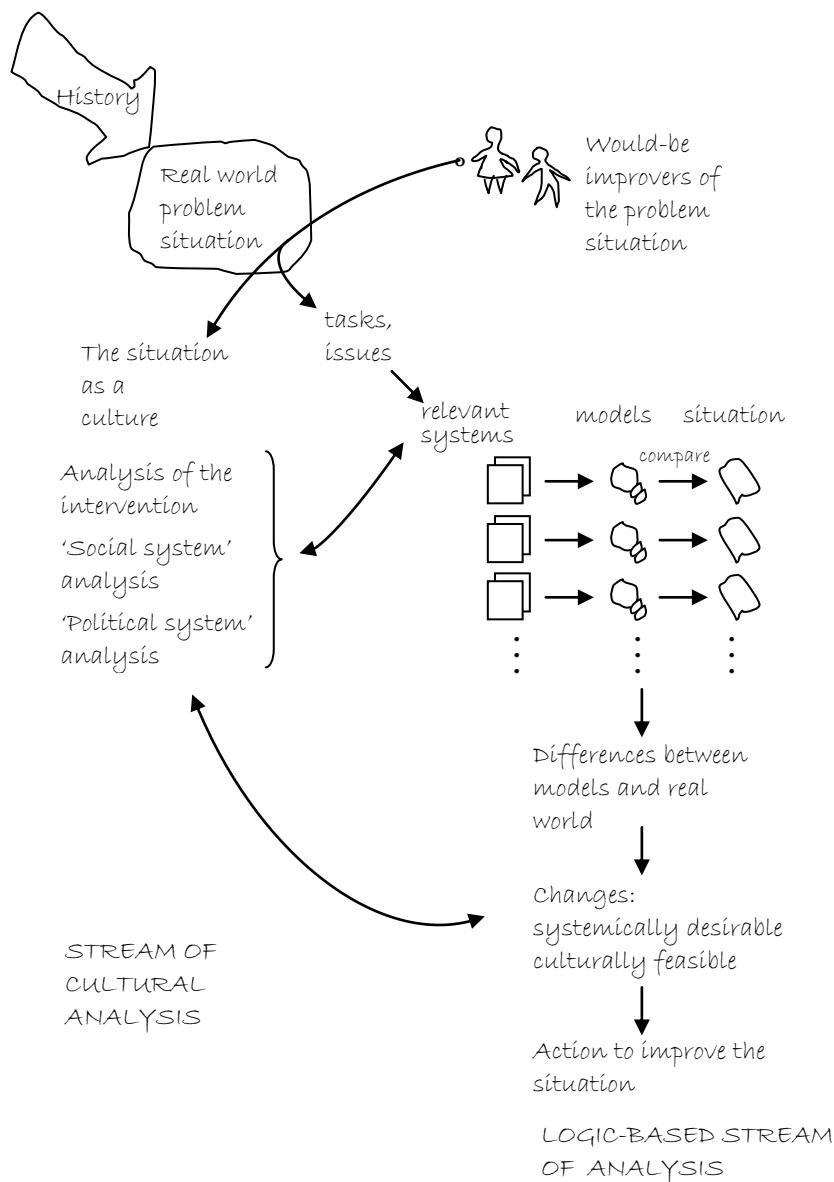
Checkland's seven stages SSM Mode1 is methodology-oriented. Mode 2 on the other hand is problem-oriented. Nevertheless, certain dimensions may be used to differentiate the two ideal types, recognizing that actual studies will never exactly match either of the two idealized concepts but will reflect elements of both; such dimensions are:

MODE1		MODE2
Methodology driven	*versus*	situation-driven
Intervention	*versus*	interaction
Sometimes sequential	*versus*	always interactive
SSM an external recipe	*versus*	SSM an internalized model

So, there is no generic version of Mode 2 because it is situation driven. The extreme ideal-type Mode2 is a purely internal mental process that requires testing against any kind of Constitutive Rules; and someone claiming this for it may have used it incompetently. What we need are redefined Constitutive Rules covering typical uses of SSM which would now be a mix of use in Mode 1 and Mode2 (Checkland and Scholes 1999). Flood and Jackson (1991) had already argued that SSM users who have fully internalised the methodology may not use the stages to guide the application but simply employ the methodology as a point of reference to make sense of what is being done in the real world; and admitted that different users may bring their own flavour to the SSM.

The distinction between Mode1 and Mode2 SSM is still being worked on, specially the exact nature of Mode 2. Those managers who internalise SSM are able to remain much

more situation-driven and problem-oriented; the methodology ceases to dominate what is done and instead it prevails against what is happening in the everyday flux of occurrences. In such situations, managers can refer to the Mode2 approach to help them think through the situation they are experiencing and the possibilities it opens up (Jackson 2003).

Checkland argues that every use of SSM, and specially uses close to Mode2, will be unique; its form and content will be appropriate not only to the particular situation addressed, with its own unique history, but also to the particular investigators involved, with their particular attitudes and experiences (Checkland and Scholes 1999). Nevertheless, Checkland recognizes Mode1 as a stage-by-stage formal process of *intervention* and Mode2 as an internal use of it as a thinking mode of *interaction*; this became part of the epistemology of SSM development. Figure 6 below, illustrates Mode1/Mode2 distinction that is found to be of practical importance in aiding clear thinking about application of SSM methodology. Mode1 is methodology-driven and investigates from outside a part of the flux, using SSM to structure the enquiry; Mode2 is problem-oriented and starts the investigation inside the flux, but may use SSM as a sense-making device. (Checkland and Holwell 1998; Checkland and Scholes 1999).

Figure 7 SSM in use in Mode 1 and Mode 2
Source: Checkland, (1999)
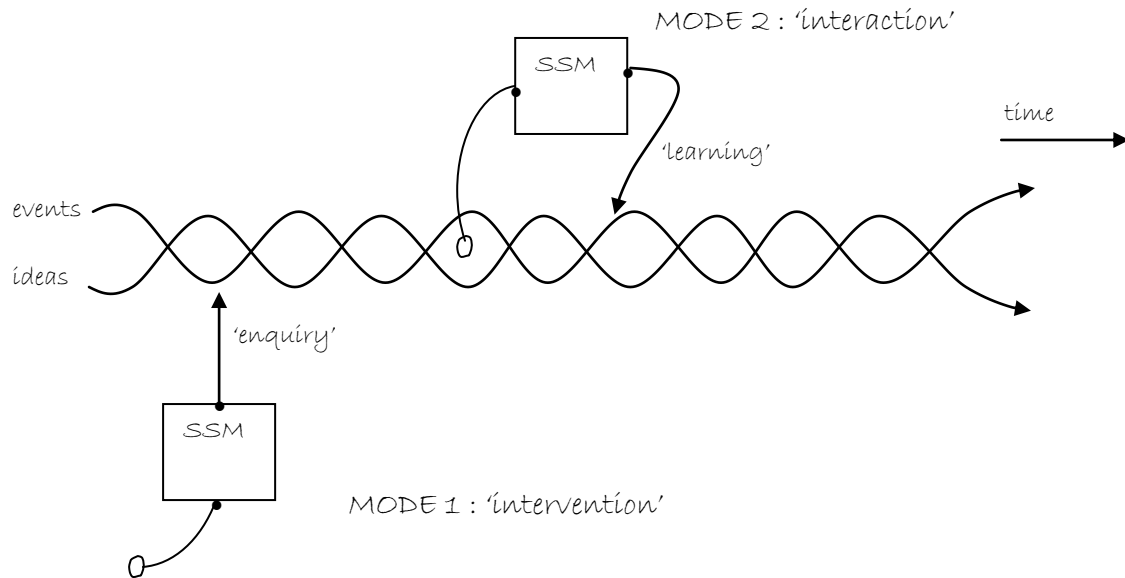
SSM is best employed in *pluralist contexts* where there is a basic compatibility of
interests, where values and beliefs of participants diverge and where genuine accommodation
and compromise is possible; and it assumes that pluralistic issues are tied in with *complex
issues* of organizational structure and process (Flood and Jackson 1991). The aim of SSM is
to structure a debate that will lead, if not to the creation of shared perceptions, at least to an
accommodation between different viewpoints and interests so that desirable change can be
implemented (Jackson 2003).

Churchman, Ackoff and Checkland provided a great contribution to the use of
management sciences to help on solving real-world problems (Jackson 2000).

3.3.3. Emancipatory Systems Approach

Emancipatory systems thinking considers that societies benefit some groups and disadvantage others, and that those are suffering with domination or discrimination. Suspicious of the current order of society, they seek change. The emancipatory paradigm takes its name from the fact that it is concerned to emancipate oppressed individuals and groups in organizations or societies. It pays attention to all forms of discrimination related to class, status, sex, race, disability, gender preference, age, etc(Jackson 2006)

Jackson (2000) refers to Brocklesby and Cummings's philosophical underpinnings for emancipatory systems thinking. They relate this to the *human emancipation* that incorporates the collective and sometimes universal sense, based on Kant, Hegel, Marx and Habermas; and the *self-emancipation,* also deriving from Kant but embedding Nietzsche, Heidegger and Foucault's views (Jackson 2000). Jackson explores three forms of emancipatory systems thinking: emancipation as liberation, emancipation through discursive rationality, and emancipation through the oblique use of systems methods.

3.3.3.1. Emancipation as Liberation

Emancipation as liberation is fundamentally based on Marx the philosopher of the Enlightenment, eager to drive rational thought to its limit in order to free man from prejudice and illusion (Jackson 2000).According to Marx, under the capitalist ideology both the proletariat and the bourgeoisie are involved in the labour process because of a need – in order to survive or to amass wealth. Labour is therefore alienated by worship of money. Marx gave birth to the Frankfurt School that distinguishes four aspects of alienated work. *First*, the

worker is alienated from the product of his labour that he does not own. *Second*, work is alienating in itself since the worker's labour time is no longer his own, but has been bought by the capitalist. *Third*, under capitalism, the worker works to maintain his physical existence and the objects he creates become a power over him. Finally, social relations are not free but are conditioned by the position of individuals in the market situation (Jackson 2000).

3.3.3.2. Emancipation through discursive rationality

Emancipation through discursive rationality is associated with the ideal speech situation – citizens determine their true interest free from distorted communication. It is the better argument that prevails and not the ideology of the powerful. This idea derives from Habemas' theory of communicative competence, which lays in the idea that autonomy should be given in the very structure of language itself, to avoid distorted communication and promote the ideal speech situation. Under this theory, Jackson (2000) considers three contributions. First, Beer's Team Syntegrity – that provides a set of procedures expected to promote non-hierarchical, participative and effective decision-making around issues wherever they occur in organizations.

Second, Ulrich's Critical Systems Heuristics proposes a systems approach that takes as a major concern the need to argue against possible unfairness in society; by ensuring that people influenced by decisions have a say in making them. This thinking was articulated for the first time by Ulrich (1983) and interpreted by Flood and Jackson (1991) and Jackson (2000; 2003) as the *Emancipatory Systems Approach*. This view is about ensuring fair planning and decision-making by using systems ideas – instrumental reason, as part of practical reason to help us to decide what we ought to do. The argument for Critical Systems

Heuristics is made using each of the three words in the sense given to them by Kant: a *critical* approach to systems design meaning that planners should make transparent to themselves and others the normative content of designs. By normative content Ulrich meant both the underlying value assumptions entering into the plan and also social consequences and side effects for those targeted. The Kant *systems* idea refers to the totality of relevant conditions upon which theoretical or practical judgments depend. These include metaphysical, ethical, political and ideological aspects. Finally, *heuristics* refers to a process of uncovering "objectivist" deceptions and of helping planners and concerned participants to unfold problems through critical reflection (Jackson 2000; Jackson 2003) The lack of methodological guidelines for action reveals the limitation of this approach.

Moreover, the *Theory and Practice of Boundary Critique* originated by Churchman (1970), argued that in the concept of improvement, the boundary of analysis is crucial if we want to justify an improvement in the process of change. Prior to the work of Churchman, many people assumed that the boundaries of a system are determined by the structure of reality. In contrast, for Churchman, boundaries are social or personal constructs that define the limits of the knowledge that is to be taken as pertinent in an analysis (Midgley 2000). This view is sustained by Midgley who put forward the foundations for the theory of boundary critique. Boundaries are constructs bringing forth different realities; they are associated with different values; participation from a variety of stakeholders with different insights is important, and even our most cherished ideas should be subject to critique to test their worth in the light of other value systems. Midgley suggests that the boundary concept must lie at the very heart of systems thinking because according to him, "uncertainty is almost inevitable

when it comes to analyse situations in which boundaries should be placed to optimize comprehensiveness" (Midgley 2000).

On the other hand, Ulrich (1983) agrees with Churchman's position and argues that Critical Systems Heuristics can be used to explore and justify boundaries through debate among stakeholders. Other theorists that disagree with Churchman and Midgley criticize this idea. Jackson (2000) suggests that communicative competence is not always present in society and citizens may not be equally equipped to take part in participative debate. Further summarizing, Jackson mentions that MacIntyre argues that, because of moral incommensurability, it is power rather then rational argumentation that is used to settle disputes; Derrida sees language as deceptive rather then transparent and possible way to hide contradictions that might reveal the partiality of discourse; Lyotard feels that we live in a world of multiple truths, which give rise to incommensurable interpretations; humans are too different to share a common ground and we should be tolerant of difference rather than seeking for universal consensus; Foucault argues that knowledge is a power over others; for him, "a discourse embodies knowledge and therefore embodies power" (Jackson 2000).

3.3.3.3. Emancipation through the oblique use of systems methods

Jackson (2000) admits that emancipatory systems approaches may depend upon the importation of ideas from other disciplines. He suggests the interrogation of modern systems thinking to yield emancipatory conclusions and emancipatory methodology. In this context, he identified the emancipatory potential of Beer's Viable System Model and Checkland's soft system methodology. First, Beer advocates decentralization of control as essential for effectiveness and efficiency; this implies that we should adjust power imbalances and

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abandon the hierarchical concept of organization. Checkland's philosophy emerges out of the frustration experienced by practitioners trying to use hard systems methodologies in soft problem situations. The only justification for implementing the results of soft systems study is that the results and their implementation go through a process of full and genuine participatory debate among all stakeholders involved or affected. Oblique use of systems methods was mentioned for the first time by Flood and Romm (1995) to characterize the use of systems methods and models outside the paradigm with which they were originally associated. Mingers (1997) raises the critique about the difficulty to differentiate critical systems and emancipatory systems.

3.3.4. Post-Modern Systems Approach

A Post modern approach takes its name from the fact that it opposes the modernist rationality that it sees as present in all the other three paradigms(Jackson 2006). It seeks, through methods such as deconstruction and genealogy, to recover conflict and to ensure that marginalized voices are recognized and heard (Jackson 2000; Jackson 2003). Deconstruction uses a series of analytical strategies to examine texts closely and to look for contradictions and ambivalences (Taket and White, 2000). Genealogy, according to Flood and Gregory (1989) is an idea on the nature of history and progress of knowledge deriving from Foucault's writings that put emphasis on the effect of power at micro level on the formation and development of knowledge. Postmodernism derived from Pepper's (1942) "root metaphor" of contextualism that sees the world as complex and characterized by change and novelty, order and disorder in different contexts; and in such a complex state of flux of change that we have to select "contexts" that organize and attribute meaning to the world. This viewpoint

diverged from Kant's Enlightenment tradition that was inspired in a European intellectual movement in the eighteenth century, committed to reason and science as the means for building a better world and sweeping away the myths and prejudices that had bound previous generations.

Modernism seeks to consolidate and build upon the achievements of the Enlightenment; it upholds reason and believes that rationality is the most important way for helping people to improve themselves and their societies. It essentially believes in logic and order of things and seeks for rationality, consensus and progress. Kant followed Nietzsche and Heidegger in pursuit of self-emancipation (Jackson 2003). Postmodernists consider Kant's enlightenment rationale as failed and want to abandon the entire project; they accept multiple interpretations of the world and tolerate difference, ensuring diversity and encouraging creativity (Jackson 2003) The postmodernist culture is associated to post-industrial society, consumer society, dominance of multi-national companies, a late stage of capitalism in which everything becomes a commodity. This is opposed to Hegel, Marx and the Frankfurt School, which advocate collective human emancipation. According to Jackson (Jackson 2003) for Nietzsche the self is a contingent product of various physical, cultural and social forces; and individual freedom implies critical questioning of all received opinions and accepted ways of doing things.

Lyotard (1984) is opposed to all forms of modernism, whether emphasizing the functionality of the system or human emancipation. He calls for a post-modern alternative. According to his view, science is seen to be only one kind of language game, with limited relevance to social affairs. Postmodernism denies that science has access to objective truth,

and rejects the notion of history – the grand narratives – as the progressive realization and emancipation of humanity. It offers little security and rather strives on instability, disruption, disorder, contingency, paradox and indeterminacy. It sees systems as "temporary islands of determinism within a sea of indeterminacy" (Jackson 2000). As a lesson learnt, Jackson (2000) asserts that in a world of multiple truths competing for prominence, systems practitioners will be impotent unless they recognize power and the social and political context of their work. Moreover he refers that pragmatic pluralism is the framework employed to put a post-modernism perspective into practice; and according to Taket and White (2000) it recognizes and tries to respond to pluralism in the a) nature of the client, b) use of specific methods, c) modes of representation employed and d) the facilitation process; drawing therefore upon multiple tools but it is not a pluralist methodology.

3.4. System of Systems Methodologies

3.4.1. Introduction

Prior to 1984, most systems thinking theorists addressed the issue of combination of methods and methodologies within the context of one epistemological position. For example, Checkland (1983) considered the systems movement to be divided into two parts: hard systems thinking and soft systems thinking, but looked at the hard approach simply as a special case of soft(Jackson 2000).

Linstone (1984) and Jackson and Keys (1984), working independently, brought up the concept of pluralism in the systems movement.

Linstone's approach considers technical (T), societal/organizational (O) and personal (P) perspectives acting as filters through which systems were viewed and each perspective would yield insights that would not be attained by others; but would be useful as well, when used together, to interrogate the same complex problem. The author recognizes that providing a three dimensional view of the real world systems fall within a functionalistic logic and that could limit the use of the approach in pluralistic – complex problem contexts.

A problem solver facing a problem context must address the question of which is the appropriate methodology to use(Jackson and Keys 1984). We should therefore analyze the problem context and select the most relevant methodology.

A problem context contains a set of all elements, which can make decisions, which may affect the behaviour of the system. These elements are the problem solvers, decision makers and the system within which the problem lies. Jackson and Keys (1984) argue that problem solving methodologies and the criteria for classifying the problem context must identify relevant similarities and differences in problem contexts, which are important in relation to problem solving methodologies.

A problem has five types of component: *first*, the one faced with the problem - the decision maker; *second* - the controllable variables, corresponding to those aspects (quantitative and qualitative) of the problem situation the decision maker can control. These must be at least two courses of action available, otherwise, there is no choice and therefore no problem; *third* those aspects of the problem situation the decision maker cannot control - the uncontrolled variables (not necessarily uncontrollable). These may be either qualitative or quantitative and constitute the problem environment; *fourth* - the constraints imposed from

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within or without on possible values of the controlled and uncontrolled variables; and *fifth* -

the possible outcomes, produced jointly by the decision maker's choice and the uncontrolled

variables (Ackoff 1978).

Based on Ackoff's view, Jackson and Keys (1984) classify problem contexts in terms

of the nature of the decision makers and in terms of the systems in which the problem is

located.

Complex systems in particular are more difficult to understand because they are less

observable, they are probabilistic, open, have purposeful parts and are subject to behavioural

influences. On the other hand, simple systems are likely to pose easy problems because they

are fully observable, are governed by well defined laws of behaviour, are relatively closed to

the environment, have subsystems that do not pursue their own goals, and are not affected by

behavioural influences (Jackson and Keys 1984). Applying Ackoff's terminology, we could

relate simple systems to mechanical problem contexts and complex systems to systemic

problem contexts. The criterion used in classifying decision makers in particular problem

contexts is whether they are unitary or pluralist in their objectives. The unitary problem

context refers to decision makers agreeing on a common set of goals for the whole system

and making their decisions in accordance with these goals; the pluralist problem context

refers to decision makers not agreeing on a common set of goals and unable to make

decisions in accordance to different objectives. Problem contexts could therefore be seen in

one of the four categories: mechanical – unitary, systemic-unitary, mechanical – pluralist and

systemic-pluralist.

We will see next how to identify the type of methodology relevant for each problem context. Jackson and Keys (1984) define methodology in broad sense as any kind of advice given to analysts about how they should proceed to intervene in the real world. They advise the classical operations research (OR) and similar disciplines such as systems engineering (SE) and systems analysis (SA) – hard system thinking – as the most appropriate to deal with mechanical – unitary problem contexts. For problem arising in systemic – unitary contexts, they argue that the tools provided by cybernetics give the problem solver the best chance of dealing with difficulties; reminding that Beer's viable system is capable of responding to environmental changes even if they were not foreseen at the time the system was designed. Mechanical – pluralist problem contexts can be solved using the soft systems methodologies if the disagreement among the decision makers about the goals can be overcome. The system of Systems Methodology suggests that different kinds of problem context exist in the real world and it is essential to develop different methodologies to cope with them. It demonstrates how individual methodologies can be used in a complementary manner (complementarity at methodological level), but it fails to show how rationalities underlying different systems approaches could also be employed in a complementary and informed way (complementarity at the theoretical level). SOSM lost its original critical intention and was used as the tool of just one rationality (Jackson 1991).

3.4.2. Critical Systems Thinking

As the most advanced stage of systems thinking, critical systems thinking (CST) emerged in the1990's, putting emphasis in the shift from critical questioning to the creative construction of a well theorized and coherent critical alternative in management science. It is

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about putting all the different systems approaches to work according to their strengths and weaknesses and the social conditions prevailing, in the service of a more general emancipatory endeavour. This emerging movement came to rest upon five commitments: critical awareness, social awareness, complementarism at the methodological level, complementarism at the theoretical level, and a dedication to human emancipation (Jackson 1991). In Jackson's words:

i. "*Critical awareness* - relates to understanding the strengths, weaknesses and theoretical underpinnings of the existing systems methodologies, methods and techniques; as well as examining the assumptions and values entering into existing system designs or any proposal for system design.

ii. *Social awareness* - asks managers to understand the consequences of using the approaches they employ; for example, the use of a cybernetic approach makes us think that one goal or objective is being sought at the expense of other possibilities. It also implies that organizational or societal pressures can lead to certain systems approaches and methodologies relevant to specific contexts; for example, soft systems thinking could not flourish in Eastern Europe dominated by a Marxist-Leninist one party political systems.

iii. *Complementarism at the methodological level* - concerns the demand for a methodology, even a meta-methodology coping with all CST features, recognizing each individual systems approach and describing procedures that critical systems practitioners can follow in problem solving. Jackson (1991) recognizes that such a meta-methodology is difficult to construct. He considers Jackson and Keys' (1984)

"system of systems methodologies" as an initial attempt, and Flood and Jackson's (1991) "Total Systems Intervention" as another effort.

iv.   *Complementarism at the theoretical level* – this relates to commitment to the complementary and informed development of all strands of a systems approach. Different strands whether functionalist, interpretive or emancipatory, are driven by different theoretical underpinnings and related methodologies. Through complementarism each systems approach is put to work only in problem contexts for which its theoretical rationality is pertinent. Jackson (1991) warns that the claim of anyone theoretical rationality may absorb all others must be resisted.

v.   *Dedication to human emancipation* – this is the CST feature that seeks to achieve for all individuals the maximum development of their potential (Flood and Jackson 1991; Jackson 1991; Jackson 2000). Referring to the functioning of organizations and society, Habermas argued that all human beings have a *technical interest* linked to "work", a *practical interest* coupling with "interaction" and an emancipatory interest related to "power" (Jackson 2000; Jackson 2003). Methodologies that serve technical interests assist material well-being by improving the productive potential and the steering capacities of social systems. Methodologies serving practical interests, aim to promote and expand mutual understanding among individuals and groups participating in social systems. Methodologies serving the *emancipatory interests* protect the operation of the practical interest by denouncing situations where the exercise of power or other causes of distorted communication are preventing the open and free debate for the success of interaction".

Critical systems thinking aims at supporting all these interests for the purpose of human well-being and emancipation. More concretely it offers *hard and cybernetic* methodologies to support technical interests; *soft* methodologies to assist the practical interest; and *emancipatory system* methodologies (I would say critical systems methodologies) to enable an emancipatory interest (Jackson 1991).

3.4.3. Towards Pluralism

The emergence of critical systems thinking is related to the rise of pluralism in systems thinking and practice. Jackson (2000) asserts that his reading of contemporary critical systems authors " (Flood and Romn, 1996; Mingers and Gill, eds 1997; Migdley, 2000) suggests that pluralism is a response to the many methodologies, methods, models and techniques developed by systems thinkers". Mingers (1997) reminds us that Jackson (1987) identified pluralism as the desired way forward for systems thinking although tended in later work to use the term "complementarism"; and makes the argument that at this point, critical systems were seen as an optional additional to hard and soft. Jackson (2000) admits that there are three requirements for pluralism that stem from CST. The first is that pluralism must encourage flexibility in the uses of the widest variety of methods in any intervention. Secondly, is that methodologies owing fidelity to different paradigms should be employed in the same intervention unless good reasons are given for a temporary relapse into imperialism. Thirdly, there is need for paradigm diversity, therefore, pluralists should learn to live with and manage a degree of "paradigm incompatibility". He further argues that it is no longer tenable to believe that "paradigm incommensurability" can be resolved by reference to some meta-

theory. (Kuhn, 1970 said that paradign incommensurability "occurs when two groups of scientists see different things when they look from the same point in the same direction"; it rules out CST complementarism at the theoretical level.) Mingers (1997) supports the argument that "the characterization of paradigms as separate and mutually exclusive domains may have been overstated; and although the central prototypical characteristics are incommensurable, the paradigms are permeable at the edges, in their so-called *transition zones*. This is an issue to be taken seriously when we discuss methodology for this dissertation. According to Mingers, there are grounds to believe that cross-paradigm research is philosophically feasible, and what is required is an underpinning framework of ideas that can encompass selected paradigms (complementarism at theoretical level but not meta-paradigmatic) and clear guidance on ways to mix different research methods (Mingers 1997).

3.4.4. Mingers - Critical Pluralism within the context of Multi-methodology

3.4.4.1. Introduction

Mingers (1997) while putting forward arguments for desirability of multi-methodology, recognises three levels of problems, particularly related with linking research methods together across different research paradigms. I quote:

- "*Philosophical problems,* particularly the issue of paradigm incommensurability. Because paradigms differ in terms of fundamental assumptions, researchers must choose and commit themselves to a single paradigm. It can be argued that although the central prototypical characteristics are incommensurable, paradigms are permeable

at the edges, in their so called "transition zones" and there are grounds for believing that cross-paradigm research is philosophically feasible.

- *Cultural Problem*s,the extent to which organizational and academic cultures militate against multi-paradigm work; depending on the size of the "cultural gap" between where we are now and where we would like to be in relation to the multi-paradigm research.

- *Psychological Problem*s, relating to the cognitive feasibility of the researcher (with predilections), as an individual moving easily from one paradigm to another" unquote (Mingers 1997)

While recognizing that TSI is a well-developed multi-methodology both theoretically and practically, Mingers advocates for the need to pursue another type of multi-methodology, arguing that TSI represents only one possible multi-methodology. The starting point is the commitment to take action within a situation regarded by participants as problematic. Mingers considers two types of continual activity – the actual actions within the problem situation and the critical reflection about the intervention (Mingers and Gill 1997). The key issue is to undertake a process of multi-methodology construction; and for this purpose he considers the following three notional elements and the relations between them: *the problem-content system* (PCS) reflecting the real-world situation of concern; the *intervention system* (IS) the participants for the organisation and (or) agents engaged with the problem situation and undertaking the intervention; and the *intellectual resources system* (IRS) the theories, methodologies and techniques that could potentially be relevant to the problem situation (Mingers 1997).

Figure 8 The Multimethodology Context
SOURCE: Mingers, (1997)

C

PCS
Real world
situation of
concern

IRS
Available theories,
methodologies, and
techniques

IS
Agent (s) undertaking
the intervention

B

A
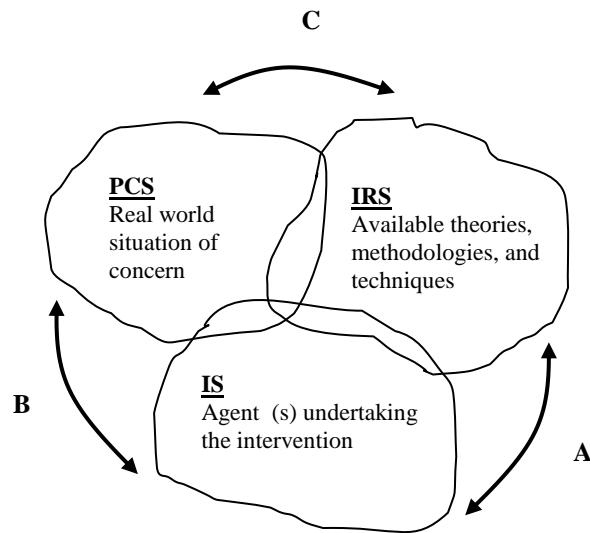
Most important from the point of view of multi-methodology are the relationships

between the three notional systems – those between Agents and

theories/methodologies/techniques (A); those between the Agents and the problem situation

(B); and those between the theories/methodologies/techniques and the problem situation (C).

3.4.4.2. Problem Context System (PCS)

Mingers (1977) suggests that human action or inaction in general symbolizes and

expresses relationships of three worlds – the material, the social and the personal, plus the

linguistic. However, he states that these distinctions are purely analytical and these are not

three separate ontological worlds nor are they independent of each other.

The <u>material world</u> refers to aspects of problem situations that concern physical space – time, entities and objects. This world is governed by natural laws that are independent of human beings; they would exist without us and we can't change them.The <u>social world</u> is dependant on humans in the broad sense and it does not exist without them, but generally is independent of any person. The epistemological relationship with it is one of participation rather than observer. Whereas physical laws apply equally to all, social rules and practices apply differentially. Finally, the <u>personal world</u> is that of our individual experiences, feelings, desires, beliefs; the result of our own history of choices, interactions and structural combinations(Mingers 1997).

3.4.4.3. The Intervention System (IS) – the Agent

Any consideration of critical action must begin and ultimately end with the agent or participants. A particular combination of methodologies is led by a particular agent to meet a unique set of circumstances. This depends on the characteristics of the agent – their knowledge, history, and relationship to the problem situation, personality, values and commitments. Mingers also argues that no critical theory or methodology can compel its users to employ it critically. He also refers to the emotion of the agent and argues that emotion cannot be eliminated from human action but needs to be seen in terms of a positive synthesis with rationality.

Nevertheless, he advocates for a 4 As approach consisting in continual reappraisal of our *appreciation*- understanding how the situation is, our *analysis* – explaining why the situation is at it is, our *assessment* – exploring the potential for change and finally our *actions* (Mingers 1997).

3.4.4.4. The Intellectual Resources System (IRS) – Framework for Integrating Methodologies

Agents need to reflect critically about the process and design of each unique intervention in order to construct an appropriate combination of methodologies and techniques. For this purpose they should first identify the particular contributions that the various paradigms, methodologies, techniques and tools can make in terms of the different dimensions of the problem situation and different phases of intervention; second, split them up into parts that can then be used in combination. For this endeavour the following definitions are adopted, I quote:

- "*Paradigm:* a very general world-view, based on a set of fundamental philosophical assumptions that define the nature of possible research and intervention.

- *Methodology:* a structured set of guidelines or activities to assist an individual in undertaking research or intervention;

- *Technique:* a specific activity that has a clear well defined purpose within the context of a methodology;

- *Tool:* an artefact, often computer software that can be used in performing a particular technique" unquote (Mingers 1997).

3.4.4.5. A Framework for Mapping Methodologies

The objective is to link the different phases and dimensions of an intervention. The logic of the framework is that a fully comprehensive intervention needs to be concerned with the three different worlds – material, personal and social (Table 4).

Table 5.3 Linking phases and dimensions of interventions
SOURCE: Mingers, (1997)

	Appreciation Of	Analysis of	Assessment of	Action Of
Social	Social practices, power relations	Distortions, conflicts, interests	Ways of altering existing structures	Generate empowerment and enlightenment
Personal	Individual beliefs, emotions, meanings	Differing perceptions and personal rationality	Alternative conceptualizations and constructions	Generate accommodation and consensus
Material	Physical circumstances	Underlying causal structure	Alternative physical and structural arrangements	Select and implement best alternatives

This framework can be used by addressing the boxes and ask which methodologies can be relevant in that particular aspect of an intervention. There are some caveats. First, it is not intended that methodologies be slotted into particular boxes. Second, the precise placing of a particular methodology or technique is debatable. Third, the multi-methodology approach advocated includes the possibility of taking parts of methodologies or even techniques, and using them within an alternative paradigmatic approach (Mingers 1997)

3.5. Exploration of Different Paradigms

The following paradigms could be considered:

3.5.1. **Jackson (2000; 2003) four key paradigms** functionalist, interpretive, emancipatory, and postmodern have been explored systematically in section 2.3 entitled Systems Methodologies.

3.5.2. **Alvesson and Deetz** (1996) divided social theory into four types similar to that of Burrell and Morgan and capturing the similarities and differences between different research approaches: normative, interpretative, critical and dialogic. Jackson (2000) recognizes that his four key paradigms reflect very closely Deetz's classification.

3.5.3. **W. Laurence Newman** (1991) proposed four social research approaches with their own philosophical assumptions and principles and their own stance on how to do research. They are: positivist social science, interpretive social science, critical social science and, feminist and postmodern research (Newman 2000).

i. *Positivist social science* is widely used and defined as the approach of natural sciences. Positivism arose from 19th century school of thought by August Comte (1798-1857) who founded sociology. Positivism sees social science as an organized method for combining deductive logic with precise empirical observations of individual behaviour in order to discover and confirm a set of probabilistic casual laws that can be used to predict general patterns of human activity. Positivist researchers prefer precise quantitative data and often use experiments, surveys and statistics. They seek rigorous exact measures and objective research. The main critique to positivism is that they reduce people to numbers and its concerns with abstracts and laws and formulas are not relevant to the actual lives of real people (Newman 2000).

ii. *Interpretive social science* can be traced to the sociologist Max Weber (1864-1920) who argued that social science needed to study meaningful social action. This approach is related to hermeneutics – a theory of meaning that originated in the 19th century. This approach is the systematic analysis of socially meaningful action through the direct detailed observation of people in natural settings in order to arrive at understandings and interpretations of how people create and maintain their social worlds. The interpretive researcher shares the feeling and interpretations of the people he or she studies and sees things through their eyes. It's a study of meaningful social action, not just the external or observable behaviour of people. The method is relevant in exploratory research (Newman 2000), therefore applicable for the current study.

iii. *Critical social science* criticizes interpretive approach for being too subjective and relativist. It defines social science as "a critical process of inquiry that goes beyond surface illusions to uncover the real structures in order to help people change conditions and build a better world for themselves. It rejects positivism and interpretive approach as being detached and concerned with studying the world instead of acting on it. It argues that knowledge is power and can be used to control people; it can be hidden in ivory towers for intellectuals to play games with, or it can be given to people to help them take charge and improve their lives". Newman advocates for any research technique but put emphasis on historical comparative method (Newman 2000).

iv. *Feminist and Postmodern research approaches* according to Newman, are still embryonic; they gained some viability in the late 1980s. The f<u>eminist approach</u> attempts to give a voice to women and to correct the male-oriented perspective that has predominated in the development of social science. This approach see researchers as gendered beings; and therefore the gender will shape how they experience reality and therefore it affects their research. <u>The postmodern approach</u> is a rejection of modernism. It has roots in the philosophies of existentialism and anarchism behind the ideas of Heidegger, Nietzsche and Satre. Modernism refers to basic assumptions and values that arose in the Enlightenment era. It relies on logical reasoning. It is optimistic in relation to the future and believes in progress. It has confidence in technologies and science and it embraces humanist values. It holds that there are standards of beauty, truth and morality about which most people can agree. Extreme postmodernists reject the possibility of a science of the social world; they see knowledge as taking numerous forms and as unique to particular people or specific contexts; they reject the use of science to predict and make policy decisions (Newman 2000).

3.5.4. **Burrell and Morgan`s (1979) four paradigms** for the analysis of social theory: functionalist, interpretive, radical structuralist and radical humanist. According to the authors, these four paradigms are founded upon mutually exclusive views of the social world (Jackson 2000).

i. *Functionalist paradigm* – it views systems objectively, and they are easily identifiable and exist independent of us as observers. We

understand the relationships between the whole and other component parts (sub-systems); and it is possible to construct a model of the system. The purpose of studying such systems is to better understand the status quo and this facilitates the prediction and control of the system.

ii. *Interpretive paradigm* – it perceives systems in a subjective manner, trying to understand the viewpoints, interpretations and intentions of people who construct them. The presence of human beings with free will in the systems makes a huge difference to the way systems are analysed and perceived. Normally it is not possible to construct a model of such a system. To study it we must obtain detailed information about it to get involved in its activity and get inside it. The aim of studying it is always to understand better the status quo and facilitate prediction and control.

iii. *Radical structuralist paradigm* – it perceives systems in objective way. We can discover casual regularities governing system's behaviour. It is possible to develop models. The purpose of studying such systems is to understand radical changes as a way to resolve contradictions and conflicts among different groups in the system. For structuralists, the primary objective of science is explanation – a description of structures and mechanisms that casually generate the observable phenomena.

iv. *Radical humanist paradigm* – according to this approach, systems are seen as creative constructions of people. Therefore, for understanding of systems we have to perceive the intentions of people that construct them. The way to learn about these systems is to get the researcher involved in

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their activities. The critical study consists in understanding the social

arrangements and phenomena that constrains human development and

promote human emancipation (Jackson 2000).

3.6. Exploration of Different Metaphors

3.6.1. Introduction

Pepper (1942) provided a significant contribution to systems thinking, when he described the "root metaphor method" to understand the world. It is an analogical method of generation of world theories. It consists in pitching upon an area of common-sense fact and tries to see if we can't understand other areas in terms of this one. The original area becomes then the basic analogy or root metaphor.

Jackson (2000) identifies four Pepper's hypothesis that have proved capable of generating relevant world theories: the *formism* that has "similarity" as its metaphor. According to this view, all specific objects of experience are seen as copies of ideal forms and so could be seen in the world. The *mechanism* has "the machine" as its root metaphor: it sees the world as mechanistic, operating under physical laws and therefore being completely determined. The *contextualism* is concerned with "an act in its context". Is presents the world as a sequence of patterns in a process of change and novelty, order and disorder. Finally, *organicism* has "organism" and "integration" as its root metaphors.

In terms of application, metaphors can be used by a skilled manager, alone or with others, to enhance creative insights and develop critical thinking (Jackson 2000). In critical systems thinking, a number of Morgan's (1986) key metaphors are often employed.

3.6.2. The "machine" metaphor

The most influential theorists treating organizations as if they were "machines" are Fayol, Taylor and Weber. Henry Fayol (1916) advised managers to forecast and plan, to organize, to command, to coordinate and to control. Taylor (1947) advocated division of labour and the shifting of control away from the point at which the task is carried out. Max Weber argued that bureaucracy is the most technically advanced organizational form because is based upon an advanced division of labour, a strict hierarchy, governed by rules and staffed by trained officials(Jackson 2000).

3.6.3. The "organismic" metaphor

Another strand of theorists treat organizations if they were "organisms". They consider organizations as complex systems, made up of parts in close interrelationship. Because of this feature, organizations can only be studied as wholes. The primary aim is to ensure their survival. In this context, organizations are seen as open systems, adapting to the changes in their environment; and sub-systems are controlled to make sure that they meet the needs of

the organization. Under this strand of theorists, Jackson (2000) mentions Selznick in 1948, Parsons in 1956, and Katz and Kahn in1966.

3.6.4. The "brain" metaphor

The neuro-cybernetic strand of theorists pictures organizations as being "brains". The initiator of this model was Herbert Simon (1947) who argued that individuals in organizations inevitable acted according to "bounded rationality of good enough decisions". Later on, Galbraith (1977) developed his view of organizations as information-processing systems. He was followed by Argyris and Schon (1995) who expanded their understanding of organizations as brains, giving more attention to the idea of "learning organizations" that are capable of learning in a brain-like way (Ref. Organisational Learning:Theory Method and Practice). This has been of special concern to a group of information theorists who have interested themselves in problems of artificial intelligence under the umbrella of cybernetics – a relatively new interdisciplinary science focusing on the study of information, communication, and control. In the learning process organizations should be able: to sense, monitor and scan significant aspects of their environment; to relate this information to the operating norms; to detect significant deviations from these norms; and to initiate corrective action when discrepancies are detected (Morgan 1997).

3.6.5. The "culture" metaphor

Others see organizations as "cultures". The essential feature of the cultural perspective is considering that human beings as part of organizations will attribute their meaning and will manage according to their purposes. Upon this view, organizations are processes in which

different perceptions of the reality are continuously negotiated and renegotiated(Jackson 2000). Morgan shares the same view and explains that it is about the struggle for control among decision-makers, and a struggle for the right to shape the corporate culture. In politics, such struggles are often closely linked to questions of ideology.

3.6.6. The "political" metaphor

In considering organizations as *political* systems, Jackson (2000) drew attention to three frames of reference, based on Burrell and Morgan (1979) for describing the relationship between individual and organization. First, the "unitary" view, representing the organization as well integrated team pursuing common goals and objectives. Second, the "pluralist" prospect that emphasizes diversity of individual and group interests and sees the organization as a loose coalition. Finally, the "radical" standpoint, based upon Marx, that pictures organizations as instruments of domination used by some groups to benefit themselves at the expense of others. Organizational politics arise when people think differently and want to act differently, and we can analyze it in a systematic way by focusing on relations between *interests, conflict* and *power* (Morgan 1997).

3.7.   Summary

This chapter raises awareness about existing Systems Thinking approaches and the way Health Systems could be enlightened with systems ideas. The importance of root metaphors of mechanism, organicism and formism has been clearly demonstrated through its use in functionalist systems approach. Jackson argues that metaphors are also important devices in critical systems thinking to encourage creativity. Total Systems Interventions also use a range of systems metaphors to encourage creative thinking about organizations. Morgan (1997) shares the idea that metaphors have strengths and create insight, but warns that they also have limitations and can distort! In creating ways of seeing, they tend to create ways of *not* seeing. Therefore there is no single theory or metaphor that gives an all-purpose point of view. The challenge facing modern managers is to become accomplished in the art of using metaphor: to find appropriate ways of seeing, understanding, and shaping the situations with which they have to deal.

CHAPTER 4

4. THE LITERATURE ON HEALTH SYSTEMS

4.1. Introduction

The literature on Systems Thinking advocates that "system" is a comprehensive concept for very different connotations and very different levels of analysis. The concept of systems in sociological analysis without further clarification can raise controversies because participants may have different ideas in mind when they speak of systems. Luhmann (1984) raises a fundamental question: how a paradigm change that becomes apparent on the level of systems theory affects the theory of social systems? He argues that GST can become a "Theory of the General System" and this situation repeats itself in all levels of concreteness. The review of literature on Systems Thinking and the literature on Health Systems do not provide a clear indication on the way the Health System type emerged. In social systems literature, sociology embraces the unity of the totality of what is social – social relations, processes, actions, or communications; accordingly, society is the all - encompassing social system that includes everything that is social, and therefore it does not admit a social environment. If something social emerges society grows along with them, they enrich society. Society is the autopoietic social system par excellence (Luhmann 1995).

The question remains open: How did the Health System concept emerge as a differentiated system?

Luhmann (1984) alludes to the theory of self-referential systems. According to this theory, systems can differentiate only by self-reference – in constituting their elements and their elemental operations. To make these possible, systems must create and employ their own description; they must be able to use the difference between system and environment for orientation and as a principle for creating information. A science that wants to live up to such systems must construct concepts on the corresponding level.

There is no evidence on the way The Health System concept emerged but its current thinking is being tested in light of GST.

This chapter will focus on the chronology of the way people had addressed health systems. The term health system is used in a confusing and fragmented manner. Different descriptions on health system theory are not consistent and the words used to convey messages on mental image of related event, experience or perspective are not standardized. They may mean different things to different people. The analysis and design of Health Systems according to selected property or dimension is sometimes difficult because of either lack of conceptual ordering or different perception by different theorists. Another explanation could be the fact that health system thinking is lagging behind the systems thinking movement. Current Health Systems Thinking does not address human relations, behavioural and cultural aspects that are so important in terms of health promotion. System ideas could help in understanding current Health Systems Thinking, developing concepts and relationships to make up a consistent framework of thinking that could be used to explain and

predict Health Systems phenomena. This would improve the dialogue among health system theorists and practitioners.

Health systems of some sort have existed as long as people have tried to treat diseases and protect their health. Most countries have no single health system but several distinct health financing and provision sub-systems, embracing different types of traditional practice as well as public, private and not-for-profit hospitals and clinics, sometimes offering services for limited population sub-groups such as civil servants (Jamison, Creese et al. 1999).

Health systems are defined as comprising all the organizations, institutions and resources that are devoted to producing health actions. Health action is defined as any effort, whether in personal health care, public health services or through inter-sectoral initiatives, whose primary purpose is to improve health (Musgrove, Creese et al. 2000).

Health systems have undergone overlapping generations of reforms in the past 100 years, including the founding of national health care systems, promotion of primary health care as a route to achieving Health for All – affordable universal coverage. A criticism of this route has been that it gave very little attention to people's *demand* for health care, and instead concentrated almost exclusively on people's perceived *needs* (Musgrove, Creese et al. 2000). This gave room to universalism in health – a form of public intervention that has governments attempting to provide and finance everything for everybody. This philosophy, dominated about 20 years from early 1970's and it shaped the formation of well –established health systems that achieved important health successes. However, the universalism failed to recognize both resource constraints and the limits of Government.

In the past decade there has been a gradual shift towards what WHO (1999) calls the "new "universalism. This shift has been partially due to the profound political and economic changes of the last twenty years, including the transformation from centrally planned to market –oriented economies, reduced state intervention, fewer government controls and more decentralization.

WHO (1999) advocates a "new" universalism that recognizes government's limits, but retains government responsibility for leadership, regulation and finance of health systems. The new universalism welcomes diversity and recognizes that services are to be provided for all but not all services can be provided. It foresees that the most cost-effective services should be provided first. It welcomes private sector involvement but it entrusts the public sector with the fundamental responsibility in providing strategic orientations, stewardship and financing care for all.

The key features for progress to a **new universalism in health** are: *membership* defined to include the entire population; *universal coverage* meaning coverage for all, not coverage for everything. The *patient does not make the provider payment* at the time he or she uses the health service (out-of-pocket payment results in an inequitable financing burden and barriers to access for the poorest; pre-payment allows more efficient purchasing services). Services may be offered by *providers of all types* (provided that health practices and health facilities meet certain quality of standards), such arrangements will allow a very large number of private providers who are essentially the first points of contact with the health system to be brought within a structured but pluralistic health care system (Jamison 1999).

Next sections will describe the current situation of Health Systems in terms of *philosophy* – primary health care fondamentaly, *theory* – the public health discipline, current *methodologies* used in health, and the *practice* of health sector reforms essentially. The chapter examines the primary health care philosophy and illustrates different models of Health Systems by different authors. It provides insights about the evolution of public health and brings up the essential differences between the Old Public Health and the New Public Health. It analyses current methodologies in health systems and realizes shortcomings to address the social aspects of health. Finally, it provides analysis of experiences in health sector reforms and identifies retractable problems that need to be addressed.

4.2. Developments in Health Systems Philosophy/Ideology

4.2.1. PHC (primary health care) Philosophy

The *Organizational Study on Methods of Promoting the Development of Basic Health Services* (Document WHO, EB51/WP/1, 1973) is one of the two major foundations of primary health care. It mentions the critical health situation in the world and the dissatisfaction of populations. The causes have been summarized as " a failure to meet the expectations of the populations; an inability of the health services to deliver a level of national coverage adequate to meet the stated demands and the changing needs of different societies; a wide gap (which is not closing) in health status between countries, and between different groups within countries; rapidly rising costs without a visible and meaningful improvement in service; and a feeling of helplessness on the part of the consumer, who feels (rightly or wrongly) that the health services and the personnel within them are progressing

along an incontrollable path of their own which may be satisfying to the health professions but which is not what is most wanted by the consumer".

It was agreed at global level that the main social target would be the attainment by the year 2000 of a level of health that would permit all peoples to lead a socially and economically productive life (WHO 1977).

The second major foundation is the outcome of the International Conference on Primary Health Care held in Alma-Ata, USSR, in 1978, expressing the need for urgent action to respond to the minimum requirements for health development worldwide. The Alma-Ata Declaration strongly reaffirmed that health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. It is a fundamental human right and the attainment of the highest possible level of health is the most important worldwide social goal whose realization requires the action of many other social and economic sectors in addition to the health sector.

The conference defined Primary Health Care (PHC) as "*essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community. It should involve their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It forms an integral part both of the country health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family and community with the national health system bringing health care as close as possible to where people live and work, and constitutes the*

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first element of a continuing health care process " (WHO 1987). This is a public health philosophy or approach that is expected to guide the organisation and management of national health care services.

The components of the primary health care to be delivered at the first level of national health systems are: promotion of proper nutrition and adequate supply of safe water; basic sanitation; maternal and child care, including family planning; immunization against the major infectious diseases; prevention and control of locally endemic diseases; education concerning prevailing health problems and the methods of preventing and controlling them; and appropriate treatment for common diseases and injuries (WHO 1987).

In terms of level of health care within a national health pyramid, primary care has an operational definition rather than philosophical. It means the "provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community (Slee, Slee et al. 1996).

The World Health Report 2008 reflects the growing demand for primary health care and explores mechanisms to make health systems more equitable, inclusive and fair. It insists on the need of putting people at the centre of health care; and take into account their expectations about health and health care and ensuring that their voice and choice decisively influence the way in which health services are designed and operate. The report recognizes the significant improvements in world health since Alma-Ata 1978 but warns that the substantial progress in health over recent decades has been deeply unequal. It calls attention to the changing nature of health problems resulting from ageing, ill-managed urbanization

and globalization; and the complex web of inter-related factors from climate change, food insecurity and social tensions. It alerts that health systems are not isolated from political and economic crisis that affect the state and institutional roles to ensure access, delivery and financing. It realizes that the world is witnessing the flourishing of unregulated commercialization of health. The information and communication technology has transformed the relations between citizens, professionals and politicians. Finally, the report revisits the ambitious vision of primary health care values and principles for guiding the development of health systems (Evans, Lerberghe et al. 2008).

To respond to the current challenges four sets of reforms are envisioned based on primary health care philosophy. According to the above-mentioned Report, they are, I quote:

i) "*Universal coverage reforms* that ensure that health systems contribute to health equity, social justice and the end of exclusion;

ii) *Service delivery reforms* that reorganize health services as primary care around people's needs and expectations rather than around priority vertical approaches focused on individual disease control programmes or projects with parallel chains of command competing with the structural response of health systems;

iii) *Public policy reforms* that secure healthier communities, by integrating public health actions with primary care and by pursuing health public policies across sectors; and

iv)   *Leadership reforms* that replace disproportionate reliance on command and control on one hand, by the inclusive, participatory, negotiation-based leadership" unquote.

The legitimacy of health authorities increasingly depends on how well they assure responsibility to develop and reform the health sector according to what people value – in terms of health and what is expected of health systems in society (Evans, Lerberghe et al. 2008).

4.2.2. Kleczkowski and Roemer's concept

Health system is seen as a coherent whole, consisting of many interrelated component parts, both sectoral and intersectoral, as well as the community itself, which produce a combined effect on the health of a population. The design of health systems depends on its fundamental objectives and values and its analysis depends on the degree of thoroughness intended. To create a purposeful system all parts must work together and adjust to each other (Kleczkowski, Roemer et al. 1984).

At the most elementary level there are five major components (Fig.8) of a health system directly or indirectly related: the development of health resources, organized arrangement of resources, delivery of health care, economic support and management (Kleczkowski, Roemer et al. 1984; Roemer 1997).

Figure 9: Health System 5 major components
SOURCE: Kleczkowski, Roemer and Van Der Werff, 1984
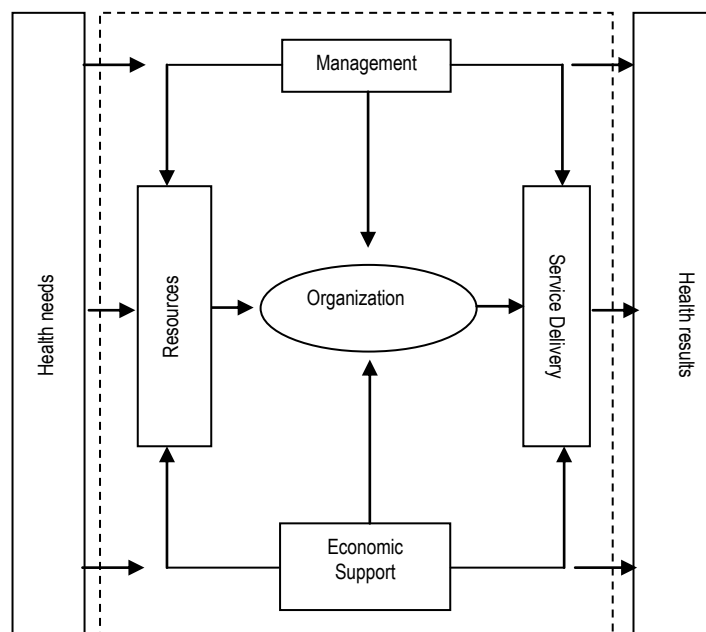
i. *First*, **Organization** of Programmes is a component in order to process the utilization of several types of resources to achieve certain ends; health services are often organized into programmes. As Governments have assumed increasing responsibility for the general operations of health systems, the major public agency to play this role has been the Ministry of Health or some broader body encompassing such a ministry (WHO 1984).

ii. *Second*, **Resources** is the component corresponding to basic resources that must be produced or obtained and that are essential for the operation of any health system. They include (i) health human resources, (ii) health facilities, (iii) health technology such as drugs, and, (iv) knowledge. It should be noted that financing or money is not regarded as a resource; rather it is a medium of exchange, convertible into resources or services. The production of all resources requires inputs from various other sectors, such as education, construction, manufacturing and other. The quantity and quality of resources in a health system depends largely on the wealth of a country and sometimes on the political will that assigns high priority to the health system.

iii. *Third*, **Economic Support** is the component that in all national health system ensures the development of all health resources, their organization into programmes and ultimately the provision of services. The aspects related to financing the systems involve both the State and groups within the sector and society in general. There are five major sources for financing the health sector: the public (a national treasury), the social security system (social works, group insurance schemes and prepayment plans), and the private sector (direct payment by users, welfare/philanthropic entities, foundations and NGOs) and the external sector (bilateral, multilateral and NGOs). To some extent in every country, private individuals finance health services for treatment of personal health problems. Charitable donations are another type of support that may take form of donated labour or money.

iv. *Fourth*, **Management** is another form of support for the operation of a health system. It includes planning, administration, regulation and legislation. Planning may be done

at central or local levels of health systems or at both levels with respect to different functions. It applies most often to the production of resources, but may also be applied to the development of organized health programmes or the provision of specific services. Administration encompasses many functions - the exercise of authority, organization of resources, delegation of responsibility, supervision, communications, co-ordination and evaluation. Sometimes administration is used interchangeably with management, but whatever terminology is used; its purpose is to mobilize human and physical resources to reach a goal with maximum of efficiency and effectiveness. Regulation involves enforcement of certain standards of performance. It can be exercised either by governmental or non-governmental agencies. Legislation is the instrument of government used for crystallizing and clarifying health policy so that everyone can know it.

v. *Fifth*, **Service Delivery** that is the component corresponding to provision of health services to people. This includes all form of services - health promotion, diseases prevention, diagnosis, treatment, and rehabilitation. In terms of the complexity of the specific activity, the services can be designated as primary, secondary and tertiary. Since the Alma-Ata Conference on Primary Health Care in 1978, almost all nations have adopted WHO concept of primary care, embracing all basic strategies for health promotion and diseases prevention. Secondary care has been variously interpreted, but it should include specialized medical services to the ambulatory patient and low-intensity long-term care. Tertiary care refers to services requiring highly specialized skills and sophisticated technology, typically in teaching or reference hospitals.

4.2.3. Janovsky's Theory on Key Actors

Janosvsky (1996) considered that despite some differences in interpretation, there is increasing convergence in defining the key actors in the health system and the nature of the functional interactions between them; she classifies health care providers and users in terms of supply and demand respectively; the State and institutional purchasers govern the interaction between supply and demand (Fig 8). Hence, she considered the following health system elements (adapted from *Cassels*, 1995 and *Frenk*, 1994):

i. Supply side - *resource institutions*: Produce the human and material resources for health care- concerned with basic and in-service training of health personnel and health-related Research & Development. *Service providers*: In the public, private, NGO or traditional sectors, many individuals give informal unpaid care at home. Others work in some kind of institutional setting such a hospital, health centre or primary health facility. Services include clinical and support services. *Agencies in sectors outside health*: Such as education, communications, employment, agriculture, housing and water supply, produce benefits indirectly because of the goods or services they provide.

ii. Demand side - *individuals, households and population*: People acting individually or as households can produce health benefits by individual or collective action and behaviour, as seekers of health care and as purchasers of care.

iii.   Interaction - *institutional purchasers*: organizations such as insurance funds, district

health authorities or health maintenance organizations define health needs for defined

populations and purchase clinical services from providers using a variety of

contractually mechanisms. *The State*: Government institutions are responsible for

financing, purchasing and provision of health care. The state aggregates resources,

channels them to the providers, and interprets the interests and demands of the

population(Janovsky 1996).

Figure 10: Janovsky's model of health system. (1996)

4.2.4. Murray Theory   and Frenk's
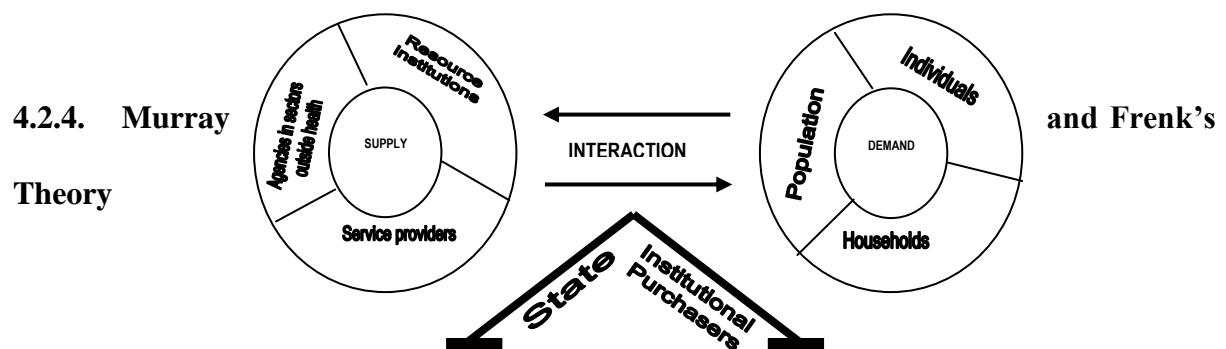
Murray and Frenk (1999) brought up a new development in health system concept.

They argued that health systems include resources, actors, and institutions related to the

financing, regulation, and provision of *health actions*. A health action regarded as, I quote

"any set of activities whose primary intent is to improve or maintain health". One major

advantage of the primary intent criterion is that it includes in all actors and institutions that

see their primary purpose as contributing to health. It is critical to recognize that efforts to

improve determinants of health, such as educating young girls or reducing social inequalities,

are clearly part of the health system; these intersectoral actions are intended to improve health and therefore fulfil the primary intent criterion. The authors recognize that the definition of health system boundary is somehow arbitrary and according to the context; and the need to define an operational boundary.

"The defining **goal** of the health system is to *improve the health of the population*, both the average level and its distribution across individuals" (Murray and Frank 1999). There are two goals common to all systems. These are responsiveness to the legitimate expectations of the population and *fairness in financing* of the system. "Responsiveness relates to components such as: respect for the dignity of the person, respect for the autonomy of the individual to make choices about his/her own health, respect for confidentiality, basic amenities, access to social support networks for individuals receiving care and choice of institution and individual providing care. The goal of fairness in financing should be associated with financial risk protection of households. The health, education or security system may and most likely do affect the attainment of the defining goals of other systems; recognizing these interactions, we can define *cross-system goals* for the health system such as contribution to the economic production, education and democratic participation" (Murray and Frank 1999).

Figure 11: Health System Functions and Goals.
Source: Murray and Frenk (1999)
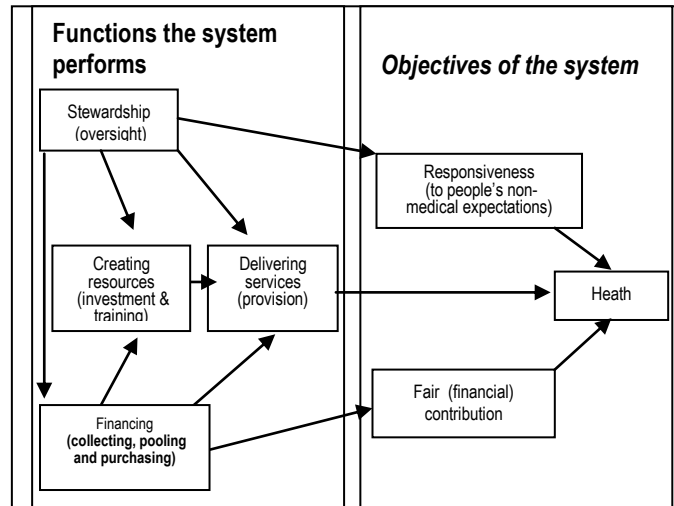
Murray and Frenk (WHO 1999) considered that every health system has to perform

four **basic functions** (Fig.10). First, *Health System Financing* the process by which revenues

are collected from primary and secondary sources, accumulated in fund pools and allocated to

specific activities of particular providers. Second, *Provision of Health Services* that refers to

the combination of inputs into a production process that takes place in a particular

organizational setting and that leads to the delivery of a series of interventions. Third,

Resource Generation that refers to the input to delivery of services particularly human

resources, health facilities, drugs, supplies, equipment and knowledge. The health system is

able to exercise its functions because of the development and allocation of resources. There is

need to manage the balance between the demand of health services and resources made

available for it. Fourth, *Stewardship* goes beyond the conventional notion of regulation; it

involves defining the strategic directions of the health system as a whole. It can be subdivided

into six sub-functions: overall system design including policy formulation, performance

assessment, priority setting and consensus building, intersectoral advocacy promoting policies in other systems that advance health goals, sanitary regulation of goods and services and health care regulation, and consumer protection. The results of health activities can be measured and the information fed back to management. Such information may relate to *functioning* of the health system (volume, distribution and quality of outcome) and the *effect* on the population (morbidity, mortality, productivity and quality of life); through this feedback, management exercises its regulatory functions.

4.2.5. Turnock´s conceptual framework of the Public Health system

Bernard J. Turnock (2004) refers that the term *public health* evokes several different images among the public and those dedicated to its improvement. To some, the term describes a broad social enterprise or system. To others, the term describes the professionals and workforce whose job it is to solve certain important health problems. Still another image of public health is that of a body of knowledge and techniques that can be applied to health related problems. Similarly, many people perceive public health primarily as the activities ascribed to governmental public health agencies. A final image of public health is that of the intended results of this endeavours- public health is literally the health of the public.

With the broad view of public health as a social enterprise, the question shifts from what public health is to what these other image of public health represent and how they relate to each other. To understand these separate images of public health, Turnock (2001) came up with a conceptual framework of the public health system (see figure 11).

Figure 12: Conceptual Framework of the Public Health system
SOURCE : Handler A, Issel M and Turnoc BJ. *Amer J Pub Health* (2001).
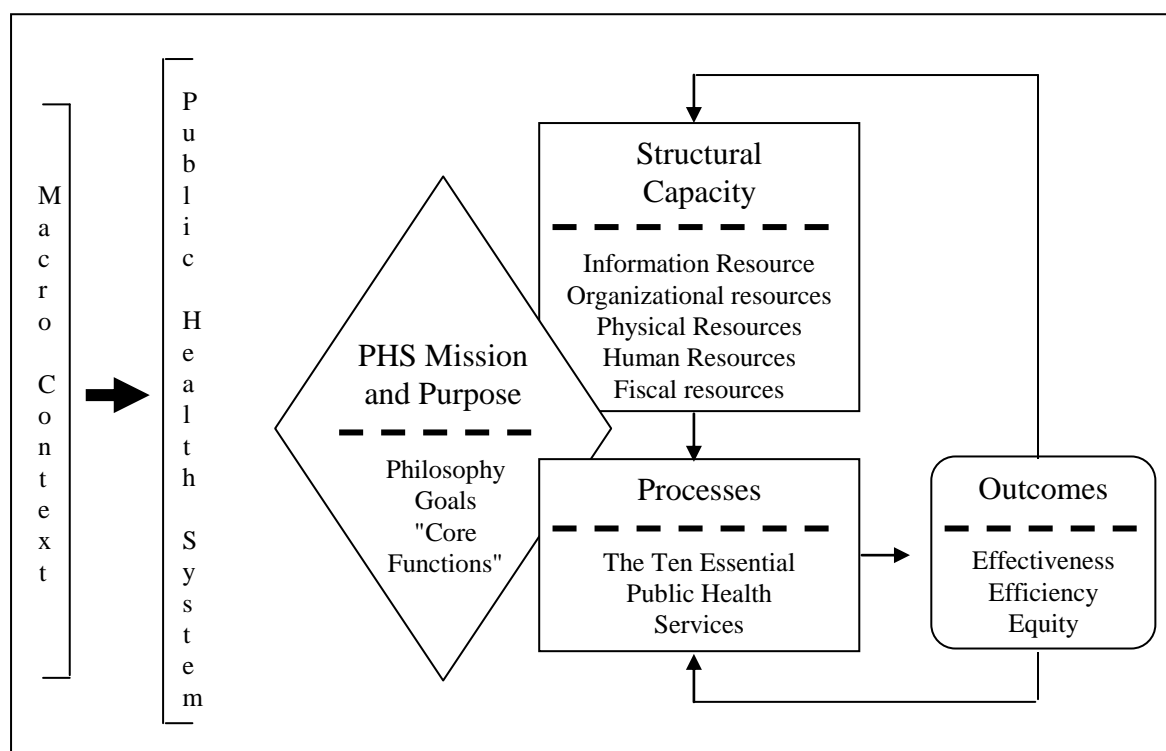
This framework brings together the mission and functions of public health in relation to the inputs, processes, outputs and outcomes of the system. According to Turnock's model adapted from Public Health Practice Program Office, 1990, of the Centers for Disease Control and Prevention the details are as follows. The author provides more details saying that, I quote "the *Capacity (Inputs)* are the resources and relationships necessary to carry out the core functions and essential services of public health; these include human resources, information resources, fiscal and physical resources, and appropriate relationships among the system components. The *Process (Practices and Outputs)* are those collective practices and processes that are necessary and sufficient to assure that the core functions and essential

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services of public health are being carried out effectively, including the key processes that

identify and address health problems and their causative factors and the interventions

intended to prevent death, disease, and disability, and to promote quality of life. The

Outcomes (Results) are indicators of health status, risk reduction, and quality of life

enhancement; outcomes are long term objectives that define optimal, measurable future levels

of health status, maximum acceptable levels of disease, injury or dysfunction; or prevalence

of risk factors" unquote (Turnock 2004).

Figure 13: Framework for measuring Public Health System performance
SOURCE : Turnock BJ (2004)

Capacity   **Process**   **Outcomes**
(Essential Public Health Services)

System Inputs   Key Processes   Outputs

Workforce	Assess → Develop Policy → Assure	Programme and Services consistent with mandates and community priorities
Information		Improved organizational performance
Organization & Relationships		Improved program performance
Facilities		
Funding		Improved Outcomes

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4.2.6. Thinking on system environment and health determinants

The researcher shares the view that health phenomena are complex and involves simultaneous integration of many variables, ranging from mental, physical, chemical and biological processes in different cultural, social, economic and environmental contexts. This complexity requires use of interdisciplinary model for critical analysis. The researcher believes that systems thinking could offer ideas to improve the understanding and new developments in health systems thinking. A system understood as a set of interrelated components and actors with a common objective should be conceived and designed in different particular contexts according to its purpose that defines its identity and distinguishes it from other systems. The objective or desired result of a health system is to produce a better state of health for individuals and communities, increasing their capacity to realize their potential for a social and productive life, towards overall human development. The economic, educational, political, cultural, ecologic systems are often more determinant and important than the health sector which is increasingly under human control - in influencing systems behaviour and outcomes with regard to health.

While recognizing the important role of the health sector in providing leadership and advocacy to improve health status of people, the 2008 Report of the Commission on Social Determinants of Health argues that lack of health care is not the cause of the huge global burden of illness. It clarifies that water-borne diseases are not caused by lack of antibiotics but by dirty water and by the political, social end economic forces that fail to make clean water available to all; heart disease is not caused by lack of coronary care units but by the

lives people lead; therefore the main actions for health come from outside the health sector (Marmot, Friel et al. 2008). Health sector development can therefore be understood as an intersectoral process of change that is unpredictable and depends on permanent negociations/interactions between relevant actors/structures/elements in their efforts to fulfil the essential public health functions. It is therefore a highly complex sector operating in different contexts to which it should adapt to be able to perform its functions.

In 1974, Blum proposed an "environment of health" model (see Fig 13).

Figure 14 Blum's environment of health model
Source: Dever (1984)
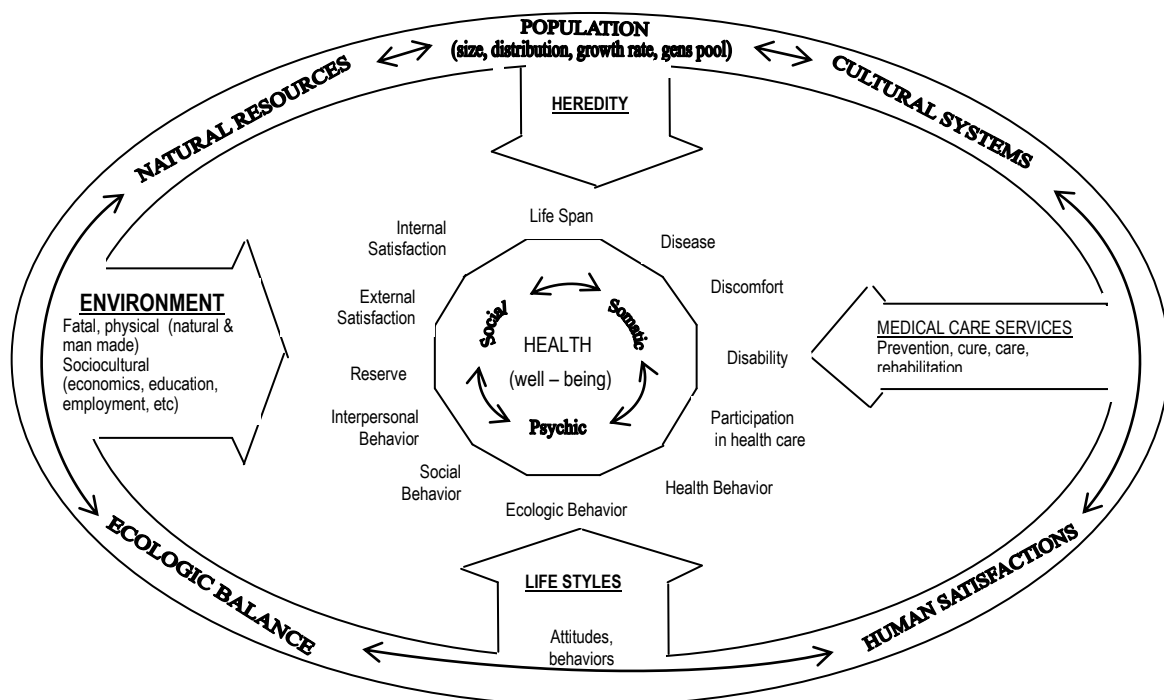
Blum suggests that the width of the four inputs contributing to health (medical care services, heredity, life-styles and environment) indicate assumptions about their relative importance. The four inputs relate to and affect one another by means of an encompassing

wheel containing population, cultural systems, mental health, ecological balance and natural resources. On the other hand, the assumptions of Lalonde and Dever in 1976 are that the four inputs are weighted equally and must be in balance for health to occur.

The key question to answer is how do these four determinants operate when analyzed for different specific diseases; or how do these determinants operate in a state of wellness when no disease exists? Some public health theorists argue that HEALTH is a result of the balance between human beings and their environment. Others say that in spite of its elusive nature, the understanding of the interactions between "man and environment" is critical to enhance health and prevent diseases in individuals and communities (Dever 1984).

Roemer (1997) considers that a national health system can be defined as the complex of activities in a nation that result in the provision of health services to the population. These public health functions are intended to promote health status, prevent disease, provide medical diagnosis and treatment, or rehabilitate individuals to maximum social functioning. Health Systems should not be regarded as the summation of activities that produce health, since health status of populations is influenced by countless factors in the environment in which health systems evolve, and their mediation depending on personal and behavioural characteristics of individuals managing the different components. Whatever may be the health status of a population, the provision of health services may exert an influence upon it (Fig. 14).

Figure15: Determinants of Health
Source: Roemer (1997)

```
 ┌─────────────────┐              ┌─────────────────┐
 │    PHYSICAL     │              │     SOCIAL      │
 │  ENVIRONMENT    │              │  ENVIRONMENT    │
 │                 │              │                 │
 │ Geography,      │              │ Education,      │
 │ Climate, Food,  │              │ Occupation,     │
 │ Housing, Water, │              │ Income,         │
 │ etc.            │              │ Relationship,   │
 │                 │              │ Urbanization,   │
 │                 │              │ etc.            │
 └─────────────────┘              └─────────────────┘
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PHYSICAL ENVIRONMENT
Geography, Climate, Food, Housing, Water, etc.

SOCIAL ENVIRONMENT
Education, Occupation, Income, Relationship, Urbanization, etc.

PERSONAL TRAITS
Age, Sex, Immunity, Genetic background, Habits, etc.

HEALTH :
Physical, Mental and Social Well Being

HEALTH SERVICES
Health promotion, Diseases prevention, Treatment and Rehabilitation

Concerning the different types of health systems, Roemer (1997) combines

consistently the characteristics of all five-health system components to define the type of

health system found in each country. He argues that fundamentally the system is shaped by

the wealth or economic level of the country and by the political ideology governing its health

system; therefore the *economic* and the *political features* determines the type of health system

among other characteristics such as the history, geography, culture, and other social

conditions (Roemer 1997).

4.2.7. Use of Systems Thinking in Public Health

4.2.7.1 Rogers and Walsh (1994) from the department of family medicine of the Baylor College of Medicine in USA interrogated the value of systemic thinking in family oriented clinical interventions and teaching efforts. The authors discussed the distinction between those who practice a family approach and those who think in family system terms. They propose a framework for clinical thinking in a matrix that combines in the horizontal axis the "content of clinician's practice" (biomedical, bio-psychosocial or psychosocial) and in the vertical axis the "clinician's model of causal mechanisms" (linear. multi-factorial or circular). The matrix suggests four types of clinical thinking: a) *traditional medical thinking* with biomedical content of clinician practice related with either linear or multi-factorial causality (LMC) model; b) *traditional family practice thinking* with bio-physical content of clinician practice and associated to LMC; c) *traditional psychiatric thinking* with psychosocial content of clinician practice and associated to LMC; and d) *systemic thinking* cutting across biomedical, biophysical and psychosocial practices and associated to a circular causality model (Rogers and Walsh 1994). This model specifies the features of systems thinking that once used in family health can enable the distinction between those who practice a family approach and those who think in family system terms. In other words the model and tool give the possibility of recognizing a systemic thinker among family health practitioners, researchers and teachers. In his research paper Rogers and Walsh elaborate on experiences and perceptions, knowledge structures and mode of inquiry to facilitate the application of the tool. The authors recognize that systemic thinking is not dominant in current health care systems while identifying two

groups of thought: those who believe that systems thinking leads to better health care and clinical outcomes and those who view this as a testable hypothesis (Rogers and Walsh 1994).

4.2.7.2   In 1997 a group of health system thinkers provided evidence that delivering clinical preventive services is a systems problem. They analyzed the work of the US Preventive Services Task Force and found out that despite significant improvement towards the Healthy People 2000 target, in many areas, some of these targets are rather low and represent a compromise between the real endeavours and what has been actually achieved. Their research demonstrated that prevention needs more emphasis and the organization of office environment to support delivery of preventive services on a regular basis was crucial. The tendency to think about curative and preventive care in a fragmented way was one of the root problems mainly due to tradition, economics and the difficulty that many clinicians have with the concept of population-based approaches to medical care; they tend to focus on specialized services while ignoring the broader scope of health. Based on the concept of work as process that takes an input from a supplier and transforms it into an output for a customer, they developed a "prevention system" that integrates processes for both clinical and preventive care; this led to improvement of prevention in a wide variety of primary health care settings. The preventive system model is made-up of nine interlocking operational processes resting on a firm base of the foundation process of guidelines and protocols. The nine operational processes are: SCREEN – the process of obtaining information in a standard way about all patients of a clinic in order to identify the specific prevention needs of each one; SUMMARIZE – the process of

organizing and updating the information obtained in the screening process so that it is all in one place and easily retrievable by those needing to know the current prevention status of a particular patient; CUE – the process of reminding clinical staff about their need to undertake some prevention tasks; FOLLOW UP – the process of communicating to patients the results of preventive services along with the appropriate information and recommendations; RESOURCES – the process of selecting, gathering, organizing and maintaining patient information and education needed for both patients and clinical staff; COUNSELING – the process of assisting patients and their families to make needed changes in their behaviour; TRACK and RECALL – the process of reminding patients about their ongoing needs for specific preventive services; PATIENT ACTIVATION –the process of encouraging patients to take greater responsibility of their own preventive services and behavioural changes; PREVENTION VISITS – the process of providing all the preventive services needed by a patient during a single visit designed and organized for that purpose. Only when all processes work well either separately or together, will a clinic become operational for its preventive approach (Solberg, Kottke et al. 1997).

4.2.7.3   Benko and Sarvimaki (2000) in a study entitled *Evaluation of Patient-Focused Health care from a Systems Perspective* recognize that Bertalanffy's general systems theory is commonly used in different areas of health sciences. They refer to Donabedian's (1988) structure-process-outcome model as the most used, somehow in a mechanistic manner. Referring to systems theory in health care, the author reminds that any form of social organization that has some degree of coherence and stability is hierarchically organized with supra-systems, systems and sub-systems; and to study a

particular system, one has to delineate and define what one considers to be the system under observation (the boundary issue) and its particular sub-systems. Based on systems and hierarchy concepts, Benko and Sarvimaki propose a three-level hierarchy model of health care in a ward of a hospital – a relatively well-defined context with many participating actors. According to this model, different system levels can be chosen for analysis: *persons* who individually work with the patient (nurse, physician and relative), a *group of persons* as a team, and the *totality of the ward* as a functional organization (Benko and Sarvimaki 2000). The model also comprises the care culture as a system of shared ideas, concepts, rules and meanings that express the worldviews and ways of living with it. The care culture influences the *ward climate*, which reflects how the different groups of personnel treat each other, work together, plan their work, provide support to patients and perform their duties. The *group climate* results from the influence of relatives, physicians and nurses with different worldviews, and acting either enhancing or hindering the process of care to patients. The *patient-nurse relation* reflects the influence that depends on the assumptions in the care culture concerning questions of life and death, health and sickness, hopes and despair. Therefore, values, self-conceptions, intentions, needs, and other human subjective aspects are captured in this model that also see the patient not only as a recipient but as an actor in the health care process (Benko and Sarvimaki 2000). The proposed model offers interpretive thoughts and related theoretical underpinnings for health care system analysis, but it does not provide methodological tools for intervention and change to take place.

4.2.7.4 Williams et al (2005) advocate for application of systems engineering modeling as a means to analyze and improve public health processes. According to the Williams et al, "systems engineering facilitates analysis and promotes insight of the business's functional and operational aspects, independent of technical implementation, and can help stakeholders and experts in reaching consensus-based solutions for improvement of public health programmes" (Williams, Lyalin et al. 2005). The proposed business modeling approach is flexible and comprises a <u>public health program</u> that is explored with <u>system analysis</u> and results in a <u>business model</u> (with process component, organizational component and rules and regulations) that guides <u>operations improvement</u> and advances <u>systems thinking</u> that contributes to operations improvement; that together with consistency and quality of <u>data improvement</u> bring benefits to the <u>public health programme</u>. According to this view, public health business needs should drive information-technology solutions and not the other way around (Williams, Lyalin et al. 2005).

4.2.7.5 Waldman (2007) defines health care as a *thinking system* and advocates that it needs *systems thinking*. He questioned current mental models, organizational structures and management philosophies underpinned by functionalist approaches, and proposed the concept of *thinking system* based in the argument that…"most of the outcomes or outputs in the modern world are derived from interactions within systems composed of machines, computers and people". He considers three types of systems: first, the *Machine-type System* which has consistency as key attribute, with an output that is predictable, which does not learn and has zero variability in terms of purpose (e.g. a bicycle); second, the *Complex Adaptive System* (CAS) which has adaptability as key

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attribute, with an output that is emergent, which does not learn for evolution and with the purpose of improvement and survival (e.g. birds); thirdly, the *Thinking System* which has purposeful learning as a key attribute, with outcomes that are both intended and unintended, which always learn. Waldman quotes Senge (1990) who defined learning as "the acquisition of knowledge or skill by study, instruction or experience" and emphasizes that thinking systems involve human beings and they always learn right or wrong things, while CAS can learn, but machines do not learn (Waldman 2007). While Trochim (2006) considers most systems in public health arena as Complex Adaptive Systems, …"consisting of many interacting stakeholders with often different and competing interests" (Trochim, Cabrera et al. 2006), Waldman (2007) considers health care as a paradigm of a thinking system. Waldman's argument is based in the fact that a doctor constantly deals with uncertainty and unpredictable individual outcomes. Moreover, staff involved in health care have different backgrounds, professions and interests, despite their common endeavour of providing care and improving health of individual patients and people. The internal and external environment of the health care system is constantly changing and therefore strategies and practice are continuously revised; and this is translated into a permanent process of learning and change. Health care professionals, therefore, live in a world of uncertainty, ambiguity and increasing frustrations from the clients side that never meet 100% of their expectations; and from health professionals side that never have an absolutely correct answer to different types of specific health problems. Therefore health care has all characteristics of a *thinking system.* Waldman realized that health care may be dysfunctional, and some of the root causes are associated to: a) the long delay between action and consequence, especially in preventive medicine; b) the fact

that we focus on process by care providers rather than on results experienced by consumers; on the other hand, we track what we do not want such as death and cost rather than tracking what we desire such as life and productivity; c) the fact that the primary input to the system is people with thinking, feelings and interests; d) the microeconomic disconnection – the fact that the person who consumes the service – the patient, is different from the person who drives the cost – the doctor, who is different from the entity who pays – the government or insurance company. Health care financing is economically unstable, e) the fact that patients want care and the system rewards productivity (number of patients seen per hour), f) the fact that health care workers operate in "silos" of individual interest groups ranging from doctors, nurses, insurance companies and consumers, all fighting for limited resources. The author asserts that, … "current health care systems are malfunctioning because they are thinking systems viewed and managed like machines. In the modern world, machines manipulate physical objects, computers manipulate data and people think" (Waldman 2007). This view is more advanced than the one expressed by Trochim (2006) who argued that health care is rather a complex adaptive system striving to a trans-disciplinary integration to understand and reconcile reductionist and holistic thinking and methods into a federation of approaches to systems thinking and modeling (Trochim, Cabrera et al. 2006).

4.2.7.6 Midgley (2006) offered *Systemic Intervention* as a methodology for a systems approach in public health. Systemic Intervention focuses on values, boundaries and marginalization issues in the process of analysis and explores ideas and methods from other approaches (Midgley 1997; Midgley 2000; Midgley 2006). The author asserts that,…."systems thinking has the potential to make a significant difference to public health and invites the whole public health research community to try out some of the ideas and methods" that he refers. Midgley recognizes the complexity of public health issues, the diversity of stakeholders and the need to bring together different values and interests. An agent to create change in relation to reflection upon boundaries defines systemic intervention. Furthermore the author considers that what we know about different problem-contexts has limits and that's what we call boundaries. Midgley reminds us of Churchman's insight about the intrinsic link between boundary judgments and values; and Ulrich's view that boundary judgment should be taken only when agreed with those involved and affected by the intervention (Midgley 2006). The author does not illustrate the application of his pluralist approach and methodology to specific public health problem contexts, but I am persuaded that Systemic intervention could be relevant to address some of the health sector reforms issues, particularly those related to the new public health. Beyond Systemic Intervention as a methodology, Midgley recognizes the value of other system approaches with methods and tools that can be incorporated to SI, they are: System Dynamics, Viable System Model, Interactive Planning, Soft Systems Methodology and Critical Systems Heuristics.

4.2.7.7 Sterman (2006) recognizes that the diligent adherence to scientific method is responsible for the great advances of medicine and public health, but there are however three fundamental impediments, the complexity problem, learning failures and the implementation challenge. First, on the <u>complexity of medicine and public health</u>, the author expresses the viewpoint that " medical interventions and health policies are embedded in intricate networks of physical, biological, ecological, technical, economic, social, political and other relationships". He argues that <u>complexity hinders the generation of evidence</u>, for example, according to Sterman, no one knows the current incidence or prevalence of any disease because surveillance systems report estimates on the bases of sampled, averaged, and delayed measurements. He adds that the act of measurement also introduces distortions, delays, biases and other imperfections some known and others unknown. The author also argues that <u>complexity hinders learning</u> even when reliable evidence is available because of emotions, reflex, unconscious motivations and other non-rational and irrational factors that can play an important role in our judgments and behaviours in decision-making processes. Sterman asserts that,…."in an iterative learning process in a complex world, we replace the reductionist, narrow, short-run, static view of the world by an holistic, broad, long-term, dynamic view, reinventing our policies and institutions accordingly. As our mental models change, we change the structure of our systems, creating different decision rules and new strategies"….(Sterman 2006). The author thinks that public health leaders don't face medical, financial, technical, community-relations problems but just problems. He recognizes the importance of establishing boundaries, but warns that ignoring what exists beyond familiar boundaries cuts critical feedbacks and creates arrogance and inability to control the

situation and we may end up solving one problem while creating others. Sterman advocates for crossing boundaries between departments and functions in an organization, between disciplines in an academy, and between private and public sector. With these arguments Sterman believes that policies to promote public health and welfare often fail or even worsen the problems they are intended to solve. He advocates for evidence-based learning while recognizing that learning in complex systems is often weak and slow. The author also alerts about the implementation challenges often derived from distorted evidence, private agendas and game playing by agents throughout the system.

4.2.7.8 About innovative thinking for improvement of health care systems, Berwick (1999) reminded that every system is perfectly designed to get the results that it gets and if it does not deliver the expected results it must be changed in some way. He recognizes that we all possess the mental capacity for innovative thinking while describing concepts from the cognitive sciences that can lead to tools that health staff can use to generate innovative ideas and improve health care. The author describes creativity as,…."the connecting and rearranging of knowledge in the minds of persons who allow themselves to think flexibly to generate new and often surprising ideas that other persons consider useful" (Berwick and Nolan 1999). He makes the distinction between reflective learning that digs deeper about things already known (focusing on depth of knowledge) and innovative learning that ranges wider about breadth of knowledge. Berwick advocates that we do not need to look far beyond the boundaries of our own organization to generate new ideas; and recommends three heuristic principles for innovative thinking: *mental attention*, *escape* and *movement*. It means

applying anything that helps to think in a new direction, escape our current mental pattern, and maintain movements in our thoughts towards some new pattern. Using the authors words,...”the innovative thinking approach is similar to backing up and driving around an obstacle rather than trying to drive through it”…. (Berwick and Nolan 1999). This approach could be interesting in health sector reforms, in particular in finding new ways of doing things, avoiding strategies that don't work. In a broader approach, Fisherman (2007), proposes a “*framework for understanding and changing organizational and community systems*” based on literature related to two major fields: organizational change and systems thinking. Organizational change is referred to as… “ an intentional process designed to alter the status quo by shifting and realigning the form and function of a targeted system”… According to his theory, overall systems changes are rooted in the assumption that significant improvements in terms of outcomes (such as reduced maternal mortality) will not occur unless the surrounding system (such as health care delivery) adjusts to accommodate the desired goal. Fisherman says that most reform efforts ignore the systemic nature of problem situations and the complexity of the change process. System thinking is referred to by the author as “a conceptual way of seeing the world based on systems principles”.

4.2.7.9 His attention is focused on SSM and System Dynamics in an integrated manner (Foster-Fishman, Nowell et al. 2007). The authors consider that the nature of change can be either *episodic* or *continuous*; and the degree of change, either *incremental* or *radical*. According to their view, the dominant approach to reforms in human service systems is episodic and it tends to be planned, driven externally, occurring in a relatively bounded time period and often triggered by conflict between

the system and its environment. Incremental change it is about making sure that things are done in the right way by undertaking progressive improvements within existing modes of practice; while radical change implies a paradigm shift in how a problem is perceived and what strategies are used to address it. Fishman proposes a <u>framework for transformative systems change</u> that includes four steps: *first*, bounding the system meaning perception of the system in relation to its external environment; *second*, understanding fundamental system parts as potential root causes of the problem; *third*, assessing system's interactions such as balancing, feedback and self-regulation; and *fourth*, identifying levers for change (Foster-Fishman, Nowell et al. 2007)

4.2.8. Critical Analysis on current Health Systems Thinking

i.   Before primary health care (PHC) movement, international health vision favoured an approach based more on health technologies with special focus on high-technology curative care concentrated in urban areas. Major biomedical research breakthroughs produced new technologies and medicines that inspired health professionals and people with the sense that technologies were the answers to people's health needs. But in fact, technology provide just part of the answer and at a cost that some people cannot afford.

ii. PHC philosophy brought up a social model of health, but was understood to have a different emphasis according to different context of societies in which it was applied.

The different aspects of PHC such as the values and principles, specific public health services or even the level of the health pyramid were the focus of interpretation according to country options.

iii. Despite of the comprehensiveness of health definition (WHO Constitution, 1948), current HS thinker descriptions of HS are not holistic enough to capture all key health determinants and respond to the health needs of people. First, they address parts of the organization rather than the whole. Secondly, they fail to recognize that concentrating the performance in one part of the HS may have damaging effects for the whole system. Thirdly, they fail to address the influence of human nature, health staff and people in the relationships among different parts of the HS. Fourthly, they are designed to work in a stable environment; and finally they don't provide structural response to cope with the variety of health stakeholders.

4.3. Health Systems Theory: Evolution of Public Health discipline

4.3.1. Concept of Public Health

The WHO Expert Committee on Public Health Administration (1952) defined Public Health as "the science and art of preventing disease, prolonging life, and promoting mental and physical health and efficiency through the organized community efforts for the sanitation of the environment, the control of communicable infections, the education of the individual in personal hygiene, the organization of medical and nursing services for the early diagnosis and

preventive treatment of disease and the development of social machinery to ensure to every individual a standard of living adequate for the maintenance of health, so organizing these benefits as to enable every citizen to realize his birthright of health and longevity"(Ncayiyana, Goldstein et al. 1995; Turnock 2004).

In 1953 the same Expert Committee defined the core basic health services for a given area that included:

a) Maternal and child health;

b) Communicable diseases control;

c) Environmental sanitation;

d) Maintenance of records for statistical purposes;

e) Health education of the public;

f) Public health nursing; and

g) Medical care.

Turnoc (2004) considers ten Essential Public Health services corresponding to basic health services. They are as follows:

a) Monitor health status to identify community health problems;

b) Diagnose and investigate health problems and health hazards in the community;

c) Inform, educate and empower people about health issues;

d) Mobilize community partnerships to identify and solve health problems;

e) Develop policies and plans that support individual and community health efforts;

f) Enforce laws and regulations that protect health and ensure safety;

g) Link people with needed personal health services and ensure the provision of health care when otherwise unavailable;

h) Assure a competent public health and personal health care work force;

i) Evaluate effectiveness, accessibility, and quality of personal and population-based health services; and

j) Research for new insights and innovative solutions to health problems.

Turnock (2004) identified unique features of public health. These include the underlying *social justice philosophy* of public health. Social justice is said to be the foundation of public health. It argues that significant factors within the society impede the fair distribution of benefits and burdens. Examples of such impediments include social class distinctions, heredity, racism and ethnism. Public health is both public and *political in nature*. It serves populations, which are composites of many different communities, cultures and values. These differences are often at the core of political processes and this creates tensions and conflict that can put public health government agencies and leaders in one hand and people and external public at the other. A third unique feature of public health is its broad and ever-increasing agenda - *expanding agenda* with new problems and issues being assigned over time. From infectious diseases and related environmental problems about 100 years ago, through the acquired immune deficiency syndrome (AIDS) in early 80's, up to recent concerns about bioterrorism. Another unique facet of public health is its *link with Government*. Government does play a unique role in ensuring that the key elements are in place and addressed. Only Governments can enforce provisions of public policies that limit the personal and property rights of individuals and corporations in areas such as retail food establishments, sewage and water systems, occupational health and safety, infectious disease

control and drug efficacy and safety. One of the most unique aspects of public health – and one that continues to separate public health from many other social movements – is its *grounding to science*. It is grounded in a broad base of biologic, physical, quantitative, social, and behavioural sciences. Public health professionals place especial *emphasis on prevention*. Prevention is a widely appreciated and valued concept that characterizes actions that are taken to reduce the possibility that something will happen or in hopes of minimizing the damage that may occur if it does happen. The final unique feature of public health refers to the following: the tie that binds public health professionals is neither a common preparation through education and training nor a common set of work experiences and work settings. The common link is a set of intended outcomes toward which many different sciences, arts, and methods can contribute. All different categories of public health professionals are bound to common ends but all employ somewhat different perspectives from their diverse education, training and work experiences. The basic task is one of problem solving around health issues (Turnock 2004).

4.3.2. Evolution of Public Health

Roy Porter (2006) in his book *History of Medicine* asserts, "Understanding the history of medicine presents many challenges. Not only has medicine itself undergone profound change in its encounters with disease and death, but the very conception of illness – its nature, causes and meaning – is complex and enigmatic. Perceptions of sickness have varied greatly overtime and place, shaped by diverse circumstances. Not least, illness may be regarded differently by patients and practitioners." (Porter 2006)

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George Rosen (1993) in his book *A History of Public Health* makes an analysis of specific periods of history and related public health issues. He recognizes that most of literature on public health history refers to Europe and North America that cannot ultimately feature for the rest of the world. While recognizing a positivist view of scientific progress, the author focuses on the need to understand public health at the edge of fundamental political and economic changes that shape social experiences and update social policy.

At each stage of human biological, technological, and social evolution, man cohexisted with diseases associated with the environment and living patterns (Rosen 1993; Tulchinsky and Varavikova 2009). From the analysis of available literature, the researcher would consider the following four phases in Public Health history: the Environmental, Sanitary reform and Bacteriological phases that make-up the Old Public Health, from before 1830 up to early 1970's; and the phase of Organization and Financing of health care from early 1970's up to nowadays, that correspond to the New Public Health with two periods of Universalism (from 1970's to 1980's) and the New Universalism (from 1980's to 2009).

4.3.2.1. Environmental phase: before 1830

This phase comprises the pre-scientific era, the Middle Ages and the enlightenment period from 1750 and 1830. Rosen declares that the Hippocratic text on *Airs, Waters and Places* represented the first systematic effort to relate environmental factors to disease; and the text served as the basic epidemiological reference for more that two thousand years; he further argues that the development of bacteriology and immunology in the late 19[th] century did not radically change the ideas of the Hippocratic text.

The first official public health initiatives, by 1840 were directly concerned with environmental issues such as sanitation, clean water and clean cities. It corresponds to the *environmental phase*, quite successful especially in developed countries (Ncayiyana, Goldstein et al. 1995). Up to the 1870s there was no common agreement among medical professionals about the cause of epidemic diseases, such as cholera. Some doctors espoused the 'contingent contagion' theory – that disease spread by direct contact and advocated quarantine and isolation measures. Others advocate other contagion theory – according to which epidemic disease was caused by foul air from decomposing organic matters, such as cesspools, slums and dirty environment (Jones 1994)

In the early medieval period, between the 5th and 10th Century CE, when all spheres of human life were dominated by feudalism and Christian doctrine, Church interpretation of disease was related to original or acquired sin. Man's destiny was to suffer on Earth and hope for a better life in heaven. The appropriate intervention in this philosophy was to provide comfort and care through the charity of church institutions. Between the 8th and 12 th Century, Monastery hospitals were established to provide charity and care to ease the suffering of sick and dying. In the early middle ages, most physicians in Europe were monks. In 1131 and 1215, Papal rulings increasingly restricted clerics from doing medical work, thus promoting secular medical practice. Conditions were therefore appropriate for vast epidemics such as smallpox, cholera, measles, with especial reference to plague that ravaged most of Europe between 1346 and 1350 killing between 24 and 50 million people. The epidemics continued up to the Renaissance (1500-1750) with the development of the commerce, industry, trade, merchant fleets and voyages of discovery to seek new markets the risk of spread of epidemics remained high (Tulchinsky and Varavikova 2009). Rosen saw the age of

Enlightenment (form 1750 to 1830) as pivotal in the evolution of public health. He asserts that while French philosophers such as Voltaire and Rousseau had challenged tradition and authority as sources of knowledge rather that reason; the more pragmatic British tried to translate these ideals into legislation and social policy. From this perspective, the purpose of public health was to translate the ideals of Enlightenment into practice.

4.3.2.2. Sanitary Reform phase: 1830 to 1940

This is the transition from the environmental to bacteriological era during the 19[th] century.

Rosen (1993) refers to the industrial revolution, the concentration of work and workers inside factories, the explosive growth of cities, and the Sanitary Reform Movement of the 19[th] Century that Tulchinsky (2009) designates the "Social Reform and Sanitary Movement of 1830-1875".

In England for example, the New Poor Law Act of 1834 drafted by Edwin Chadwick and the economist Nassan Senior, created a national labour market, setting the pool of rural surplus labour "free" to migrate to the cities, and supplying the factories with a new class of industrial workers. These men, women and children toiled for long hours of work under dangerous conditions in factories and mines; as they crowded into towns and cities in inadequate living conditions. In 1842 Chadwick and his collaborators published their report on Sanitary Condition of the Labouring Population of Great Britain, in which was "proved beyond any doubt that disease stemmed from filthy environmental conditions, polluted water supplies, and decaying garbage and wastes clogging the streets"(Rosen 1993).

Germ versus environmental causastion of disease provided the basis for the Sanitary Movement. The germ theory was strengthened by the work of Van Leeuwenhoek who invented the microscope in 1676. Germ theorists believed that microbes were the cause of diseases which could be transmitted from person to person or by contact with sewage or contaminated water. The dispute continued with sanitationists until the end of the nineteenth Century when the Sanitary revolution promoted both theories (Tulchinsky and Varavikova 2009)

According to Rosen's view, during the 19th Century, public health broadly included social movements and legislation with clear effects on health, such as efforts to limit the length of the working day, regulate child labour, protect pregnant women, and guarantee employment, while continuing the debate over theories of diseases causation.

4.3.2.3. Bacteriological era: 1940 to 1970

This era corresponds to the end of the 19th Century and the beginning of the 20th Century. In the later part of the 19th Century, Europe and North America shifted dramatically from environmentalist theories to the bacteriological era issue from the germ theory that apparently offered more simple and scientific explanations for infectious diseases – the microorganisms made visible in laboratory. The golden age of bacteriology was crowned with success of scientists such as Louis Pasteur who discovered vaccines and Robert Koch who discovered the germ of tuberculosis. At the same time, hospitals benefited from breakthroughs that established scientific and practical applications in bacteriology and immunology. While recognizing the reduction of overall mortality and lower rates of

infectious diseases in Europe and North America, (Rosen 1993; Tulchinsky and Varavikova 2009). However, according to Rosen's opinion, inequalities in health would continue to be directly related to the differential distribution of wealth and poverty. Tulchinsky claims that in the 3rd Quarter of the 19th Century, the Sanitary Movement rapidly spread through the cities of Europe, demonstrating success in reducing diseases in areas served by sewage drains, improved water supplies, street paving and waste removal.

4.3.2.4. The New Public Health era: 1970 to 2009

This is the current thought orresponding to the end of the 20th century and the beginning of the 21st Century. By the end of the 20th Century, Public Health became more concerned about organization and financing of health care. In Europe and North America, it touches on many new topics such as nutrition, provision of clean milk, prenatal care, and maternal health services. In relation to maternal health it emphasizes the shifts from home births attended by midwives to doctor-assisted hospital births. Rosen comments very positively on the British National Health Service and recounts the early efforts to obtain national health insurance in the United States. Relating with the latter, he discusses the growth of voluntary prepayment plans and private health insurance schemes. Rosen (1993) advocates for a development of a comprehensive theory of public health administration to address the proper distribution of power and responsibility for health among the federal, state and local levels, while recognizing that problems of power, however, are hardly likely to be solved by administrative theory but rather shifts in political philosophy at federal level.

On international health during the 20th century, Rosen (1993) focuses on the work of the World Health Organisation created in 1948 and the growth of international cooperative

efforts. He says that the real problem and the real solution lie with economic development in agriculture and industry, the creation of competent administrative services, and improvements in the educational status of the mass of the population, and that the international community must help countries solve their health problems by first addressing the larger social and economic issues. This summarizes his views, while avoiding discussion about the economic relationships between countries, the structure of markets and the reason why much of the developing world remains stranded in poverty.

In the early 1970's WHO declared that, the cost of individual medical care has escalated but the state of health of people has not improved in relation to the expenditure. It was accepted that health improvement could best be attained by behaviour modification and environmental change. In this vein, the Alma-Ata Conference on primary health care, 1978 gave birth to a new paradigm in Public Health and Health System thinking – the Universalism in Health Care.

The beginning of the 21[st] century was characterized by health sector reforms, based in primary health care approach, and bringing up with more clarity the issue of health financing. It was analyzed the ability of the State to pay everything for all. It emerged the New Universalism in health care as new approach to implement primary health care and the New Public Health theory.

4.3.3. The New Public Health

The *New Public Health* emerged in response to new challenges facing the public health practice and the innovations that would be needed in order to meet those challenges. Tulchinsky (2009) considers that the New Public Health incorporates a wider range of interventions in the physical and social environments, health behaviour, and biomedical methods, along with health care organization and financing; and it is concerned in addressing not only the individual health needs but the health needs of society. In the recent process of development of the New Public Health, the researcher considers the following public health milestones:

i. The 1978 *Alma-Ata Declaration* that advocates action by many other social and economic sector in addition to the health sector in order to achieve the goal of Health for All.

ii. The 1986 *Ottawa Charter for Health Promotion* based on the belief that health requires peace, shelter, education, food, income a stable ecosystem, social justice and equity as prerequisites. Moreover, the Charter stresses the importance of and recommends advocacy for health – enabling people to achieve their full health potential – and mediation between different interests in society for the pursuit of health. The strategies spelled out in Ottawa Charter are:

- Development of health public policy;

- Creation of supportive environments;

- Strengthening community action;

- Development of personal skills; and

- Reorientation of health services, meaning health systems to shift their emphasis from hospital-based care and extensive use of technology to a system that is community-based, more user-friendly and focused on health.

iii. The *9th General Programme of Work of the WHO* was envisaged to outline in great detail the global health policy framework as well as the framework of WHO's own work for the period 1996-2001. In the context of the strategy for Health-for-all, it provided four policy orientations: (a) integrating health and human development in public policies; (b) insuring equitable access to health services; (c) promoting and protecting health; and (d) preventing and controlling specific health problems(WHO 1994).

iv. The *Interregional Meeting on New Challenges for Public Health* convened by WHO (1995) that takes stock of the new challenges and formulate possible future public health responses. During the meeting, New Public Health was concerned with a variety of issues associated with the developmental stagnation of public health as a discipline. Some of these issues are: outdated public health training; lack of equity and access in health care; inability to analyze the relationship between health and trade agreements; the overwhelming concern about the cost of health care and the availability of resources; and the sharing of resources between curative, preventive and promotive health care(Ncayiyana, Goldstein et al. 1995).

v. The 2008 *Report of the Commission on Social Determinants of Health*, that calls for health equity through three principles of action: first, <u>to improve the conditions of daily life</u> – the circumstances in which people are born, grow, live, work and age; second, <u>to tackle the inequitable distribution of power, money and resources</u> – the

structural drivers of those conditions of daily life, globally, nationally and locally; and

third, <u>to measure the problem, evaluate action, expand the knowledge basis and</u>

<u>develop a workforce that is trained in social determinants of health, and raise public</u>

<u>awareness about the social determinants of health (Marmot, Friel et al. 2008)</u>

vi.   *The 2008 World Health Report* on Primary Health Care – Now More that Ever, that

asserts that health systems are subject to powerful forces and influences that often

override rational priority-setting or policy formation, thereby pulling health systems

away from their intended directions. It calls for stronger policies and leadership to

make health systems gravitate towards primary health care principles and values. It

identifies three critical trends that undermine health systems response: the hospital-

centrism meaning health systems built around hospitals and specialists, the

fragmentation of health systems built around selective or vertical programmes/projects

focused on single disease or specific health condition; and the pervasive

commercialization of health care in countries that by choice or due to lack of capacity,

fail to regulate the private sector. The report suggests health reforms that emphasizes

<u>health equity, universal access to people-centred care and healthy communities -</u>

protection of people against health hazards (Evans, Lerberghe et al. 2008).

Table 6.4 - Features of five public health phases

Phase Features	Systems Metaphor	Type of problems	Philosophy	Dominant paradigm	Practice

Old Public Health	Environmental (before 1830)	"The machine"	Sanitation Hygiene Clean water Clean cities	Diseases caused by environmental conditions	Functionalist System Approach (mechanistic)	Environmental Health
	Sanitary reform (19thC: 1830-1940's)	"Organism"	Protecting individuals and groups of persons against infections	Diseases caused by both environmental conditions and germs.	Functionalist Systems Approach (hard systems approach)	Occupational Health: Regulation and Legislation
	Bacteriological era (end of 19thC:1940's-1980's)	"Brain"	Treating infectious diseases causes by germs	Emphasis on treatment	Functionalist Systems Approach (positivist)	- Development of new drugs - Hospital based curative services
New Public Health	Universalism (1970-1988)	"Political/ Culture"	Escalating costs of health care; Lack of access by most of people;	Primary Health Care and Health for All	Emancipatory systems approach	Equity; Community participation; local health systems
	New Universalism (1988-2009)	"Political/ Economical"	The State has no financial capacity to fund Health for All; health stakeholders coordination.	Diversifying source of health financing to ensure access to essential	Interpretive systems approach	Diversity; Pluralism; Partnerships; Community financing; Health insurance schemes

4.3.4. International and Global Public Health

The term global health is very much used nowadays and some people tend to use it interchangeable with the term international health. In an article entitled "*International and Global Public Health: Governance and Ethical Issues"*, Alleyne reminds Goodman (1971) definition of international health as " any or all those activities for the prevention, diagnosis

or treatment of diseases which require the combined consideration and action of more than one country" and he defines global health as "the state of health of people in the world as a whole" and argues that one should be able to differentiate between global, national, local and individual health; and therefore global health must have a geographical connotation (Alleyne 2007).

Alleyne considers three phases of International Health Work. The first phase corresponding to the period up until the formation of the World Health Organisation after the end of World War II (1948); characterized by the international effort to control infectious diseases at the border of the individual countries; it refers to the age of isolationism where the developed world viewed the developing world as a reservoir of pestilence and disease. The second phase began after the World War II and extends up to the latter decades of the 20[th] Century; it paid serious attention in controlling and preventing diseases globally; the humanitarian aspect was dominant as well as the risk of mutual vulnerability to diseases in a globalising world. The eradication of smallpox was one of the successful achievements of the international health cooperation during this phase. The third phase which started in the latter decades of the 20[th] Century and extends up to the present, is characterized by a fundamental change in the number of actors involved and the plurality of organizations trying to improve health globally. The concerns are still driven by the collective risks, which have been accentuated by globalisation.

According to Garcia and Morales (2007), globalisation is becoming a common reference ideology in which different ideologies are defined, integrated and opposed.

4.3.4. Subsequent developments

In 2001 the World Health Organisation developed the 10th General Programme of Work for the period 2002-2005 (WHO 2001) in a context characterized by four major findings. First, the understanding of the causes and consequences of ill health was changing; it was increasingly evident that achieving better health depends on many social, economic, political and cultural factors, in addition to health services. Secondly, health systems were becoming more complex; the role of the State was changing rapidly, the private sector and civil society were emerging as important players and in the developing world there were a growing number of development organizations, international financial institutions and NGOs active in the health sector. Thirdly, safeguarding health was gaining prominence as a component of humanitarian action; there was an increasing occurrence and impact of conflict and natural disasters and the need to protect health in emergency situations. Fourth, the world was increasingly looking for greater coordination among development organizations to make them more responsive to the needs of countries and facilitate the achievement of International Development Goals; this would require more dynamic and less bureaucratic approaches to management. On this basis, four interrelated strategic directions were adopted:

- Reducing excess mortality, morbidity and disability, especially in poor and marginalized populations;

- Promoting healthy lifestyles and reducing risk factors to human health that arise from environmental, economic social and behavioural causes;

- Developing health systems that are sustainable and underpins all the other priorities and ensure successful implementation of priority programmes; they should be

financially fair, respond to people's legitimate demands and equitably improve health outcomes.

- Creating an institutional environment for the health sector, and promote an effective health dimension to social, economic, environmental and development policies.

In 2006 the World Health Organisation developed the 11th General Programme of Work for the period 2006-2015 (WHO 2006) calling for the achievement of health-related Millennium Development Goals and multi-sectoral action at all levels – individual, community, national, regional and global for the implementation of the global health agenda. This agenda highlights seven priority areas:

- *Investing in health to reduce poverty*, advocating for eradication of extreme poverty and hunger as the first and the most important Millennium Development Goal; and recognizing that in all countries, poverty is associated with high childhood and maternal mortality, and increased exposure to infectious diseases, malnutrition and micronutrient deficiency.

- *Building individual and global health security.*
  Conflicts, natural disasters, diseases outbreaks and zoonoses, are increasing in number. The continued increase in trade in food across borders, as well as the large numbers of people travelling between countries, can accelerate the transmission of disease to a widely dispersed population. The spread of HIV/AIDS and the risk of a pandemic arising from avian influenza are examples.

- *Promoting universal coverage, gender equality, and health-related human rights*

One of the problems that has to be solved all over the world is the lack of access by the poor and marginalized groups to essential health services. All groups have the right to participate in the development, implementation and monitoring of health policies and the design of health systems. Women's health is adversely affected by the prevalence among them of poverty, lack of employment, violence and rape, limited power over their sexual and reproductive lives, and lack of influence in decision making. Promoting gender perspectives in the elaboration and implementation of health policies is strongly recommended.

- *Tackling the determinants of health*

  Any serious effort to improve health of the world's most vulnerable people and reduce health inequities must tackle the key determinants of health. Some of these such as income, gender roles, education, and ethnicity, are related to social exclusion; others, such as living conditions, work environment, unsafe sex and the availability of food and water are more related to the exposure to risks. Broader economic, political and environmental determinants include urbanization, globalization, air pollution, and climate change. Health Ministries are called to play a bigger role in the development of public policies to improve health, through collective action across many sectors.

- *Strengthening* health systems *and equitable access*

  Strengthening health systems should be linked to broader processes of government, such as civil service reform, public expenditure reviews and reform, decentralization, and poverty reduction strategies. All these processes have an impact on health, yet historically health professionals have contributed little to them. The work on strengthening health systems should be focused on such objectives as: increased

provision of effective services, to everyone who needs them, improved patient safety and financial protection, greater efficiency, expanded capacities, and policy making that is better coordinated, more participatory more accountable, and more fully implemented. Many groups in civil society make essential contributions and should be part of any consultative process of major change in the health system. These include private providers, traditional practitioners, community-based organizations, and non-governmental organizations. Communities and individuals must be involved in decision-making that affects their health, and incentives are required to make this happen.

- *Harnessing knowledge, science and technology*

  It recognizes the need to bridge the gap between knowing what to do and actually doing it and calls for a more effective national and global mechanisms that apply existing knowledge and technology. It also recognizes that further scientific breakthroughs and new knowledge are also needed to alleviate the current burden of disease and premature death. It clearly recommends the use of advanced information and communication technology to raise awareness on health issues, to disseminate health data and information and to expand access to quality care.

- *Strengthen governance, leadership and accountability*

  Ministries of Health play a central role in shaping, regulating and managing health systems and clarifying the respective responsibilities of government, society and the individual.

To take-up this challenge, the Eleventh General Programme of Work recommends action in line with the Ottawa Charter: to build healthy public policies, create supportive environments, strengthen community action, develop personal skills and reorient health services (WHO 2006).

In conclusion the *New Public Health* is a philosophy that endeavours to broaden the older understanding of public health and seeks to address contemporary health and health-related issues such as environment, political governance, and social and economic development. Public Health's central raison-d'être is about shaping the future and working to ensure it is as healthy, sustainable and equitable as possible(Baum 2002). New Public Health movement is about more upstream thinking, to investigate and where possible, to intervene. It should be said that old public health did not address human aspects of health systems and therefore related research methodologies are essentially based on positivist approach. New public health opens the door to interpretive and emancipatory approaches that require qualitative research methods.

Nevertheless, it is important to recognize the similarities and key differences between the "old" and "new" public health (see Table 1).

Table 7.4 - Contrasts and similarities between the "old" and the "new" public health
Source: Baum (2002)

Old Public Health	New Public Health
▪ Focus on improving physical infrastructure, especially in order to provide adequate housing, clean water and sanitation.	▪ Focus on physical infrastructure, but also on social support, social capital, behaviour and life-styles.
▪ Legislation and key policy mechanisms, especially in nineteenth Century.	▪ Legislation and policy rediscovered as crucial tools for public health.
▪ Medical profession has central place.	▪ Recognition of intersectoral action as crucial. Medicine only one of many professions contributing.
▪ In Nineteenth Century, public health was one of a series of social movements, which worked to improve living conditions. Primarily expert-driven but some legitimation of community movement. Progressively more expert-dominated in twentieth Century.	▪ Philosophy places strong emphases on community participation, but in practice, this is not often achieved, despite some real successes.
▪ Epidemiology legitimate research method.	▪ Many methodologies recognized as legitimate.
▪ Focus on diseases prevention and health is seen as absence of illness.	▪ Focus on diseases prevention, health promotion and a positive definition of health.
▪ Primary concern with the prevention of infections and contagious threats to human health.	▪ Concern with all threats to health (including chronic disease and mental health), but also growing concern with sustainability, and viability of physical environment.
▪ Concern with improving the conditions of the poor and special needs groups.	▪ Equity an explicit aim of the New Public Health philosophy.

4.4. Health System Methodologies

4.4.1. Introduction

Research is the systematic and rigorous process of enquiry that aims to describe phenomena and to develop explanatory concepts and theories. Research on health and health services is multidisciplinary and includes investigations by anthropologists, demographers, epidemiologists, health economists, health geographers, health policy analysts, health psychologists, historians, medical sociologists, statisticians managers and health professionals - physicians, nurses, and other (Bowling 1997).

Bowling (1997) asserts that the multidisciplinary nature of health and health-related disciplines created a diversity of qualitative, quantitative, descriptive and analytical research methods that should enrich research design in health, even if the experimental method has been predominant.

Bowling quotes Pope and Mays (1993) who recognize that all methods have their problems and limitations, and the over-reliance on anyone method at the expense of using multiple research methods to investigate the phenomena of interest can lead to a very limited toolbox.

This chapter intends to make a systematic review of existing methodologies in health research, bearing in mind Jackson's four key approaches and in light of critical systems thinking. It will bring up the concept of health research and the underlying social paradigms. This chapter will also highlight existing methods to assess health needs as well as key health research methods. This chapter is a key contribution to the analysis of the status of HS Thinking, using system ideas in four major aspects: Ideology, Theory, Methodology and Practice.

4.4.2. Health Research Concepts and Definitions

A Bowling (1997) points out to the need to make a distinction between the terms health research and health services research. She refers to Davies (1991) definition of *Health Research* as "the process for obtaining systematic knowledge and technology which can be used for the improvement of health of individual groups. It provides the basic information on the state of health and disease of the population; it aims at developing tools to prevent and

cure illness and mitigate it effects and it attempts to devise better approaches to health care

for the individual and the community."

Varkevisser (1991) has defined *Health Systems Research* fairly broadly as "ultimately

concerned with improving the health of a community, by enhancing the efficiency and

effectiveness of the health system as an integrated part of the overall process of socio-

economic development. According to Grundy and Reinke (1973) the origin of health system

research goes back to the last century; but its formal recognition as field of scientific

endeavour is however relatively recent and dates from the 1960's. Encouraged initially by the

successful use of operations research methods in military affairs, governments and business

organizations, since the end of 1950s, have increasingly applied the methods of science and

mathematics to problems of service organization and management. According to

WHO/WPRO (1992), Health Systems Research has many facets that may be seen from many

viewpoints. Some conceive it rather narrowly as the study of medical care service, other use

too broad or too restrictive definitions.

From the Health Research literature review, one realizes that Health Systems

Research definitions can be either broad or narrow, with focus on health or health services

and with more emphasis on the process or on the outcome.

For example the New Zealand Department of Health (1983) has broadly defined

Health Systems Research as "the systematic investigation and evaluation of the functioning

and development of health services and their relationships with health-related factors".

Bowling (1997) affirms that in Britain and USA the general focus is on *Health Services Research* defined more narrowly as the relationships between health service delivery and the health needs of the population. It focuses on population need and demand, structures and processes including quality and efficiency of health services, and appropriateness and effectiveness of health interventions including patient's perceptions of outcomes. In health services research, evaluation is important and it aims to record not only what changes occur but also what led to those changes, using a scientific method with rigorous and systematic collection of research data to assess the effectiveness of organizations, services and programmes in achieving pre-defined objectives.

Other authors consider that Health Research can be functionally divided into basic/pure research –involving a search for knowledge without a defined goal of utility or specific purpose; and applied research – that is problem oriented and directed toward a defined and purposeful end. Either basic or applied health research generally falls under three operational interlinking categories of *biomedical, health services and behavioural* research, so called health research triangle(WHO/WPRO 1992).

4.4.3. The Nature of Health Systems Research

WHO/WPRO (1992) considers that Health Systems Research is an essential prerequisite for all levels of the managerial process in the delivery of health care, in the establishment of priorities and for determining health policies. It can lead to better understanding of health problems, more rational policy and programme planning, more effective use of available resources and adjustment of health policies to meet complex and changing situations. Health Systems Research aims essentially at providing a rational

foundation for decisions and introducing objectivity into the decision-making process. It is concerned with organizational problems, with the planning, management, logistics and delivery of health care services and their evaluation. It begins with real field problems, and research disciplines are used to apply practical scientific knowledge for improving health care and health status. Health Systems Research should not be seen as an isolated activity but an integral part of the development of comprehensive health system including specific health programmes and should be fully integrated in health planning and programme development.

Biomedical, behavioural and Health Systems Research together form the spectrum of health sciences(WHO/WPRO 1992). They are interdependent and complementary in the formulation of health research policy. Health Systems Research is essential in order to incorporate knowledge and appropriate technology developed through biomedical research, into health care delivery systems; otherwise the full benefits of the investments in biomedical research could not be brought to bear on the health of people. Therefore, Health Systems Research should respond to the needs of people, health managers and policy-makers.

4.4.4. Current Paradigms in Health Research: Positivism, Phenomenology and Other

4.4.4.1. Introduction

Each domain of scientific inquiry is based in a set of theoretical perspectives or paradigms consisting of a set of assumptions on which the research questions are based. Bowling (1997) exemplifies that "while a sociologist and a psychologist may observe the same reality, the former may focus on the social structure and the later may focus on interpersonal differences". Therefore, it is important to the researcher to be aware of his or

her theoretical paradigms and assumptions about the research topic. Paradigms have influenced the development of scientific research methods and the choice of methods. The important feature of the scientific method is that the process is *systematic* – based on agreed set of rules and processes that are rigorously adhered to and against which the research can be evaluated. Bowling also considers the concept of *rigour* as very important in health research to minimize its contamination and enhance its accuracy; and associates to rigour two critical concepts, *reliability* – repeatability of the research, and *validity* – the extent to which the instruments measure what they are expected to measure. For the current study, the researcher is enquiring about the current state of Health Systems Thinking (Philosophy, Theory, Methodology and Practice), using Jackson's 4 paradigms to interrogate it; and using as general framework of ideas, Critical Systems Thinking. The current chapter deals with Methodology and reveals that the current health research methods are mainly based on positivism – functionalist approach and phenomenology – interpretive approach to some extent.

4.4.4.2. Positivism and its Research Methods

4.4.4.2.1. The Paradigm

Bowling (1997) refers that *positivism* aims to discover laws using quantitative methods and emphasizes positive facts; thus, positivism assumes that there is a single objective reality which can be ascertained by the senses and tested subject to the laws of the scientific method. Positivists argue that social science should concern itself only with what is observable and that theories should be built in a rigid, linear, and methodical way on a base of verifiable fact. They are not concerned with measuring the meaning of situations to people

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because they cannot be measured in a scientific and objective manner. Most of social sciences have developed adhering to positivist philosophy alongside physical sciences; and similarly, positivist traditions shape many of the methods of research in health and health care with an overemphasis on experimental methods with little attempt to combine it with qualitative methods better able to provide rich insights into human behaviour and social processes(Bowling 1997). The measurement of health and disease has traditionally been based on quantitative methods.

Functionalism is a positivist approach that focuses on the social system(Bowling 1997). A number of social scientists have viewed positivism as misleading, as it encourages an emphasis on superficial facts without understanding the underlying mechanisms observed or their meanings to individuals. Functionalists argue that social systems consist of networks that shape and constrain the individual's experience, attitudes and behaviours. It is a deterministic mode of thought, which implies that individuals have little control or free choice and which assumes that everything is caused in a predictable way. Social systems are believed to be abstractions, which do not exist apart from individuals interacting with each other.

4.4.4.2.2. Quantitative Health Research Methods

4.4.4.2.2.1. <u>Health needs and their assessment</u>

Bowling refers to Frankel (1991) who asserted that the assessment of *health needs* is a contentious area, and considerable confusion exists about the meaning of needs. She further refers to Jones (1995) argument that the confusion stems from three imperatives that

influence the relationships between needs and the provision of health care. These imperatives are first the *public health imperative* concerned with total population needs and the development of strategies based on prevention and health promotion; secondly, the *economic imperative* concerned with marginal met needs and the most efficient ways of meeting health needs; and thirdly the *political imperative* concerned with reconciliation of a welfare system to demands of free market ideology. The functionalist and biomedical approach lends itself to the quantitative measurement of health status; and therefore the resulting health care needs is reported quantitatively with the focus on the incidence and prevalence of disease.

Bowling refers to Bradshaw (1972) who constructed a paradigm of need in terms of *expressed need* (demand) translating the expression in action of *felt need* (want); *comparative need* – involving comparisons with the situation of others and considerations of equity; and *normative need* – based on experts definitions that change overtime according to current knowledge. This matrix for health needs was commented on by Buchan (1990) who recognized that for many conditions, perceived needs for care depends on the beliefs and knowledge of the person affected, and hence on value judgments. Ong and Humphris (1994) argued that needs assessment should focus on felt and expressed needs and requires a multidisciplinary approach; and that the expertise held by users and communities has to be an integral part of needs assessment and the methodology should combine the normative approach together with the community perspective and a dialogue with decision-makers.

Epidemiological and demographic data can provide information on the need for health because they address the issue of whether the service is reaching all those who need it. According to Bowling (1997) epidemiology and demography operate within a positivist

framework and implies that the observer is value-free using traditional scientific method in which a hypothesis is generated, and data are gathered and tested objectively in relation to the hypothesis. Within this paradigm, diseases of human beings are observable facts and its causes and effects are subject to factual verification.

4.4.4.2.2.2. The role of epidemiological and demographic research

Bowling (1997) endorses Hennekens and Buring (1987) definition of epidemiology as "the study of the distribution, determinants and frequency of disease in human populations". She reminds that epidemiology is also concerned with broader causes of disease; for example, the *epidemiological transition* model suggests an association between national economic development and health. Bowling considers two types of epidemiology. First, *mainstream epidemiology* that examines data on levels of disease and risk factors for disease while taking into account the environmental factors, and which focus on individuals rather than societal risk factors (functionalist/reductionist approach). Second, *materialist epidemiology* that is concerned with the role of underlying societal and structural factors; the focus on the interactions between individuals is of great influence on health (interpretive approach).

Epidemiological research includes both descriptive and analytical studies. *Descriptive studies* are concerned with describing the general distribution of diseases in space and time, and it is often done under the form of surveys. *Analytical studies* are related with the cause and prevention of disease, and are based on comparisons of population groups in relation to their disease status or exposure to disease (such as case control studies or cohort studies). Both descriptive and analytical studies are underpinned by positivist paradigm.

Bowling (1997) refers to the concept of demography quoting Grundy (1996) who defined demography as "the study of populations in terms of numbers of people, and population dynamics in relation to fertility, mortality and migration". The core issue of demography addresses why observed changes occur and the consequences of these. Changes in population structure occur from result of changes overtime in fertility, mortality and to less extent, international migration. For example, as major infectious diseases were controlled with lower incidence and prevalence, the crude mortality rate declined and life expectancy at birth increased, while fertility rates remained high. Populations begin to age when fertility falls and mortality rates continue to improve or remain low. Countries that have low fertility and low mortality have completed what demographers call the *demographic transition* (Bowling 1997).

The understanding of how population change is vital to assess the needs for health services in order to generate evidence for health services planning. The traditional sources of demographic data are population censuses and vital registration services, supplemented with data from population surveys. Information generated with such data has implication in defining the "need for health", although it does not provide evidence on needs for effective health services. The specific needs for health services will be also determined by epidemiological trends and data about other variables related with the effectiveness of health care (key health determinants for example).

4.4.4.3. Phenomenology and its Research Methods

4.4.4.3.1. The paradigm

This philosophy argues that human behaviour cannot be measured quantitatively, and that reality is socially constructed through the interaction of individuals and their interpretation of events. Bowling (1997) quoted Smart (1976) who said, "philosophy of phenomenology when applied to social science, emphasizes that social facts are characterized and recognized by their meaningfulness to members of the social world or actors." This is the Interpretive School of Thought anchored in phenomenology and using research methods, which respects hermeneutics.

4.4.4.3.2. Qualitative Health Research Methods

Bowling (1997) refers that qualitative research methods aim to study people in their natural social settings and to collect naturally occurring data. The focus is on the meanings the participants in the study setting attach to their social world. Its strength is to study people in the field, in their natural settings. This method is used by anthropologists (ethnography) and by social scientists whose approach is rooted in a phenomenological perspective (interpretive approach). This method has also been used in research documenting the experience of chronic illness and in the functioning of organizations.

The rigour in qualitative research has been highlighted by Bowling (1997) in reference to Kirk and Miller (1986) categorization of reliability in three types: *quixotic reliability* – in which a single method yields consistent results; *diachronic reliability* – which is the stability of the observation over different time periods; and *synchronic reliability* –

which is the similarity of the observations within the same period. Finally, she refers to Webb (1966) argument for using triangulated methods in order to enhance the validity of both qualitative and quantitative research methods.

Bowling (1977) considers three major methods for qualitative health research: observational studies (either unstructured or structured), unstructured interviews, and focus groups.

4.4.4.3.2.1. <u>Observational studies</u>

These studies relate to observation of behaviours, actions, activities and interactions as a tool for understanding more about complex situations. In social science, the definition of observation is not limited to watching the phenomena of interest, but extended to the direct gathering of information by the investigator, using the senses, generally both sight and hearing. It can be *structured* when the researcher begins with a conceptual definition, specifies what is to be observed, standardizes a validated measuring instrument and then proceeds to make the observations in order to test the theory; and having a clear definition of all variables of interest. It can be *unstructured* when the researcher begins the observations and postpone definitions and structures until a pattern has been observed; the researcher works to fit the theory to the date by checking in the field as the research proceeds (grounded theory approach). Bowling (1997) argues that the combination of approaches will be helpful, beginning with just observing the social setting of interest until the setting reveals which aspects are of interest, what is appropriate for coding and ticking and what should be left to observational notes.

4.4.4.3.2.2. Unstructured Interviews and Focus Groups

An *unstructured interview* means a face-to-face interview using an interview schedule with the topics listed but with few specific questions and no fixed questions. These interviews aim to be carried out in depth. With this method, the interviewer guides the interview on the topic of interest by asking specific, open-ended questions. The interview is still carried out in-depth. In depth interviewing requires highly skilled interviewers, who are fully cognizant with the aims of the study. The advantages of unstructured interviews are that more complex issues can be probed; answers can be clarified in a more relaxed research atmosphere, and enabling more in depth and more sensitive information. The disadvantages are that the data are time consuming and difficult to collect and analyse; there are greater opportunities for interviewer bias; it is expensive and only feasible with small samples, which then leads to questionable representativeness of the data. Bowling argues that data obtained from qualitative interviews are used to increase our insight into social phenomena rather than assume representativeness. None the less, the issue of non-representative-ness of the sample, and hence limitations upon generalisation of results, is a criticism that is frequently encountered. An alternative technique is to conduct interviews with small groups of people who are encouraged to interact with the group leader and talk to each other focusing on the issues of interest. These interviews are known as *focus groups*. Unstructured interviews and focus groups interviews follow an interpretive approach, where the aim is to analyse how people understand their social worlds and the meanings of events.

4.4.4.4. Combination of Approaches and Methods

Functionalist and Interpretive approaches and related methods can be used in health research. But the dominant paradigm is functionalist. Bowling (1997) argues that in health research the question to be addressed should not be quantitative versus qualitative methodology but how to identify innovative strategies for combining different perspectives and quantitative and qualitative methods in a single study; while at the same time respecting the distinct branches of philosophical thought from which they are derived. CST could be an appropriate answer to Bowling's question.

4.4.5. Conclusion about Health Systems Methodologies

The status of Health Systems Thinking is fundamentally underpinned by the functionalist paradigm. Current health issues are complex, interrelated and surrounded by an environment of uncertainty. Systems ideas could help better understanding of Health Systems and provide insights and strategies to improve its technical performance. Other methods and methodologies could be explored to enhance its understanding and a more critical approach. Using Jackson's 4 key paradigms, we can realize that the interpretive approach could be further explored; and we could also analyse how could emancipatory systems approach and post-modern systems approach provide insights and enhance current state of Health Systems Thinking.

4.5. Developments in Health Systems Practice: Health Sector Reforms

4.5.1. Definition and conceptual framework

Health sector reform has become increasingly a matter of concern among politicians, decision makers and analysts. In spite of the current use of the term "reform", there is no consistent and universally accepted definition of what constitutes health sector reform. Nevertheless, it could be defined as "a process that involves sustained and profound institutional and structural change, led by government and seeking to attain a series of explicit policy objectives" (Saltman and Figueras 1997).

A different view is expressed by AFRO that defines health reform as a sustained process of fundamental change in national policy and institutional arrangement guided by government and designed to improve the functioning and performance of the health sector and ultimately the health status of the population(WHO/AFRO 1999). More recent health sector reformists admit that governments are reassessing their role in health service delivery and they are being forced to do so due to growing pressures, including cost escalation and increasing user dissatisfaction with services; excessive influence or even domination of health services by provider organisations and health workers is often an important part of the problem (Preker and Harding 2003). These authors consider the term *organisational* to distinguish reforms that alter the structure of organisations and their relations with other parts of the health system; *technological reforms* focused on enhancing technological capacity to improve organisational performance*; management reforms* addressing efforts to strengthen the managerial expertise of health sector managers – both through staff training and through changes in recruitment policies to attract managerial skills; and *funding and payment reforms*

to solve problems of productivity, efficiency and responsiveness – usually altering the structure of payments to tighten the link between resource allocation and delivery of specific health output(Musgrove, Creese et al. 2000). In common usage the terms *organisation* and *institution* are often used interchangeable. The researcher adopts the World Bank (1997) and WHO (2000) definitions stated in their publications *Assessing Institutional Capabilities and World Health Report* respectively. *Organisations* are the players –the way people are structured or organised (Hospitals, Clinics, Pharmacies, Public Health Programmes). *Institutions* are the rules (formal and informal) of the game or activities – humanly devised and socially shared perceptions that shape human interaction and mechanisms by which these rules are enforced. *Interventions* are the objects of the game or activities (eg clinical interventions, public health interventions, intersectoral actions, training activities).

4.5.2   Policy Analysis of Health Reform

Health sector reform entails policy analysis along the following four dimensions (see Fig 4): the context, the content, the process and the actors (Saltman and Figueras 1997).

Figure 16 Framework for health policy analysis
Source: WHO/EURO

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                        CONTEXT
                          /\
                         /  \
                        /    \
                       / ACTORS \
                      /          \
                     / • As individuals \
                    /                    \
                   / • As members of groups \
                  /                          \
                 /                            \
   CONTENT -----/------------------------------\----- PROCESS
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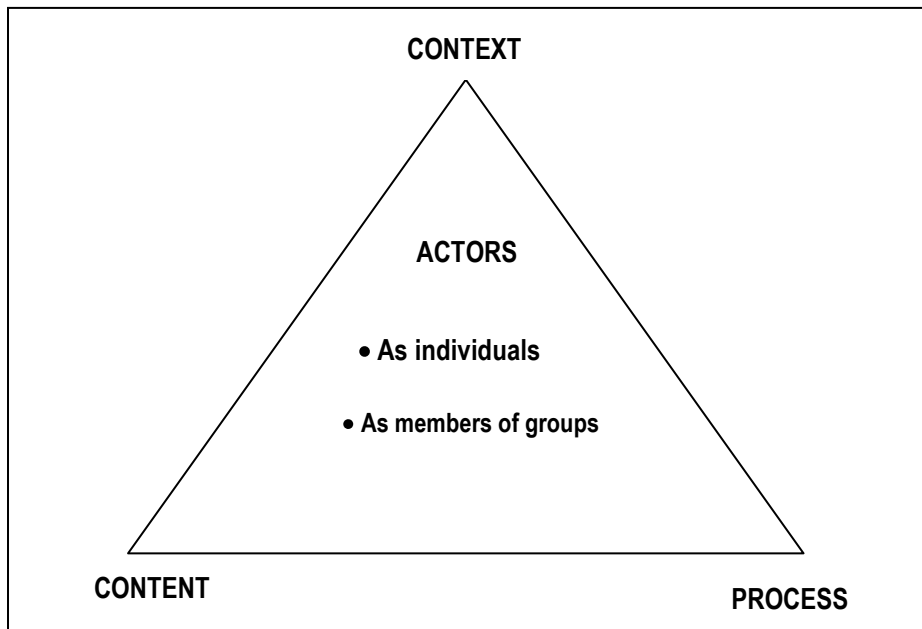
4.5.2.1. The Context of reforms

There are key factors that define the *context* in which health sector reform take place. The most influential of such factors include: societies cultural values, macroeconomic requirement (of an increasingly global economy), political changes, demographic changes, development of new health technologies, and intra-sectoral problems in terms of health system performance and health status (Saltman and Figueras 1997). An alternative perspective that constitutes a synthesis of the contextual factors in four major categories, namely: political and ideological, economic, health problems and Health Systems and services, has been proposed (Lambo and Sambo 2003). In response to different contexts of change, countries developed related strategies and mechanisms for policy consideration.

4.5.2.2. The content of reforms

Policy responses define the *content* of reform. They differ from region to region and tend to be country specific. In the European region, the policy responses are summarised in terms of four integrating themes: (a) the changing role of state and market in health care; (b) reorganizing the system, including decentralization, recentralization and privatisation; (c) empowerment, rights and choice; and (d) the evolving role of public health (Saltman and Figueras 1997). In the African region, the policy responses are summarized according to the following integrating themes: (a) stewardship and health systems; (b) financing health services; (c) quality health care; and (d) organization and management of health services (Lambo and Sambo 2003).

4.5.2.3. The process of reforms

The reform *process* relates with adequate planning for the implementation of the reform agenda. While notice is taken of policy content, attention focuses on the context in which the policy content is introduced, the process by which it is formulated, implemented and evaluated. Lambo and Sambo (2003) advocate for six developmental stages of health sector reform process: stage 0 – no reform, stage 1 – health sector appraisal, stage 2 – health sector plans, stage 3 – achieving consensus, stage 4 – funding, stage 5 – implementation of reform agenda, and stage 6 – actual implementation.

4.5.2.4. Actors in health sector reforms

Health sector reform is seen as a problem-solving process involving different actors as individuals and as members of groups (Figure 5). This is a movement to a more interpretive Health Systems approach.

Although participation is key to the new public health, achieving increased participation in public decision-making and in public health endeavours is difficult in complex societies (Baum 2002). To ensure participation there is need to tap into social capital. Baum defines social capital as "networks between people that lead to cooperation and beneficial outcomes". He concurs with Reid (1997) that the role of social capital in creating healthy communities should go beyond trust and respect to reflect the creation of alliances across difference.

Implications of social capital are evident in public health theory and practice, especially in health promotion. The notion of social capital also suggests research and practice questions that consider the collectivity rather than individuals. For example, how best can Health Systems incorporate the social capital accumulation? How best Governments could support, encourage and respond to debates among people about their health? Effective community participation in health is still open for debate. Some authors refer to pseudo or real participation because of limited degree of people's participation in important aspects such as control and power. On the other hand, participation is often seen rather as a means – to get people involved in implementation of specific programme, than as an end - organizational intrinsic feature.

People play multiple roles in health systems. Patients and populations are at the center of service delivery (see Fig 1); they are also contributors to financing, consumers of health care, producers of goods and services, and as citizens, particularly those representing communities participate in the system as stewards. Sometimes the roles of consumer, patient, and provider are all combined into one person and one moment, as happens when a woman gives birth with little or no assistance (Musgrove, Creese et al. 2000).

Figure 17 The multiple roles of people in health systems
Source: World Health Report (2000)

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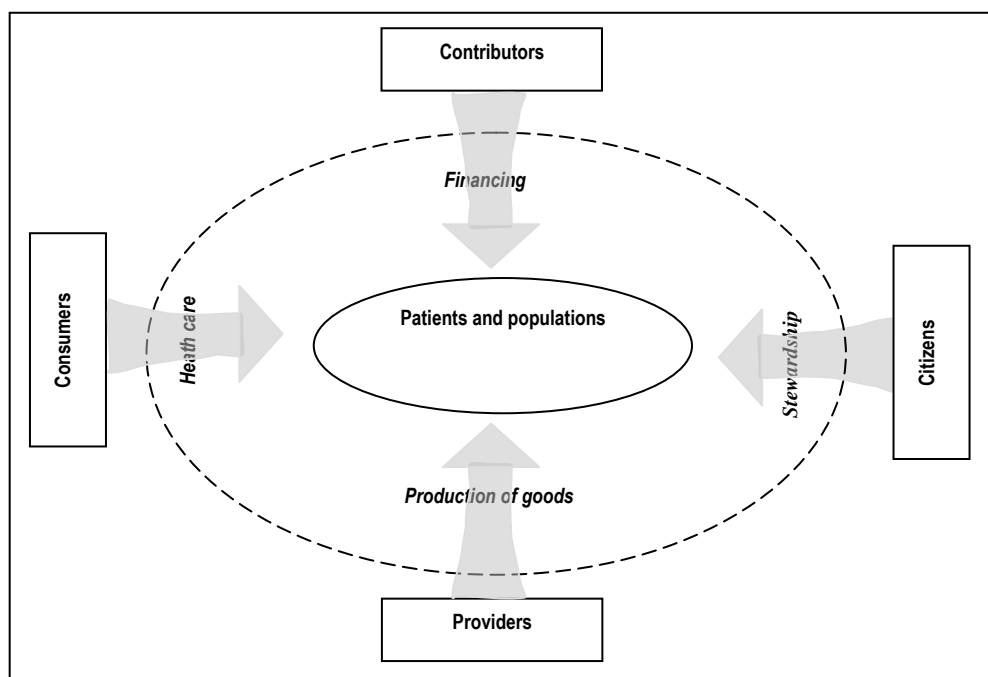
4.5.3. First Generation of Reforms (pre-Alma Ata)

The development of Health Systems has been stimulated by crucial events throughout the time. During the 1940s-1950s health system, the founding of national health care systems and extension of social insurance in rich and middle-income countries characterized reforms. By late 1960s, many of the systems founded earlier were under great stress due to cost increase, hospital-based care and inability to reach the poor. Colonial powers in Africa and Asia, and governments in Latino America, had established health services that the most part excluded indigenous populations(Musgrove, Creese et al. 2000). Health systems had therefore never been able to deliver even the most basic services to people in rural areas, since hospitals and clinics have been built primarily in urban areas. It was time of medical approach for health development, considering fundamentally preventive medicine and curative medicine.

4.5.4. Second Generation of Reforms (Alma-Ata)

4.5.4.1. Introduction

In the early 1970s, several countries in different regions of the world, felt the need of introducing fundamental changes in their health policies in view of health promotion, ensuring better balance between curative and preventive health care; getting health care delivery closer to communities; and promoting community based health care.

Two building blocks yielded primary health care as a new paradigm in public health thinking. First the *Organizational Study on Methods of Promoting the Development of Basic*

Health Services (Ammundsen, Hemachudha et al. 1973) that found out that in many countries

the health services were not keeping pace with the changing populations either in quantity or

in quality; and considered that a major crisis was at the point of erupting and it would be both

destructive and costly if it was not prevented. There was a widespread dissatisfaction of

populations in the developed as well as in the third world, about their health services for

varying reasons. Second building block of Primary Health Care is the World Health

Assembly Resolution WHA30.43 (1977) that recognized the magnitude of health problems

and the inadequate and intolerably inequitable distribution of health resources throughout the

world and decided that the main social target of governments and WHO in the coming

decades should be the attainment by all the citizens of the world by the year 2000 of a level of

health that will permit them to lead a socially and economically productive life". This

decision called for relevant strategies.

In 1978, WHO and UNICEF undertook the International Conference on Primary

Health Care, in Alma-Ata, ex-URSS, attended by delegates from all countries of the world,

international development agencies and other health stakeholders. The conference aimed at

proposing the approach for the achievement of affordable universal coverage - the goal of

Health for All. This approach was finally designated *primary health care*. The term "primary"

was subject to different interpretations – technically referring either to the first contact with

the health system or the first level of care; politically seen as depending on multisectoral

action or community involvement; this could explain why there is no model of primary health

care. One could argue that it is a philosophy encompassing political, socio-economic and

technical aspects. The alma-Ata Declaration set up a paradigm shift in public health towards

primary health care. It was accompanied by decentralization and proposed a community-

based approach for health development. It put emphasis on health promotion and reorientation of Health Systems based on PHC. As a landmark in public health history, it corresponds to the stage of *universalism* in Health Systems Thinking, providing health care for all people without making judgements about ability to pay. Health started being seen more holistically, as a basic human right, on a social perspective rather than on a medical angle.

In general, primary health care movement has been criticized for giving tool little attention to people's *demand* for health care, and concentrating almost exclusively on people's presumed needs. There are many reasons for mismatches between what people *need* and what people *want* and poverty is one of them. It is notorious that the first and second generations of heath system reforms have been quite supply oriented.

In 1988, the primary health care approach was revisited during the Conference of Riga in which its relevance was reaffirmed. In 1993, the PHC approach was assessed worldwide, constraints have been identified, and it was followed by the third generation of health system reforms.

4.5.4.2. Global Perspective

All governments were urged to formulate national policies, strategies and plans of action to launch and sustain primary health care as part of a comprehensive national health system and in coordination with other sectors.

In 1979 the World Health Assembly endorsed the Report and Declaration of Alma-Ata and launched the Global Strategy for Health-For-All by the year 2000 (WHO 1979). The global strategy indicated that the achievement of the goal would require relevant reorientation of national Health Systems motivated by regard for equity, social responsibility and human rights; this reorientation would require scientific basis and sound knowledge from those in charge of heath systems design and development. The same year, the United Nations General Assembly endorsed the goal of Health-for-All and called on various UN bodies to support WHO in its efforts (UNO 1979). The Alma-Ata declaration on *primary health care* became a benchmark for the re-orientation of Health Systems in countries of different regions of the world.

The eighth General Programme of Work of the World Health Organization (1990-1995) describes a health system as a complex of interrelated elements that contribute to health in homes, educational institutions, work places, public places and communities. A health system was to be organized at various levels starting at the community level and proceeding through the district and possibly other intermediate levels to the central one. The challenge facing the countries was to conceive such a health system, to maintain its cohesion and to ensure that it functions in accordance to national policies. (WHO 1987)

In view of strengthening the operational level of primary health care, a definition of District Health System was adopted globally. A "district *Health system based on primary health care is a more or less self-contained segment of the national health system. It comprises primarily a well-defined population, living with a clearly delineated administrative and geographic area, whether urban or rural. It includes all institutions and individuals providing health care in the district, whether governmental, private or traditional.*" (WHO 1986).

The general principles for developing such systems are: equity, accessibility, emphasis on promotion and prevention, intersectoral action, community development, decentralization, integration of health programmes and coordination of separate health services.

4.5.4.3. African Perspective

In the African region, many countries inherited at independence, over forty years ago, health care services designed for colonial civil servants living mainly in capital cities. The decades of sixties and seventies saw modest expansion of health care to rural areas. After Alma-Ata conference (1978), African countries adopted primary health care as the key strategy for the attainment of Health-For-All goal. In the meantime, two unexpected phenomena could not be anticipated: the profound world economic recession that has left many national economies in disarray and the AIDS pandemic as an unprecedented public health challenge. By mid-eighties the Ministers of Health of the African region of WHO decided in 1985 to strengthen their national Health Systems using the primary health care approach. It was agreed that community based health activities must be sustained by appropriate operational, technical and strategic support at the local, intermediate, and central

levels, respectively (Monekosso 1989; Monekosso and Kollo 2008). Figure 2 illustrates the

recursive levels of the health system according to this model.

Figure 18 African Health Development Framework
Source : G.L. Monekosso (2008)
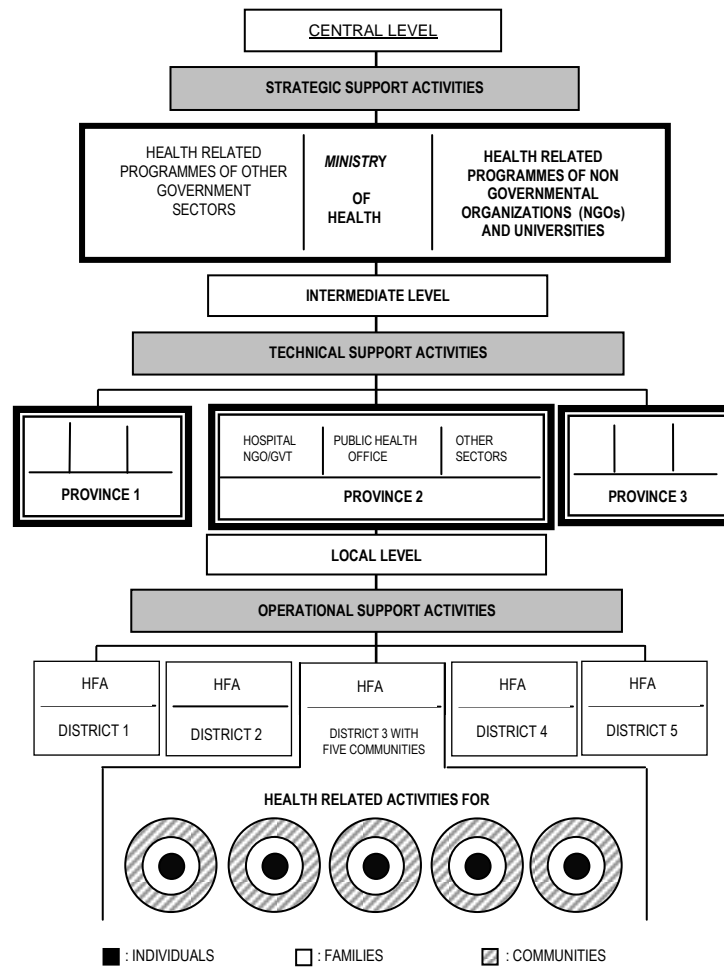
District health system (DHS) became the cornerstone of the organizational framework for implementing the primary health care (see Fig.18). Community participation, inter-sectoral collaboration and affordable technologies provided by qualified members of a district health team, constitute the key strategies; and the overall objective is to strengthen Health Systems performance. The framework considers environment, behaviour, population and health services as four major determinants of health (Monekosso 1989).

Figure 19 District Health System
SOURCE, WHO/AFRO (1989)
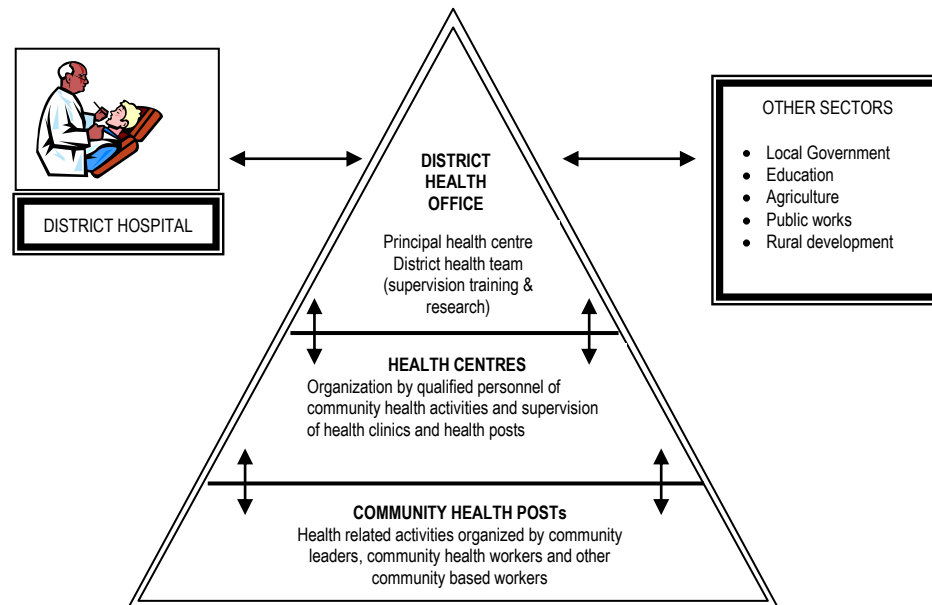
Monekosso (Monekosso 1989) argued that the community is the target of all-national

policies, strategies and plans of action; and that community members are partners with

government in the development process. Institutional mechanisms should facilitate the taking

over by communities of a great deal of responsibility for their own health. The approach

however should be holistic; health care and other developmental community concerns should

be integrated into the work of "community councils" in their struggle for socio-economic

development and better quality of life. Monekosso advocates the existence of village health

committees for implementation of community health activities, targeting individuals

belonging to selected age of groups, families with a focus on women and communities in

undeserved rural and urban areas. This contributes to improved health status, expansion of health care coverage and satisfaction of health related needs.

4.5.4.4. Assessing the Experience of the 2nd Generation - 16 years after Alma-Ata (1978-1993)

There was a strong national commitment of all countries to the principles of primary health care. This commitment has been translated into practice in a variety of ways by individual countries or group of countries. Such expressions include "Healthy People 2000" in the USA, the "New Perspectives on the Health of Canadians", "Targets for Health for All" in the European countries, The Health for the Nation" in the United Kingdom and "African Health development Framework" in the African countries (Tarimo and Webster 1994).

Almost all countries developed national strategies for health for all. However, in the African region, in most cases solely health planners have elaborated strategies, with little involvement of policy makers and health personnel providing services. Lack of involvement of health personnel working in provinces and districts and health-related sectors (e.g. water and sanitation, local government, agriculture, education) and top-down processes have been very often criticized. In other instances, clear goals and targets were not clearly defined; and costs of strategies were rarely determined.

In relation to resources for implementing primary health care, the most important health resource, which is often overlooked, is the people themselves. Better information to the public on what to expect from health services and on what they can do themselves is essential. During this period, the government expenditure on the health sector as a percentage

of the GNP increased in most countries. However, the share of GNP allocated to health remains strikingly low (2.4%) in poor countries.

Tarimo and Webster (1994) felt that the situation, 16 years after Alma-Ata, was truly mixed. Considerable improvements in health and the expansion of care globally and nationally were documented. Behind the global and national average achievements are distortions, inequalities, and unsustainable developments. They argue that a number of least developed countries have been largely bypassed by the PHC movement and warn that emphasis in all countries should go to rising awareness about health and enhancing popular participation. The authors express concern about the danger that many of the ongoing health sector reforms focusing on improving efficiency may worsen the current inequities in health, particularly at local level.

Weak intersectoral coordination for health development, inadequate community involvement in health development matters, weak integration of specific Public Health Programs, increasing poverty in certain parts of the world and, disasters and emerging diseases and epidemics such as AIDS, may have constrained successful implementation of primary health care.

4.5.5. Third Generation of Reform (Post-Alma Ata)

4.5.5.1. Introduction

In the early 1990's a vast movement of Health sector Reform started in several countries of different parts of the world, aiming at accelerating the implementation of the

Health for All global strategy. Reforms took place within different contexts, shapes and contents, in various regions and countries. A special emphasis was put on evidence-based policy-making, quality of health care, and efficiency in resource management while ensuring financial sustainability in public health, dealing with health determinants and new partnerships for health.

4.5.5.2. Global Perspective

A new Health for All global policy was adopted by the World Health Assembly following the process of evaluation of the implementation of the Global Strategy for Health for All in the year 2000, considering the changes provoked by globalization and bearing in mind the increasing number of people living in absolute poverty. It embraces the Health for All values, makes health central to development and aims at building sustainable health systems. The policy considers Health for All a timeless aspiration of the humanity (WHO, 1998).

Related reforms, concentrated in redefining the role of the State in delivering health infrastructure services. Technological changes and institutional innovations have made possible to diversify production and health service delivery arrangements.

Many countries in the world are currently applying marketing reforms to social services – health, education and pensions. Health reforms are also influenced by reforms outside the health sector; and policy makers are struggling to apply and amend these reforms to address the many problems in publicly delivered health services, while pursuing social protection and equity (Preker and Harding 2003).

4.5.5.3. African Perspective

Experience of Health Reforms in the African region

Figure 20 Health sector reform process and stakeholders
SOURCE: WHO/AFRO (1999)
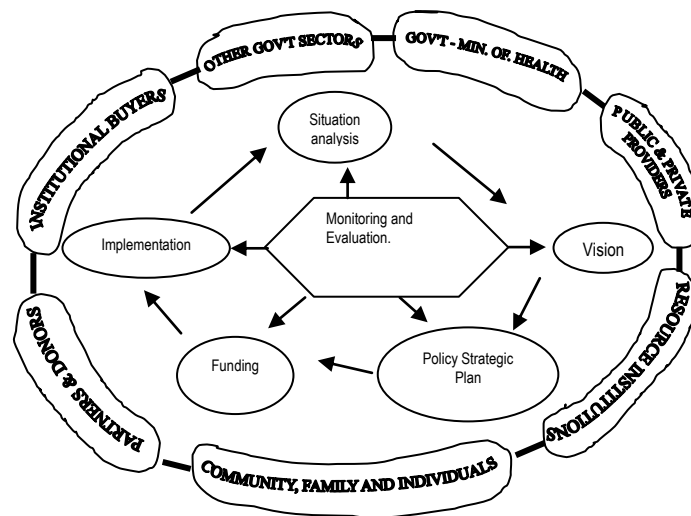
Through that process of change, in the context of the African Region, most of the countries sought to achieve equity in health, improved quality of care, better access to care, and sustainable health care financing and user satisfaction. In a nutshell, countries sought better performance of Health Systems and improved health outcome translated in the health status of the population (Figure 20).

Figure 21 Health sector reform process and effects
Source: WHO/AFRO (1998)
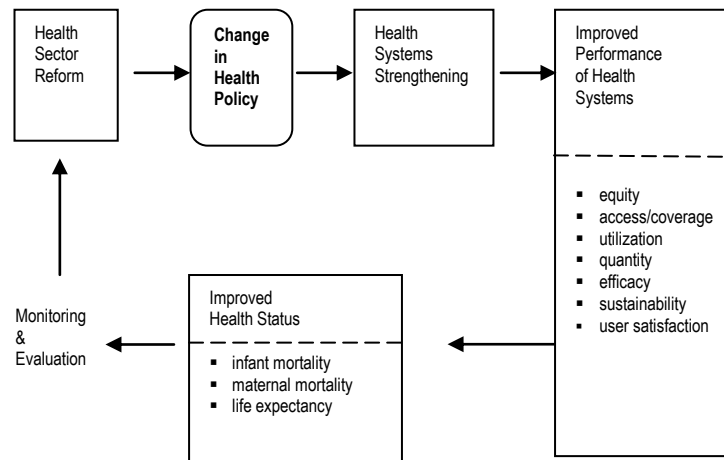
In relation to the scope of reform, very rarely the processes have been comprehensive within the health sector. In addition, in most of the cases reforms took place in isolation in relation to other Government sectors. The terminology used to designate the process, health sector reform, health system reform, health care reform is confusing and it does not have universally agreed meaning; which probably derives from weak theory on Health Systems in which appropriate and consistent terminology are not established.

Experiences in health sector reform, brought successes, failures and lessons learnt on which one could work for learning and doing better in future. In spite of these efforts for change, the majority of people still have limited access to health care, mainly due to physical and financial constraints. The main improvements were noticed in the areas of policy development, but implementation is still hampered by limited resources (human, financial and technology) and weak management capacity for more efficiency.

There are problems hampering successful implementation of health sector reforms. Lambo and Sambo (2003) classify the constraining factors according to reform agenda themes as follows:

i. Health systems stewardship

- Political instability and civil strife

- Lack of national policy and plans

- Lack of political will and commitment

- Frequent changes in ministries of health

- Ineffective coordination

- Resistance to change

- Ineffective inter-sectoral collaboration

ii. Organization and management of health services

- Lack of appropriate health information systems

- Inadequate private sector involvement

- Inadequate community participation

- Weak institutional capacity

iii. Provision of quality health care

- Inadequate human resources

iv. Financing of health services

- Inadequate financial resources

- Wide-spread poverty

In general, health systems still face remaining challenges. Concern with demand is more characteristic of the third generation of reforms. This development set up the conditions for

the "*New Universalism*" in Health Systems Thinking. Inequity across the world and among social groups, the overall quality of health care, the weak financial protection through public and collective financing and the negative impact of globalization are still to be considered. Health is still one of the few universal aspirations and globalization offer some opportunities to reconcile country specific interests with global health endeavours; but it also offers threats such as increased risks and spread of diseases because of increased movement of populations and great dissemination of lifestyles that are harmful to health. *New Universalism* recognises that the State cannot pay everything for everyone and therefore public health benefits/health care is provided on the basis of the means and ability of people to pay user fees. It ensures health financing with social protection, is much less expensive in terms of the total costs of the benefits but Jones (1994) warns that this policy is much more expensive to administer.

4.6. Summary

HS is an important but confused field, with unclear boundaries, overlaps and multiple interpretations of terms and therefore requiring conceptual clarification. In light of available evidence, it is critical to realize that the health *reform* process addresses parts of the organization/system rather than the whole. Secondly, they fail to recognize that concentrating the reform *content* in one part of the HS may have damaging effects for the whole system. Thirdly, HS reform *actors* fail to address the views and interests of staff involved in the reform implementation and people expected to benefit from it. Fourthly, it doesn't care about the different perceptions, meanings and cultural values and beliefs that may influence the very different institutions and structures belonging to the HS and working towards the same goals. Fifth, the structural part, I mean the HS design is usually conceived to work in stable environment, rather than addressing the ever changing *context*; and finally they don't provide

structural response to cope with the variety of health stakeholders. The analysis of literature on health systems demonstrates that most of current health systems is underpinned by functionalist approaches (Shortell and Kaluzny 1983; Kleczkowski, Roemer et al. 1984; Murray and Frank 1999; Turnock 2004). The way health systems are currently understood may contribute to its weak performance. This justifies the focus of the research, looking at the current understanding and exploring what other approaches and methodologies can offer to make health systems more relevant in theory and practice. Why do we need a more critical approach in health systems? Because the current analysis reveals that current HS thinking and practice are fundamentally functionalist, with strengths and weaknesses .On the other hand, HS Thinking faced difficulties in moving from hard systems approaches to interpretive and emancipatory methodologies more relevant to the mental and social aspects of health. Applying systems ideas in health and exploring other system approaches and related methodologies could help in creative problem solving and contribute to shorten the gap between HS goals and HS performance.

From the epistemological view, the current understanding of the health system is functionalist, because the practice has focused on the definition of the structure, units and functions at different levels of recursion, either at country or global level.

CHAPTER 5

5. *ANALYSING THE HEALTH SYSTEMS LITERATURE*

5.1. Introduction

This chapter will put in context the sociological perspectives of health based on the ideology of primary health care and the new public health theory. Especial consideration is given to the scarcity of relevant methodologies consistent with the systemic knowledge on health systems. An analysis is made on HS functionalist, interpretive, emancipatory and postmodern approaches. For each approach four interrelated domains will be considered for systematic inquiry of health systems: philosophy, theory, methodology and application. Under *philosophy* the study will consider how can we understand Health Systems as a whole, looking at the real world facts and events; we will look at the ways of thinking and inquiring how things work more than checking what things are. Under *theory* the study will look at the specific scientific discipline – public health, developed on its own scheme and boundaries. In light of systems science the researcher seeks for alikeness of principles, concepts and laws existing in various realms of Health Systems Practice. We could integrate within a framework of systems theory findings of health systems. Under *methodology* it will be identified and characterised specific strategies, methods and tools appropriate to work with Health Systems according to its philosophy and theory. Under *application* the study will consider the use of relevant approaches, methodologies and methods in Health Systems functional context. At the end the researcher explores the alternatives offered by the four Jackson's key paradigms.

The chapter argues that the use of system ideas in health is rather confused, but primarily functionalist. It calls for a shift from mechanistic/reductionist HS to holistic HS that takes into account the environmental, social and political dimensions of health. In summary by studying different systems thinking approaches and in light of theory and practice in health systems the study will recognize characteristics and concepts that are common, discover relationships among some of the concepts and even construct alternative models to the current health systems thinking. Finally it recognizes that CST and pluralism can provide to health analysts more relevant advice on how to address in a more flexible and comprehensive manner, the complexity, the dynamics and uncertainty of health systems in the real world.

5.2. Systems Thinking and Health Systems

In this section considers the basic concepts of systems thinking and health systems. The analysis will be grounded in the combination of two major fields – *systems thinking* and *public health*. First we provide reference to literature that bridges the two domains of systems thinking and public health. Then, the section explores pluralistic frameworks for application of Critical Systems Thinking and justifies the choice of Jackson's pluralistic framework.

Systems thinking is traditionally accepted as emerging in the 1940s, as a response to the failure of mechanistic thinking to explain biological phenomena (Flood and Jackson 1991). At this time, epistemology considerations were dominated by formism and mechanism. Expansion of science was required to address problems in the biological, behavioural and social sciences, to deal with the aspects that were left out by mechanistic approaches. In human behaviour the type of systems to guide the vision for the future were goal-seeking and purposeful. Ackoff argues that about the time of World War II the "machine

age" – associated with the industrial revolution, began to give way to the "systems age"(Jackson 2000). In mechanistic thinking a "system" is an aggregate of parts in which the whole is equal to the sum of the parts - *reductionist system thinking*. In systems thinking a "system" is a complex and highly interlinked network of parts exhibiting synergistic properties – the whole is greater than the sum of its parts, this corresponds to *systemic system thinking*.

Later on the organismic metaphor became dominant. Henderson (1878-1942) developed a sociological thinking in analogy with biochemistry and started regarding social processes in systems terms. Cannon (1932) studied different systems and functions in the human body and found useful to examine other forms of organization in light of the anatomy and physiology of the human being. Levi-Strauss (1949) originated the modern structuralism philosophy that understands social rationality on its structures such as information, knowledge and human beings themselves through a process of inference and deduction. L. Von Bertalanffy (1950) came in with the concepts of open systems and close systems that culminated with the General Systems Theory – a key and universal development in systems theory. Ashby (1956) and Beers's (1959) provided important contributions to cybernetic sciences and its application to management. By 1970's systems movement started making a difference with positivism and functionalism, described in more detail in next section.

There is no common definition of systems and very often the use and meaning of this word has no place in a scientific debate. For the purpose of this study the following definition is adopted: a system is a set of objects together with relationships between the objects and between their attributes (Hall and Fagen 1956). The authors recognize the

vagueness of the definition and alert that mathematical or philosophical type of systems are precise and self contained, and they settle completely and unambiguously the questions of meaning. Inherent to their definition of system the terms objects refer to the parts or components of the system; *attributes* are properties of objects; and *relationships* is what tie the system together; concluding that these relationships make the notion of system useful.

Hall and Fagen argue that for a given system "the environment is the set of all objects a change in whose attributes affect the system and also those objects whose attributes are changed by the behaviour of the system" (Hall and Fagen 1956). This statement raises the question of when an object belongs to a system and when does it belong to the environment? Others argue that a system together with its environment makes up the universe of all things of interest in a given context. The subdivision of this universe in two parts, system and environment can be done in many ways; and ultimately is up to the observer/manager to define the possible and most convenient configuration of objects to be taken as part of the system.

5.2.2 Exploring Pluralistic Frameworks for the application of Critical Systems Thinking in Public Health

Jamison (1999) recognised that health systems of some sort have existed as long as people have tried to treat diseases and protect their health. From 1840s to Alma-Ata declaration in 1978, health systems were essentially conceived as a delivery of health services in hospitals and clinics mainly in urban areas. It was the time of a medical approach fundamentally based on curative medicine and preventive medicine.

Shortell and Calumny (1983) emphasize that health system comprises a diversity of providers organized in a variety of ways and practices in different settings, including private practice, health maintenance organizations, outpatient clinics, hospitals, health departments and other.

According to Kleczkowski (1984), health system is a coherent whole, consisting of many interrelated parts both sectoral and intersectoral, as well as the community itself, which produce a combined effect on the health of a population. Others argue that the health system is purposeful and all parts must work together and adjust to each other.

Janovsky (1996) in categorizing the key factors of health systems considers health care providers and users in terms of supply – those providing resources, services and other health determinants; and the demand side – including individuals, households and the community at large. She considers a third factor, the interaction between supply and demand, regulated by the State and institutional purchasers.

Roemer (1997) alerts that health status of populations is influenced by countless factors in the environment in which health systems evolve. And the mediation of the system performance depends on personal and behavioural characteristics of individuals managing its different components.

Murray and Frenk (1999) brought to health system definition the concept of health action – regarded as any set of activity whose primary intent is to improve or maintain health. The primary intent criterion gave a new insight in understanding the scope of health system. The authors argue that efforts to improve health determinants such as education of young

girls, fulfil the primary intent criteria, and therefore they are part of health system. One could argue that such activity would rather be an education action in the context of education system. But Murray and Frenk have the merit of raising the issue of health system boundary, that remains contentious and for recognizing that the boundary definition is somehow arbitrary and related to specific contexts.

During the period of universalism, Shortell and Kaluzny, Kleczkowski (1984), views on health system, where developed during a period in which health system practice was focused on the implementation of Alma – Ata primary health care strategy. It relates with the second generation of health sector reforms that took place between the late 1970s and early 1990s. During the same period systems' thinking was still dominated by the positivist and functionalism philosophy. Contingency theory, based on the organismic metaphor, was dominant throughout the 1970s and remains the core explanatory theory of the organization structure in the world of Donaldson (1996); it views a system as integrating a series of interrelated subsystems, each of them has a function to perform within the context of the whole. Within this view, Jackson identifies four subsystems of significance: the goal, human, technical and managerial subsystems (Jackson 2000).

Still in the 1970s Forrester (1971) systems dynamics, Jenkins (1972) systems engineering and Millers (1978) living systems theory came up with systems thinking approaches. Beer's (1972) developed the Viable Systems Model under the brain metaphor, and argue that cybernetic as a science of effective organization is aimed at identifying laws and principles that govern complex systems through five functions: implementation, coordination, control, development and policy.

In the late 1970s and early 1990s soft systems thinking brought about new ideas, in particular a placing people at the core of the system rather than prioritising technology, structure or organization. In contrast to functionalist approach its primary area of concern is perceptions, values, beliefs and interests. More specific approached developed during this era are Churchman's social systems design (1970); Mason and Mitroff's strategic assumption surfacing and testing (1981); Ackoff's social systems sciences (1975; 1999); Checkland's soft systems methodology (1983); and Senge's soft systems thinking (1990).

During the period of New Universalism, Janovsky (1996), Roemer (1997) and Murray and Frenk (1999) brought significant contributions to health system concept. Their work since the 1990s was preceded by the evaluation of the implementation of primary health care philosophy and brought forward the *new universalism* in health. It triggered the third movement of worldwide health sector reforms, following the old public health period ended in the 1970s and the 20 years of *universalism* in health up to the 1990s.

The new universalism in health did not incorporate the relevant and new developments in systems thinking philosophy and theory. During the same period systems thinkers and theorists developed the systems of systems methodology by Linston (1984) and Jackson and Keys (1984); total systems intervention of Flood and Jackson (1991); critical systems thinking (Jackson 1991); complexity theory supported by Stacey and Weatley (1992); emanicipatory systems approach developed by Ulrich (1983) and Jackson (2000); and post-modern systems approach by Jackson (2000).

Health systems thinking did not evolve in light of the opportunities given by systems thinking. Health systems thinking was left behind and remained fundamentally functionalist

with serious shortcomings in addressing issues related with change, diversity, uncertainty and human participation.

5.3. The sociological perspectives of Health

People's experiences of health and the incidence of disease are seen as being influenced by the social, economic and cultural characteristics of the society in which they live (Clarke 2001). According to this view, diseases categories are not simply the product of scientific analysis of biomedical facts but also resulting of a particular set of social, historical and political circumstances. Clark (2001) considers two types of medicine: the *biomedical model* is dominant nowadays and the medical explanations that it provides are based on the functioning of the human body and the nature of disease. The body, as the physical site of disease is studied in isolation and object of treatment; and therefore the relevance of social and psychological factors is overlooked or ignored. The second assumption of the biomedical model is that a specific disease always has a specific cause.

This idea of specific aetiology emanates from the 19[th] Century – individualistic phase of the Old Public Health in the 1870s when germ theory emerged together with the development of vaccines. The main task facing the medicine is to identify and eradicate the various causal agents and restore the individual to a healthy, disease-free state. Clark (2001) asserts "In portraying disease as the consequence of the malfunctioning of the human body, the medical model adopts a mechanical metaphor as an explanatory device." He further

quotes Freund and McGuire (1991) who said "Modern medicine has not only retained the metaphor of the machine but also extended it by developing specializations along the lines of machine parts, emphasizing individual systems or organs to the exclusion of the totality of the body". The biomedical model is at the core of modern scientific medicine; nevertheless, the sociological aspects of it should not be overlooked. The biological determinism has limitations first when it comes to explaining the role of medicine in improving the health of the population and accounting for the social distribution of health and illness. Clark refers to McKeown (1976) who illustrated how the death rate from respiratory tuberculosis showed a substantial decline well before the introduction of effective medical treatment in the form of antibiotics and BCG vaccination, arguing that improvements in nutrition and hygiene were primarily responsible for that decline. Second, variations in health status between different socio-economic groups cannot be explained by reference to biological factors alone.

The use of the machine metaphor encourages an interventionist view of the medical practice in which the doctor is seen to use her or his expert knowledge and technical skill to diagnose the fault and repair the malfunctioning body part. The development and the increasing use of more advanced medical technology create an atmosphere in which the scientific/biomedical mode of thinking predominates.

Clark refers to Turner (1987) who illustrates that the *sociological model* of medicine takes a critical and opposed position on the biomedical model. The sociological approach holds that the patient needs to be considered as a whole person. Illness can only be fully understood by taking account of the wider social and cultural context in which physical and mental conditions are observed, diagnosed and treated (Clarke 2001). As Turner asserts, "The sociological perspective encourages medical professionals to approach the person and not the

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patient as the focus of an inquiry into illness". This model is consistent with the primary health care approach advocated by the World Health Organisation.

From the point of view of sociologists "human beings are essentially social animals and therefore a full understanding of human behaviour cannot be achieved without taking into account aspects of the social setting in which the behaviour occurs". Also, sociologists have repeatedly rejected the possibility of the totality isolated, non-social individual.

5.4. View about the field of Health Systems in general.

Since ever the humanity has had some type of system to address health and health care. The history of medicine shows some of the critical development of health systems through different steps of development of science and technology. Technology is older than the scientific method, and much technology existed long before the Greeks created the scientific outlook and initiated the process which culminated in the scientific revolution of the 17[th] century (Checkland and Holwell 1998). Thereafter the combination of science and technology has been has been a powerful source of the kind of changes operated in health systems throughout time; and it altered profoundly the lives of very large numbers of people in many countries.

Health systems and health technologies evolved at different paces during the last 150 years. Health technologies developed faster and at a cost that most of people cannot afford, giving place to inequities in access to health care and contributing to social inequalities.

Positivism that has been the dominant research paradigm in natural science and the development of health technologies is exceptionally difficult to apply in social systems such

as health system. Health, as a social reality, following Checkland argument, "is continually being constructed and re-constructed in dialogue and discourse among human beings, and in action which they take". He concludes asserting that researching social reality becomes an organized discovery of how human agents make sense of their perceived worlds, and how those perceptions change over time and differ from one person or group to another.

The history and topics of concern in health systems are summarized in the table below that provides a brief analysis of the Health Systems literature:

Table 8.5 Analyzing the Health Systems Literature

	Before 1830 – 1970's	1970's – 1980's	1980's –2009
Phases	*Environmental, Sanitary and Bacteriological phases..*	*Universalism*	*New Universalism*
Philosophy	Abstracting human, cultural, social and political dimensions of health	▪ a more holistic view of health on a social perspective rather than on a medical angle; ▪ primary health care (PHC) and health for all (HFA) goal; ▪ an explicit call for equity as matter of policy	▪ renewed PHC philosophy and HFA timeless goal; ▪ welcomes diversity/pluralistic health care systems; ▪ calls for fairness in financing ▪ Membership includes the entire population.
Theory	Old Public Health ▪ Primary concern with the prevention of infections and contagious threats to human health; ▪ Medical profession had a central place.	New Public Health ▪ Concern with all threats to human health, including NCDs; growing concern with sustainability and viability of physical environment. Key milestones: Alma-Ata Declaration (1978), Ottawa Charter (1986), Sunsvall Conference and UN Rio Earth Summit (1991),	New Public Health ▪ 11GPW of WHO (1994) ▪ IR Meeting on New Challenges for Public Health (1995) ▪ Jakarta Conference (2000) ▪ Current health responses to globalization, ecological health, global governance for health (21st Century) ▪ Intersectoral action implies medicine and other professions contributing.
Methodology	*Functionalist* Epidemiological and biomedical research methods. (formism and mechanism)	*Functionalist* Epidemiological, demographic and biomedical approaches (positivism and functionalism)	*Dominant functionalist* But calling for other methodologies (interpretive, emancipatory and post-modern) consistent with the systemic knowledge (functionalism and interpretivism)
Practice	*1st Generation* (pre-Alma Ata) ▪ Very little attention to people's demand; ▪ Supply oriented health systems; ▪ Government is the main provider; ▪ Role of people, just recipients.	*2nd Generation* (Alma Ata) ▪ Concentrated on people's perceived needs; ▪ Supply oriented health systems; ▪ Government/public sector to provide and finance everything to everybody; ▪ It fails to recognize both resource constraints and Government limits; ▪ People's participation recognized important, but not effective.	*3rd Generation* (post-Alma Ata) ▪ Greater attention to people's demand; ▪ Demand oriented health systems; ▪ Government responsibility for leadership, regulation and financing; ▪ Recognizes Government limits and encourages providers of all types; ▪ Most cost-effective services should be provided first; ▪ More involvement of people/civil society.

The main concern is that Health Systems is a well-established field, but without a common perception of its definition, boundaries and terminology, and even no agreement on relevant reference disciplines. This mess seems to be related to the distinct biomedical and social approaches of health. Nevertheless, Health system is a vital and compelling field that affects and influence real-world action. Dominating HS is a set of assumptions, which see health organizations as goal seeking, with decision-making in pursuit of goals and objectives.

Checkland (1998) considers two main strands on the way we perceive the world. First, the hard systems thinking, assuming that the world contains systems, which can be engineered to achieve their objectives; this is consistent with the biomedical model of health systems. Secondly, the soft systems thinking, regarding the world as problematical but assuming that through a process of inquiry people in organizations inter-subjectively attribute meaning to their world and hence form a view on the relevant system.

The understanding of these two strands of systems thinking is valuable to clarify some of the confusion in Health Systems (HS) field and it will be examined briefly in the next two sections.

5.5. HS functionalist approaches.

For Parsons (1951), anything that prevents individuals performing their designated roles and fulfilling their social obligations is seen as a potentially disintegrative force as far as the social system is concerned. Under his functionalist perspective, health is defined in terms of "the ability of the individual to carry out normal daily tasks and perform those social roles which contribute to the maintenance of the social system"; and illness defined in terms of

"the incapacity to perform social roles and fulfil social obligations". Moreover, the individual is seen to have an active role in the production and maintenance of health; the patient is perceived as an active participant in, rather than a passive recipient of health care. This dual role of consumer-provider is well established by Kickbush (1981). Despite focusing on social as opposed to the biomedical perspective of health and illness, Parsons did not question the dominance of the biomedical model or the power and influence of the medical profession as the main agents of social control, acting as official gatekeepers governing the access to the sick role. Doctors represent the most powerful profession within the health system(Clarke 2001). Parsons sociological view of health has been heavily criticized because of its intrinsic conservatism and the tendency of maintaining an orderly society rather than dealing with the dynamics of social change. In the same vein, it fails to recognize that social structures generate social conflict and that coercion and hostility are common features of social life(Clarke 2001).

In Health Systems and in accordance to literature review, there is a remarkable view that health organizations are understood as social entities seeking to achieve goals. According to viewpoints of health systems thinkers (Kleczkowski, Roemer et al. 1984; Murray and Frank 1999) health management activities contains much decision-making related to key functions, striving towards health objectives and goals. These views are consistent with hard systems thinking alluded by Checkland (1981) to various systems approaches for solving real-world problems.

Davis and Olson (1985) look at organizations as open systems containing a set of functional sub-systems, with goals and objectives, which cannot be achieved without management of material and human resources. Management is realized as consisting of

planning, organizing, staffing, coordinating, directing and controlling, while decision-making is seen as analyzing alternatives in relation to a decision and making a choice among the alternatives. Zwass (1992) considers a manager as a member of the Organization and as a problem solver with a fundamental activity of decision-making. Decision-making, being a process of identifying a problem, identifying alternative solutions, and choosing and implementing one of them including the monitoring of its application. Simon and March (1958) see problems as "indicated by gaps between performance and goals" and problem solving is then "a matter of closing the gap by finding a suitable means to achieve the goal, which is taken as already known" (Checkland and Holwell 1998).

The "hard", functionalist approach has been the dominant model in Health systems thinking so far, but there is increasing interest in an alternative perspective. Such alternatives could be justified by the following critiques: first, the predominant reductionism was useless because of the complexity and unbounded description of health systems and because of the interactive nature of their parts. Secondly, the health goals are established in advance and it makes difficult the involvement of multiple stakeholders with different perceptions and interests. Thirdly, the human aspect of health systems is overlooked; health professionals and people are treated as components of the system to be engineered rather than actors. Finally, it is not flexible enough to deal with changing environment, diversity and uncertainty; it is limited by its adherence to mechanistic, positivists and functionalists strands.

5.6. Health Systems interpretive perspectives

Vickers (1974) rejected the goal-seeking model of human behaviour, in contrast to Simon (1960) who argued that human behaviour, both individual and corporate, could be

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taken to be goal-seeking. Vickers conceived what he calls "appreciative systems" according to which "managers set standards or norms rather than goals, and the focus on goals is replaced by one on managing relationships according to standards generated by previous history"(Checkland and Holwell 1998). According to this view, social action is based upon personal and collective sense making.

At the core of this view is the idea that social action is meaningful action: individual actors attribute meaning to their own actions and interpret the actions of other people. Therefore, social life is made-up of a combination of interconnected interactions based on the perceptions and expectations actors have of each other. According to interpretivists, meanings are not determined by cultural norms or social values that are essentially external to the individual, but are in fact, viewed as the products of social actors' intentions and interactions in different contexts(Clarke 2001).

In the field of Health Systems, the soft – interpretive approach has not gained much ground. The universalism underpinned by primary health care philosophy and the New Public Health theory brought some interpretive flavour to Health systems thinking, but the dominant reductionist approach in epidemiology and biomedical sciences reduced the social scope of health. Therefore, the methodologies developed are fundamentally functionalist with a gap in regard to interpretive methodologies relevant to health systems. The lack of relevant methodologies makes the practice difficult. Health System is currently seen as a set up social entity, which seeks to achieve goals rather than an entity that seeks managing relationships. The underlying health system thinking is hard and functionalist. Checkland (1998) assumes that organizations can never be static but are always changing in response to changing

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circumstances, both internal and external. This viewpoint is consistent with Capra who argued that any system of health care is a product of its history and exists within a certain environmental and cultural context. As this context keeps changing, the health care system also changes, adapting itself continually to new situations and being modified by new economic, philosophical and religious influences. Hence, any health care system, is unique at a certain time and within a certain context (Capra 1982; Capra 1988).

5.7. Health Systems Emancipatory Approaches

Emancipatory Systems Approaches are Critical Systems Heuristics (CSH) and Team Syntegrity; and these approaches were developed because of the failure of functionalist and interpretive systems approaches to give appropriate attention to ensuring the proper participation of all stakeholders in taking decisions and to addressing the disvantages faced by some groups in affected organizations. In sociological terms the two approaches are emancipatory in character, oriented toward eliminating sources of power and domination (Jackson 2003).

Werner Ulrich's systems approach, for the first time, takes as a major concern the need to counter possible unfairness in society by ensuring that all those affected by decisions have a role in making them. He called his approach "critical systems heuristics" with the following interpretation: *critical* – ensuring the normative content of manager's designs; *systems* – referring to the comprehensiveness of elements, ethical, political, ideological, and metaphysical on which theoretical and practical judgments depend; and *heuristics* – helping managers and concerned participants to unfold messy issues through critical reflection.

Ulrich outlined the "purposeful systems paradigm", arguing that if we wish to understand and improve social reality, we must add an additional dimension of "determination" and design social systems to become purposeful systems. Based in his philosophy and theory, Ulrich developed a methodology constructed around the concepts of systems, moral and guarantor (Jackson 2003).

I want to understand the current Health Systems Thinking and improve it in the real world; and therefore I intend to explore the relevance of critical systems heuristics in health systems thinking, using critical systems thinking as theoretical framework. *Systems idea* will be employed to ensure comprehensiveness in mapping out health reality and produce health system designs. The *moral idea* to ensure that health system designers will improve the human health condition for all; and the *guarantor idea* to ensure that health system designers take into account all evidence as well as the views of experts and other stakeholders to secure that planning will lead to improvement.

Ulrich's 12 boundary questions will be asked in an <u>is</u> and an <u>ought</u> mode to interrogate current Health Systems Thinking – in the context of Thought Experiments of three scenarios A, B and C described by the researcher. The answers will be contrasted and then reveal the normative content of health system design.

Analysis and Critique

Based on Jackson (2003) views about CSH values to managers, it can be relevant in Health Systems Thinking. The fact that it emphasizes the benefits of incorporating the values

of all stakeholders in planning and decision-making could help health managers in ensuring the participation of different health stakeholders in a process of health sector reform.

Nevertheless, the fact that it puts the concept of boundary at the center of systems thinking, limits the relationships and therefore the synergy among Health Systems components and its permanent interaction with the surrounding environment. CSH allows managers and others to question whose values are being respected and whose interests served by particular systems design; this could empower health managers and other health stakeholders and allow them to have full participation in processes and decisions about health purposes.

Jackson (1991 and 2003) also makes a critique to CSH, e.g., it does not possess a social theory, it fails to provide any account of social structures, its methodology is immature, and lacks well tried methods, tools and techniques to support it. Therefore, its application in Health Systems Practice may raise methodological problems, beyond the issue of lack of underpinning well-articulated paradigm.

CSH can be very useful in situations in which health managers or decision-makers have to deal with problem situations involving different agencies, where it is important to gain the commitment of all parties and to take into account diverse values and singular interests.

5.8. Health Systems Post-Modern Perspectives

We want to address the relevance of the **post-modern approach** in health systems. This approach rejects both systemic and critical modernism. It does not accept rationality, truth and progress, and denies that science can provide access to objective knowledge; and it might seen difficult to see how this is relevant to address biomedical sciences and development of health technologies to be applied in the solution of different health problems. The denying of science as a pathway to knowledge and development raises a serious problem in relation to health systems that require science and technology to address existing and emerging public health threats. Postmodernists deny the value of transparent language and emphasize instead that we have to learn to live with the incommensurable, accepting multiple interpretations of the world and being tolerant of differences.

Nevertheless the Post-modernist systems approach could bring some benefits in exploring discourses, revealing those who are marginalised by the current power structure and in identifying, researching and comparing options.

5.9. Type of Health Problems we want to address

On the basis of the number, diversity and variety of the components of health systems, it can range from simple to complex; and because of the multiple factors influencing health, more often the type of problems are complex and eventually *highly complex*. The definition of health as complete state of physical, mental and social well-being and not only the absence of disease or infirmity (OMS 2001), provides the idea of its complexity. Health Systems expected to produce health have a large number of sub-systems at different levels, ranging from global to local level. Its outcome can't be predetermined except for some of its components, despite attempts of functionalist HS thinkers to do otherwise. Health systems behave and tend to adapt as they are affected by their own purposeful parts and by the changing external environment. Health systems exhibit *diversity* according to their different internal contexts such as various specialized sub-systems. Diversity appears also according to its external environment and interaction with other systems such as economic, agriculture, education, media, climate, culture and other systems that may influence health positive or negatively. Health Systems are in *continuous process of change* – health sector reforms, aiming at adjusting policies, agendas, structures, and processes according to changes operated in either internal or external or both environments. According to its participants, health system problem-context can range from *unitary* to pluralist or even *coercive*. Different categories of health professionals with diverse profiles and backgrounds within the same organization need their relationships well managed to operate as a team. Communities composed by different people with different genetic, social, cultural and religious backgrounds are the main users of Health Care Services. Stakeholders, professionals, people, and Governments do not share necessarily the same values, beliefs and interests; there is

room for disagreement and conflict. <u>Governments</u> either dictatorial or democratic, exercise power with measured participation of people, with some degree of coercion, according to prevailing ideology, and tending to exercise some type of regulation, control and even domination.

I believe that Jackson and Key (1984) grid could be useful in categorizing the different types of problems found in health systems practice (see table 8).

Table 9.5 -Type of Problem Contexts
Source: Jackson and Key (1984)

PARTICIPANTS / SYSTEMS	UNITARY	PLURALIST	COERCIVE
S I M PLE	Simple-Unitary	Simple-Pluralist	Simple-Coercive
C O M P L EX	Complex-Unitary	Complex-Pluralist	Complex-Coercive

However, Health Systems are so complex that their problem-contexts can be illuminated through each of the boxes of the grid. That is why we need methodologies associated with the assumptions of every box, to tackle the problems they throw up in a holistic way.

5.10. The call for a shift from mechanistic/reductionist to holistic Health Systems approach

The paradigm shift in science is the one from a mechanistic and reductionist view of human nature to a holistic and ecological vision. The mechanistic approach of conventional medicine rooted in Cartesian image of the human body as a clockwork is seen as a main source of the current crisis in health care (Capra 1988). Universalism in health and the New Public Health theory dominated the HS systemic knowledge at that time. The systemic practice was fundamentally characterized by reductionist biomedical and epidemiological methods and organizational cybernetics in health system research. Most of criticism to biomedical approach is that it limits itself to a restrained factors that influence health; and biomedical interventions most of them are highly effective in clinical/individual care, but they have very little impact in general public health.

In 1982 Capra wrote *The Turning Point,* a book whose main argument is that " the major problems of our time are all different facets of one and same crisis, and that this crisis essentially a crisis of perception". Capra (1982 and 1988) made a call for an holistic health movement requiring very fundamental changes from the mechanistic approach of the biomedical model to an holistic approach that would have to be the ecological view of the human organism as being in continual interaction with its natural and social environment. But Capra does not indicate the related theory, methodology and tools to enable the translation of his philosophy into practice. According to this view, preventive medicine would have to play much more important role, and the responsibility for health and healing would be to be shared

with the health staff, the patient and the society. The idea of addressing key interacting health determinants was referred by Blum (1974) who proposed the "Environment of Health" model, by Roamer (1997) who reminded that health status of populations is influenced by countless factors in the environment in which health system evolves; and further emphasized by Baum (2002) who referred that New Public Health seeks to address contemporary health and health related issues such as environment, political governance, and social and economic development.

From the literature review, the researcher realizes the potential role of systems thinking theory as a common language for understanding physical, mental, and social aspects of health; and apply some of the new systems concepts in public health, particularly the social aspects of health. This would enhance the understanding of the current HS thinking and open-up its interpretation and learning. The diversity, complexity, change and uncertainty of health systems and the need to shift from reductionist to a holistic approach require relevant methods and methodologies according to specific problem contexts and involvement of people with a variety of skills and viewpoints. Systems thinkers responded by developing: system dynamics, organizational cybernetics and complexity theory to tackle *complexity and change*; strategic assumption surfacing and testing, interactive planning and SSM to handle *pluralism*; CSH and team syntegrity to empower the disadvantaged in *situations involving conflict*; and pragmatic pluralism to manage *diversity* (Jackson 2003). The next chapters will provide more details about this.

5.12. Summary

The analysis of the field of Health Systems on the basis of Critical Systems Thinking reveals that Health Systems are vital but confused. In light of systems thinking paradigms and methodologies and reviewed health systems literature, the researcher thinks that the current state of health systems thinking is fundamentally functionalist. The researcher is also persuaded that systems ideas can enhance the understanding of current Health Systems thinking and open-up its interpretation and learning. Despite of their limitations, reductionism and holism are complementary approaches in health and medicine; and whenever used in the relevant problem context, they can help in achieving more learning and knowledge. The next chapters will provide more details about this.

CHAPTER 6

6. *THREE HEALTH SCENARIOS AND WHAT ACTUALLY HAPPENED*

6.1. Introduction

This chapter describes three problem-situations, as experienced by the researcher before being exposed to Systems Thinking Theory and related methodologies. They are real-world situations in which there is a sense of mess and unease, a feeling that things could be better than they are; and also the feeling that some perceived issues and details require more attention. The problem-situations were encountered in Health Sector reform practice in different contexts and capacities. As a Chief Medical Officer in a province, as a Public Health decision maker at national level, as Health Adviser of a Ministry of Health of a developing country and as Officer in charge of coordination of planning and budgeting technical cooperation with a group of 46 developing countries in the field of public health; and as a decision-maker of a multilateral agency in a particular region of the developing world, the researcher has the oportunity an extensive experience and learning in public health practice and health management.

Scenario A will record "Vertical Programs versus Integrated approach of priority health Programmes". *Scenario B* will present the issue of "Community involvement in Health Systems Development". *Scenario C* reports about "Health system's Response to Crisis -Man-made Disaster". The three scenarios will cut across *background* to formulate the problem and explain why the situation is as it is (could also be called *formulation phase*), *situation*

analysis to identify, design and screen alternatives (could be considered as *research phase*),

discussion for evaluation of the analysis of the problem and consider possible solutions

(equivalent to *evaluation phase*), and *recommendations* related to actions to be undertaken for

problem solving (this is the *decision phase*). The content of this chapter will substantiate the

dominant approach and metaphors of current HS Thinking, its limitations; and realize the

need to explore other paradigms and methodologies, to explore purposes, to structure debates,

to unfold messes, to accommodate differences and bring about relevant changes.

6.2. Scenario A: Vertical Programmes (VPs) versus integrated approach of Programmes in Health Sector Reforms (situation as experienced).

6.2.1. Background (Formulation)

An African country named AFROLAND in 1996, with a newly elected Government,

decided to reform the economy and improve the quality of life of citizens – as promised

during the elections campaign. With an overwhelming electoral mandate, the Government

embarked on a reform process that went through fundamental review of the national health

policy, redesign of national health system, aiming at an improved health status of people. The

national environment was characterized by weak economic performance, increasing poverty

among people, fast deterioration of health indicators, under-funding of the health sector,

limited ability of the Ministry of Health (MOH) to prevent negative effects of poverty on

health, and high presence of donors and NGOs in the country. According to law, the Ministry

of Health was in charge of health policy formulation, strategic planning, health legislation,

resource mobilization, budget and finance and managing partnerships with bilateral, multilateral and other governmental agencies.

The delivery of health services was contracted out to the Central Board of Health (CBoH). This body was monitored by the MOH and responsible for the interpretation of policies and legislation and in charge of the implementation of the national health plan. In fact, the CBoH was the technical arm of the MOH. Its functions included commissioning of health services, health system development, promotion of public health and monitoring and evaluation. For its operations the CBoH could subcontract to health management boards (such as district health boards – DHB, and hospital management boards – HMB).

The Human Resources Development was a shared responsibility between the MOH and the CBoH.

District Health Offices (DHO) reported to DHBs and was its technical executive branch. They had the role to elaborate district health plans and related budgets, supervise the staff and monitor the overall performance of district health systems (DHS).

The main feature of the organizational and institutional restructuring of the MOH was *decentralisation* (see the organizational structure of the MOH, fig 21). The Health System was designed to facilitate the implementation of the national health policy within a context of political change and limited resources.

The Government created the Health Reform Implementation Team (HRIT) as a transitional coordinating organ, at central level, with the key roles of overseeing

decentralisation and health capacity building at district level, until the CBoH becomes a reality. HRIT had direct support from a group of donors and was operating outside the structure of the Ministry of Health. The policy goal of Health Sector Reform (HSR) was " provide all citizens with equity of access to cost-effective quality health care as close to the family as possible". During the transition period (that was not established), the relationships between the CBoH and the HRIT were not clear and the assignment of duties and responsibilities were at the best unclear. It was also ambiguous the position of the political leadership vis a vis the new structure which was to implement the health sector reform. The CBoH was therefore placed in a very difficult position with documented authority and expectations in one hand and the real world on the other and were the Minister of Health dictated the rules.

A perceived problem requiring special attention was the fact that the managers in charge of vertical and priority health programmes (Malaria, HIV/AIDS and Tuberculosis) integrated in the CBoH, were not involved in HSR discussions. As vertical programmes (VPs), they targeted the reduction of specific diseases or improvement of specific health conditions, using funds mainly coming from donors in support to Government funding. VPs had specific human resources and technology support to deliver related services at central, provincial and local levels of NHS. An opposed view was that VPs should have been integrated within the ongoing national health care delivery system for closer interaction and synergy with other health programmes and improve the rational use of health resources within the NHS. It was important to advise the Minister of Health in relation to this matter, for him to decide on the best option, either to keep the VPs or to integrate them.

Figure 22 AFROLAND MoH & CBoH – Overall Structures 1995

Minister of Health
Deputy Minister
Permanent Secretary

Directorate Personnel & Ad.
Directorate Planning & Dev.

Accounting
Auditing

Central Board of Health
Director General
Administrative Unit
Financial Unit
Internal Audit Unit
Statutory Boards
Advisory

Directorate of Health Services Commissioning
Directorate of Monitoring & Evaluation
Directorate of Systems Development
Regional Directorates

District Boards
Hospital Boards

Health Centres

MoH functions:
. Policy
. Legislation
. Resource mobilization
. Financing / Budget
. External relations
. Monitoring CBoH
. Multisectoral collaboration
. Strategic planning

CBoH functions:
. Commissioning of Health Services
. Development of support Systems
. Interpretation of legislation
. Capacity building
. Public Health promotion
. Monitoring & Evaluation

6.2.2. Situation Analysis (Research)

The Minister of Health of AFROLAND requested for external technical support to enable all those involved in the reform to concentrate their strategies and efforts on a limited, crucial and feasible set of issues which could show tangible results in a reasonable time-frame. The stakeholders with interest in the VPs were: the national and local Government, the MOH, Professional Associations (Medical Council, Nursing Council), Media, NGOs (national and international), Donors, Opposition Parties, others (UN Agencies, Academic and Research Institutions, Faith Based Organisations, Community Leaders, Unions,

Consumer Associations….); with similar or different opportunities, strength, interests and values.

6.2.3. Discussion (Evaluation)

The **Ministry of Health** was the leading institution and the policy maker was the Minister, a talented leader that talks well to the media and attracted public interest. The MOH wanted to deepen consensus on integration of VPs into overall health services. The **NGO**s span a wide area of interests from coordinating health care providers to specific health issues such as family planning and AIDS; they argued that health sector reform was too much health systems oriented rather than disease specific. The **MEDIA** regretted that the quality of reporting on reform implementation was low; and realised an imbalance of more negative than positive stories. **Professional Associations** had the professional skills to provide health care; they supported the objectives of reform but fell excluded from the process of implementation (nurses in particular); they expressed concern about dependence on donor funds. Traditional practitioners and private clinics were loosing clients preferring public facilities. **DONORS** expressed concern with performance, governance and transparency of the Government; some of them were calling for participation in district health funding basket; extend the basket to central level activities and some of them advocating to move from VPs to undesignated/unearmarked budget support; they have very strong influence over financial resources. The researcher had the perception that VPs addressing critical health problems, with their own resources and chronogram for achievement of established targets, would yield results much faster and would be more attractive and convenient to the Minister of Health as a politician. The structures, processes and climate for the implementation of VPs would be

more clear and straightforward and would prevent specific resources to be sidetracked to other programmatic activities not considered in the predetermined specific objectives or targets.

6.2.4. Recommendations (Decision)

It was recommended to keep the VPs operating with their own resources because, despite of the call from certain donors for a district common basket funding, each donor wanted to keep track of its contributions, willing to flag its cooperation with the recipient country; and, in this context, VP managers had no power to integrate the resources and related activities within the context of the ongoing health care delivery services. On the other hand the Minister of Health would be able to show more quick results through VPs than integrating all resources in ongoing health care delivery. It was recognised that VPs were extremely purposeful, driven by technology, with especial resources provided against measurable targets and therefore more likely to be efficient, even if they are likely to ignore the social context in which health problems occur.

6.2.5 What happened

Twelve years after, an institutional appraisal of the MOH revealed that the HRIT has been discontinued. The CBoH has been strengthened and incorporated the VPs. The MOH has been redesigned (see Fig New Organogram…….), but still the new organizational structure is not appropriate to enable the MOH to fulfil its mandate. There is a duplication of roles between the MOH and the CBoH; the roles of implementing agencies still remain unclear. For instance relations between the Provincial Health Office (PHO) and Health Boards are not clearly understood. Another example is the unclear leadership of certain

functions such as procurement, policy, planning and finance management. The appraisal also revealed that planning and decision-making has still been centralized at the CBoH, defeating decentralization, an aspect of the national health policy. Also Boards cannot make bold decisions if they are not favourable to the national political system. The Minister appoints board members rather than being community representatives; and the way they link with communities is left to individuals. So, Boards have a serious de facto problem of legitimacy. The relationships between the MOH and the Cooperating Partners remained fragile. The MOH was not able to meet the conditions of partners with regard to procurement, financial management and auditing. National Health Service became even more dependent on donor funding. They continued to support projects and Vertical Programmes, some managers of VPs have their own funding, their own transport, their own monitoring and evaluation system, and more and more they are running they own business.

Figure 23 Structure – Ministry of Health 2005
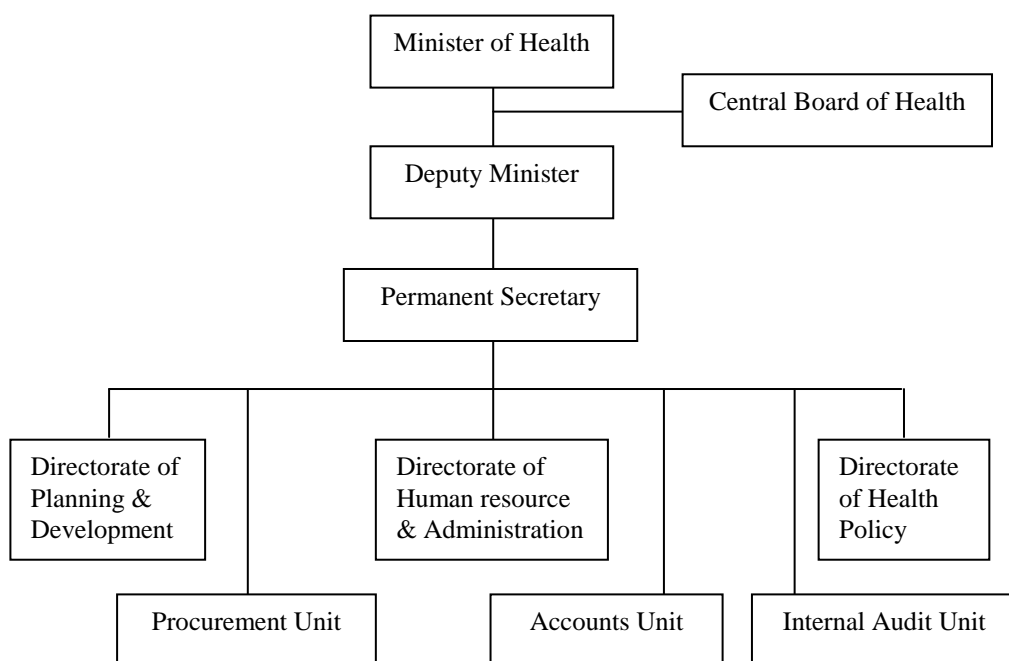
Figure 24 Ministry of Health and CBoH Structure 2005.

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                    ┌──────────────────────────┐  General Nursing Council
                    │    Ministry of Health     │  Medical Council
                    └──────────────────────────┘  National Public Health Regulatory

                                                   Pharmacy and Poison Board

 ┌──────────────┐      ┌──────────────────────────┐
 │  Statutory   │      │   Central Board of Health  │─────────────────────┐
 │   Boards     │──┐   └──────────────────────────┘                        │
 └──────────────┘  │                                                        │
                   │                                                        │
 ┌──────────────┐  │   ┌──────────────────────────┐                        │
 │ Hospital Boards│─┘   │   Central Board of Health  │                       │
 │ 2nd & 3rd      │     │  (Provincial Health Offices)│                      │
 │  Levels       │     └──────────────────────────┘                        │
 └──────────────┘                                                           │
                       ┌──────────────────────────┐                        │
                       │    District Health Board   │                       │
                       └──────────────────────────┘                        │
                                                                            │
 ┌──────────────┐   ┌──────────────┐   ┌──────────────┐                    │
 │District Hospitals│ │ Health Centres │ │Private Providers│                │
 └──────────────┘   └──────────────┘   └──────────────┘                    │
                          │                                                 │
                    ┌──────────────┐                                        │
                    │  Health Posts  │                                      │
                    └──────────────┘                                        │
                          │                                                 │
                    ┌──────────────┐                                        │
                    │Voluntary providers│──────────────────────────────────┘
                    └──────────────┘
```
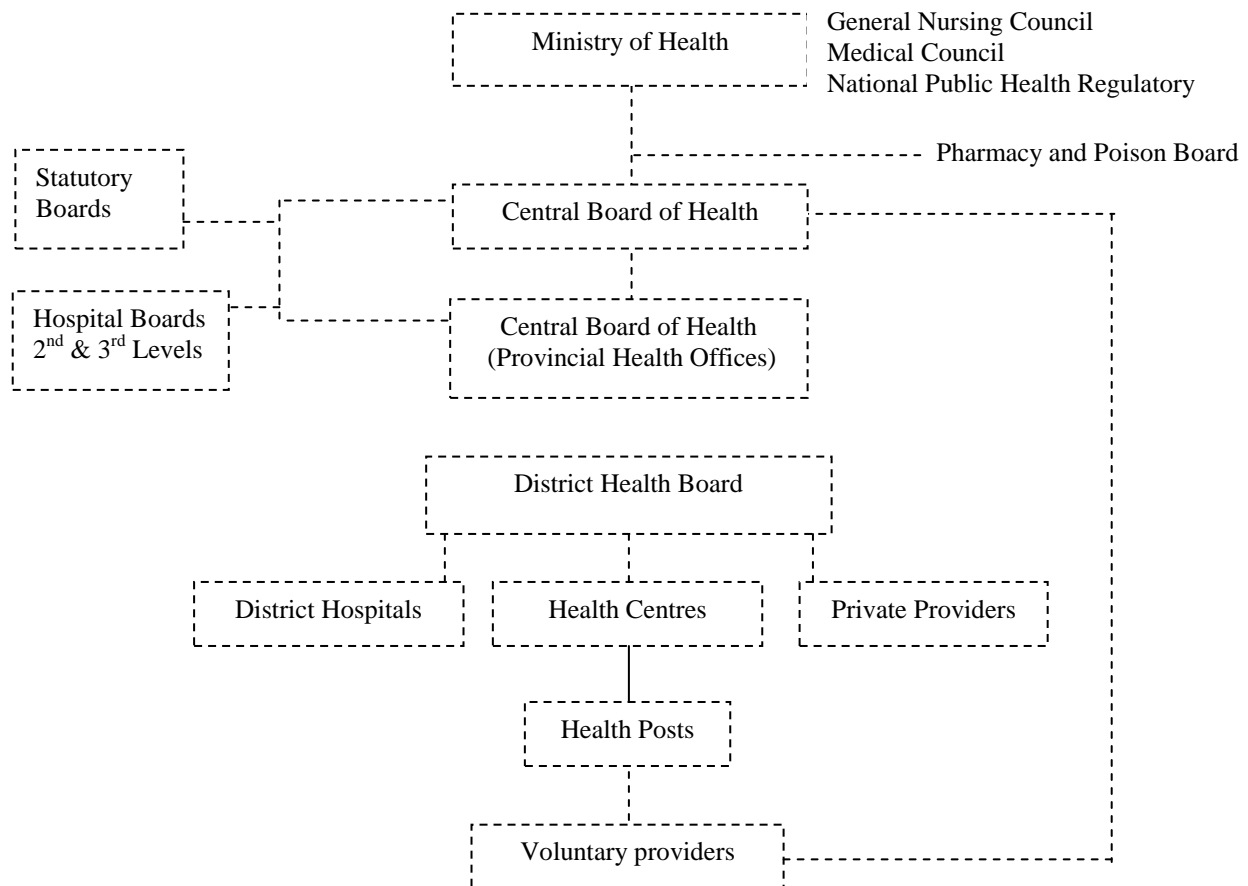
MOH Functions
- Policy formulation
- Legislation
- Resource mobilisation
- Finance & Budgeting
- External Relations
- Monitoring & Evaluation of CBOH
- Bilateral & Multisectoral Collaboration
- Strategic Planning

CBOH Functions
- Policy implementation
- Development of Support Systems
- Interpretation of legislation & Policy
- Monitoring & Evaluation of Health policy
- Implementation of Public Health Promotions & Health Strategies
- Capacity Building
- Logistic Support

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Quite recently the Government of AFROLAND considered the option of abolishing the CBoH due to political pressure exerted by parliamentarians on the Minister of Health and Cabinet concerns about the level of resources currently used to support the salaries of CBoH staff. The inconvenient would be the loss of qualified and experienced staff, disruption of services, reduction of donor confidence, loss in efficiency and delays in decision-making. It was said that such option could be a process rather than an abrupt decision.

So, AFROLAND is still facing significant changes and challenges including the high diseases burden compounded by the HIV/AIDS epidemic, critical shortage of health personnel, deteriorating health infrastructure, significant legal reforms, ongoing restructuring of the MOH, a weak economy and inadequate funding of the health sector.

Integration of VPs remains one of the cornerstones of the health sector reform and significant efforts have been made in this area. One of the major challenges of the Sector Wide Approach is the increasing trend of earmarked funds, especially for VPs (AIDS, TUBERCULOSIS and MALARIA). This challenge needs to be systematically addressed otherwise it could increase the risk of programme fragmentation and verticalisation. The MOH decided to engage into dialogue with partners and donors to facilitate integration of earmarked vertical funding to support ongoing health care delivery system, in order to enhance synergies, minimize duplication of efforts and maximise resource utilization. Nevertheless the review of AFROLAND health sector suggested limited improvements in specific areas related to VPs. Gains in addressing specific health problems through targeted Vertical Programmes revealed also to be the fastest and most effective way to rapidly scale-up proven interventions. But, because VPs drain human resources and infrastructure from

ongoing health care delivery, and are not coordinated at the different levels of the NHS, it creates many coordination mechanisms.

6.3. Scenario B: Application of User Fees Policy in the context of Health Sector Reform

6.3.1. Background (Formulation)

The Minister of Health (MOH) of AFROLAND was concerned with the involvement of local people in health care financing. In fact, the country was facing an increasing cost of health care technologies and centralization of National Health Services. Also, the imbalance in resource allocation for curative, promotive, preventive and rehabilitation services revealed that curative interventions were dominant. Under these circumstances, most of available health care services became almost exclusive responsibility of health managers and professionals that were increasingly taking control of the National Health Service. The involvement of communities in health development policies and initiatives was inadequate in terms of structures and processes. AFROLAND used to have a Government funded health services. Such free universal access to health care has proven unsustainable because of the escalating costs of health care technologies and skilled human resources while the country was going through a period of economic depression/recession. Consequently acute drugs shortages, deterioration of health facilities and exodus of trained national health staff led to poor quality of health care and increasing deterioration of health status indicators. The Government could no longer cope with the increasing demand of quality health care, and

turned to donors for major funding. Donor funding increased but raised the issue of sustainability of health care financing.

6.3.2. Situation Analysis (Research)

The Minister of Health decided to re-activate the User Fee Policy (UFP) suspended by the previous Government about six years ago. The MOH intended to foster the spirit of partnership in health as an essential component of the reform; and raise extra-resources to meet the costs of an essential health care package to be guaranteed to all citizens. According to this policy every citizen should pay health care fees except those below 5 and over 65 years of age, obstetrics and gynaecology patients, chronic conditions, STDs, patients in epidemics and patients in extreme poverty. The problem was that the practice varied widely around the country. Some people were denied access to health services or were afraid to seek medical help, due to mistaken beliefs concerning the levels of fees and the existence of formal exemptions. Some stakeholders were concerned about patients missing health care, just because of lack of funds to pay the user fee, ignoring that they may be exempt of the fee. The Minister of Health of AFROLAND requested technical support to update the UFP in the context of health sector reform. The client was expecting user fees to complement Government health budget and donor funding. This would contribute to improve both quality and access to essential health care. There were different stakeholders with interest in UFP. Among them were mainly the Minister of Health, the Ministry of Health at central level (Planning Unit), the MOH at local level (District Health Board – DHB and District Health Management Team – DHMT), the District Council (DC), the Ministry of Community

Development and Social Services (MCDSS) and NGOs, with similar or different

opportunities, strengths, interests and values.

6.3.3. Discussion (Evaluation)

The **Minister of Health** as political leader was concerned with sustained progress of

the health sector reform process, the need for a common vision among stakeholders and the

ability of the Ministry of Health (MOH) and the Health Reform Implementation Team

(HRIT) to respond to people's expectations. One of the main areas of concern was the impact

of UFP on the poor. The **District Council** (DC) responsible for local Government services

expressed concern about the cost of health care and apprehension about the financial

accessibility of the poorest segments of the population. The **District Health Management**

Team (DHMT) members revealed that in general, user fees improved the quality; however,

they skewed patient population towards those who are exempted from fees. Therefore the

contribution of user fees to hospital budget was small and thus not sufficient to provide

incentives to health staff. It was also reported that exemption policy was not consistently

applied: sometimes exempted people were charged; UFP was not widespread; deterring use

of public facilities especially when after registration and diagnosis drugs were not available.

DHMT also reported that the most remote areas could not attract qualified health manpower

due to lack of funding and therefore UFP could not be implemented. Some patients reported

that the process to get exemption from MCDSS was proved very cumbersome. The

Permanent Secretary of the **Ministry of Community Development and Social Services**

(MCDSS) in collaboration with the MOH had the role to ensure those on social assistance or

poor are exempted from user fees. Nevertheless, MCDSS recognized that the application of

the exemption criteria was difficult. MCDSS also regretted weak collaboration with the MOH and expressed scepticism about the value and effectiveness of health reform. **NGOs** felt that they were spectators of health reform process and would like to be more involved. They had the experience of applying UFP that could be taped. They expressed concern about fuzzy UFP and lack of guidelines for its implementation. They warned about potential conflict of interest if the decision to exempt a patient from fees is not a matter of policy, but left up to the discretion of providers. They reminded that AFROLAND population in rural areas, particularly women and poor people were not encouraged to participate in the reform consensus building and therefore not given adequate information about health services and health care. The UFP policy was strongly supported by the MOH and Ministry of Finance, and highly opposed by the opposition Political Parties.

The researcher had the perception that User Fees Policy (UFP) was a good idea in that context; it would lead to a more comprehensive health care financing strategy. He was persuaded that through relevant policy and legislation people would have access to quality health care either paying or getting exempted accordingly.

6.3.4. Recommendations (Decision)

It was recommended to improve the awareness about the UFP through the media and community-based organisations and proceed with its implementation, expecting that it would yield the expected results.

6.3.5 What happened

After 12 years of implementation of User fees Policy (UFP), AFROLAND Government found out that with current 73% of poverty, this policy has been a barrier to increasing equity of access to health care by the poor. Cost sharing had a minimal impact at national level. User fees contributed an average of 3% of the total health budget. The Government also found out that user fees are quite difficult to administer and in many health facilities the scarce number of technical staff had to dedicate time to user fees collection and recording. The situation in the ground also showed that the poor and the vulnerable people have been adversely affected despite of the existence of exemption mechanisms in public health facilities. The financial burden imposed on the poor, resulted in underutilization of health services. In addition, there was evidence that user fees doubled the total cost of care among patients who have to pay their travel cost, food and other related expenses. The average expenditure per visit was equivalent to U$1,5 and this was clearly beyond the reach of over 73% of the population who are known to live on less than one dollar per day. Because of the above-mentioned facts and in order to improve equity of access to health care and contribute to alleviation of poverty, the AFROLAND Government decided to remove user fees in all public health facilities and retain only the high cost services in hospitals.

The Government also decided to make available resources to replace the user fees and cover the additional costs arising from the increased utilization of health care facilities. Health partners and donors were also requested to support the implementation of the policy change by making available resources to replace the user fees revenue.

6.4. Scenario C: Health System's response to Crisis – Man made Disaster (of the situation as experienced)

6.4.1. Background (Formulation)

The problem occurs in a country called NGOYOLAND with 10,000,000 inhabitants. The Government took power by force a couple of years ago, was facing a rebellion backed by a neighbouring country in the south. The rebel forces made significant progress towards the north. Both the media and people evacuated from the southern provinces reported about intense fighting opposing national army to rebel forces; casualties among soldiers and civil populations were also announced. About 600,000 people most of them women, children and elderly, left their homes fleeing to the centre provinces looking for safety. They were settling themselves in open camps close to small villages and facing immediate problems of shelter, food, water and sanitation. The little support from local communities was not enough to meet their basic living needs. The number of internal displaced people (IDPs) was rising every day, creating a burden to hosting communities and disrupting already weak local health systems. Moreover, about 200,000 people were reported to have crossed the south border and become refugees in the south neighbouring country.

At the capital, the political tension was increasing and most of the information was based in rumours, official information was scarce. The humanitarian situation was deteriorating very fast and the central Government, with some reluctance, declared national situation of emergency and asked for humanitarian assistance. The Minister of Foreign Affairs called the Diplomatic corps and Representatives of International Organisations to explain about the prevailing situation and declared the situation was under control of the

Government and life would turn to normal during the coming few days. In the meantime, some Ambassadors, Heads of Missions and their dependants started leaving the country.

Regular transport and communications from and to the affected areas were stopped due to security reasons, except for military and security forces or humanitarian agencies. The public sector was providing just the essential services. The circulation of people in general was restricted and schools were closed.

6.4.2. Situation Analysis (Research)

Hospitals were reporting increasing number of wounded people and shortage of emergency kits to deal with unexpected demand of surgery interventions. The mortuary services were also overstretched with increasing number of dead bodies and some of them not identified and kept in inadequate conditions.

The humanitarian assistance started arriving in the country in response to Government appeal. The support arrived from different agencies, in fragmented way, with overlapping items and some of the essential items were missing. Everybody wanted to do everything. The number of NGOs increased to help local communities. The presence of Red Cross became stronger. The capacity of the public sector was reduced and the private sector was absent. The lack of leadership and coordination by the Government was evident. The Minister of Health avoided getting himself directly involved in the process. The Permanent Secretary of the MOH was the person in charge who sought the technical assistance of the Researcher to organize the response of the health system to cope with the emergency. It was a context of crisis, complexity and uncertainty calling for immediate action.

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The researcher had the perception of the problem situation, the technical skills in terms of public health, and had to advise the Permanent Secretary of the Ministry of Health to shift to an exceptional modus operandi of NHS to respond to an emergency. The main objective was to minimize human life losses during the crisis. Despite the difficult context, the resources available if well managed could significantly contribute to alleviate suffering and prevent deaths. The Permanent Secretary of the Ministry of Health requested technical support to minimize the negative health impact of the crisis. The stakeholders with an interest in responding to the emergency were: The Minister of Foreign Affairs, the Permanent Secretary of the MOH, the Health Managers, NGOs, Red Cross, Opposition Parties, Donors, Army Health Services, and Religious institutions, with similar or different opportunities, strengths, interests and values.

6.4.3. Discussion (Evaluation)

The Minister of Foreign Affairs representing the Government, wanted to transmit the idea of political stability and guarantor of Government support to face the humanitarian crisis. He refused to recognize that almost half of the country was under control of rebel forces; and denied the existence of refugees in neighbouring countries. The Permanent Secretary of The MOH represented the technical branch of the Government, empowered to take operational decisions and coordinate the health response to the emergency. The NGOs were supportive but expressed concern about transparency and accountability of the Government services and preferred to act immediately and directly in support to communities in distress in provinces and districts of their choice. The Red Cross, according to its values and mandate, wanted to act in support to abandoned people and other affected including prisoners of both sides. The

Opposition Parties were not supportive to the Government, but concerned about insecurity and uncertainty since the rebellion was led by a military.

Most of Donors and International Organisations suspended their operations but some of them provided their support through NGOs and Technical/Humanitarian Agencies. The Army Health services wanted to collaborate with the NHS but they differ in terms of command and discipline; they have more logistic capacity to reach any part of the territory; but they are more concerned with the support to the Army forces at the front of battle. Religious Institutions have an excellent network, are supportive and willing to provide social and health support but are constrained with lack of security and limited resources.

6.4.4. Recommendations (Decision)

The recommendations consisted in supporting NGOs to provide health care at local level, depending on funds provided by bilateral partners. NGOs were recommended to follow the norms and standards provided by the MOH. District Health Authorities were recommended to organize care to cope with wounded civilians and strengthen their logistic support to health facilities at local and community levels to cope with the additional demand of health care created by the Internal Displaced People. The central level of the MOH was advised to increase logistic support to IDP areas.

6.4.5 What happened

Thirty years after and following 26 years of civil war, thousands of deaths among civilians and military, paralysing most of economic structures; after serious deterioration of health status and health coverage indicators; the two beligerant sides negotiated a peace-

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agreement. They created a government of coalition during a transition period of 4 years. The rebel group was transformed in political party and currently participates in the established multiparty democracy. Ngoyoland is now emerging in terms of democracy, economic growth and quality of life despite of apparently increasing social inequalities that may threaten the cohesion of the social fabric.

6.5 Summary

This chapter summarizes scenarios A, B and C of Health Systems problem contexts and the way the situations evolved without using systems thinking ideas and related methodologies. The next four chapters are about conducting thought experiments and interrogate the current state of Health Systems Thinking, using Jackson's four key paradigms. Mingers 4 As approach is used as a common method guiding the interventions for each one of Jackson's four-paradigms. The framework of ideas is Critical Systems Thinking. Chapters VII, VIII, IX and X make up Step 1 of the Research Methodology.

CHAPTER 7

7. *THOUGHT EXPERIMENTS USING FUNCTIONALIST SYSTEMS APPROACH*

7.1. Introduction

This chapter describes the three scenarios A, B and C, using Jackson's constitutive rules for a generic functionalist systems methodology. The researcher will use Mingers 4 As process of intervention and research consisting of four activities. First, *appreciation* consisting in mapping the real-world (the three scenarios) into a selected functionalist model to understand how the situation is. Second, *analysis* through the diagnosis of the problem situations according to the logic of the selected model and aiming at explaining why the situation is as it is. Third, *assessment*, it relates with redesigning models according to the same logic, to explore the potential for change; and finally the *action* consisting in expert recommendations for interventions to bring about the change.

7.2. Relevance of Organizational Cybernetics to HS Thinking

Stanfford Beer's Organisational Cybernetics (see section 3.3.1.4), structuralist in its nature, derives from a very influential interdisciplinary science – *cybernetics*. Beer drew upon cybernetic concepts and insights from neurophysiology and adapted them to management context, redefining cybernetics as the science of effective organization. He mainly explored the cybernetic concepts of black box, negative feedback and variety, and the functioning of

the human nervous system, to conceptualize a *neurocybernetic model* consisting of five essential sub-systems. Beer demonstrated that those concepts are equally relevant to social organizations and created the *Viable System Model* (VSM), which exhibits key features that any viable system must have.

This is a well-formulated functionalist methodology reflecting a common sense appreciation of the world in systems terms and in the researcher opinion, it would be significant for health systems. The arguments are the following.

From the analysis of Health Systems literature, we realize the following features:

i. In terms of historical development and philosophy, health is a holistic concept, involves different inter-related determinants and is therefore complex as a system.

ii. Public Health as a major theory, addresses key functions: prevention of diseases, promotion of health, treatment of diseases and illness and rehabilitation. These functions are managed at different levels of hierarchy and at different Divisions or areas of work of health Organisations.

iii. Health Organizations are recursive by nature; the health system exists in hierarchies and the organizational form of the higher level can be found repeated in other parts of the Organisation.

iv. There is a dominant issue of resource allocation to different specific Public Health Functions according to the needs; and the issue of power sharing, the crucial problem of centralization versus decentralization at different levels of the Health Organizations.

v. Support services such as administration and logistics are often a source of bottlenecks.

vi. HS dominant methodology underpins functionalist values but is fundamentally reductionist, trying to break down the system into its parts to understand them, but the regulatory and control mechanisms are weakly addressed and therefore one is never sure that agreed policies and goals are actually achieved.

vii. There is a large variety of goal seeking HS designs and inexistence of a basic model for either analysis or design of structures and processes in light of defined functions, and that could ensure viability.

viii. The issue of Vertical Programmes versus integrated Programmes is quite often an issue in health system practice (health sector reforms)

Organisational Cybernetics and its authoritative model – VSM, particularly in terms of ensuring viability of Health Systems or Organisations, can respond all above-mentioned issues. The next sections of this chapter will develop the arguments.

7.3. Thought experiments

7.3.1. Scenario A: Vertical Programmes (VPs) versus integrated approach of Programmes in Health Sector Reforms.

7.3.1.1. Appreciation – System identification, mapping the real-world into VSM

A newly elected Government of AFROLAND in 1996 decided to reform the economy and improve the quality of life of citizens – as promise during the elections campaign. In this context, the Ministry of Health (MOH) of the Government embarked on a reform process that went through fundamental review of the national health policy and redesign of the national health system aiming at an organization that is more effective, better performance of health care services and ultimately improved health status of people. The National Health Service was composed of the Ministry of Health (MOH) a set of Province Health Authorities (PHAs) integrating sub-sets of Local Health Districts (LHDs) organized according to the existing political and administrative structures. The Health Reform Implementation Team (HRIT) was recently created and sponsored by both the Government and a group of international partners, in a different structure from the MOH to lead the Heath Sector Reform process. Other public health institutions such as the Medical School, Nursing School, health NGOs, Health Professional Associations, and International Health Partners, were seen as influential for developing health policies, strategies, programmes and funding that would contribute to "provide all citizens with equity of access to cost-effective quality health care as close to the family as possible". Health related cross-cutting problems such as those related to

political stability, human security, potable water, hygiene and sanitation, food security, health literacy required intersectoral approaches at all levels.

7.3.1.2. <u>Analysis</u> – The researcher will use VSM "diagnostic" mode to check existing structures and processes of AFROLAND's health system design and related problems. One of the perceived problems requiring especial attention was the fact that the managers in charge of Vertical and priority health Programmes (VPs) – Malaria, Tuberculosis, HIV/AIDS, Child Health and Maternal Health, were not involved in the Health Sector Reform discussions. They were neither part of the same structure nor the same process. VPs targeted the reduction of specific diseases or the improvement of health conditions of vulnerable groups, using funds mainly coming from international donors in support to Government funding. VPs had specific human resources, technologies and logistic support to deliver related services at central, provincial and district level of the National Health Service.

But how could the researcher make the diagnosis of the problem using the VSM logic?

He considered the AFROLAND's Health System as a network of health facilities and institutions at different levels, aiming at providing health care and therefore improving heath of people in the country. The Government decided about the levels of recursion of the National Health System.

The basic level of recursion was the *community* (individuals, families, community leaders, community based organizations) that was the first level of contact between the National Health Service and people. The organizational purpose at this level was the

provision of quality health care as close to the family as possible, within a context of socio-economic development process.

The next higher level of recursion was the *Local Health District* (LHD) in which we found the District Health Board (DHB), District Health Development Team (DHDT), health facilities (District Hospital, Health Centres and other Governmental and Non-Governmental health facilities). They had the responsibility to manage the staff, money, technology and other relevant resources to ensure provision of preventive, curative and rehabilitative health care and promote health within communities, families and individuals. LHDs worked under political authority of District Councils (DCs) and had a joint planning structure with the DCs.

The next higher level of recursion concerned with *Province Health Authority* (PHA) to which LHDs reported and received technical orientations and other instructions on management including resources to perform LHD functions. PHAs reported to the MOH.

Finally, the highest level of recursion was the *Ministry of Health* (MOH) at central level, integrating the institutions such as HRIT, VPs, health training institutions, Referral Hospitals and others). This level received reports from the PHAs and provided policy guidance, technical norms and standards and resource allocation to PHAs. Fig 24 shows these recursion levels.

Figure 25 Recursion levels in National Health Systems
Adapted from Jackson (2003)
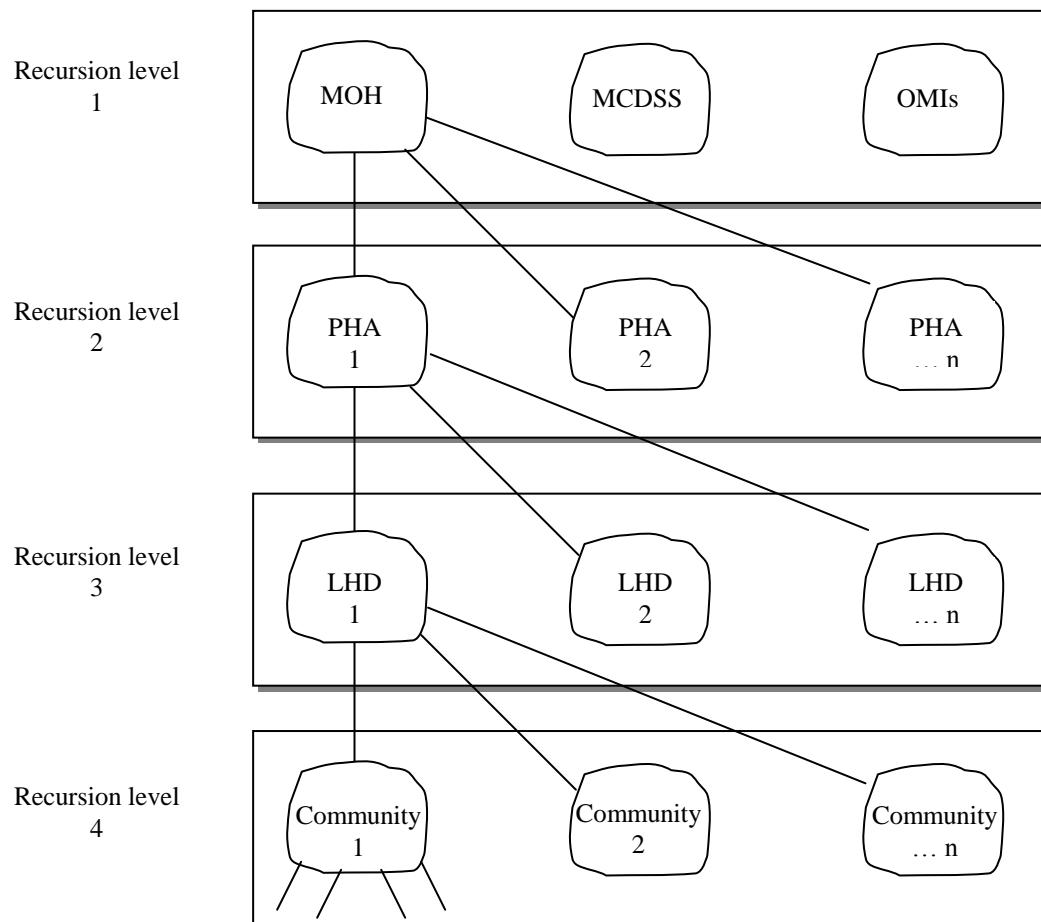
LHD – Local Health District

PHA – Provincial Health Authority

MOH – Ministry of Health

MCDSS – Ministry of Community Development and Social Services

OMIs – Other Ministries

7.3.1.3. Assessment

After the diagnosis of the National Health System of AFROLAND, the researcher will now use the VSM "design" mode to understand what had gone wrong and propose alternative organizational and structural arrangements. VSM logic should assist in improving knowledge about the existing system design and learn how best to improve it. The researcher will focus the VSM analysis in four levels of recursion. The level 0 is the wider system in which the MOH is part of the AFROLAND's Government responsible for politics, security, legislation, regulation and overall stewardship of the country. Level 1 is the system with which we are currently most concerned – the system in focus that corresponds to the MOH responsible for health policy and development issues. At recursion level 2 lays the PHA with the responsibility of translating MOH policies into technical norms and procedures. Level 3 corresponds to LHD that is the operational level of the National Health Service in charge of providing health care to people (communities, families and individuals). Level 4 corresponds to the community that should also participate in national health development process in various forms.

Paying particular attention to the system in focus, the researcher will use the VSM logic to model at the four levels of recursion, elaborating on five elements: implementation, coordination, operational control (including services management), development and policy.

According to VSM logic the MOH as the system in focus presented the following problems:

i. Parts of System 1 corresponding to PHA did not have the capacity to be viable in its own right because power and resources were excessively centralized at the

"metasystem" – Systems 2-5 in detriment of the "autonomic management" – Systems 1 (implementation), 2 (coordination) and 3 (operational control). This inhibited the variety of System 1 – LHD in charge of implementing the delivery of health care. The autonomic management should be able to maintain internal stability and performance of the health care delivery system within the established health strategic plan and the national norms and standards, but without capacity of revisiting the MOH policy in response to threats or opportunities. The problem was aggravated because PHA recursive level was sometimes undermined by the central level that provided direct support to LHDs seeking quick results.

ii. System 2 did not exist in the structure of the MOH and this fact contributed to weaknesses of System 1. Legal requirements were not fulfilled and existing health rules and regulations were not enforced. Therefore, coordination mechanisms and harmony between elements of System 1 (PHA) were compromised.

iii. System 3 – the Permanent Secretary with overall responsibility of the day to day running of the MOH, is in charge of resources (human, financial and technology) management and coordination; and translating national health policy into actions down the vertical axis of command. The key functions are in fact coordination of public health interventions, resource management and auditing (checking compliance to rules and regulations and performance both technical and administrative). The problem at this level was that managers of VPs were not involved in the health reform process. The second problem is that the audit structure (System 3*) and coordination structure (System 2), did not exist.

iv. System 4 – the Planning Unit, in charge of development. It should be in charge of

processing data and information received from the PS (System3) about the total

environment of the MOH; and generating evidence for decision-making. It should be

able to capture all relevant data, information and intelligence to inform the process of

decision or any other suit of System 3 (PS) for quick action required; and provide

evidence for System 5 (MOH) to decide on matters with long-term implications. In fact

the Planning Unit was also in charge of studying and proposing new Programmes or

Projects and therefore initiating processes of change influencing the Health Sector

Reform. This was another identified problem since the HRIT should belong to System 4

rather than being isolated. This fact hampered the participation of VPs in the ongoing

reform process.

v. System 5 – Minister of Health, was in charge of policy-making but reflecting selected

purposes emerging mainly from the public opinion through the media and opposition

parties.

7.3.1.4. *Action*

In light of the findings stated in previous steps the researcher would recommend the

following:

- Review of the Organisational structure of the Ministry of Health according to Figure

  25.

- Structure 3*, corresponding to the audit function, did not exist in the MOH and therefore there was no mechanism of alert whenever norms were not followed, therefore, it is recommended the creation of structure corresponding to System 3*.

- In the MOH organogram there was no structure in charge of coordinating and harmonizing the work of PHAs (provincial health authorities); this would be equivalent to System 2, which should be created;

- System 3 corresponding to the Permanent Secretary functions and 5 corresponding to the Minister of Health position should delegate more authority to Provincial Health Authorities (PHA) corresponding to System 1; this would be possible by increasing the variety of System 1 that would have more decentralized power to take decisions according to health policy, plans, norms and standards; and adapt to local changes with minimum need of consulting the central level. System 3* would also play the auditing role at this level and System 5 would be more concentrated on policy-making role.

- System 4 corresponding to the Planning Unit should also include the HRIT in charge of driving the health sector reform;

- System 3 corresponding to the Permanent Secretary should involve VPs managers, so that they play the technical role in the health sector reform process;

- The Minister of Health should first attenuate the environmental variety by determining which aspects of the environment are actually relevant to the health system. Secondly, the Minister should unfold the complexity of the MOH by deciding which programmes or initiatives will better contribute to the achievement of National Health System/MOH goals. These programmes/initiatives such as VPs should be as

autonomous as possible but within the overall systemic cohesion of the MOH. Thirdly it should be clear that the purpose of the MOH as an Organisation is to improve the health status of people.

But how would this have improved what happened?

Based on what happened (see 6.2.5), I believe that the implementation of the above-mentioned recommendations would have improved what happened, because when the problem was faced, and before knowledge of Systems Thinking theory, I recommended that VPs operate on their own and was silent in relation to in-depth reorganization of the MOH structure. 12 years after, what happened is that the HRIT has been abolished; the VPs were incorporated in the CBoH but there is a duplication of roles between the MOH and the CBoH. Despite the structural integration of VPs to the CBoH, they continued working in isolation with support of partners; with they own funding, managers, technologies and M&E system. The application of VSM would have enabled an accurate diagnosis of structural problems and facilitate reorganization and control measures within the MOH. It would also provide more accurate and appropriate solutions (see 7.3.1.4) that would have improved the performance of the managerial and technical functions of the Ministry of Health. However, VSM would not respond to issues of power and domination between the MOH and the CBoH that were duplicating their roles; it would neither address the preference of donors in funding VPs in isolation nor the issue of legitimacy of Board members appointed by the MOH rather that elected by their constituencies. VSM would also be useless in dealing with the political pressure exerted by members of the Parliament on the Minister of Health to consider abolishing the CBoH because of alleged inefficiencies.

CRITIQUE

Despite the VSM's relevance in providing specific improvements in Health Systems diagnostics and design; the tool did not help in identifying new relevant Ministry of Health structures, but rather redesigning the structure to make it more functional. Also, the model is limited in addressing the human being's influence in the way structures are managed and processes are conducted. Therefore, the human feelings, perceptions, values and purposes of the Ministry of Health staff and the views of the National Health Service users, are not taken into account. The combination of VSM and SSM recommended by Espejo (Espejo and Harnden, 1989) and the combination of VSM and TS (Team Syntegrity) as referred by Jackson (2003) could address some of the expressed VSM shortcomings.

Drawing its power from structuralist epistemology, VSM is goal-seeking and enables control mechanisms, contributing therefore to efficacy and efficiency, without bothering about the quality of the goals or results to be achieved.

Figure 26 VSM - The MOH as the System in focus
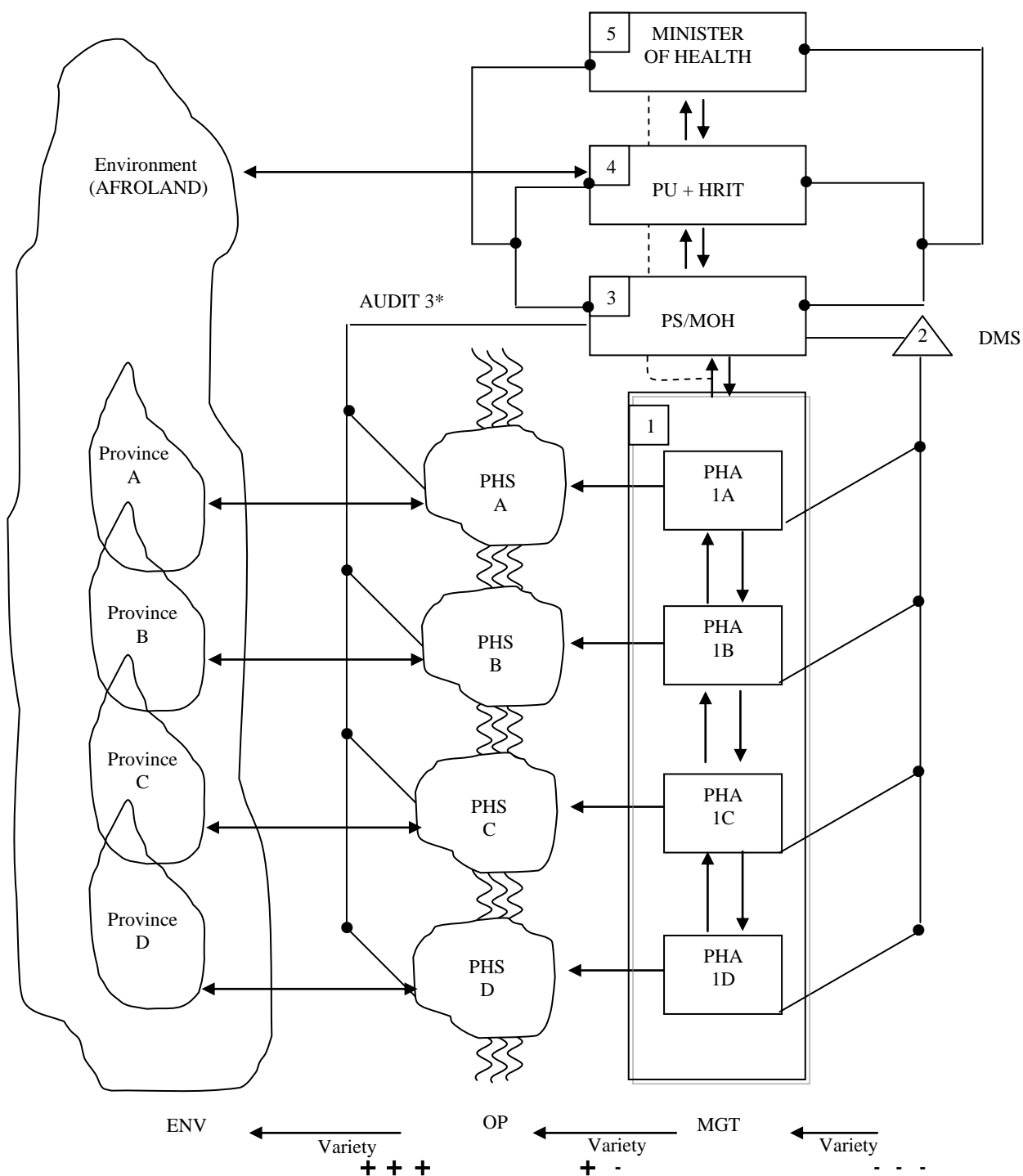
PHA – Provincial Health Authority

PHS - Provincial Health Services

PS/MOH – Permanent Secretary (System 3) – OPERATIONAL CONTROL + SERVICES MANAGEMENT

DMS – Director Medical Services (System 2) - COORDINATION

PU + HRIT – Planning Unit + Health Reform Implementation Team (System 4) - DEVELOPMENT

MOH – Ministry of Health (System 5) - POLICY

Variety – Capacity to exhibit system states

7.3.2. Scenario B: Application of User Fees Policy in the Context of Health Sector Reforms

7.3.2.1. <u>Appreciation</u> - Mapping the real-world into VSM

In AFROLAND, the Minister of Health decided to involve communities in health care financing to complement Government's and International Health Partner's funding. A User Fees Policy (UFP) was adopted and according to it every citizen should pay health care fees unless specific cases exempted by law. At the time, the context in the country was characterized by increasing technological complexity, escalating costs of health care and centralization of the National Health Service. In this circumstances health managers and professionals had control over the NHS opposed to weak community participation in the national health development process. The Ministry of Health wanted to create mechanisms to improve community participation in terms of both structures and processes. There was a concrete problem of lack of awareness of people about the existence and meaning of UFP. The application of the policy was inconsistent, it varied widely around the country and some patients ignored about the existence of exemptions and just missed opportunities for health care. There was a possible problem of law enforcement because of lack of relevant structures and weak processes of implementation.

7.3.2.2. <u>Analysis</u> - Diagnosis of problem situations according to VSM logic

The researcher will use the VMS diagnostic mode to check relevant community health structures and processes in the existing model of the MOH. The Local Health District (LHD) has been the choice as the system in focus. This will enable to better explore the community level of recursion. The LHD was seen as a network of health facilities and institutions with the objective of ensuring delivery of health care package at community, health post, health centre, and district hospital levels and to improve the quality and access to services at these levels. AFROLAND Government decided on the levels of recursion of LHD.

Using the VSM diagnostic mode, the researcher found out the following (see Figure 26):

i.   The basic level of recursion was the Health Post (HP) – with the *MANAGEMENT* taking the responsibility of providing HP package of curative and preventive health care, by a senior nurse or equivalent and costing USD 6.70 cost per capita; *OPERATIONS* covering 500 households or about 3500 persons in about 5 km radius corresponding to its *ENVIRONMENT*. The HP initiates and supervises the delivery of community (COM) package of health care essentially composed of first aid and information and education for health, costing USD 0.50 per capita. Community Health Workers (CHW) and Traditional Birth Attendants (TBA) delivered the COM package. The HP refers to Health Centre (HC). At the basic level of recursion, the community participation was structured in Neighbourhood Health Committees (NHC) with members elected based on their age and trust by the community they deserve. It spearheads the development of community-based activities in health and other health related matters.

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ii. The next higher level of recursion was the Health Centre (HC), covering 30-50000 people in urban areas and 10000 in rural areas (or within 30km radius). The HC is responsible for delivery of HC package of care compose by curative and preventive care by a health team led by a medical doctor, and costing USD 6.70 per capita. At this level, Health Centre Committee (HCC) composed of the nominees of NHC ensures the community participation; the HC staff and representatives of other sectors participate in the HCC. The HCC supports the management of health care in general in the catchment's area.

iii. The next higher level is the District Hospital (DH) that is the first level referral health facility in the LHD. It serves 80-200,000 people. It is under authority of the District Health Board (DHB). The community participation is translated by the existence of the Hospital Advisory Committee (HAC) compose by people nominated by their neighbourhoods within the hospital catchment's area.

iv. The highest level in the LHD is the District Health Board (DHB). The DHB is the primary management unit of the National Health System; in charge of planning, management, resource allocation, and revenue generation. The District Health Office (DHO) is run by the District Health Management Team (DHMT) in charge of elaborating district health plans, budgeting, staff supervision and monitor the overall performance of the health system at district level.

Figure 27 Recursion levels in Local Health District (LHD)- system in focus

Recursion level
1

DHB   DHB   DHB   DHB

Recursion level
2

DH
1   DH
2   DH
3   DH
… n

Recursion level
3

HC
1   HC
2   HC
3   HC
… n

Recursion level
4

HP
1   HP
2   HP
…n
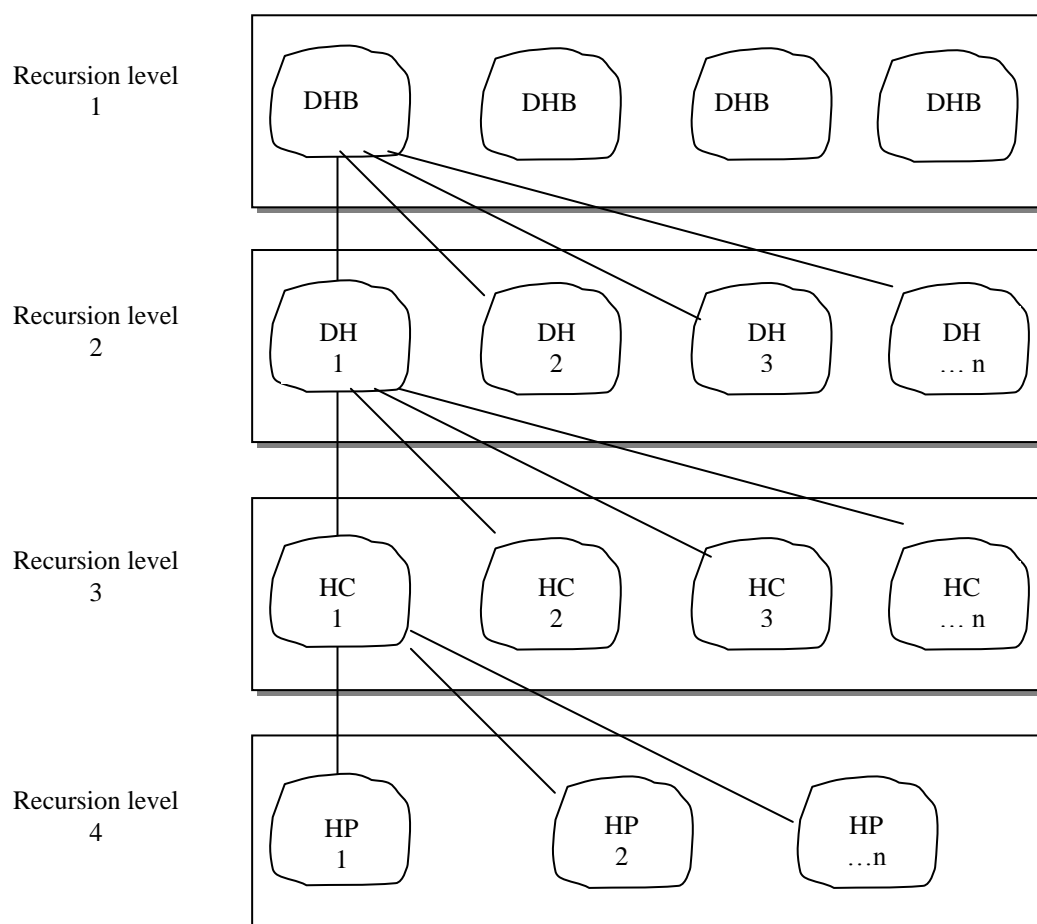
DHB – District Health Board

DH – District Hospital

HC – Health Centre

HP – Health Post

7.3.2.3. Assessment – Redesign models according to VSM logic

The researcher will use the VSM design mode to understand what went wrong and propose alternative organizational and structural arrangements that could assist in improving the community in health management, in particular their participation in the implementation of the UFP.

The LHD is the system in focus with different levels of recursion already described. Particular attention will be paid to LHD because of different roles of its structures and processes in responding to community health needs and facilitating community participation. In this context, an analysis if the five VSM elements will follow:

i.   System 1 (IMPLEMENTATION) corresponds to HP. It was not as free as possible to deal with its catchment's area and was not designed according to WSM logic to tackle with its own policy, development, operational control and coordination. The only existing element was implementation. Therefore it was not viable in its own right and could not respond to changes in its environment – catchment's areas, therefore the delivery of HP package of care was somewhat compromised.

ii.   System 2 (COORDINATION) did not exist. The rules and regulations that could ensure HPs to act cohesively were neither developed nor applied through relevant structure.

iii. System 3 (OPERATIONAL CONTROL + SERVICE MANAGEMENT) role and functions were exercised by HC and DH without relevant structures and rules. System 3* (AUDIT) did not exist.

iv. System 4 (DEVELOPMENT). The information received from HC was brought together with information from all other health facilities to the DHMT and DHO; the role of decision-making was placed at the DHB.

v. System 5 (POLICY) was the DHB in charge of policy formulation on the basis of the information received from DHMT and DHO.

7.3.2.4. <u>Action</u> - *Expert recommendations for interventions and changes*

In light of previous stages, the expert would recommend the review of the organization Chart of the LHD as in Fig 25. This would include the following:

i. We assume that the success at district and sub-district levels will depend critically on the success at community level. It is therefore fundamental to improve the organization and management of network of communities to improve their health literacy and more effective capacity to manage knowledge, skills and resources for community health development.

ii. The MOH focused the mains investments and funding of both Government and Donors in Hospitals to respond to the immediate need of sick people dying of communicable diseases mainly. At community level of recursion, health resources for curative care were scarce and activities to prevent diseases and promote health were limited. Because of poverty of most of people and the migration of national medical doctors, the private

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sector that could be significant to improve health care coverage, was not developed. The

only sector accessible to the majority of people was the public sector and traditional

medicine. Health was seen as part of development policy, but at community level

structures and processes were not consistent with this policy.

iii. The blown-up of version of sub-system B with its localized management (HP),

operations (Network of Communities) and related environment (Sub-district) would

not resemble to VSM 5 elements. Therefore, the expert would recommend an in-depth

VSM diagnosis and redesign of the network of communities to facilitate more relevant

set-up of structures and processes for viable community health sub-system. This would

improve the understanding of the system and the way of implementing the User Fees

Policy.

iv. System 2 in charge of coordination and support of HPs should be established. There was

lack of mechanism for shared information to support local decision-making.

v. System 3 should be a Sub-District Health Authority (SHA) rather than making its

functions loosely performed by HCs and DHs. SHA should ensure operational control

and management of HCs according to their catchments' area and related population; and

should also supervise and support System 2 in charge of HP coordination and support.

vi. In System 4, the DHO is the operations room of the DHMT that elaborates the

intelligence for decision-making at System 5.

Figure 27 represents a viable system model of a Local Health District enabling the

performance of the system at the basic level of recursion, and would facilitate at some extent

the implementation of the national User Fees Policy.

But how would this have improved what happened?

The proposed recommendations (see 7.3.2.4) would have improved the creation of community-based health structures and processes that would narrow the existing gap between NHS/MOH and people. This would facilitate the emergence of more legitimate health structures. Using the machine metaphor, VSM would capture the community level of recursion clearer than the conventional MOH organogram. Using the organism metaphor, VSM would offer a better understanding of the MOH complexity and bring more insights and consistent terminology on matters of decentralisation *versus* centralisation, delegation of authority and responsiveness to local level health needs, while ensuring the ones of the MOH as a system; hence, the different structures of the MOH would tend to work in complementarity rather than in antagonism. Using the brain metaphor, VSM would enhance the MOH functions of auditing, control and coordination.

Besides the usefulness in terms of improving community-based health structures, VSM application in scenario B would not guarantee the successful implementation of user fees policy (UFP) in the health sector, because the tool has no strengths to deal with matters of economic policy, poverty and access to health care. Therefore, VSM would not change the results of what happened (see 6.3.5).

CRITIQUE

The critical issue of community involvement in the implementation of the national user fees policy cannot be tackled by structures, functions and control mechanisms alone. There are opposed views, power issues and tensions among different groups of the society

that call for dialogue and debate towards consensus or some type of accommodation. The VSM helps to address the issue of weak community health structures and mechanisms, but it is weak in matters of power and addressing the needs of those actually in disadvantage or subjugated.

Figure 28 The viable system model: a LHD as the system in focus

Environment
(District)

(e.g; Mpinda
District)

5 — LHD

4 — DHO + DHMT
(DH Coord.)

3*

3 — Sub-District
Health Authority
(HC Coord.)

2 — HP Coordination &
Support

Sub-
District
Z

Sub-
District
Y

Sub-
District
X

CHS
A

CHS
B

CHS
C

1

CHMT
1A

CHMT
1B

CHMT
1C

ENV **+ + +** OP **+ -** MGT **- - -** Variety
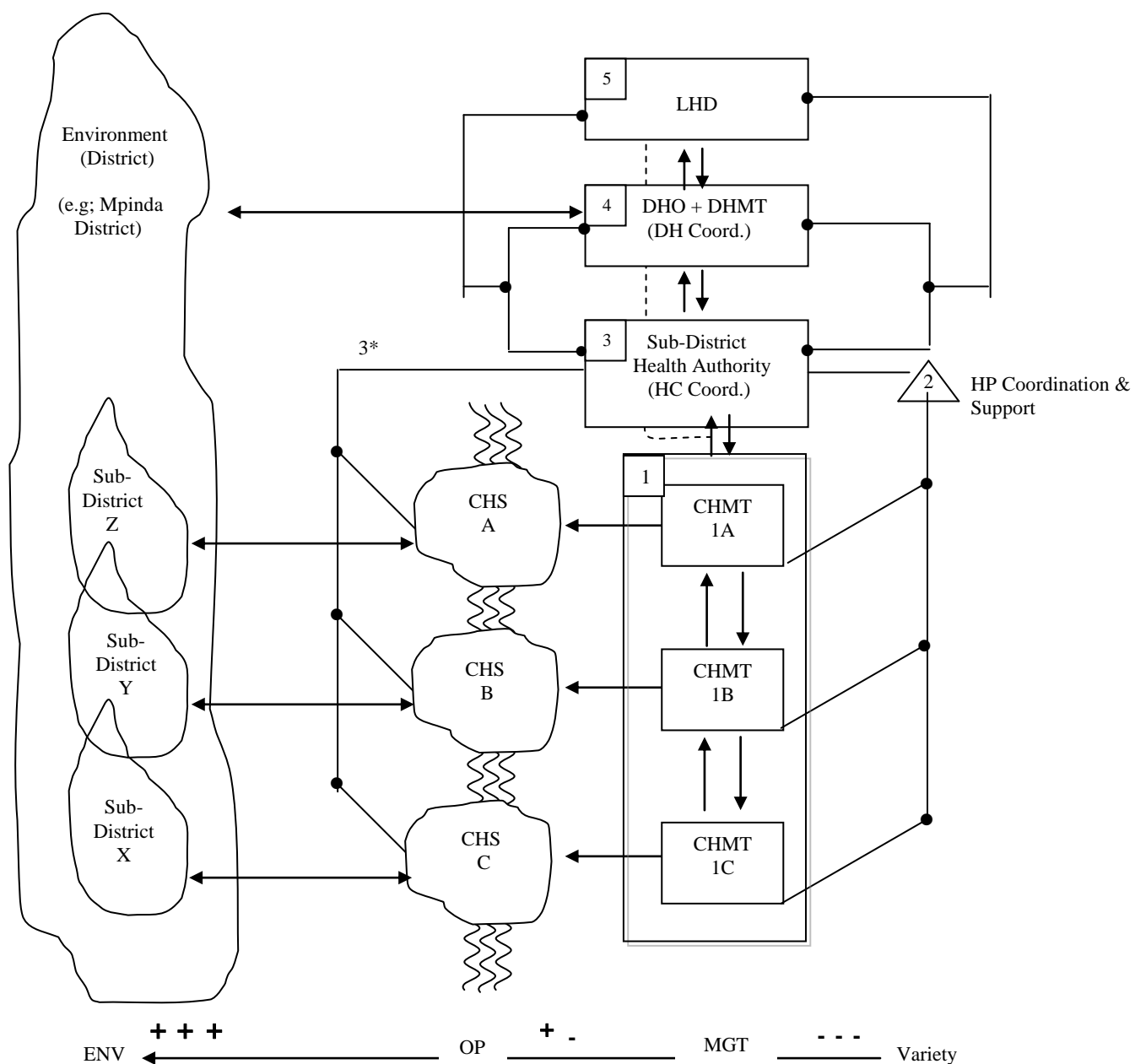
LHD – Local Health District

DHO – District Health Office

DHMT – District Health Management Team

DH – District Hospital

HC – Health Centre

CHMT – Community Health Management Team

CHS – Community Health Services

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7.3.3 Scenario C: Health System Response to Crisis – Man-made Disaster

7.3.3.1. _Appreciation_ - _Mapping the real-world into VSM_

The problem is identified in a country called NGOYOLAND in which the Government was facing an emergency created by civil strife. Rebel forces backed by a neighbouring country in the south occupied about one third of the national territory. The rebellion was progressing towards the north. Intense fighting opposing the national army to rebel forces was creating casualties among soldiers and civil populations. About 600,000 internal displaced people left their homes fleeing to centre and northern provinces looking for safety. Smaller number of people were fleeing to the south and crossing the border towards the neighbouring country as refugees. Communications and transports to the areas directly exposed to the conflict were extremely difficult except to the army and Red Cross. The two major provinces affected had as Governors two members of the Permanent Committee of the Ruling Party and the Minister of Health was a technocrat with much less power. At the capital the political tension was mounting and the Government declared state of national emergency. The public sector was providing just the essential services. The presence of representatives of the international community in the country was lessening.

The key problem was that the hospitals were reporting an increasing number of wounded people and running out of emergency kits to deal with unexpected demand of surgery interventions. Routine patients were missing health care because of the disruption of health services and concentration of efforts in addressing the causalities. Mortuary services were also overstretched and dead bodies were just abandoned in streets, increasing the risk of epidemics.

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In response to the Government's appeal, the humanitarian assistance started arriving in the country. The number of NGOs increased, the presence of Red Cross was stronger and everybody wanted to do everything to assist the affected populations. Another difficulty was that the Ministry of Health structures and usual mechanisms of functioning were not operational. The access to the areas affected by the war was not possible. The internal displaced people were creating a burden in the hosting villages and related health facilities. It was therefore necessary to create an ad-hoc system to ensure the provision of emergency health care in such situation of crisis, complexity and uncertainty. There were tensions between local and the central level of power and provincial Governors tended to hold information and intervene in MOH operations at local level, creating sometimes uneasiness and lack of coordination.

7.3.3.2. Analysis - Diagnosis of problem situations according to VSM logic

According to VSM diagnostic mode, the National Health System was seen as an ad-hoc network of stakeholders, health staff and communities, using existing health facilities and other sites to minimize human losses. In this context, the system has to be as decentralized as possible to the local level health facility, with the necessary support from the higher level of recursion particularly in terms of human and technology resources.

In this context, an Emergency Health Committee (EHC) was created at central level under coordination of the Permanent Secretary of Health and integrating other national health managers, NGOs, Red Cross and International Partners.

The EHC has as main role the reception and distribution of external health aid in support to Government's efforts. The MOH had to negotiate with the Army Health Service on the logistics to assist in delivery of resources in the areas affected by the rebellion. The working relationships between the central MOH and the provincial Governors were not clearly defined. The basic level of recursion was the health facility including the ad-hoc ones in areas of relative safety and stability.

7.3.3.3. _Assessment – Redesign models according to VSM logic_

Redesigning the NHS in a context of greater variety of the environment, limited scope of operations and constrained management could not imply specific improvements in the design and functioning of the MOH. Nevertheless, Organizational Cybernetics offers advantages that could be applied to improve viability rather than organizational structures. The assessment follows:

i. System 1 (IMPLEMENTATION) parts should correspond to whatever health facility in the south-centre of Ngoyoland that is accessible, operational and with relative stability.

ii. System 2 and 3 (COORDINATION + OPERATIONAL CONTROL) should be merged and simplified to shorten horizontal interdependence of the Organization; this will facilitate decision-making and adjustments as close as possible to the point where the problem occur; and System 4 will be stronger in addressing strategic matters.

iii. System 3 and System 4 (DEVELOPMENT) interface also to be shortened or even abolished exceptionally during the period of crisis to decrease the tensions between

stability and change; and therefore, it should facilitate the adaptability of System 1 to the increased variety of the environment.

iv. System 5 (POLICY) in such a context is strongly biased by political analysis; and to address technical health matters, System 4 is more convenient.

7.3.3.4. <u>*Action*</u> *- Expert recommendations for interventions and changes*

The experts would recommend actions as suggested in the previous section related to assessment, namely:

i. The creation of an ad-hoc mechanism of stakeholders coordination at central level to address the strategic issues;

ii. The negotiation of logistic support with the Red Cross and the Health Services of the Army;

iii. Shortening the recursion levels to facilitate decision-making and adjust to turbulent environment at local level.

But how exactly would this have improved what happened?

What happened (see section 6.4.5) is that the MOH tried to adapt to the environment of war through hard systems approach. There was no structural reorganization and instructions for action were sent from central level for implementation at local level. Logistic support was not neither planned nor adjusted to the local needs. Saving lives depended quit often of the chance of getting the required technology at the right time beyond other variables depending on the local conditions such as availability of electricity, water, transport and security. At

political level, during 26 years it was not envisaged negotiation between the Government and the rebel movement. A political solution could be envisaged despite of existing variables beyond the control of belligerent parts.

The application of VSM particularly what Beers designates "autonomic management" could have improved systems 1 (local level), 2 (provincial level) and 3 (PS of MOH central level) and improve implementation capacity, coordination and control; while maintaining the internal stability of the MOH and optimizing the performance within established procedures, and without dealing with political and strategic matters devoted to systems 4 and 5. This could have improved the technical performance of the MOH particularly at local level in terms of delivering coverage and quality of care; and avert losses of lives amongst people whereas minimizing human suffering. Nonetheless, VSM would not address the issues of health stakeholders coordination neither the required negotiations between the MOH, the Ministry of Defense and the Red Cross and Provincial Governors to improve the logistics (see paragraph 7.3.3.4).

7.4. What might other Functionalist methodologies have to offer: Hard Systems Thinking, Systems Dynamics – 5th Discipline and Complexity Theory

All four functionalist approaches could assist public health practitioners and health managers in improving Heath Systems goal seeking and viability. Organizational Cybernetics has been explored in the current chapter and demonstrated how the concepts of black-box, feed-back and variety can assist in diagnosing or designing viable Health Systems despite of

its limitations in capturing human feelings and perceptions. We shall now analyse what hard systems thinking, systems dynamics and complexity theory can offer in dealing with Health Systems complexity down to the vertical axis of SOSM, with increasing complexity.

7.4.1. Hard Systems Thinking

The problem situations described in scenarios A, B and C presented many relevant variables and possible interactions, including human influence from different values, beliefs, backgrounds and vested interests of health staff and stakeholders. This fact made impossible to model the interventions in order to achieve the predetermined goals. In all scenarios it was difficult to define precise objectives in relation to which all health stakeholders would agree.

The application of hard systems approach would require an objective definition of Health System so that a mathematical model could be produced for optimal problem solving. In the field of public health that presupposes social, economic and cultural dimensions of health (as described in scenarios A B and C) problems are complex, pluralists and sometimes cohesive therefore difficult to be addressed by Hard Systems approach. Nevertheless, biomedical sciences requiring more scientific accuracy, is actually getting credits with this approach.

The holistic, rather than reductionist character of health system philosophy and theory, make this approach almost of limited applicability particularly in situations one needs to address complexity and diversity in managerial health problems.

7.4.2. Systems Dynamics (5th Discipline)

Jay Forrester's theory on Systems Dynamics emerged on the late 50's early 60's and considers the real world with emphasis on structure and the policies and processes within the structure. It considers system's behaviour as being principally caused by structure that dominates the decision-making. The type of control policy required is the feed forward control to redesign policies and system structures so that predicted and desirable states can be achieved. This could be relevant in health sector reforms particularly to redesign structures. This, bearing in mind that SD is rooted in simple and unitary thought and has difficulty to address subjective aspects that characterize HS in which most of the situations are complex and pluralist. Nevertheless it could be useful to address the problem-context of Scenario A in what concerns the inclusiveness of Vertical Programmes in the Health Sector Reform structures and processes.

7.4.3. Complexity Theory

This approach emerged with Gleick (1987) and it invites scientists to embrace a more holistic view of the world. It emphasizes relationships and uncertainty rather than mechanistic and deterministic hypothesis, in a context where prediction is impossible. According to this theory the three scenarios A, B and C could be perceived as "complex evolving social systems" that could change the rules of their development including the boundaries, due to interaction among their components as they seek to process their functions from their own environments". According to this assumption, Health System and its environment have a mutual influence and they tend to evolve together. This premise could explain the endlessness nature of Health Sector Reform process due to changing political, demographic,

economical and technological environments and the shifting demand patterns of the recipient population.

In applying such approach, public health decision-makers and health managers must bear in mind that health structures, norms and standards are not permanent, they may change and therefore they must exercise flexibility and less control because of the uncertainty created by the random nature of the interactions.

Stacey (1996) recognises that all complex adaptive systems can operate in one of the three zones: a stable zone in which they ossify, an unstable zone in which they disintegrate and the edge of the chaos in which they behave like dissipative structures and display their full potential for creativity and innovation - a state of bounded instability. This could be valid in the context of scenarios A and B.

In scenario A, the Minister of Health created within the legitimate structure of the MOH a shadow system – the Health reform Implementation Team (HRIT). While the HRIT generated new ways of thinking that challenged the Central Board of Health (CBoH) and managers of Vertical Programmes; the CBoH representing the legitimate structure was providing technical guidelines, authorizing procedures and containing the anxiety among the MOH staff.

7.5 Summary

Health Systems current thinking and practice is fundamentally functionalist. It seeks the achievement of predetermined health targets and goals through the performance of health

services at different levels of recursion. It does not pay enough attention to the way human beings influence the delivery of health care and health outcomes both in terms of coverage and health status. Functionalist health thinkers are the majority and they assume that good performance of Health Systems is fundamentally based on the efficient use of resources and organisational design so that the different Health System components can adjust to changes and needs and concur to the realization of health targets and goals. They believe that through goal setting, resources management and control we can achieve the preset goals. This is true when we refer to biomedical sciences, health technologies, health logistics, health economics and health care financing. In regards to people's perception about health, health needs, and health care, there is a hidden and very valuable soft component that influence all other health system's components and therefore the overall output. This hidden component correspond to human sentiments reflecting values, beliefs and perceptions that cannot be reflected in structures, plans and norms; but strongly influencing processes and working relationships among different health staff and stakeholders. This component makes a difference in matters of coordination and negotiation, for which we deal with people rather than structures and norms.

Then again, functionalist systems approaches can assist public health decision-makers and health managers in improving the design and viability of Health Systems and the achievement of health targets and goals. So far the experience demonstrated that this is not enough. There are intractable issues, which remain without solution such as leadership, equity in health care, community participation and inter-sectoral collaboration and partnerships coordination that affect the way Health Systems perform, and for which we need more powerful management tools.

In scenario A, Functionalist Systems Approach namely VSM was significant in coping with structure, organisation and control in order to improve the technical performance of the MOH; while ineffective in dealing with power sharing, negotiation and coordination among different structures concurring to same goals.

In scenario B, the use of VSM did not address the root-causes such as the political leadership, governance, the economic performance of the country and the poverty of most of people; it was restricted to creation of community-based health structures without any effect on the role and performance of such structures.

In scenario C, the usefulness of VSM was clear in establishing an "autonomic management" of the MOH in an environment of instability, uncertainty and change (like driving a good car in a very bad road and weather, at risk of crashing anytime!). The tool did not respond to issues of political negotiation, stakeholders' coordination, decentralization and delegation of authority. Also, certain

MOH functions such as policy-making, strategic management, enforcement of norms and standards and auditing, were compromised because of the ad-hoc proposed modus operandi.

CHAPTER 8

8. THOUGHT EXPERIMENT USING INTERPRETIVE SYSTEMS APPROACH

8.1. Introduction

To describe the three scenarios and what actually happened the researcher will use an SSM analysis of the process of intervention and research proposed by Mingers. It consists of four activities: *appreciation* to understand how the situation is, *analysis* to explain why the situation is as it is, *assessment* to explore the potential for change and finally the *action* to bring about the change. Checkland's mature icon of SSM (1999) includes four activities: *finding out* about a problem-situation, *building* purposeful activity *models*, *exploring* the situation and taking *action*. The combination of the two approaches has been explored to provide a comprehensive outcome.

Figure 29 Thoughts experiments using SSM mode 2
(Adapted from SSM's epistemology in light of Minger 4 AS approach)

IV - ACTION

I - APPRECIATION

III - ASSESSMENT

Problem situation expressed

Changes: systemically desirable & culturally feasible

Comparison of Models and the Real World

Real World

II - ANALYSIS

Root Definitions

Conceptual Models

Systems thinking about the Real World
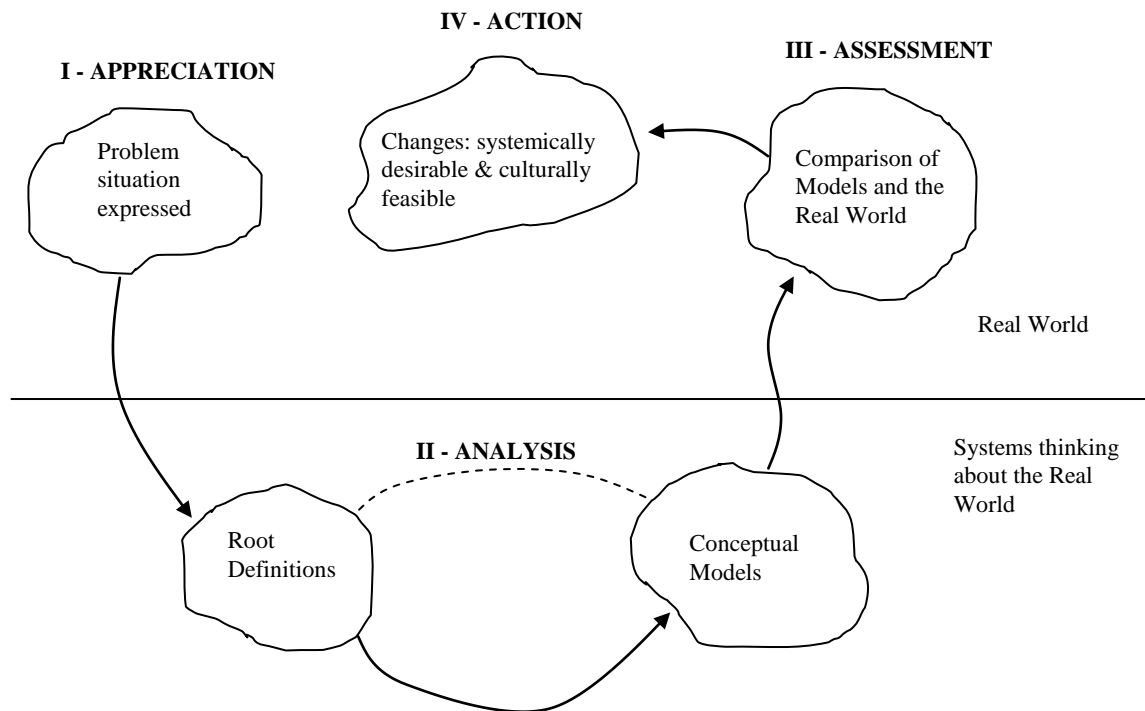
APPRECIATION
(Stream of cultural analysis

- Context: a) b) c)
- Exploring and expressing the problem situation: d) e)

ANALYSIS
(Logical-based stream of analysis

- Choosing relevant systems: f) g) h)
- Building conceptual models: i)

ASSESSMENT
(Providing the link between AP and AN

- Comparing models with reality: j) k)

ACTION
(Providing the action to improve the problem situation)

- Implementing changes: l)

a) Real world; b) systems thinking world; c) problem situation; d) analysis One, Two, Three; e) rich pictures; f) root definitions; g) CATWOE; h) the 5Es; i) conceptual models; j) comparison; k) desirable & feasible changes; l) action

8.2. Relevance of Checkland's Soft Systems Methodology to HS Thinking

According to Flood and Jackson (1991) SSM is best employed in pluralist contexts, where there is a basic compatibility of interests, where values and beliefs of participants diverge and yet where genuine accommodation and compromise is possible. Health problems are complex, because they are made-up of different components that are inter-related. Health systems are social oriented and have many stakeholders, a myriad of categories of health staff that deliver different types of care to individuals, families and communities. There are many actors of different backgrounds, sharing common goals and sometimes the same strategies and interests. The delivery of services trough different structures and processes has a great input of human participants that is subject of continuous negotiations. A significant number of problem-contexts facing health systems management are complex –pluralist, without excluding other types within the six-celled matrix of SOSM. Soft systems thinkers, consider social systems as creative construction of human beings whose intentions, motivations and actions play a significant part in shaping the system behaviour. SSM claims its legitimacy in dealing with simple-pluralist and complex-pluralist problem contexts, but not in coercive and unitary contexts of participants.

8.3. Thought Experiments

8.3.1. Scenario A: Vertical Programmes (VPs) versus integrated approach of Programmes in Health Sector Reforms.

8.3.1.1. *Appreciation*

8.3.1.1.1. Context

The context expresses the real-world related with the unfolding problems in managing priority health programmes developed within the context of national health policy, implemented by National Health Service (NHS) but supported by different stakeholders with different views on the way resources should be used. Emphasis is placed on structures, processes, interrelationships and climate. The Central Board of Health (CBoH) that has the role of developing and enforcing the application of technical norms and standards was in practical terms replaced by the Health Reform Implementation Team that was not skilled enough to play this role.

i. *Real World*. The problem is identified in an African country named AFROLAND in 1996 with a newly elected Government, willing to reform the economy and improve the quality of life of citizens – as promised during the elections campaign. With an overwhelming electoral mandate, the Government embarked on a reform process that went through fundamental review of the national health policy, redesign of national health system, aiming at an improved health status of people. The national environment

was characterized by weak economic performance, increasing poverty level among people, fast deterioration of health indicators, under-funding of the health sector, limited ability of the Ministry of Health (MOH) to prevent negative effects of poverty on health, and high presence of donors and NGOs in the country. The Government created the Health Reform Implementation Team (HRIT) who worked with central level officials from the MOH and technical support 2 consultant groups. The policy goal of Health Sector Reform (HSR) was "provide all citizens with equity of access to cost-effective quality health care as close to the family as possible".

ii. *System Thinking World*. The problem occurred in a context in which problem owners and problem solvers shared a functionalist paradigm and therefore positivist methodologies.

iii. *Problem Situation*. A perceived problem requiring special attention was the fact that the managers in charge of vertical and priority health programmes (Malaria, HIV/AIDS, Tuberculosis, Child Health, and Maternal Health) were not involved in HSR discussions. As vertical programmes (VPs), they targeted the reduction of specific diseases or health conditions, using funds mainly coming from donors in support to Government funding. VPs had specific human resources and technology support to deliver related services at central, provincial and local levels of NHS. An opposed view was that VPs should have been integrated within ongoing national health care delivery system for closer interaction and synergy with other health programmes and improve the rational use of health resources within the NHS. It was important to advise the Minister of Health in relation to this matter, for him to decide on the best option, either to keep the VPs or to integrate them.

8.3.1.1.2. Exploring and expressing the problem situation:

In relation to this aspect, emphasis is put on the stream of cultural analysis.

i. *Analysis One, Two and Three*

a) <u>*Analysis 1*</u> – *Systems analysis of the intervention*: The problem-solver was the researcher – Hard Systems thinker that had the perception that VPs addressing critical health problems, with their own resources and chronogram for achievement of established targets, would yield results much faster and would be more attractive and convenient to the Minister of Health as a politician and donors. The structures, processes and climate for the implementation of VPs would be more clear and straightforward and would prevent specific resources to be sidetracked to other programmatic activities not considered in the predetermined specific objective or targets. The client was the Minister of Health of AFROLAND who requested for technical support to enable all those involved in the reform to concentrate their strategies and efforts on a limited, crucial and feasible set of issues which can show tangible results in a reasonable time-frame. The problem owners were the stakeholders with an interest in the VPs: the national and local Government, The MOH, Professional Associations (Medical Council, Nursing Council), Media, NGOs (national and international), Donors, Opposition Parties, others (UN Agencies, Academic and Research Institutions, Faith Based Organisations,

Community Leaders, Unions, Consumer Associations….); with similar or different opportunities, strength, interests and values.

b) *Analysis 2 – Social systems analysis*: It refers to roles, norms and values. The **MOH** is the policy maker, with a talented leader that talks well to the media and attracts public interest. The MOH wanted to deepen consensus on integration of VPs into overall health services. The **NGOs** span a wide area of interests from coordinating health care providers to specific health issues such as family planning and AIDS; they think HSR is too much health systems oriented rather than disease specific. The **MEDIA** regrets the quality of reporting on HSR implementation is low; and the imbalance of more negative than positive stories. **Professional Associations** have the professional skills to provide health care; they supported the objectives of HSR but fell excluded from the process of reform implementation (nurses in particular); they expressed concern about dependence on donor funds; traditional practitioners and private clinics were loosing clients preferring public facilities. **DONORS** expressed concern with performance, governance and transparency of the Government; called to participate in district health funding basket; extend the basket to central level activities and move from VPs to undesignated budget support; they have very strong influence over financial resources.

c) *Analysis 3 – political systems analysis*: refers to the politics of the problem situation and how the power is obtained and used. Concerning the distribution of power, first, there was a shift of power from the central level officials of the MOH

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and managers of VPs to the HSRT members. Second, user fees policy and community participation in District Health Boards made accountability more stringent. Third, health technicians where somehow overruled by health managers – more involved in HSR. Fourth, it was noticeable that the highest power was in the hands of the Minister of Health but counterbalanced with donor funding power. Concerning the nature of power it was clear that: the MOH had the ability to influence the distribution of resources to VPs or to ongoing health care delivery; it could direct all Departments under the MOH including the HSRT under influence of other stakeholders. The District Health Board (DHB) had the ability to define the health needs of the related community. In relation to the process of getting into power: in the MOH the political power was obtained by election while the HSRT exercised power by giving policy advice to the MOH. The NGOs obtained power in providing health care to people in areas not covered by the public sector; the MEDIA passed on power to people taking information and stories about HSR and possible benefits. The Professional Associations obtained power through professional and medical credibility and felt some difficulties in maintaining power and noting that managers of VPs were not involved in the reform discussions. Donors exercised their power through their decisions on health funds.

ii. Rich Pictures. Figure 30   presents rich pictures illustrating the interrelationships in
the described problem situation.

Figure 30 VPs versus integrated approach of programmes
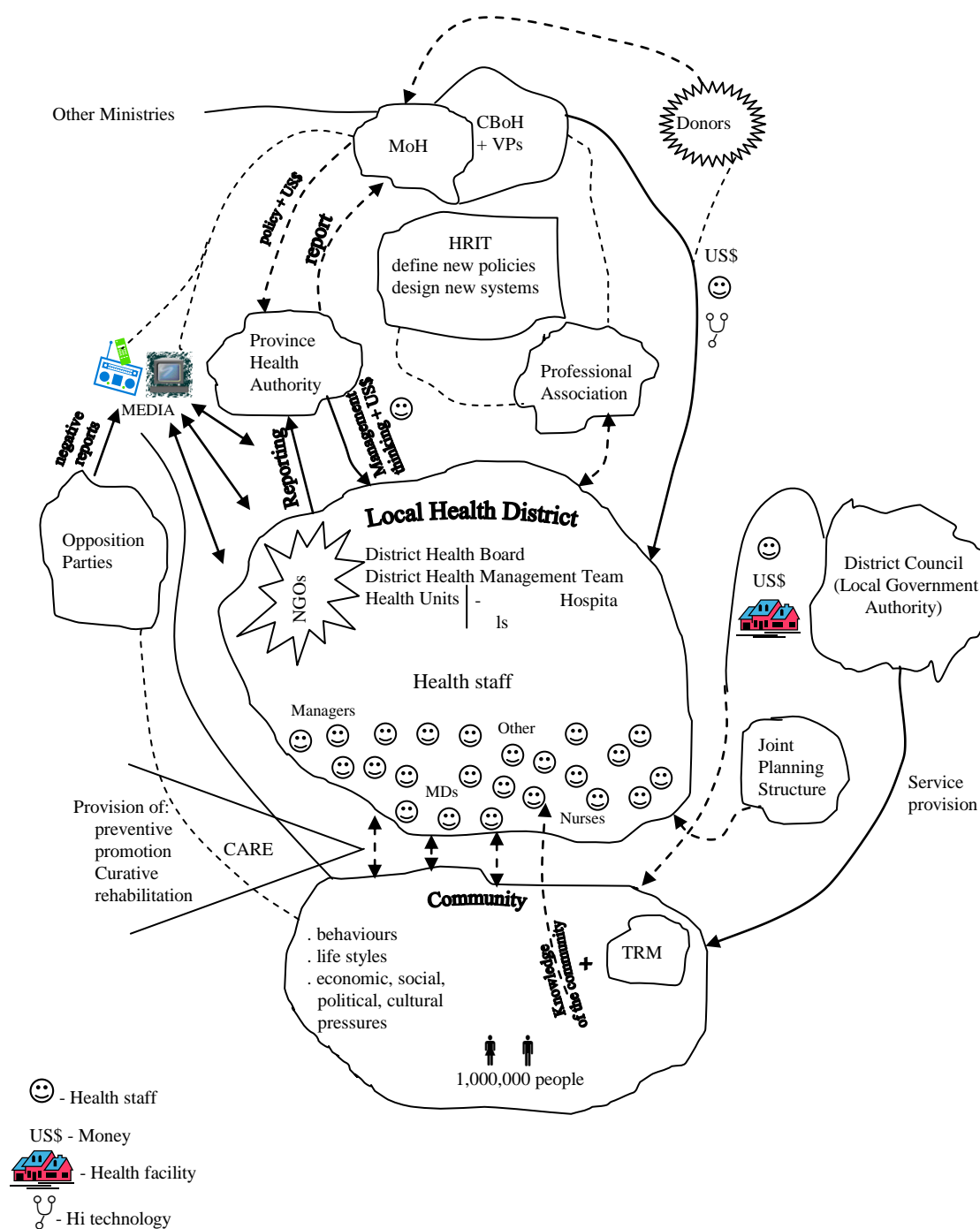
A picture in which AFROLAND study was done

8.3.1.2. Analysis

8.3.1.2.1. Choosing relevant Systems

MODEL ONE (Synergic Interception)

> *i.* <u>Root Definition One (RD1)</u> - idealised view of the MOH with partial integration of VPs.

RD1: "A MOH system staffed by health managers, professional experts and other category of staff, operating at central, provincial, district and community levels; providing policy, managerial and technical support; to ensure the organisation, management and delivery of health care to defined populations; using human, financial, and health technology resources according to normative health needs. The system manages the delivery via ongoing services enhanced with the synergy of specific Vertical Programmes (VPs) and ad-hoc Projects; and operates according to the vision, principles, values and strategic thrusts laid down in the national health policy and within the allocated budget. The system responds also to ad-hoc issues arising from other health determinants outside the described framework. Its reporting meets the requirements of the National Health Plan, technical norms and guidelines at the different levels of recursion."

Figure 31 Root Definition 1 Concept

ii) CATWOE describes the essence of what is to be done, why it is to be done, who is to do it, who is to benefit or suffer from it and what environmental constraints limit the actions and activities.

C	"Customers"	- Eleven million inhabitants of AFROLAND
A	"Actors"	- Health managers, professional experts, other staff
T	"Transformation process"	- VPs <u>not</u> integrated in ongoing health care delivery services *transformed into* VPs <u>partially</u> integrated
W	"Weltanschauung"	- Reduce the incidence and prevalence due to AIDS, TUB and MAL
O	"Owners"	- MOH and Donors (can stop T process).
E	"Environmental constraints"	– GOV'T funding, willingness of donors, capacity of staff, power relationships.

iii)   <u>Building Conceptual Model One (CM1)</u>

Figure 32 Concept Model 1

**VPs
not integrated**

Understand purpose of partially integrated

Communicate policy to health managers and professional

Ensure resources availability

Convince decision -makers to adopt this policy

Train the staff

Make sure that resources are jointly managed

Design partially integrated VPs

Put them into effect to those involved and affected

**VPs partially
integrated**

iv)   <u>The 5 Es</u>

Efficacy   − VPs are partially integrated

Efficiency   − Partial integration with minimum use of resources

Effectiveness − Partial integration leads to reduction of incidence and prevalence due to
                            AIDS, malaria and tuberculosis.

Ethicality   − Everyone sees this as an improvement

Elegance   − Yes, it is a solution that appeals to people.

MODEL TWO (Phagocyte Integration)

i. Root Definition Two (RD2) - idealised view of the MOH with full integration of VPs.

RD2: "A MOH system staffed by health managers, professional experts and other category of staff, operating at central, provincial, district and community levels; providing policy, managerial and technical support; to ensure the organisation, management and delivery of health care to defined populations; using human, financial, and health technology resources according to normative health needs. The resources come from different sources but managed by the Government. The system manages the delivery via ongoing services; and operates according to the vision, principles, values and strategic thrusts laid down in the national health policy and within an integrated budget. The system responds also to ad-hoc issues arising from other health determinants outside the described framework. Its reporting meets the requirements of the National Health Plan, technical norms and guidelines at the different levels of recursion."

Figure 33 Root Definition 2 Concept

ii. <u>CATWOE</u> describes the essence of what is to be done, why it is to be done, who is to do it, who is to benefit or suffer from it and what environmental constraints limit the actions and activities.

C "Customers" - Eleven million inhabitants of AFROLAND.

A "Actors" - Health managers, professional experts, other staff.

T "Transformation process" - VPs <u>not</u> integrated in ongoing health care delivery services *transformed into* VPs <u>fully</u> integrated

W "Weltanschauung" - Reduce the incidence and prevalence due to AIDS, TUB and MAL

O "Owners" - MOH and Donors (can stop T process).

E "Environmental constraints" – GOV'T funding, willingness of donors, capacity of staff, power relationships.

iii. <u>Building Conceptual Model Two (CM2)</u>

Figure 34 Concept Model 2
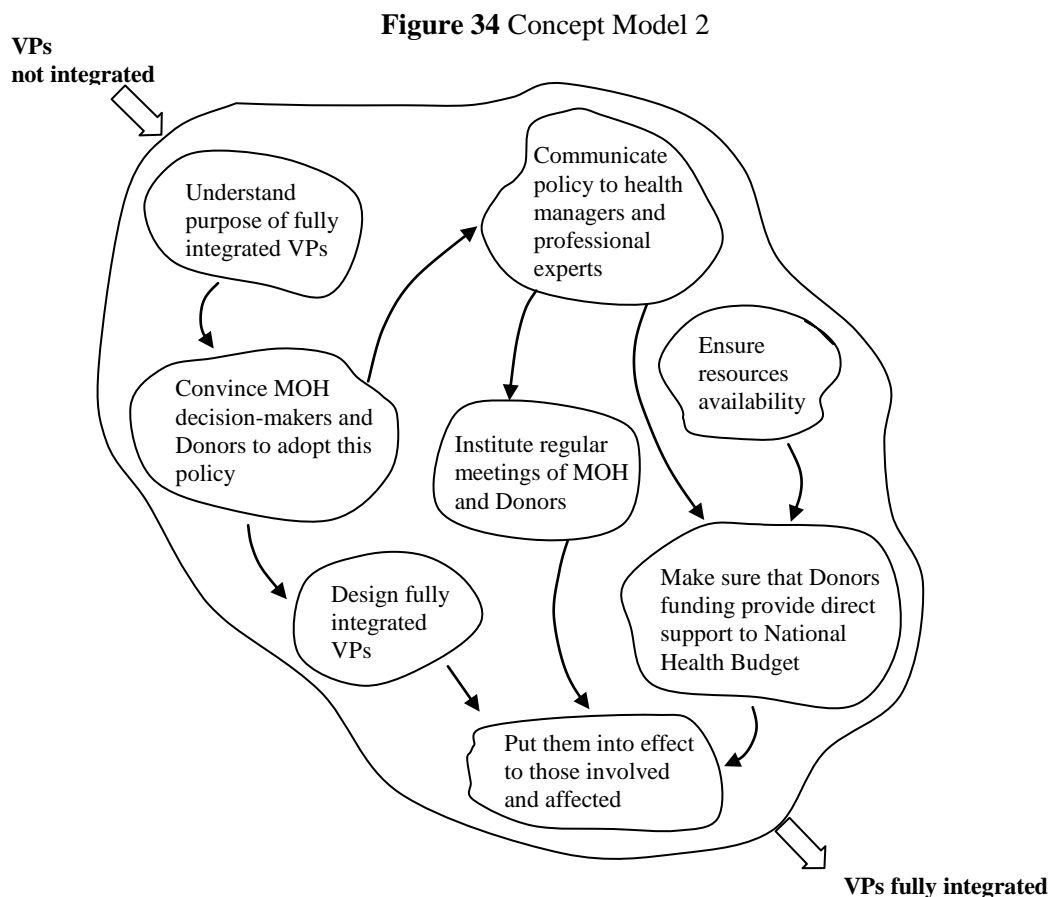
iv. <u>The 5 Es</u>

Efficacy   – VPs are fully integrated

Efficiency   – Full integration with optimization of resources and greater impact

Effectiveness   – Full integration leads to sustained reduction of incidence and prevalence due to AIDS, malaria and tuberculosis.

Ethicality   – Everyone sees this as an improvement

Elegance   – Yes, it is a solution that appeals to people.

MODEL THREE (Competing Synergy)

    i. <u>Root Definition Two (RD3)</u> - idealised view of the MOH with no integration of VPs that does work.

RD3: "A MOH system staffed by health managers, professional experts and other category of staff, operating at central, provincial, district and community levels; providing policy, managerial and technical support; to ensure the organisation, management and delivery of health care to defined populations; using human, financial, and health technology resources from different sources, according to needs in different geographic areas. The resources come from different sources and managed either by Government officials or Partners/Donor representatives or NGOs. The system is fragmented and delivers services; and operates according to internationally agreed health policy, principles, values and strategic thrusts laid down in the national health policy. Its reporting meets the requirements of the source of funding."

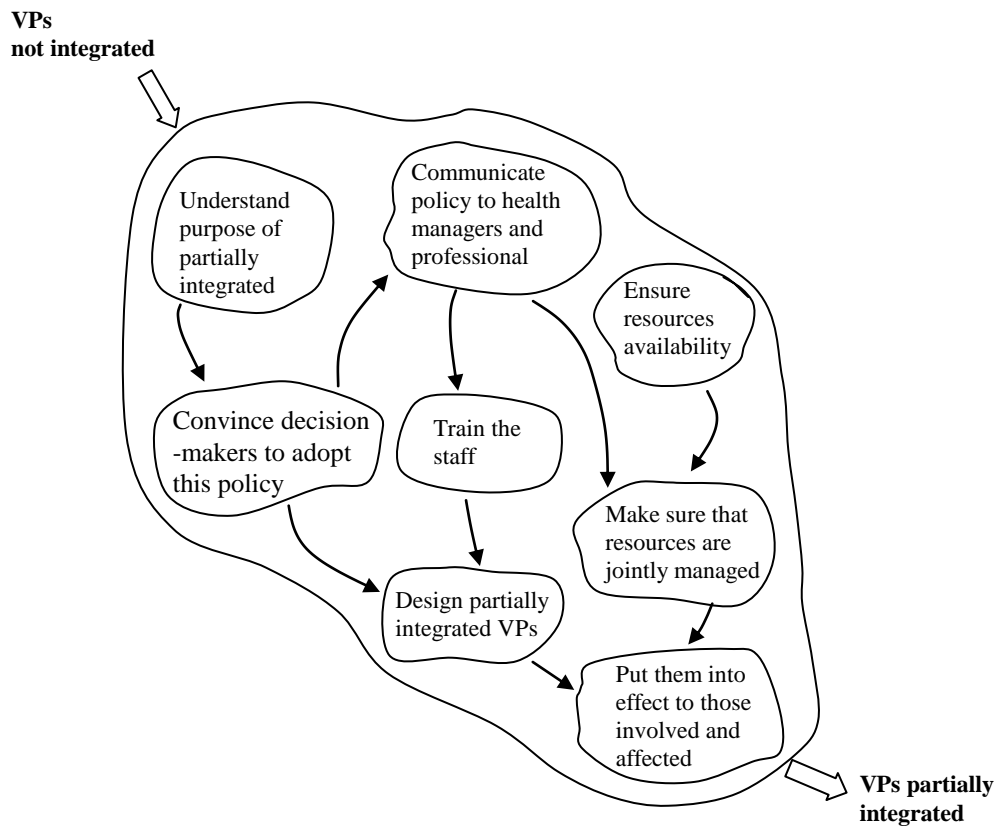**Figure 35** Root Definition 3 Concept

ii. <u>CATWOE</u> describes the essence of what is to be done, why it is to be done, who is to do it, who is to benefit or suffer from it and what environmental constraints limit the actions and activities.

C	"Customers"	- Eleven million inhabitants of AFROLAND.
A	"Actors"	- Health managers, professional experts, other staff.
T	"Transformation process"	- VPs no integration, which does not work, *transformed into* VPs no integration that does work.
W	"Weltanschauung"	- Reduce the incidence and prevalence due to AIDS, TUB and MAL
O	"Owners"	- MOH and Donors (can stop T process).
E	"Environmental constraints"	– GOV'T funding, willingness of donors, capacity of staff, power relationships.

iii. Building Conceptual Model Three (CM3)

Figure 36 Concept Model 3

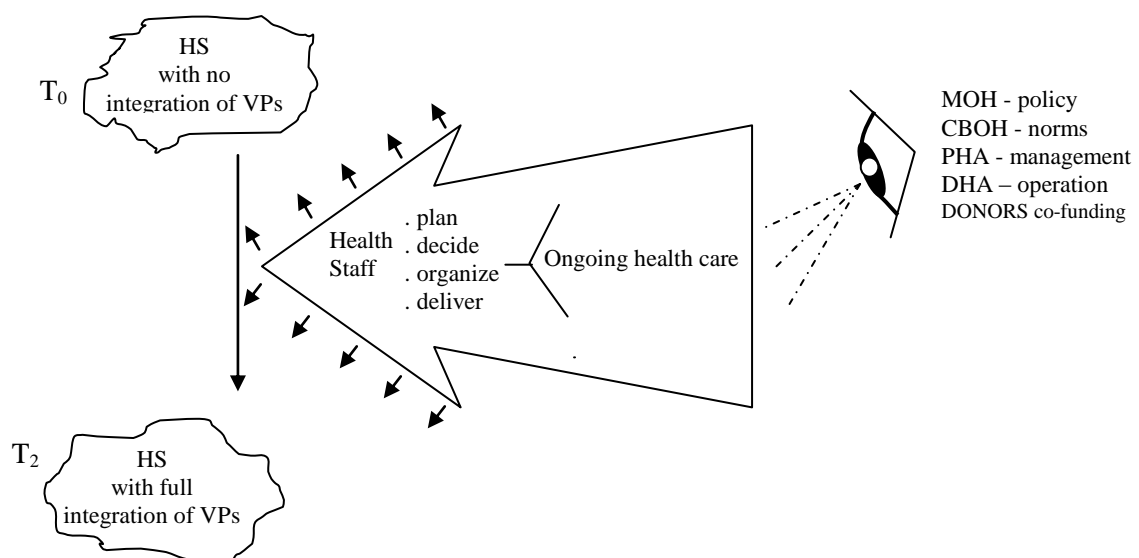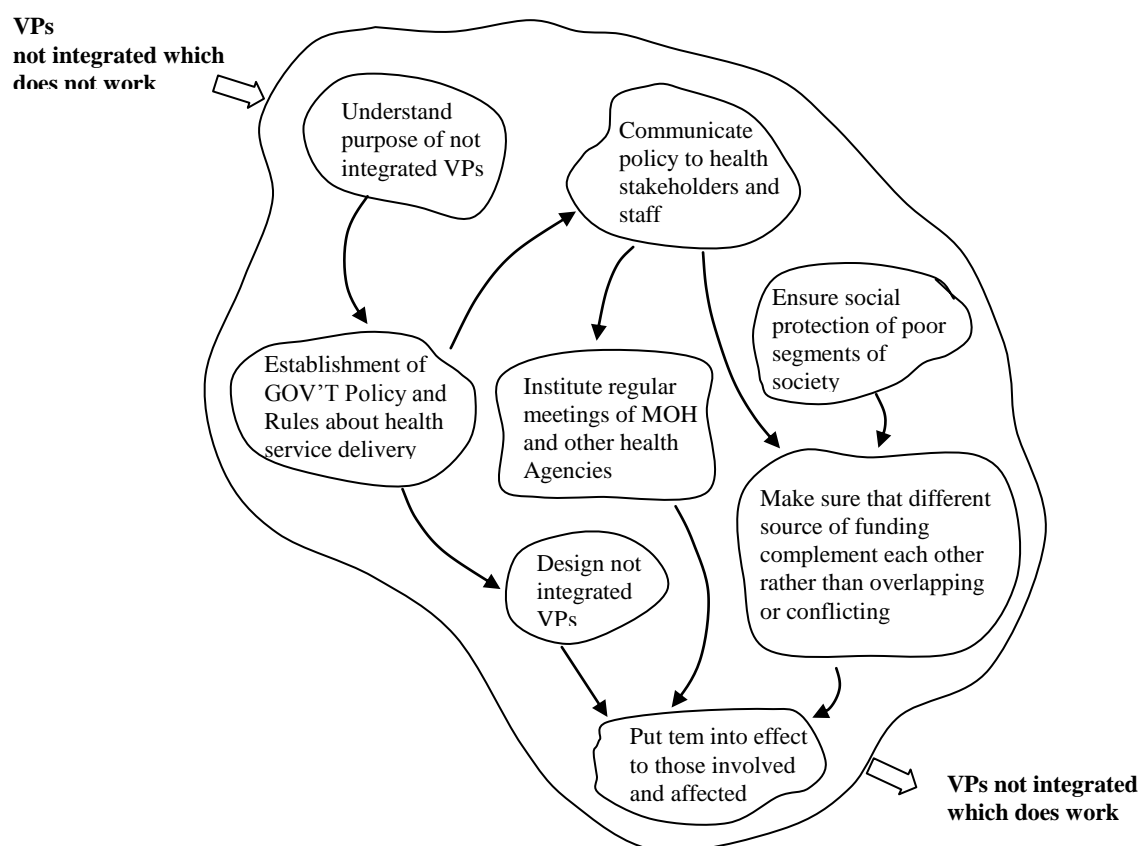*iv.* The 5 Es

Efficacy − VPs are not integrated but working.

Efficiency − No integration with overlapping of resources in certain areas and gaps in other.

Effectiveness − No integration leads to sporadic reduction of incidence and prevalence due to AIDS, malaria and tuberculosis in certain geographic areas

Ethicality − Some people think this as an improvement.

Elegance − No, it is a solution that doesn't appeal to people.

8.3.1.3. Assessment – Comparing Models with experienced reality

8.3.1.3.1. Comparison of Models CM1, CM2 and CM3 against experienced reality.

CM1 – partial integration of VPs activities into the MOH ongoing health care delivery. This could be seen as <u>interception synergy</u>.

CM2 – full integration of the VPs into the ongoing MOH health care delivery service. This could be seen as <u>phagocyte integration</u> rather than simple synergy.

CM3 – parallel sub-system for the delivery of VPs health care (prevention, promotion, curative, and rehabilitation) and the ongoing MOH health care delivery that could be understood as <u>competing synergy</u>.

8.3.1.3.2. Exploring the potential for change/ desirable and feasible solutions (make the argument for CM1)

Conceptual Model One refers to partial integration of Vertical Programmes. In light of reality it is not possible to integrate all elements of Vertical Programmes. They are designed to generate results in a defined period of time with very specific targets against specified injection of resources (usually financial resources). It could be convenient to integrate the VPs at operational level of service delivery to optimize the effects with other health care delivery services and obtain greater impact in terms of health outcomes. So we could militate for consensus and coordination at central level and integration at operational/local level for Scenario A of thought experiments.

8.3.1.4. Action

This section aims at improving the problem situation in the real world, in light of the learning cycle (as opposed to the activity in conceptual models in Systems Thinking about the real world).

8.3.1.4.1. Atitudinal Change

Health leaders and managers using SSM mode2 should explore dialogue to reach consensus on the degree of flexibility to integrate VPs and Projects into the overall health system delivery rather than looking at VPs as parts that can be sustained in isolation.

8.3.1.4.2.Structural Change

In the process of designing Health Systems, VPs should be part of the National Health Services structures, contributing to enhance synergies, the implementation capacity technical performance and health outcomes.

8.3.1.4.3. Procedural Change

Health policy and strategies, health planning and monitoring and evaluation mechanisms should be developed in a coordinated and aligned manner, for both VPs and MOH ongoing health care. Health policy and planning processes should be top-down and bottom-up in an interactive approach involving those affected (decision-makers, implementers and recipients).

8.3.2. Scenario B: Application of User Fees Policy in the context of Health Sector Reform

8.3.2.1. Appreciation

8.3.2.1.1. Context:

The notion that local communities should have a view and a say in assessing the needs and tackling health problems is not new. In AFROLAND the Minister of Health (MOH) was concerned with the involvement of local people in management and decision-making. In fact, the increasing technological complexity and centralization of National Health Services; the imbalance between curative, promotive, preventive and rehabilitation services in terms of resource allocation, revealed that curative interventions were dominant. In these circumstances, most of services became almost exclusive responsibility of health managers and professionals that were increasingly taking control of heath care delivery system.

i. ***Real World.*** Community involvement was inadequate in terms of both structures and processes. AFROLAND used to have a Government funded health services. Such free universal access to health care has proven unsustainable because of the escalating costs of health care technologies and skilled human resources while the country was going through a period of economic depression. Consequently acute drugs shortages, deterioration of health facilities and exodus of trained national health staff led to poor quality of health care and increasing deterioration of health status indicators. The Government could no longer cope with the increasing demand of quality health care, and

turned to donors for major funding. Donor funding increased but raised the issue of sustainability of health care financing.

ii. ***System Thinking World***. The problem occurred in a context in which problem owners and problem solvers shared a functionalist paradigm and therefore positivist methodologies.

iii. ***Problem Situation***. Therefore, the Minister of Health decided to re-activate the User Fee Policy (UFP) suspended by the previous Government about six years ago. The MOH intended to foster the spirit of partnership in health as an essential component of the reform; and raise extra-resources to meet the costs of an essential health care package to be guaranteed to all citizens. According to this policy every citizen should pay health care fees except those below 5 and over 65 years of age, obstetrics and gynaecology patients, chronic conditions, STDs, patients in epidemics and patients in extreme poverty. The problem situation was that the practice varied widely around the country. Some people were denied access to health services or were afraid to seek medical help, due to mistaken beliefs concerning the levels of fees and the existence of formal exemptions. Some stakeholders were concerned that patients, who should seek for health care, don't go just because of lack of funds to pay the user fee, ignoring that they may be exempt of the fee. The thought experimenter has to design appropriate strategies to unfold the mess and bring clarity with which UFP will be implemented.

8.3.2.1.2. Exploring and expressing the problem situation: in relation to this aspect, emphasis is

put on the stream of cultural analysis.

i. Analysis One, Two and Three

a) *Analysis 1* – <u>The problem-solver</u> was the researcher – Hard Systems thinker that had

the perception that User Fees Policy (UFP) was a good idea in the current context. It

would lead to a more comprehensive health care financing strategy. He was persuaded

that through relevant policy and legislation people would have access to quality health

care either paying or getting exempted accordingly. The client was the Minister of

Health of AFROLAND who requested technical support to update the UFP in the

context of health sector reform. The client was expecting user fees to complement

Government health budget and donor funding. This would contribute to improve both

quality and access to essential health care. The problem owners were the stakeholders

with interest in UFP. Among them were mainly the Ministry of Health at central level

 (Planning Unit), the MOH at local level (District Health Board – DHB and District

Health Management Team – DHMT), the District Council (DC), the Ministry of

Community Development and Social Services (MCDSS) and NGOs, with similar or

different opportunities, strengths, interests and values.

b) *Analysis 2* – It refers to roles, norms and values. The **Minister of Health** as political

leader was concerned with sustained progress of the health sector reform Process, the

need for a common vision among stakeholders and the ability of the Ministry of

Health (MOH) and the Health Reform Implementation Team (HRIT) to respond to people's expectations. One of the main areas of concern was the impact of UFP on the poor. At local government level, the **District Council** (DC) represented by the Council Secretary was responsible for Government services; they expressed concern about the cost of health care and expressed apprehension about the financial accessibility of the poorest segments of the population. The **District Health Management Team** (DHMT) members revealed that in general, user fees improved quality; however, they skewed patient population towards those who are exempted from fees. Therefore the contribution of user fees to hospital budget was small and thus not sufficient to provide incentives to health staff. It was also reported that exemption policy was not consistently applied: sometimes exempted people were charged; UFP was not widespread; deterring use of public facilities especially when after registration and diagnosis drugs were not available. DHMT also reported that the most remote areas could not attract qualified health manpower due to lack of funding and therefore UFP could not be implemented. Some patients reported that getting exemption from MCDSS was proved very difficult. The **District Health Board** (DHB) is elected to represent the interests of the community in matters related to health services provision. The board members were very supportive of reform. They expressed concern about the UFP, the lack of consistent policy of exemption and possible misinterpretation by poor patients that would miss required health care. They also suggested that an in-kind fee system be explored to allow cash-poor persons to pay with foodstuffs or labour. The Permanent Secretary of the **Ministry of Community Development and Social Services** (MCDSS) in collaboration with the MOH has the role to ensure those on social assistance or poor are exempted from user

fees. Nevertheless, she recognized that the issue of how to exempt someone from user fees charges was difficult. MCDSS also regretted weak collaboration with the MOH and expressed scepticism about the value and effectiveness of health reform. **NGOs** felt that they were spectators of health reform process and would like to be more involved. They have the experience of applying UFP that could be taped. They expressed concern about fuzzy UFP and lack of guidelines for its implementation. They warned about potential conflict of interest if the decision to exempt a patient from fees is not a matter of policy, but left up to the discretion of providers. They reminded that AFROLAND population in rural areas, particularly women and poor people have not been encouraged to participate in reform consensus building and therefore not given adequate information about health services and health care. The UFP policy was strongly supported by the MOH and Ministry of Finance, and highly opposed by the opposition Political Parties.

c) _Analysis 3_ – refers to the politics of the problem situation and how the power is obtained and used. The political leadership through the Minister of Health wanted to provide essential health care to all citizens but was constrained with budget shortcomings. In order to honour his promise during the political campaign before elections, he decided to implement UFP formulated by the previous administration but not implemented. The Government policy and argument for UFP looked just at one side of the coin – the provider's side. But from user's side the ability to pay was a crucial issue. 70% of AFROLAND population was leaving below the poverty line and unable to meet even the minimum food requirements. So how much could they afford for health care? Moreover, after the introduction of user fees, most of public

institutions experienced a noticeable decline in attendance; but, in areas where people could afford to pay there was an increase of clientele. The MOH and the MCDSS had the mandate from the ruling party's Government to change the situation but they didn't share a common vision and strategy. There was a gap between the MOH policy at central level and the actions at local level by the DHMT and the DHB. The experiences of NGOs in UFP implementation were not explored as agents of change. The UFP did not reach the grass-root level.

ii. Rich Pictures

Figure 37 Scenario B user fees policy in Afroland
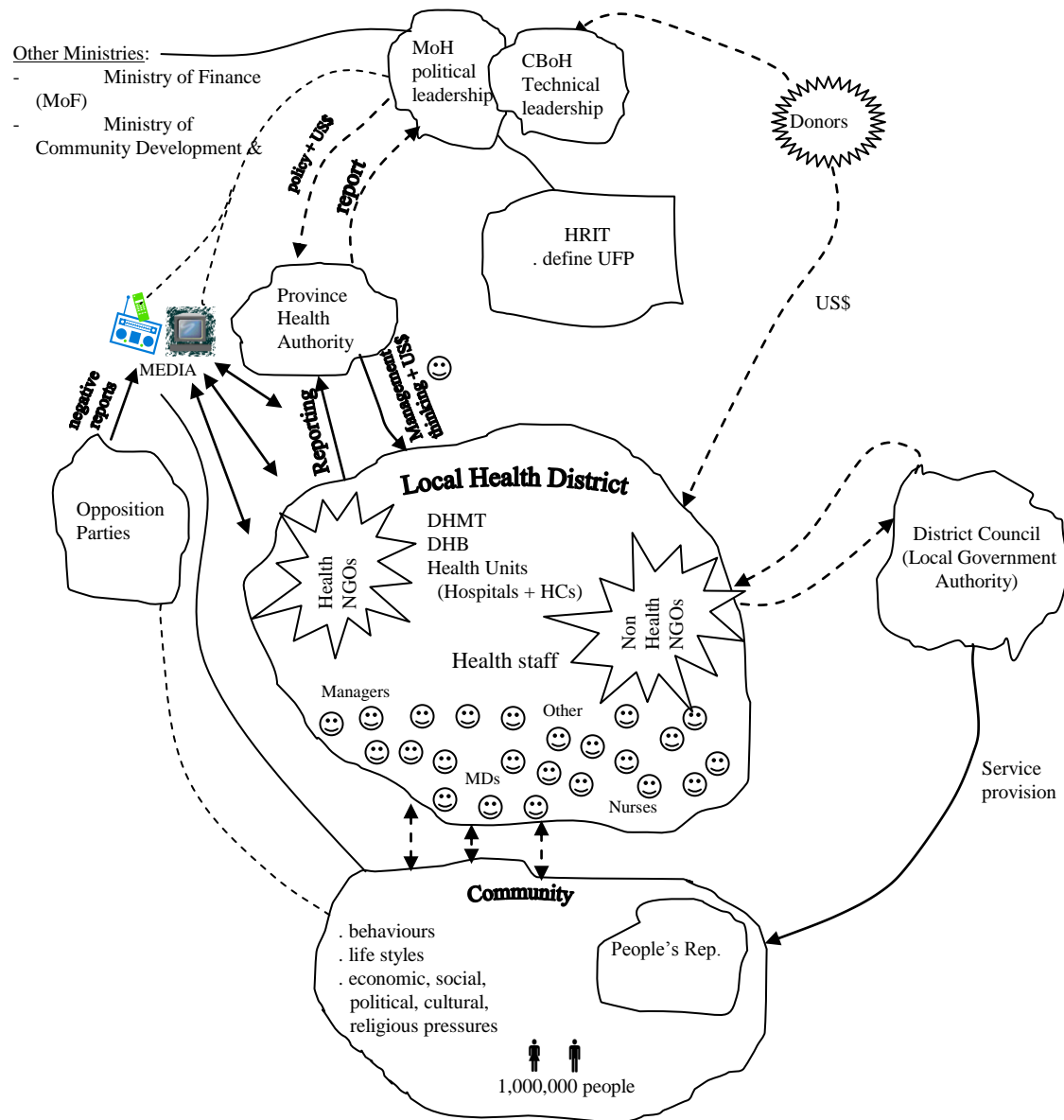
MOH: Ministry of Health
CBoH: Central Board of Health
MOF: Ministry of Finance
MCDSS: Ministry of Community
        Development & Social Services
HRIT: Health Reform Implementation Team
NGOs: Non-Governmental Organization
LGA: Local Government Authority

Table 10.8 - User fees stakeholders cultural analysis

| Stakeholder | Position | | Power | Type / Sector |
	Support	Opposition		
Ministry of Health	+++		High	Individual / Governmental
Ministry of Finance	+++		High	Individual / Governmental
Ministry of Health/ Planning Units	+++		Medium	Organization / Governmental
HRIT	+++		Medium	Organization Sub-Unit / Governmental
DHB	+++		High	Organization Sub-Unit / Governmental
DHMT	++		Medium	Organization Sub-Unit / Governmental
MCDSS	+		High	Organization / Governmental
LGA (District Council)	++		Medium	Organization / Governmental
Hospitals	++		High	Organization / Governmental
Health NGOs	++		High	Organization / Non Governmental
Donors	++		High	Organization / International
Opposition Parties		- - -	Medium	Organization / Political
Media Government	++		Medium	Organization / Media
Media Private		-	High	Organization / Media
Community People		- - -		Social Group / Social
Non Health NGOs		- - -	High	Organization / Non Governmental
Trade Union		- - -	Medium	Organization / Political

8.3.2.2. Analysis

8.3.2.2.1. Choosing relevant Systems

MODEL ONE

    i.   <u>Root Definition One (RD1)</u>

" A system owned by the MOH/NHS which together with users identifies who should pay

health care fees and who is exempted ; the implementation requiring specific information

support to users and health care providers so that potential users meeting the established

criteria are identified and obtain the benefits."

Figure 38 Root Definition 1B Concept
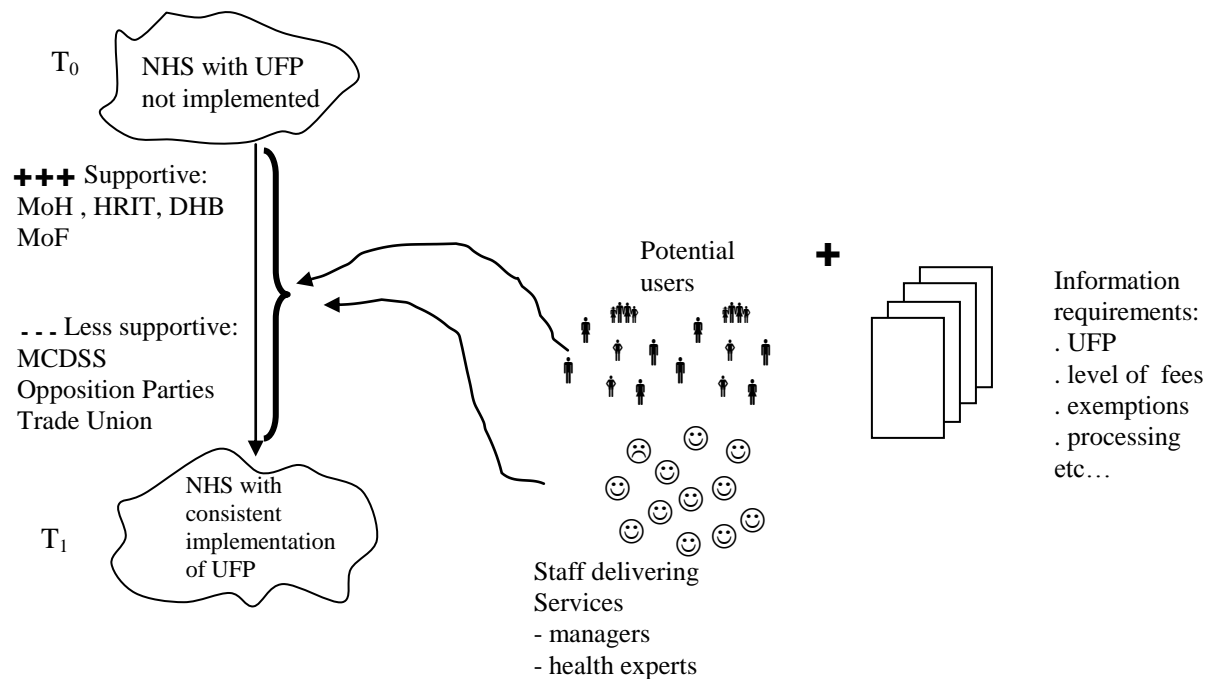
ii. <u>CATWOE analysis</u>

C "Customers" - NHS and users

A "Actors" - Health staff and NHS users

T "Transformation process" - NHS without UFP transformed into NHS implementing UFP with information requirements

W "Weltanschauung" - Adherence of people to UFP and increased community health financing (is the worldview that makes T meaningful in context)

O "Owners" - MOH and MCDSS

E "Environmental constraints" - Poverty of people (most of users), GOV'T funding capacity, willingness and different feelings of people and power relations among the staff.

Figure 39 Conceptual Model 1B

NHS without UFP

Appreciate the UFP

Access the number or % of people living in poverty

Decide on the role of different institutions: MoH+MCDSS+MoF

Agree on mechanisms to process the UFP implementation

Inform & train the Health Staff

Identify users whose effectiveness depend on information requirements

Inform the people

Implement the UFP

NHS implementing UFP with information requirements

iv. <u>The 5 Es</u>

Efficacy – NHS implementing UFP with information requirements

Efficiency – The relationship between the cost of the operations and the total fees collected is not interesting; despite the fact that the principle of community participation in the cost of health cares is usually recommended.

Effectiveness – The increase of the total health funding deriving from community participation is meaningless

Ethicality – Opposition Parties, a Social Group, Non Health NGOs and Trade Union and even MCDSS don't see this as an improvement.

Elegance – This policy is not appealing mainly to poor people that constitute the majority of the population.

MODEL TWO

i) <u>Root Definition Two (RD2)</u> : idealised view of the NHS without specific information

package to users and providers.

RD2: " A system owned by the GOV'T/NHS which together with users, identifies who

should pay health care fees and who is exempted ; so that potential users meet different

established criteria to contribute to overall funding of the NHS."

Figure 40 - Root Definition 2B Concept

ii) CATWOE analysis

C "Customers"   - NHS users.

A "Actors"   - NHS staff and NHS users.

T "Transformation process" - NHS with UFP not implemented transformed into NHS
                                 implementing UFP without information requirements.

W "Weltanschauung"   - Adherence of people to UFP and increased community
                                 health financing (is the worldview that makes T meaningful
                                 in context).

O "Owners"   - MOH

E "Environmental   -Poverty of people (most of users), institutions opposing
       constraints"   UFP and power relations.

iii) Building Conceptual Model Two (CM2)

Figure 41 - Conceptual Model 2B

NHS with UFP not implemented

NHS implementing UFP without information to users
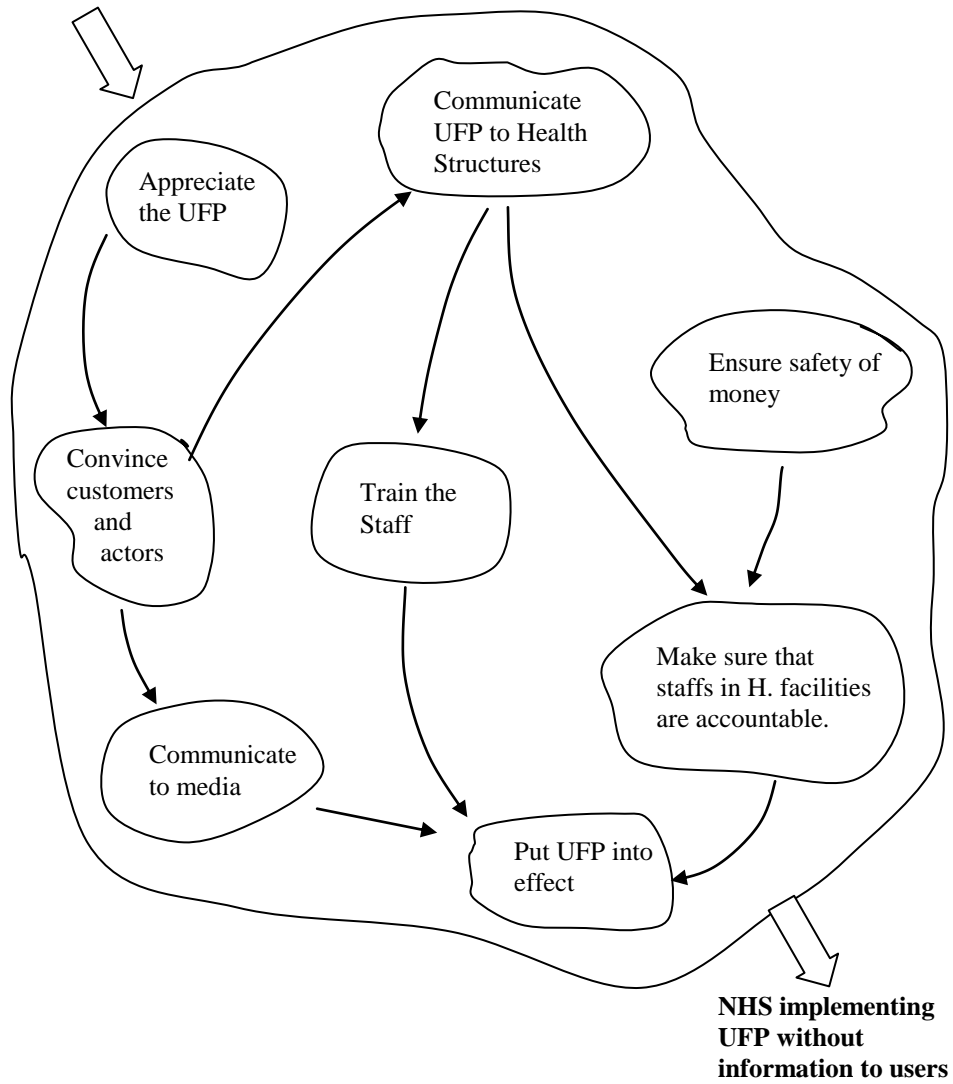
iv) <u>The 5 Es</u>

Efficacy – UFP is differently implemented across the country.

Efficiency – No, because the resources used to implement UFP are above the benefits.

Effectiveness – The total amount of funds collected from community user fees is

meaningless in regard to the overall health funding; therefore it changes

neither the coverage nor the quality of health care.

Ethicality – Opposition Parties, a Social Group, Non Health NGOs and Trade Union

and even MCDSS don't see this as an improvement. Most of people have

doubts about the real benefits of UFP.

Elegance – This policy is not appealing to most of people.

MODEL THREE

i) <u>Root Definition Three (RD3) </u>: idealised view of the NHS without UFP.

RD3: " A system owned by the GOV'T/NHS which together with all potential users and

health care providers delivers health care to all. The costs are beared by the State through tax

payers - subvention"

Figure 42 - Root Definition 3B Concept

ii) CATWOE analysis

C "Customers"   - NHS users

A "Actors"   - NHS staff and NHS users

T "Transformation process" - NHS with UFP not implemented transformed into NHS

without UFP.

W "Weltanschauung"   - Improved health care financing.

O "Owners"   - MOH and Donors/Partners.

E "Environmental
constraints"   - Limited number and low income of tax payers, political and

social tensions and cultural differences.

iii)   Building Conceptual Model Three (CM3)

Figure 43 - Conceptual Model 3B

NHS with UFP not implemented

Undertake feasibility study of UFP

Appreciate UFP

Convince owners: MoH + MoF that UFP is neither efficient nor effective

Train the Staff

Conduct National Health Account study

Create control mechanism

Institutionalize social protection mechanism: Insurance + MoF + Donors

Abolish UFP

NHS without UFP
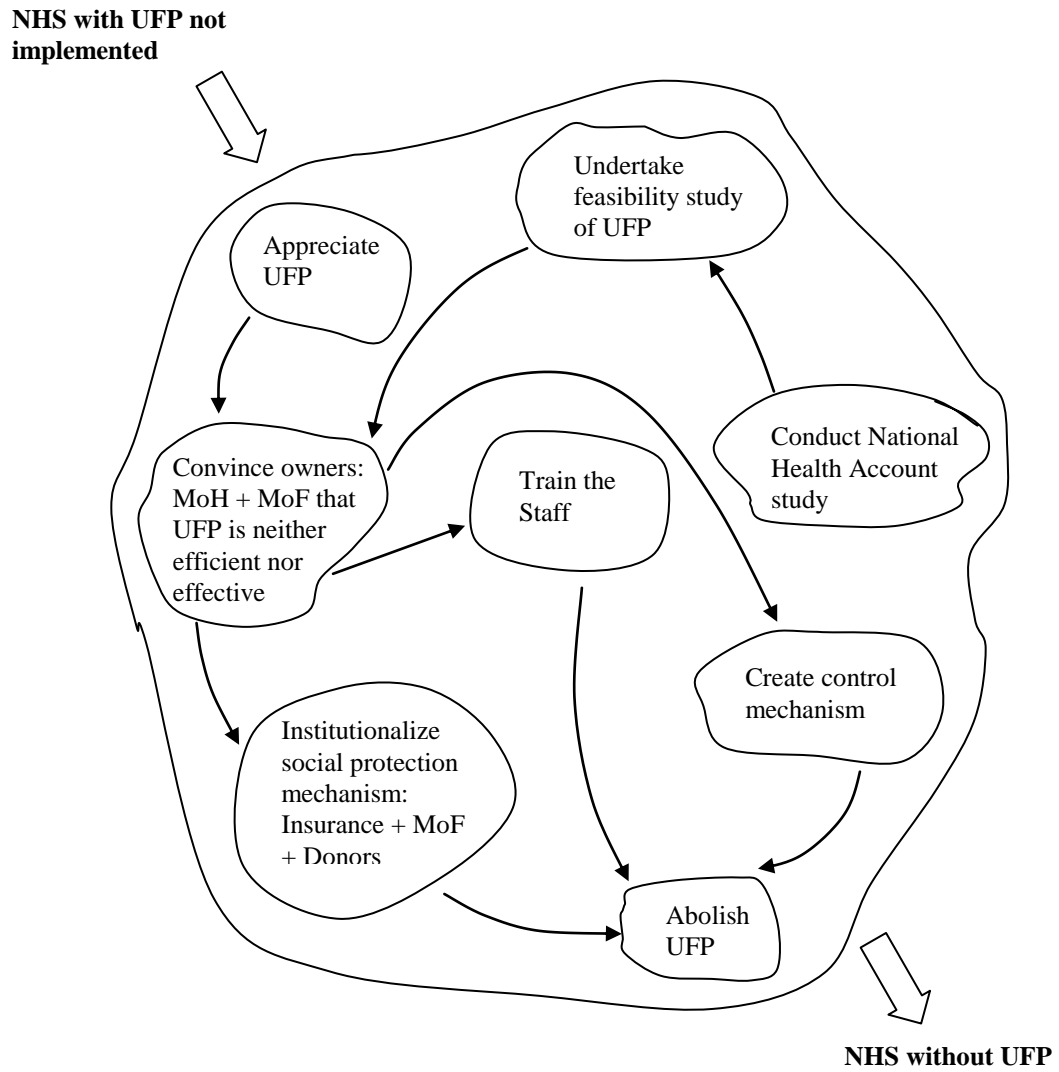
iv) <u>The 5 Es</u>

Efficacy   – It is not sure that the abolishment of UFP will increase health funding
             from user contributions.

Efficiency   – Doubts about cost-effectiveness.

Effectiveness   – Not sure.

Ethicality   – Most of people see this as a sound policy.

Elegance   – This policy is appealing to most of people.

8.3.2.3. Assessment – Comparing Models with experienced reality

CM1   -   NHS implementing UFP with information requirements

This is a model that involves those affected by the UFP. It is friendlier to users and those

involved in the implementation of the policy – the staff. It is not fully effective because the

total of funds collected does not meet the expectations of the Government in terms of

financial contribution of people to increase overall health funding.

CM2   -   NHS implementing UFP without information requirements

This model does not involve those affected by the policy. It is characterized by lack of

information, confusion, and uneasiness and missed opportunities to poor people to get health

care. It fosters inequalities in regards to access to health care. The poor and marginalised

segments of the society get worse in terms of benefits from the NHS.

CM3   -   NHS without UFP

This is a total different model in which there is no UFP but rather a mechanism of health insurance to increase the existing funding from Government budget and Partners. Through taxation the Government will be pooling funds from reliable sources (individuals and companies), according to their capacity to pay. It is a Social Health Insurance Model. The inconvenient is that such model does not cover those not involved in formal employment that constitutes the majority of people in AFROLAND.

The best option should be based on the study of National Health Account among other factors determining the needs and the ability of people to pay. Such option should at the same time ensure meaningful financial contributions and social protection.

8.3.2.4. Action

8.3.2.4.1 Attitudinal Change

Information support is key to ensure adequate awareness and participation of people (both NHS staff and targeted population). Public health decision-makers have to realize the need to systematically involve people in policy development and make sure that community financial participation in health care costs takes into account their effective ability to pay.

8.3.2.4.2 Structural Change

MOH/NHS should have in its structure elements representing people's interests or interact with people's representative bodies for relevant information exchange and consultation processes.

8.3.2.4.3 Procedural change

In context of dominant poverty among the population, health decision-makers should develop a health financing policy that relies in public funding and pooling prepaid mechanisms rather than user fees. National health insurance can help in pooling funds to support Government's health budget including partner's budget support.

8.3.3. Scenario C: Health System's response to Crisis (Man-made Disaster)

8.3.3.1. Appreciation (of the situation as experienced)

8.3.3.1.1. Context:

The problem is identified in a country called NGOYOLAND with 10,000,000 inhabitants. The Government that took power by force a couple of years ago was facing a rebellion backed by a neighbouring country in the south. The rebel forces made significant progress towards the north. Both the media and people evacuated from the southern provinces reported about intense fighting opposing national army to rebel forces; casualties among soldiers and civil populations were also announced. About 600,000 people most of them women, children and elderly, left their homes fleeing to the centre provinces looking for safety. They were settling themselves in open camps close to small villages and facing immediate problems of shelter, food, water and sanitation.

i. *Real World.* The little support from local communities was not enough to meet their basic living needs. The number of internal displaced people (IDPs) was rising every day, creating a burden to hosting communities and disrupting already weak local health systems. Moreover, about 200,000 people were reported to have crossed the south border and become refugees in the south neighbouring country.

At the capital, the political tension was increasing and most of the information was based in rumours, official information was scarce. The humanitarian situation was deteriorating very fast and the central Government, with some reluctance, declared national situation of emergency and asked for humanitarian assistance. The Minister of Foreign Affairs called the Diplomatic corps and Representatives of International Organisations to explain about the prevailing situation and declared the situation was under control of the Government and life would turn to normal during the coming few days. In the meantime, some Ambassadors, Heads of Missions and their dependants started leaving the country. The Governors of the two most affected provinces were exceedingly involved in the local management of the conflict and tended not to follow strictly the instructions from the Minister of Health.

Regular transport and communications from and to the affected areas were stopped due to security reasons, except for military and security forces or humanitarian agencies. The public sector was providing just the essential services. The circulation of people in general was restricted and schools were closed.

ii. *System Thinking World.* The problem occurred in a context in which problem owners and problem solvers shared a functionalist paradigm and therefore reductionist methodologies.

iii. Problem Situation. Hospitals were reporting increasing number of wounded people and shortage of emergency kits to deal with unexpected demand of surgery interventions. The mortuary services were also overstretched with increasing number of dead bodies and some of them not identified and kept in inadequate conditions.

The humanitarian assistance started arriving in the country in response to Government appeal. The support arrived from different agencies, in fragmented way, with overlapping items and some of the essential items missing. Everybody wanted to do everything. The number of NGOs increased. The presence of Red Cross was stronger. The capacity of the public sector was reduced and the private sector was absent. The lack of leadership and coordination by the Government was evident. The Minister of Health did not show up. The Permanent Secretary of the MOH was the person in charge who sought the technical assistance of the Researcher to organize the response of the health system to cope with the emergency. It was a context of crisis, complexity and uncertainty calling for immediate action.

8.3.3.1.2 Exploring and expressing the problem situation:

In relation to this aspect, emphasis is put on the stream of cultural analysis.

 i Analysis One, Two and Three

   a) *Analysis 1* – the problem solver was the researcher – hard systems thinker that had the perception of the problem situation, the technical skills in terms of public health, and had to advise the Permanent Secretary of the Ministry of Health to shift to an exceptional modus operandi of NHS to respond to an emergency. The main objective

was to minimize human life losses during the crisis. Despite the difficult context, the resources available if well managed could significantly contribute to alleviate suffering and prevent deaths. The client was the Permanent Secretary of the Ministry of Health who requested technical support to minimize the negative health impact of the crisis. The problem owners were the stakeholders with an interest in responding to the emergency: The Minister of Foreign Affairs, the Permanent Secretary of the MOH, the Health Managers, NGOs, Red Cross, Opposition Parties, Donors, Army Health Services, Religious institutions, with similar or different opportunities, strengths, interests and values.

b) *Analysis 2* – It refers to roles, norms and values. The Minister of Foreign Affairs representing the Government, wanted to transmit the idea of political stability and guarantor of Government support to face the humanitarian crisis. He refused to recognize that almost half of the country was under control of rebel forces; and denied the existence of refugees in neighbouring countries. The Permanent Secretary of The MOH represented the technical branch of the Government, empowered to take operational decisions and coordinate the health response to the emergency. The NGOs were supportive but expressed concern about transparency and accountability of the Government services and preferred to act immediately and directly in support to communities in distress in provinces and districts of their choice. The Red Cross, according to its values and mandate, wanted to act in support to abandoned people and other affected including prisoners of both sides. The Opposition Parties were not supportive to the Government, but concerned about insecurity and uncertainty since the rebellion was led by a military.

Most of Donors and International Organisations suspended their operations but some of them provided their support through NGOs and Technical/Humanitarian Agencies. The Army Health services wanted to collaborate with the NHS but they differ in terms of command and discipline; they have more logistic capacity to reach any part of the territory; but they are more concerned with the support to the Army forces at the front of battle. Religious Institutions have an excellent network, are supportive and willing to provide social and health support but are constrained with lack of appropriate resources.

c) *Analysis 3* – refers to the politics of the problem situation and how the power is obtained and used. Concerning the distribution of power, there was a concentration of power in hands of military hierarchy. The priority of the ruling party was to defeat the rebellion; minimize their political significance and recognition by people and by the international community. Therefore, responding to the humanitarian situation was not the first priority. The Permanent Secretary of the MOH and health managers represented the power of the Government; the International Organisations represented the international community and the power of their institutions according to their mandate. It was noticeable that the Army Health service has strong influence in terms of logistics; the NGOs the motivation and ability to work at community level; Religious institutions with a strong network of people; and noticeable the absence of donors in the current context. Provincial Governors were politically stronger that the Minister of Health at the central level of the Government.

ii. *Rich Pictures*

Figure 44 - Scenario C, Heath System response to crisis

- RED CROSS (CICR)
- WHO
- NGOs Board

Ministry of Foreign Affairs

MoH Permanent Secretary

MINIDEF

Army Health Services

Donors

MEDIA

Province Health Office

Opposition Parties

District Health Team

Community

NGOs

NGOs

NGOs

Village

IDPs

Village

IDPs

Village

IDPs
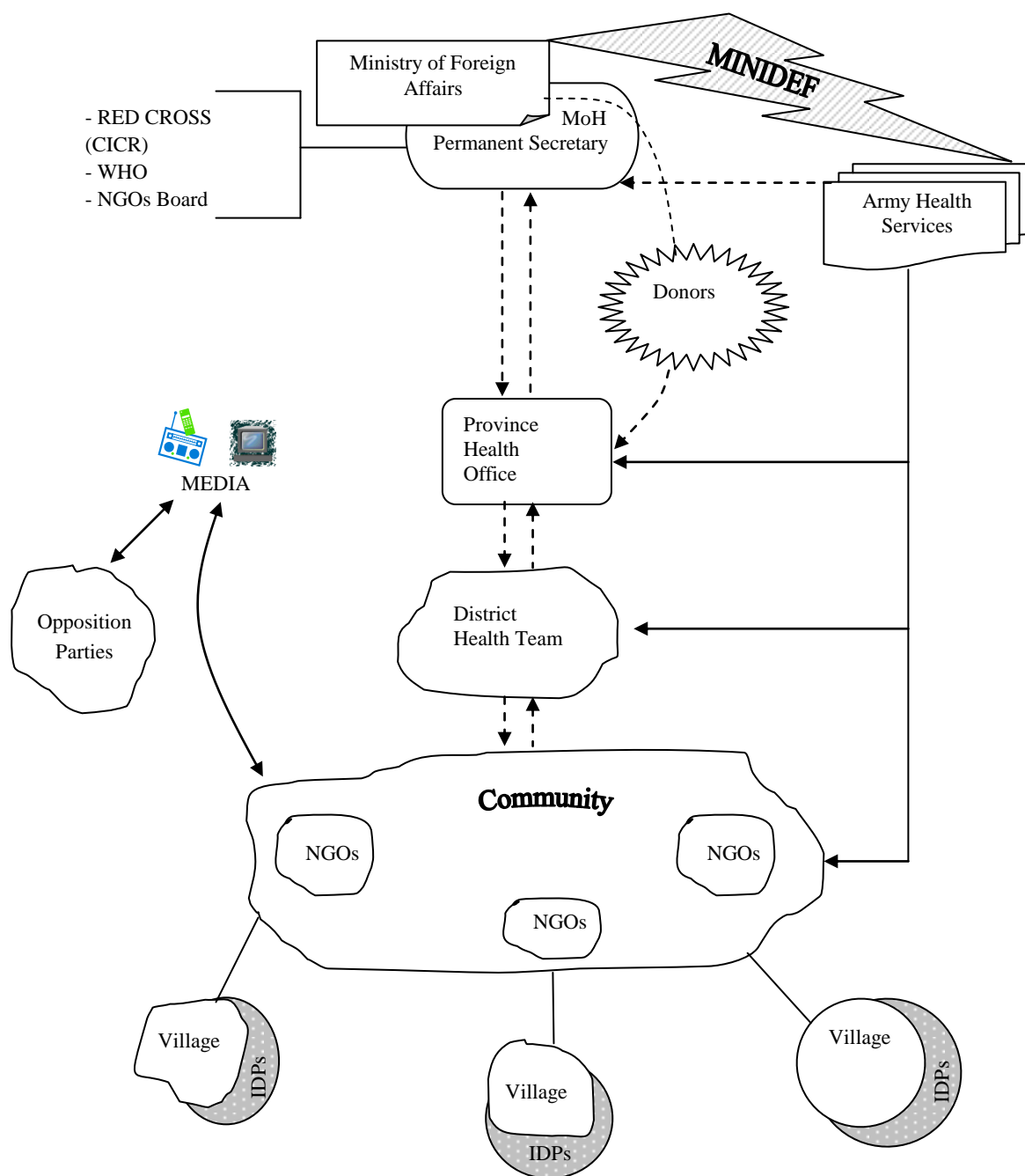
8.3.3.2. Analysis

8.3.3.2.1. Choosing relevant Systems

MODEL ONE

    i.   <u>Root Definition One (RD1):</u>

" A NHS owned system staffed by professional experts and managers, which provides

health care to the general population including those directed affected by the war

including internal displaced people (IDPs). Issues arising from the emergency situation

call for different mode of NHS operations – to cope with additional needs."

Figure 45 - Root Definition 1C Concept
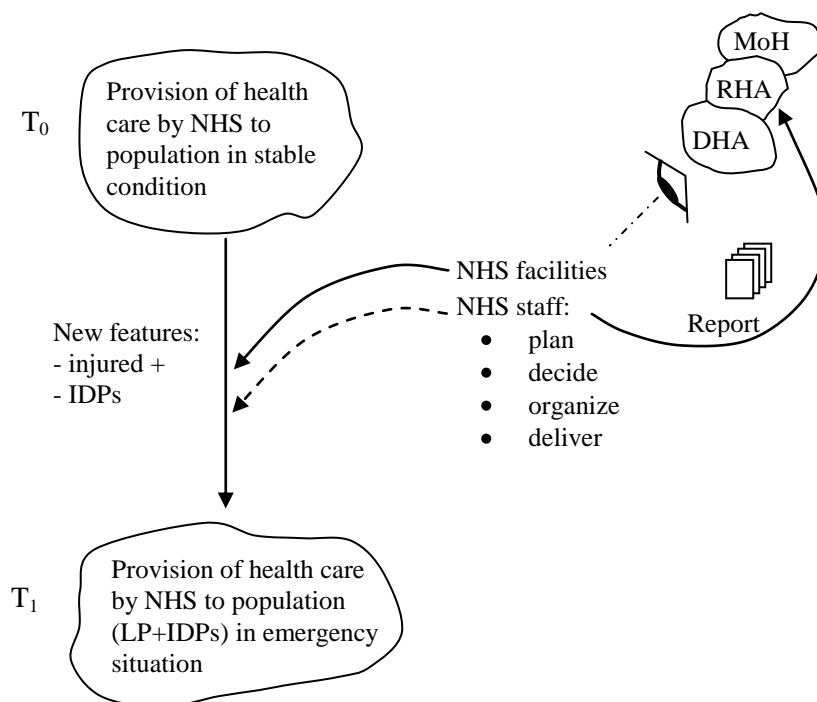
ii. CATWOE

C	"Customers"	- Population, targeting injured and internal displaced people (IDPs);
A	"Actors"	- NHS staff
T	"Transformation process"	- Provision of health care to stable population to provision of health care to instable population (injured and IDPs
W	"Weltanschauung"	- Coping with instability and uncertainty
O	"Owners"	- Government and rebellion forces
E	"Environmental constraints"	- Power relationships, tensions among communities, conflict of interests, different commands from MOH and MINDEF.

iii. Building Conceptual Model One (CM1)

Figure 46 - Conceptual Model 1C

iv. The 5 Es:
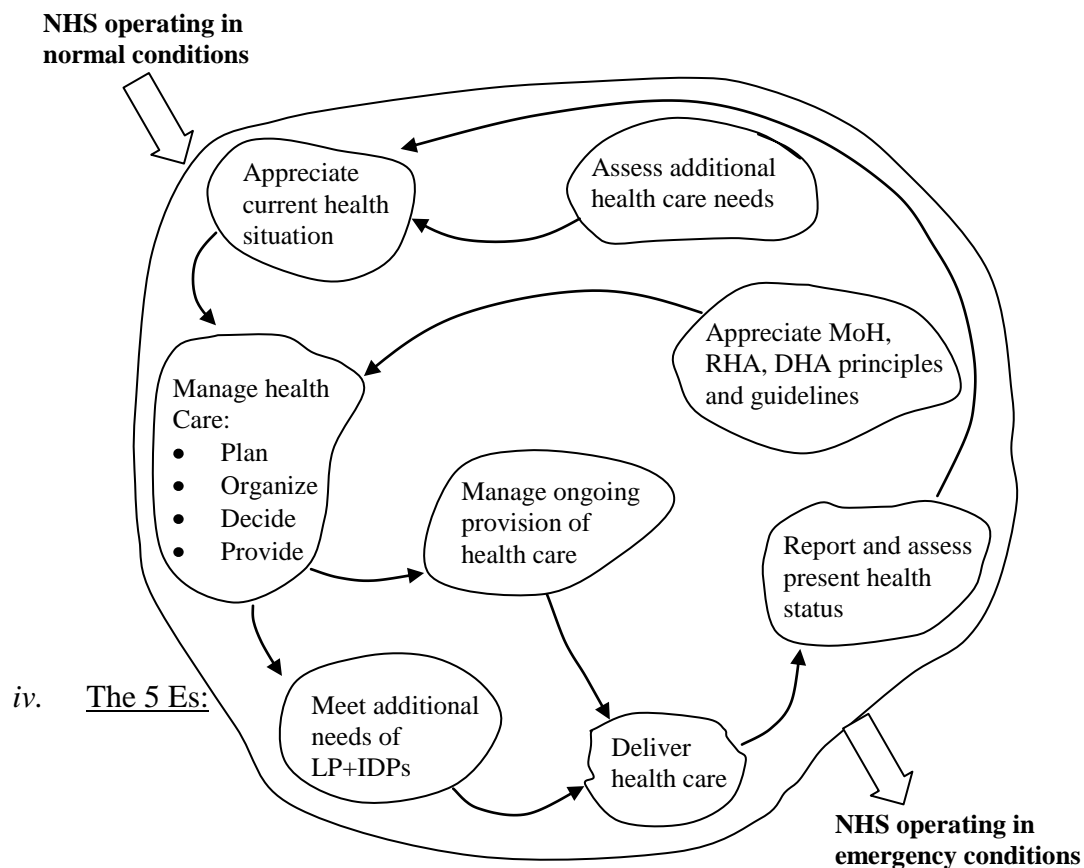
Efficacy   - The chosen means don't actually work in producing the expected output, because the same level of resources is used to cope with additional needs.

Efficiency   - The output is not improving neither increasing with the same level of resources; therefore there are no efficiency gains.

Effectiveness   - The transformation process cannot be sustained due to limited resources in context of additional needs.

Ethicality   - Yes, everyone appreciates what is done.

Elegance   - Not really. Some people do not support the current arrangement because population in stable areas, injured and IDPs are competing with the same limited resources.

MODEL TWO

i.   Root Definition Two (RD2):

" A NHS owned system, collaborating with the Army Medical Services (AMS) in which health staff from both sectors MOH and MINDEF work in collaboration at all levels, in assessing the health needs, planning and resourcing, and providing health care with particular focus in insecurity areas and internal displaced people. Issues arising from emergency situation calling for a different mode of the NHS operations."

Figure 47 - Root Definition 2C Concept

ii. <u>CATWOE analysis:</u>

C "Customers" - Population, targeting injured and internal displaced people (IDPs);

A "Actors" - NHS and AMS staff;

T "Transformation process" - Provision of health care to stable population *to* provision of health care to instable population (injured and IDPs);

W "Weltanschauung" - Coping with instability and uncertainty;

O "Owners" - Government and rebellion forces;

E "Environmental constraints" - Power relationships, tensions resulting from close interaction between different systems. Different leadership, discipline and different motivations of the MOH and MINDEF staff.

iii. Building Conceptual Model Two (CM2)

Figure 48 - Conceptual Model 2C

**NHS operating in
normal conditions**

Create a joint
NHS/AMS
management
committee

Assess additional
health care needs

Report to
NHS and
AMS

Manage health
care:
- plan
- organize
- decide

Assess
additional
HC needs

Meet the
requirement
of NHS/AMS
planning
documents

Inform NHS
and AMS
concerned

Deliver
health care

**NHS operating in
emergency conditions
with collaboration of
AMS**

355

iv.   <u>The 5 Es:</u>

Efficacy   – Yes, NHS and AMS working in collaboration providing health care to people including IDPs and those in areas of insecurity.

Efficiency   – Yes, the relationship between the cost of interventions and the resources jointly managed is interesting.

Effectiveness   – Yes, because of reduced loss in human lives among injured people; and reduced burden of IDPs on local health services of recipient communities.

Ethicality   – Yes, most of people see this arrangement as an improvement.

Elegance   – Not really, because of tensions between staff from different systems, working in collaboration, with different supervision and command.

MODEL THREE:

i.   <u>Root Definition number Three (RD3):</u>

"A health care delivery system owned by the Ministry of Defence (MINDEF), therefore under military rule, in which MOH/NHS staff is recruited by the Army and works under instructions and supervision of the Army Medical Services. They are in charge of assessing the health needs, planning and managing health resources as well as delivering care to all the

population irrespective of their condition, either military or civilians. The system is unique and operates in a coercive mode."

Figure 49 - Root Definition 3C Concept
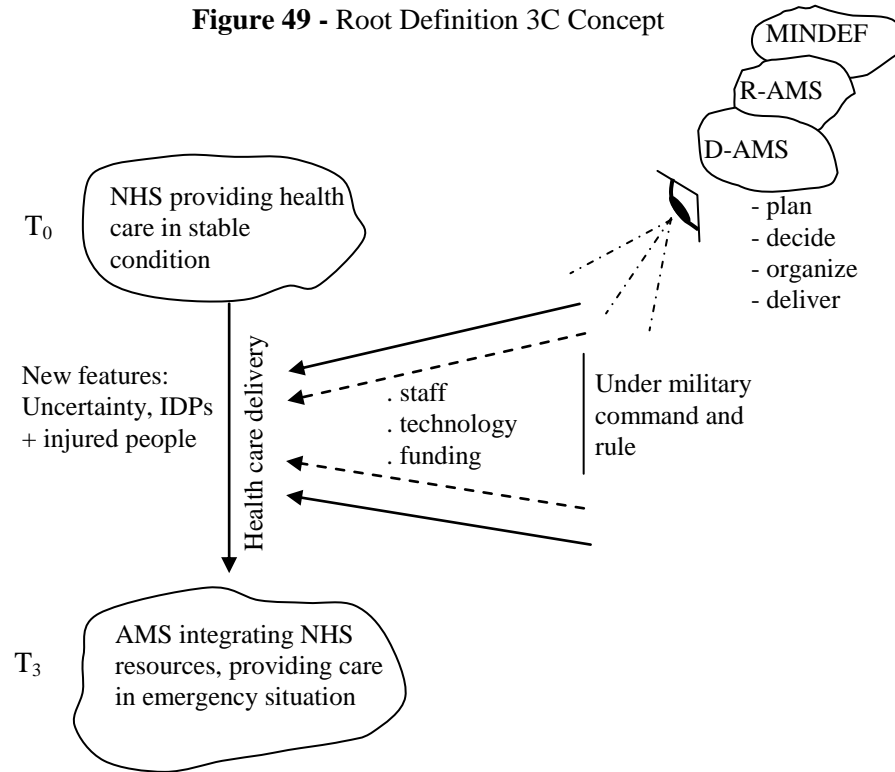
ii. CATWOE

C	"Customers"	- All population, both civilians and military.
A	"Actors"	- AMS staff
T	"Transformation process"	- Provision of health care to stable population *to* provision of health care to all the population including those in instable areas and IDPs.
W	"Weltanschauung"	- Coping with instability and uncertainty
O	"Owners"	- Government and rebellion forces
E	"Environmental constraints"	- Power relationships among staff with different backgrounds and cultures originating from two different sectors. Tensions resulting from insecurity, uncertainty and risk management.

Figure 50 - Conceptual Model 3C

**Provision of health care
in stable situation**

**Provision of health
care in situation of
crisis**
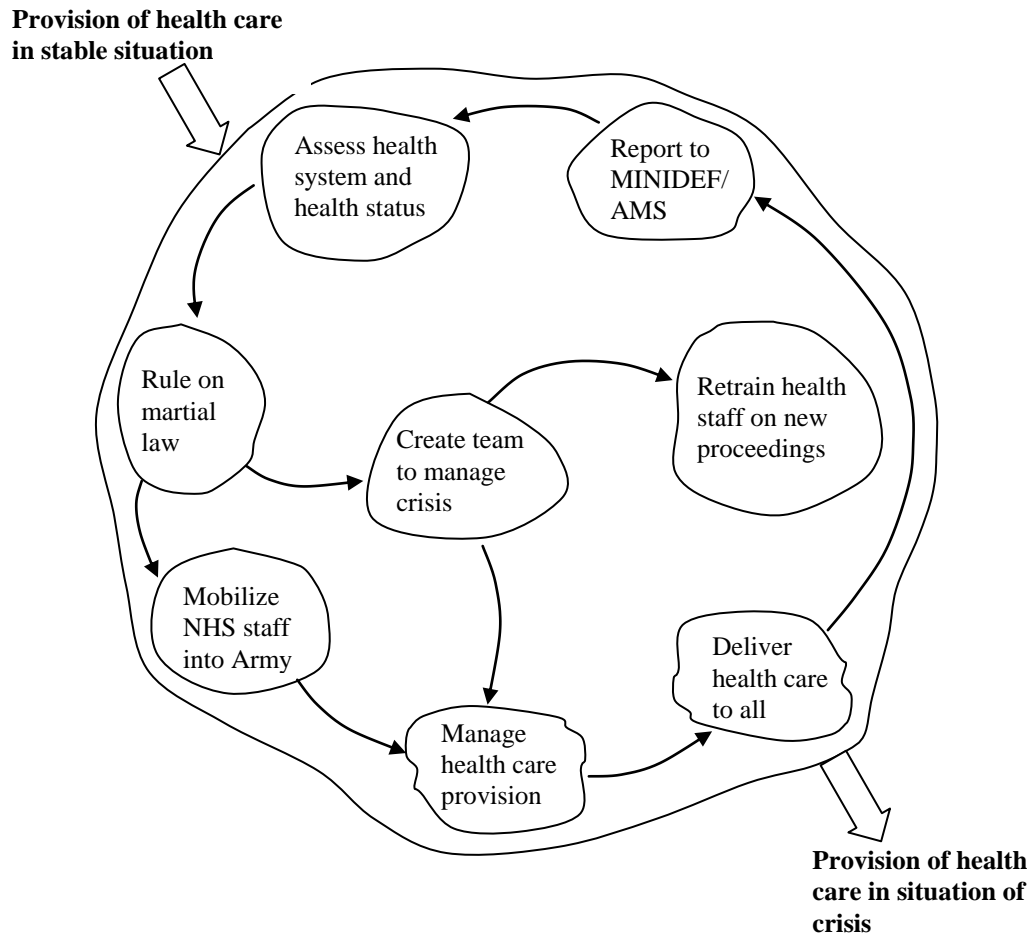
iv. <u>The 5 Es:</u>

Efficacy   – Yes, health care coverage is ensured to all.

Efficiency   – Yes, it is cost-effective.

Effectiveness   – Not sure, because some people/patients may fear the military environment
and just don't turn-up when the need health care.

Ethicality – No, because the new design raises problems of socio-cultural acceptability; and doesn't take into account the views of people, human feelings.

Elegance – No, because it doesn't appeal to the majority of people.

8.3.3.3 Assessment – comparing conceptual (CMs) models with experienced reality

CM1 – Overstretched NHS: this model stretches the capacity of the NHS, unable to cope with additional needs created by war and insecurity. Health coverage to populations in conflict areas and internal displaced people is compromised due to health system disruption. The model is ethically poor, not effective and not elegant.

CM2 – Joint NHS and AMS Collaboration: this is a model that brings into collaboration the NHS and the AMS to cope with additional health needs created by war. It aims at ensuring relevant heath care coverage to injured people in areas on insecurity and internal displaced people. Despite of differences between two different systems sharing the same purposes, the model apears to be reasonably efficient and effective. It doesn't raise ethical issues.

CM3 – this model is coercive and operates without consideration to peoples views and feelings. Efficacy and efficiency are evident but effectiveness is doutful because some patients will miss health care just because of fear. The model does not respond to ethical considerations and is not apealling to people in general.

8.3.3.4. *Action*

8.3.3.4.1. *Attitudinal Change*

In situation of crisis health systems are disrupted and exceptional measures should take into account staff concerns and people's feelings and perceptions.

8.3.3.4.2. *Structural Change*

In situation of crisis health systems can be redesigned to cope with the new environment, but the most important are the establishment of new processes and management of relationships among structures and between Government and people.

8.3.3.4.3. *Procedural Change*

Preparedness is key and should involve all relevant sectors before the crisis strikes. This may improve the readiness of response and minimize abrupt changes that may create additional problems.

8.4. What may other interpretive methodologies have to offer

8.4.1 Strategic Assumption Surfacing and Testing (SAST)

This methodology came up with Manson and Mitroff (1970) and is designed to address problem-situations made-up of highly interdependent components. The tree scenarios A, B

and C described problem situations that are highly complex and involving several stakeholders sometimes with conflicting interests. The scenarios described three arenas of conflict between stakeholders sharing health goals and expressing alternative worldviews about power, policies, structures, processes and control.

The SAST methodology has four characteristics:

- *Participative* – all different stakeholders must be involved in the intervention;

- *Adversarial* – different stakeholders perceive wicked problems in different ways;

- *Integrative* – different views and options should be brought together at higher level;

- *Managerial mind supporting* – different stakeholders will get deeper insights into the difficulties and relevant strategies to overcome them.

This methodology could be helpful to public health decision-makers and managers to tackle the problem situation in scenario A to streamline stakeholder's purposes and generate innovative strategies to bring up changes. Within the same methodology, the opportunity of dialectical debate could also contribute to minimize issues of power and domination within scenarios A and B.

8.4.2 Interactive Planning (IP)

Ackoff (1974) created "social systems science" (S3) as an approach to address interactions of groups of individuals with diverse values (Jackson 2003). This approach

considers the real world as "value-full" rather than "value-free" (functionalist). In other words IP gives credit to "purposeful systems" rather than "adaptive systems". The key principles of IP could be relevant to scenarios A and B and the arguments follow:

i)   First, the researcher refers to the S3 principle that says that "those involved in policy design and implementation of plans should participate in the development of these tools". In scenario A the inclusiveness of VP managers and more involvement of the CBoH in the health sector reform process would certainly impact positively in terms of effectiveness, efficiency and elegance. The application of IP principle would have helped decision-makers in this regard.

ii)   Secondly, it is reminds the S3 principle that says, "Improvement needs to be sought on the basis of client's own criteria". In scenario B, prior involvement of NHS users in the development of UFP would have contributed to the relevance, feasibility, ethicality and elegance of the Health Sector Reform.

iii)   Finally, the researcher takes you back to the S3 principle that says, "people's own ideals and values must be paramount in the planning process, although operationalizing that process may require assistance of professional planners". The application of this principle would be of great utility in the contexts of scenarios A and B.

In researcher's view and using this paradigm, the Health System could be see as serving three sets of purposes:

- **Policy** development (problem identification, priority setting, planning, M&E)

- **Resources** generation and management (in interface other development systems)

- **Health care delivery** (promotion, prevention, curative and rehabilitative care)

- **Development** (contribution of health to other development sectors and vice versa)

8.5. Summary

Interpretive systems approach, SSM in particular demonstrated to be very useful in structuring the debate about Health Sector Reform issues. SSM mode2 revealed quite peculiar as a methodology because of its flexibility and usefulness in the flux of the intervention and being problem oriented rather than methodologically driven. Some of its methods and tools such as rich pictures, root definitions and conceptual models demonstrated their usefulness in unfolding messy issues in the context of Health Sector reform. The methodology was also relevant for consensus building among different health stakeholders, or at least in accommodating different positions. The interrogation of scenarios A, B and C using SSM generated insights and better understanding of existing problems and underlying issues in a quite structured manner. The power of this well-defined methodology also enabled the researcher to undertake thought experiments in a systematic manner and in a recoverable way. But, the fact that the research process was problem-oriented rather than methodology-driven, may raise the issue of full recoverability, because of the method that is innovative and the interrogation of researcher's own experience is peculiar and also reflects researcher's own interest on the subject matter. However the use of other approaches was felt necessary to complete the process of decision including the sound implementation of concrete measures to materialize the change. The move from policy and plan to action call for other approaches,

unless the context relates to a learning organization with less concern in terms of taking action and producing tangible and immediate outcomes; therefore achieving the aim of mutual understanding – practical interest, rather than prediction and control (goal-seeking) – technical interest.

In Health Sector Reforms, interpretive systems approach should not be seen as an alternative to functionalistic approach but rather as a complementary approach to explore purposes of human beings with different perceptions and interests, to capture the influence of politics, history, culture and spiritual dimensions among reform agents. Interpretive approaches would also be helpful in building conceptual models and planning. The methodology did not show power and suitability for action.

One of the lessons learnt is that it is necessary to address pluralism in Health Sector Reform process and recognise the comparative help of different stakeholders and agencies, to generate consensus around reform agenda and processes. It was also learned that International Health Partnerships can also be quite fragmented in the way they deliver support to national health systems and create problems of coordination and non-alignment with national health policies and systems. The SSM tools could also be explored in such situations. SAST and IP could be useful in ensuring participation of all health stakeholders in the reform process, sharing views and perspectives and bringing coherence around unfolded and wicked problem situations.

The use of SSM in scenarios A, B and C brings an added value to complement solutions that could not be provided by Organizational Cybernetics – VSM.

CHAPTER 9

9.   *THOUGHT EXPERIMENT USING EMANCIPATORY SYSTEMS APPROACH*

"Rationality emerges from dialogue"

Habermas

9.1 Introduction

The chapter describes the three scenarios A, B and C using Jackson's constitutive rules for a generic emancipatory systems methodology. The researcher will interrogate the referred methodology and use Critical Systems Heuristics as an abstract model to cope with three different types of practical health service problems described as scenarios A, B and C. A relevant tool called "polemical employment and boundary judgment" will be applied to make assumptions and decisions on what belongs to the health system and what does not belong, being rather part of its environment. The judgments made in order to define the boundary of the health system (HS) in the different scenarios are challenged by normative contents of the actual and proposed Health System designs. According to Ulrich, normative content means "the underlying value assumptions that inevitably enter into planning, the social consequences and the side effects for those at the receiving end (Jackson 2003). The researcher's background, viewpoints, ethical positions, values and purposes will certainly influence the boundary judgments.

The researcher will use Minger´s 4As process of intervention and research consisting of four activities. First, appreciation in which the real world   (3 scenarios) will be mapped into CSH – 12 Ulrich's boundary questions on the "is" mode – to identify who is involved in the design of the system. Second, the analysis consisting in the discovery of who is disadvantaged or disempowered by the current situation. Third, assessment, that consists in polemical employment of boundary judgments and giving consideration of who should be involved in the design, this means the application of Ulrich's 12 boundary questions on the "ought" mode. Finally, action consisting in systemic process of intervention through free and open debate involving the participation of all. This is to be conducted in such a way that alienated and (or) oppressed takes responsibility for their liberation, empowerment and emancipation.

9.2. Relevance of Emancipatory Systems Approach to Health Systems Thinking

Werner Ulrich's Critical Systems Heuristics is a practically oriented emancipatory systems approach that takes as major concern the need to counter possible unfairness in society by ensuring that all those affected by decisions have a role in making them (Jackson, 2003). CSH can enable the designs emanating from Hard Systems Approach – OC/VSM to be interrogated if they address the subjectivity of the human element. Health Systems involve decision-makers at different levels of recursion and quite often those at the end point – the people and even health staff often are not involved in decision-making; this may create situations of lack of information, unfairness, conflict and disorder that may compromise the performance and the achievement of the health system goals.

To be <u>critical</u> would imply the search of knowledge about health and pursue of rational action. Within this view, health decision-makers and managers must make transparent the normative content of their designs and accept inspection and debate. The <u>systems</u> idea should refer to the totality of health systems elements: the values, principles and ideology underpinning the health policy, the health structures and institutions, the variety of health staff and the deserved people, in different contexts and processes of change. <u>Heuristics</u> should refer to the process of continuous unfolding and review of different presuppositions.

Critical Systems Heuristics could be a powerful approach to empower all citizens particularly the poor and disadvantaged to take part in health dialogue about the shape and direction of health sector reforms.

From the analysis of Health Systems literature, we realize the following features:

   i.   Health Systems are fundamentally functionalist and existing methodologies fail to address the human aspects;

   ii. The community participation in health development has failed to incorporate adequately the values, perceptions and knowledge of people;

   iii. The participation of health staff in health sector reforms has been limited , therefore excluding a significant part of those involved in reform implementation;

   iv. The diversity of stakeholders makes sector reform a complex process in which governments should take strong leadership;

Ulrich's Critical System Heuristics suggests that appropriate boundaries of a system can only be established through dialogue, especially between those involved and those likely to be

affected by the system design. This view emphasizes the benefits of incorporating the values

of all stakeholders particularly the most disadvantaged in the decision-making process. The

arguments for its application to Health Systems practice will follow in the next sections.

Table 11.9 - Adaptation of Heuristics Categories of Pragmatic Mapping. Source: Ulrich (1983)

Categories	Central Issues Covered		
1. Client 2. Purpose 3. Measure of improvement	Sources of motivation of the MOH	The involved	The MOH to be bounded
4. Decision maker 5. Components 6. Decision environment	Sources of Control of the MOH		
7. Planner 8. Expertise 9. Guarantor	Sources of expertise and implementation of the MOH		
10. Witness 11. Emancipation 12. Weltanschaung	Sources of legitimating of the MOH	The affected	

9.3. Thought experiments

9.3.1.   Scenario A: Vertical Programmes   (VPs) versus Integrated Approach of Programmes in Health Sector Reforms

9.3.1.1. <u>Appreciation</u> - Considering who should be involved in the design (client) - Ulrich's 12 boundary questions. The twelve positions in the "is" mode are applied to scenarios A to allow us to expose the Minister of Health boundary judgments in the conception of the MOH design. It may not be possible to answer to all questions but explore who is involved in the current design of the MOH.

Q1 -Who is the client (beneficiary) of the MOH; design with VPs?

A1 - In health sector reform context, there were several potential beneficiaries with their own apprehensions and interests. Therefore, many health stakeholders were affected by health sector reform. The NHS and users, (individuals, households and population) expected the provision of health services and other health determinants to improve at an affordable cost; one can assume that they shared interests and expectations and were not directly involved in the decision-making process. The <u>service providers</u>: MOH institutions and health facilities at different levels of recursion, donors, NGOs and the Private Sector; all sharing common goals but with different interests and expectations. The Health Systems operations were the different categories of staff from health managers to MDs, nurses, other with different background and interests but concurring to improved technical performance of the NHS; realized dominant power of specific group that was made up of health managers-HRIT - donors in relation to decision-making and resource allocation. VP managers are not so powerful in HSR process. It was a supply driven reform to respond to electoral campaign promises of a new government in power.

Q2 - What is the purpose of the current MOH design?

A2 - The health reform aimed at "providing all citizens with equity of access to cost-effective quality health care as close to the family as possible". Vertical Programmes (VPs) were designed to deliver health care to respond priority health needs. But VPs, managers did not participate in decision-making of the reform process.

Q3 - What is to be the MOH's measure of success (or improvement)?

A3 - The success was measured by the creation and refurbishment of health facilities to improve the coverage of national health services.

Q4 - Who is to be the decision-taker (have the power to change MOH's measure of improvement)?

A4 - In the context of scarcity of financial and technology resources, the government and donors had the power and control of the reform process and therefore the capacity to impose their own ideas of success. Health Managers involved in the reform process, tried to influence decisions related to resources allocation, norms and standards, but failed to establish criteria for relevant monitoring and evaluation and performance measures. Managers of VP addressing the most critical specific health problems were not involved in the reform process and decision-making. Technical staffs involved in NHS operations were not part of decision-making and their interests and aspirations were overlooked.

Q5 - What components (resources and constraints) of MOH are controlled by the decision-maker?

A5 - The government has control over policymaking, planning, implementation, monitoring and evaluation, but no full control over resources; VPs depending on donor funding at great extent. Fragmented funding of different health programmes and related services affected negatively the efficiency and effectiveness off resource management. The culture of M&E

was very weak. The donors have significant control over the funds allocated to MOH that was the recipient with weak participation of VP managers.

Q6 - What resources and conditions are parts of MOH/VPs environment (not controlled by the MOH decision-taker)?

A6 - The significant part of funding for Vertical Programmes is not under control of the MOH decision-taker (The Minister); they are rather under control of donor agencies. Health staff and facilities are under full control of the decision-taker. However, procurement of health technologies required for staff to deliver specific health care depends on funding and therefore, also not under full control of the Minister of Health.

Q7 - Who is involved as designer of the MOH/VPs?

A7 - The Minister of Health as decision-maker, and selected Health managers were involved in the design of MOH. They may have involved some partners and consultants.

Q8 - What kind of expertise if to flow into the design (Who is considered as expert and what's his/her role)?

A8 - The design of the MOH was elaborated by the Decision-maker and selected health managers to accommodate essential function of the MOH, manage the health sector reform process, and accommodate political endeavours of the Minister of Health. Therefore, there was a mixture of political and technical expertise. VPs Health Managers and professionals are diverse: Public health experts, generalists, nurses, midwives, data managers, statisticians, environmentalists, administrators, accountants, etc. They are the ones who face the every day health problems and therefore, should express their own needs to boost their capacity to meet the users' needs and expectations. They need to be consulted at different levels to enrich and make health plans more relevant and feasible.

Q9 - Who is the guarantor of MOH/VPs (where do the designer seek the guarantee that his

design will be implemented and will prove successful, judged by MOH's measure of success

(or improvement)?

A9 - The Minister of Health as the Chief designer did not seek the guarantee that his design will be successfully implemented. Monitoring and Evaluation were not institutionalized and therefore, no reliable criteria for assessing efficiency and effectiveness of VPs.

Q10 - Who belongs to the <u>witnesses</u> representing the concerns of the citizens that will or might be affected by the design of the MOH (who among the affected is involved)?

A10 - Actually, none of the affected was involved in the MOH design, but rather those with power and domination: politicians, (Minister, Vice Minister of Health and Permanent Secretary), selected health managers at the highest level of recursion, only. Could be seen as an attempt of "Health management reform" (Prekker and Harding 2003) driven by the MOH system 4 and 5 and compromising the "autonomic management" (Jackson, 2003) of MOH systems 1,2 and 3.

Q11 - To what degree and in what way are the affected given the chance of emancipation from the premises and promises of the involved?

A11 - The researcher who participated in interviews with the high management of the MOH got the impression that they believed to be giving enough freedom to health staff as well as opportunity to their participation in the reform process. But, also found out that some staff were in fact marginalized and others just ignored, despite of recognition of their knowledge and skills in different areas.

Q12 - On what "worldview" of either the involved of the affected is the MOH; design based?

A12 - Medical Doctors, Nurses and Midwives, Statisticians, and most of health managers tend to have a Cartesian view of the world inspired in the biomedical model of health systems. Therefore, they actually proposed functionalist methods and practices that did not

respond to concerns of human relationships, emancipation and freedom. Change, diversity, complexity and uncertainty also did not find accommodation since both the involved and the affected in the design stick to Cartesian thinking and rationality of methods.

9.3.1.2. Analysis - discovery of who is disadvantaged or disempowered by the current situation)

From the polemical application of the 12 Ulrich's boundary questions, the researcher found out the following:

i. The managers of vertical Programmes (VPs) are disempowered since they do not participate in the reform process; neither in decision-making process and therefore their views are not incorporated in the plans for which they have the responsibility of conducting the implementation in the MOH.

ii. Health managers and staff at operational levels are also disempowered for the very same reasons.

iii. Health managers took power over health experts that have a critical role in the implementation of Programmes and delivery of health services.

iv. Users also are not adequately involved in the MOH design.

An analytical summary of CSH in the "is" mode, using Kant's three transcendental ideas, allows the researcher to say that the *System Idea* was not comprehensive enough but rather limited because it did not determined the purposes of all but rather of those holding political power and therefore the human dimension of the Health System was not significantly captured. The *Moral idea* was partially considered because the MOH reform was designed to improve the health of all citizens, but the MOH did not listen to the voices of staff affected and not involved in the policy-decision. The *Guarantor idea* was not fully addressed because

data and evidence were limited and the MOH did not explore enough the advice of independent experts but mainly of those of the HRIT and key partner agencies.

9.3.1.3. Assessment – (Challenging the boundary assumptions by according to the disadvantaged potential employment of boundary judgments - "ought mode")

Q1 - Who ought to be the Client (beneficiary) of the MOH new (or improved) design?

A1 - The end users of the MOH – the people and health professionals who process the health care delivery ought to be the most important beneficiaries because the final output of health systems depends on staff's relationships and inputs, and on users' satisfaction.

Q2 - What ought to be the purpose of MOH/VPs (what goals ought MOH/VPs to be able to achieve so as to serve the community)?

A2 - MOH ought to provide leadership to the National Health Service in terms of policy development, strategic planning, budget development, monitoring and evaluation, regulation and auditing functions. The VPs ought to be part of the NHS at different levels of recursion integrating the basic health services (WHO Expert Committee, 1953) or the Essential Public Health services (Turnoc, 2004) or the eight primary health care components (WHO, UNICEF, 1978); defining or adopting a package of health services that responds to specific country health needs. The health policy, plan and budget should reflect the normative health needs and the endeavour to address them.

Q3 - What ought to be the MOH's measure of success (or improvement)?

A3 - Indicators of staff motivation, users' satisfaction, improvement of indicators of health coverage or health status, or the combination of all or some of them ought to be the measure of success.

Q4 - Who ought to be <u>decision-taker</u> (have the power to change MOH's measure of improvement)?

A4 - The decision-taker ought to be the Government: Minister of Health with delegated authority at the different levels of the MOH, team spirit, and participatory approach in health management. VP managers ought to participate in decision-making; and involve other health professional groups including those working at the basic level of recursion.

Q5 - What components (resources and constraints) of MOH ought to be controlled by the decision-taker?

A5 - The VP managers and other health professionals operating at different levels of health institutions and facilities ought to participate in planning and be aware of financial and technological resources attributed for implementation of VPs at different levels of the NHS. Other health stakeholders and users in agreement with health professionals should take control over delivery of health care and government should rather concentrate on health policy development, defining strategies, regulation, resources mobilization and monitoring and evaluation of results.

Q6 - What resources and conditions ought to be part of MOH's environment (i.e. not to be controlled by MOH's decision-taker)?

A6 - Operational planning and implementation should be under control of managers and professionals directly involved at different levels of NHS, and not controlled directly by MOH's decision-taker. Donor agencies should participate in overall budgeting of NHS rather

than providing fragmented funding in selected parts of the system (Vertical Programmes);

this may affect negatively the performance of the health system as a whole.

Q7 - Who ought to be involved as designer of MOH?

A7 - Health professionals, health professional associations, community representatives and

even representatives of health related sectors ought to be involved in improving the design of

MOH.

Q8 - What kind of expertise ought to flow into the design of MOH (who ought to be

considered as an expert and what should be his role)?

A8 - The improvement of the MOH design should be based in norms and key functions to be

performed by the whole system. Structures should be created in light of functions and

staffing according to required profile, skills, and competencies. Redesigned health system

should be enforced according to defined structures, and roles and staff responsibilities. The

central level should enforce norms and standards and the operational level, with increased

variety should focus on coordination and synergy of different elements (programmes) that

should keep their identity as part of health care delivery system. Therefore, the improved

design of MOH requires political, technical, managerial expertise.

Q9 - Who ought to be the <u>guarantor</u> of MOH's system to be designed or improved

(according to MOH measures and success)?

A9 - Guarantors must be provided by: 1) different groups of health professionals directly

involved in health care provision ;2) through the participation of NHS users in health policy

development; 3) by those experts responsible for monitoring and evaluation; 4) by the

Planning Unit staff responsible for budgeting according to objectives or expected results.

Q10 - Who ought to belong to the witness representing the concerns of the citizens that will or might be affected by the MOH improved design (who among the affected ought to get involved)?

A10 - The VP managers, other managers at all levels of recursion, representative of professional associations and representatives of communities ought to be involved in health sector reforms. Professional staff and users or their representatives ought to participate in the definition of the agenda and implementation process.

Q11 - To what degree and in what way ought the affected be given the chance of emancipation from the premises and promises of the involved?

A11 - VP managers and other professional and NHS users should be given the opportunity of expressing their views and participate in policy development, planning, implementation and evaluation of health sector reform. This would facilitate ownership and viability of Health Systems towards improved performance and attainment of its goals.

Q12 - On what worldview of either the involved or the affected ought the MOH design be improved?

A12 - Health managers, technicians, ought to adopt an interpretive and emancipatory worldview to ensure their effective participation in decision-making process and this would improve teamwork and relationships between health institutions and facilities belonging to the whole Health System. Such worldview would improve both goal seeking and emancipatory endeavours of human beings involved in the process.

9.3.1.4. Action – Free and opened debate involving participation of all. The assessment made in previous paragraphs reveals to what extent and how ought the VP managers and other

marginalized staff should be given the chance of emancipation. It shows that emancipation depends on the boundaries assumed for MOH or any Health system. With the considered boundaries very little can be done by the high management of the MOH. If the boundaries were extended to managers at lower levels of the health system and even NHS users, the results would be more effective. Firstly, because of CSH <u>critical</u> approach to system design the researcher could make transparent to him and others the normative content of MOH design. In other words, the underlying value assumptions (like those prescribed by Primary Health Care) and the consequences and side effects for those affected (such as health staff and NHS users) but not involved in the design of the MOH. Secondly, the <u>systems</u> idea evoked the totality of HS relevant condition upon which theoretical and practical judgments on Health Systems depend. This include political, ideological, economic, cultural, geographical, environmental, and other determinants of health beyond the scope of MOH but influencing its behaviour; being an open system and risking lack of comprehensiveness of the proposed model. Thirdly, the <u>heuristic</u> approach that helped the researcher to uncover important aspects of the problem situation and identify related solutions. The process also revealed deceptions in the process of enquiry and discovery.

9.3.2. Scenario B: Application of User Fees Policy in the Context of Health Sector Reforms

9.3.2.1. <u>Appreciation</u> – Considering who should be involved in the design (client) - Ulrich's 12 boundary questions are applied in the "is" mode

Q1 - Who is the client (beneficiary) of the MOH's User Fee Policy (UFP)?

A1 - The community is considered as the main client.

Q2 - What is the purpose of the UFP?

A2 - The purpose is to collect fees from the community as a contribution to the overall funding of the NHS as a supplement to Government budget and Donor contributions.

Q3 - What is the UFP measure of success (improvement)?

A3 - Success is measured by the amounts collected and its contribution to the NHS.

Q4 - What is to be the decision-taker (have the power to change UFP´s measure of improvement)?

A4 - The health managers and professionals at health facility level.

Q5 - What components (resources and constraints) of UFP are controlled by the decision-maker?

A5 - Health managers and professionals as decision-takers have control over the technological resources and have the knowledge and skills to provide health care to members of the community attending the health facilities. In fact, they are the implementers of the UFP.

Q6 - What resources and conditions are parts of UFP environment (not controlled by the UFP decision-takers)?

A6 - UFP decision-takers don't control the purchasing capacity of citizens. They don't control the drug supply system, neither their own salaries nor the health facility budget, which depends on the higher level of the MOH administration.

Q7 - Who is involved as designer of the UFP?

A7 - The government, mainly through the high officials of the Ministry of Health, Ministry of Finance and Ministry of Community Development and Social Services are the most involved in the design of UFP.

Q8 - What kind of <u>expertise</u> is to flow into the design of UFP (who is considered as expert and what's his/her role)?

A8 - The required expertise was taken on political and technical grounds more on the areas of finance and health technologies (medicines in particular).

Q9 - Who is the guarantor of UFP (where do the government seek the guarantee that the design will be implemented and will prove successful, judged by UFP measure of success (improvement)?

A9 - Through the health facilities the MOH check the amounts collected and through the media the government checks the degree of users' satisfaction.

Q10 - Who belongs to the <u>witness</u> representing the concerns of the citizens that will or might be affected by the UFP (Who among the affected is involved)?

A10 - None of the affected is involved as witness requesting the concerns of the citizens.

Q11 - To what degree and in what way are the affected given the chance of emancipation for the premises and promises of the involved?

A11 - The government of the ruling party assumed that their election gave them legitimacy to represent people's interests and therefore ensuring the emancipatory interests of the community.

Q12 - On what "worldview" of either the involved or the affected is the UFP design based?

A12 - The central level of the government, through the Minister of Health, Ministry of

Finance and Ministry of Community Development and Social Services involved in the UFP design were inspired by hard systems thinking. The MOH as a rational instrument designed to achieve the purposes of the government and it members neglected the staff who manage the MOH and the agenda of the UFP. The affected were oppressed by power and domination and waiting for opportunity of freedom and emancipation.

9.3.2.2. <u>Analysis</u> – discovery of who is disadvantaged or disempowered by the current situation. From the polemical interventions of the 12 Ulrich's boundary questions, the researcher found out the following:

i. The poverty level of the community was not sufficiently addressed in the process designing the UFP.

ii. The communities did not participate in the UFP design.

iii. The awareness and adherence of the community was not considered as a measure of success of the UFP, neither the provision of quality health care to all citizens without exception.

iv. Health managers and professionals had key control on the implementation of UFP.

v. The media played a role of feedback evaluation of the UFP but did not play the role of awareness about it.

vi. The UFP policy decision was not evidence-based.

An analytical summary of CSH in the "is" mode, using Kant's three transcendental ideas, allows the researcher to say that in relation to the *System Idea* there is a lack of comprehensiveness in the MOH attempt to map the capacity of people to pay the fees; extreme poverty of about 60% of people is a fact that was overlooked and limited the

possibilities of undertaking the desired change. The *Moral idea* was overridden by the political power, supply-driven reform and willingness to achieve immediate results without consulting those at the receiving-end (the targeted population). The *Guarantor idea* the expert advice to the MOH was limited to HRIT members and some selected stakeholders already involved in the process; but, disaggregated data about poverty and health inequalities in the country was not explored neither the view of independent experts and the feedback provided by some stakeholders and the media.

9.3.2.3 <u>Assessment</u> – Challenging the boundary assumptions by according to the disadvantaged potential employment of boundary judgments - "ought mode".

Q1 - Who ought to be the client (beneficiary) of the MOH's UFP?

A1 - The client ought to be the government.

Q2 - What ought to be the purpose of the UFP?

A2 - To complement the government's health budget and donor contributions.

Q3 - What ought to be the UFP <u>measure of success</u> (improvement)?

A3 - The success ought to be measured by the degree of awareness and adherence of the citizens; the amounts collected; the improved accessibility of all citizens to essential health care packages.

Q4 - Who ought to be the decision-taker (have the power to change UFP measure of improvement)?

A4 - The decision-taker ought to be a Joint Committee or a Board made up of representatives of the government, the media, the managers/health professionals and community representatives.

Q5 - What components (resources constraints) of UFP ought to be controlled by the decision-maker?

A5 - The budget to be controlled by the government; the information to citizens to be controlled by the media; the application of health technology and skills to be controlled by health professionals; and the degree of awareness and adherence to the UFP to be controlled by the representative of the community.

Q6 - What resources and conditions ought to be part of UFP environment (most controlled by the UFP decision-taker)?

A6 - The decision-taker doesn't control the purchasing capacity of citizens.

Q7 - Who ought to be involved as designer of the UFP?

A7 - Those involved and those affected but not involved. Health managers and professionals at facility level and representatives of community ought to be involved as well.

Q8 - What kind of expertise ought to flow into the design of UFP (who is considered as expert and what's his/her role)?

A8 - Political, health, financial, and social scientist expertise are required to ensure goal seeking, viability and fairness (equity)

Q9 - Who ought to be the guarantor of UFP?

A9 - The epidemiological evaluation of the health situation, the data on coverage of health services; the degree of satisfaction of users; the views of experts and other health stakeholders, ought to be the guarantor of UFP.

Q10 - Who belongs to the witness representing the concerns of the citizens that will or ought

be affected by the UFP (who among the affected ought to be involved)?

A10 - Representatives of citizens (among the affected but not involved) ought to be involved

in UFP design. Also health managers and professionals at operational level of NHS ought to

be involved as witnesses.

Q11 - To what degree and to what way ought the affected be given the chance of

emancipation from the premises and promises of the involved?

A11 - The affected ought be involved in the design and evaluation of the UFP and be given

the opportunity of participation in open debates.

Q12 - On what "worldview" of either the involved or the affected ought UFP design be

based?

A12 - Functionalist and emancipatory approaches to ensure visibility and fairness.

9.3.2.4. <u>Action</u> - Free open debate involving participation of all.

From the analysis of previous stages we realize why and how should the community

and particularly poor people be involved in the design and implementation of UFP. It shows

that required expertise to design the policy should have included not only political appointees

but also experts and those involved and affected by its implementation. Due consideration to

these aspects, should have led to more sound and feasible user fees policy.

First, because CSH would have led the designer to be *critical* and therefore more

transparent and revealing the normative content of the User Fees Policy, such as the

underlying values and consequences, including side effects for those affected (such as poor

and marginalized) but not involved in the policy development. Second, the *systems* idea would have evoked the totality of the components of user fees problematic, with all its interconnectedness. Thirdly, the *heuristic* aspect would have helped to unfold the mess around the problem situation and uncover hidden aspects such as poverty.

Moreover, the application of Ulrich three ideas – the systems idea, the moral idea and the guarantor idea are therefore relevant to revisit the User Fees Policy and establish the new and more feasible design, including the legal framework for its implementation.

9.3.3 Scenario C: Health Systems Response to Crisis – Man-made Disaster

9.3.3.1. Appreciation - Considering who should be involved in the design (client)

Ulrich's 12 boundary questions are applied in the "is" mode to Scenario C, to make assumptions about the boundary of Health System in crisis challenged by the normative content of the actual design.

Q1 – Who is the client (beneficiary) of the current design of the Health system in crisis?

A1 – The client is the Ministry of Health who requested for technical support to minimize human life losses during a period of civil war.

Q2 – What is the purpose of the HS emergency response?

A2 – To provide emergency treatment to people wounded with weapons of war.

Q3 - What is the HS measure of success (improvement) in the current situation of crisis?

A3 – Number of wounded people treated.

Q4 – Who is the decision-taker (have the power to change the HS measure of response to the crisis)?

A4 – The Permanent Secretary of the MOH.

Q5 – What components (resources and constraints) of the HS are currently controlled by the decision-taker?

A5 – The decision-taker has control over technological and financial resources from Government and international community; but has no control over the staff operating in the areas affected by war due to insecurity, uncertainty and scarcity of information.

Q6 – What resources and conditions are part of the HS response to the crisis (not to be controlled by the decision-taker)?

A6 – The communications, transport and security are part of the response, but not under control of the MOH.

Q7 – Who is involved as designer of the HS in situation of crisis?

A7 – The Minister of Health, Permanent Secretary and other high officials of the MOH.

Q8 – What kind of expertise is to flow into the design of HS in a context of crisis?

A8 – Health expertise fundamentally.

Q9 – Who is the guarantor of HS design in the context of crisis (where does the Government seek the guarantee that the design will be implemented and proven successful and judged by "HS" measure of success?

A9 – In such situation the Health Information System (HIS) doesn't provide full, regular and reliable data and information. One has to rely on media and other informal sources.

Nevertheless, the reduction of the number of deaths and the number of wounded people admitted through the available sources is the indicator of success. However, data about casualties among members of the army were not managed by the MOH.

Q10 – Who belongs to the witness representing the concerns of the citizens that will or might be affected by the performance of the HS in crisis (who among the affected is involved)?

A10 – Citizens affected by the emergency crisis and frontline health workers are not represented, therefore, not directly involved in the design.

Q11 – To what degree and in what way are the affected given the chance of emancipation from the premises and promises of the involved?

A11 – The Government assumes that it has the legitimacy to represent the interests of those affected. The current environment also does not facilitate the chance of their emancipation. They are victims of wrong political decisions (that in some circumstances might be good), weak negotiation skills and sometimes-just unwillingness to negotiate.

Q12 – On what "world view" of either the involved or the affected is the HS actual design based?

A12 – They are involved in hard system thinking, in a complex and coercive problem context; in which the true sources of power of various participants are hidden.

9.3.3.2. *Analysis* - discovery of who is disadvantaged or disempowered.

First, analysis of answers A1, A2 and A3, show that the system designer did not make transparent the normative content of the actual Health System design. Therefore, inspection

and debate about the current design would be difficult or even impossible. In other words, the underlying values of health systems, the primary health care (PHC) principles and the social consequences and impacts cannot be disclosed. Side effects for potential beneficiaries also could not be revealed. Second, some important elements such as ethical, cultural and metaphysical aspects related to the diversity of local people were not coped in the HS current boundary. Thirdly, the decision-maker assumed that HS current design was objective and good enough to proceed with relevant change rather than reviewing it with involvement of all affected and adjusting to the changing environment. Fourth, it was founded out that the most poor and vulnerable populations and the staff placed at the interface between the NHS and the population, are the most disadvantaged and disempowered by the situation of crisis and under such conditions are not given the chance of emancipation.

An analytical summary of CSH in the "is" mode, using Kant's three transcendental ideas, allows the researcher to say that the *System idea* was not comprehensive enough but rather limited because it did not determined the purposes of all parts of the system but rather of those holding political and managerial power; and therefore the human dimension was disregarded. The *Moral idea* was partially considered because the MOH/NHS was designed to cope with the additional demand of health care created by the war, particularly to address the needs of wounded people and IDPs; but the views of these people or their representatives were not listened neither considered in the process of decision-making. The *Guarantor idea* was not addressed because of the situation of instability and uncertainty, but nevertheless the MOH/NHS could have better explored the role of other health stakeholders.

9.3.3.3. _Assessment_ - Challenging the boundary assumptions by according to the disadvantaged potential employment of boundary judgments.

Q1 – Who ought to be the client (beneficiary) of the current design of the Health system in a context of crisis?

A1 – Citizens exposed to war situation, man-made disaster.

Q2 – What ought to be the purpose of the HS emergency response?

A2 – To provide health care including psychological support and counselling; and ensure essential health determinant conditions like food, safe water and shelter.

Q3 - What ought to be the HS measure of success (improvement) in the current crisis?

A3 – The measure of success ought to take into account the number of deaths averted and quick health recovery, rehabilitation and socio-economic reintegration of affected citizens.

Q4 – Who ought to be the decision-taker (have the power to change the HS measure of response to the crisis)?

A4 – The Minister of Health.

Q5 – What components (resources and constraints) of the HS ought to be controlled by the decision-taker?

A5 – The decision-taker ought to delegate the control of resources to administrative and technical staff operating at decentralized level.

Q6 – What resources and conditions ought to be part of the HS response to the crisis (not to be controlled by the decision-taker)?

A6 – The communications, transports and security are part of the response, but not controlled by the MOH and therefore the MOH ought to team-up with the medical services of the Army to minimize security risks and improve access to the operational level, for relevant health interventions.

Q7 – Who ought to be involved as designer of the HS in crisis?

A7 - Beyond the MOH, the Medical Services of the Army, the Ministry of Defence, Ministry of Local Government and Red Cross ought to be involved as designer of HS in a context of crisis.

Q8 – What kind of expertise ought to flow into the design of HS in a context of crisis?

A8 – It ought involve expertise in health, humanitarian action, security, logistics, negotiation skills and management.

Q9 – Who ought to be the guarantor of HS design in crisis (where ought the Government seek the guarantee that the design will be implemented and proven successful, judged by relevant measures of success?

A9 – Ought to be site assessments, surveys and available information from local health facilities, local government institutions.

Q10 – Who belongs to the witness representing the concerns of the citizens that will or might be affected by the performance of the HS in crisis (who among the affected ought to be involved)?

A10 – More authority should be delegated to the local operational level to hasten decision-making process particularly in addressing organizational, logistical and technical constraints and adaptation to insecure, changing and uncertain environment.

Q11 – To what degree and in what way ought the affected be given the chance of emancipation from the premises and promises of the involved?

A11 – Political constraints such as those related to the sovereignty of the State, disinformation, lack of security; and financial constraints mainly those related to the high cost of relief operations and the criteria for the channelling of government and partners funds are responsibility of the central Government. However, affected people and local health staff in affected areas should be given the chance of participation.

Q12 – On what "world view" of either the involved or the affected ought HS actual design be based?

A12 – The actual HS design ought to be designed in order to give proper attention to the participation of all stakeholders in taking decisions on health sector reforms and in addressing the disadvantages faced by some groups in affected health organizations or systems. Emancipatory systems approach could respond to these endeavours.

9.3.3.4 Action

To improve the current HS design I suggest an additional dimension of determination to make the new design to produce knowledge, and action relevant to improved HS response to a context of crisis. For this effect, it is necessary to ensure Ulrich's systems, moral and guarantor ideas. It is also necessary to address the coercion of the system upon the participants, particularly the fact that the context does not give any choice to people living and working in the affected areas.

9.4. What might other emancipatory methodologies have to offer

Stafford Beer, the father of the hierarchical Organizational Cybernetics – a functionalist approach intended to improve goal-seeking and viability; also developed in a later stage Team Syntegrity (TS) – a theory and method that support non-hierarchical, participative and effective decision making around a topic that is interesting for a group of people who share knowledge and experience around it (Jackson, 2003).

TS could emphasize the benefits from participative involvement of health stakeholders in debating, clarifying and defining the health sector reform agenda. It could promote shared understanding of health problems, consensus building among different categories of stakeholders and staff; and creativity from enhanced learning capacities of different players.

This approach could equally be interrogated in different scenarios and assist in promoting inclusiveness, dialogue and fairness in health sector reform processes. Despite the limitations of this methodology in terms of managing power relationships and hierarchy in the real world; and the fact that it requires 30 people to take 5 days to discuss 12 topics; TS could be used in combination with other system approaches to promote dialogue, shared understanding and pluralism in health.

9.5. Summary

Emancipatory System Approach as a philosophy can help to better understand managerial problems in Public Health practice. Critical Systems Heuristics and the application of the 12 Ulrich's boundary questions in the three scenarios, revealed in a creative way what the MOH was and what the MOH ought to be to go about the three problem situations. These gaps could be seen as potential risks deriving from polemical boundary judgments by the high level of the MOH. Sub-optimization of the MOH as a health system could be partially resulting of lack of opportunity to legitimate the participation of health managers and professionals in the reform process. In the relation to the complex-coercive problem situation with "prison" as dominant metaphor (scenario C), CHS is almost useless and calling for methodology that is more relevant.

SSM, IP and VSM could be helpful in unfolding the critical dimension of CSH and ensure Kant's moral idea in designing and re-designing Health Systems. Team Syntegrity could also help to some extent, because it pays attention to the design of negotiation spaces in which dialogue can occur and therefore facilitate inclusiveness and democracy. This could be

a partial response to Flood and Jackson (1991) critique about the methodological immaturity of CSH translated to lack of specific and more accurate method, technique and tools.

In conclusion, if we give to health staff and citizens the chance of participation in debates and deliberations (policy development, organization and planning) related to their own health and institutions, it will ensure comprehensiveness, ownership, human condition, fairness and improvement. Multimethodology would certainly suggest the "sweeping in" of a wide variety of health stakeholders including the civil society, and take care of their different ideas and interests. The interrogation of ESA using the three thought experiments confirmed Habermas view that "rationality emerges from dialogue"; and appropriate HS boundaries can only be established through dialogue, especially between the Government and health staff; between the Government/MOH and the civil society; and between the Government and other stakeholders. This would certainly improve holistic Health Sector Reforms in terms of the process, the agenda and the inclusiveness of different agents of change.

Health System boundaries would be adjusted to the variety of the system according to the environment in which it evolves, and integrating or rejecting its elements according to its needs for viability and improved performance.

In the current global context several bilateral and multilateral agencies intervene in global health matters and provide support to developing countries. Concerns have been expressed in relation to the mushrooming of international health agencies, fragmentation of partnerships in support to developing countries, lack of substantive health gains against the financial investments in the health sector and the weakness of recipient national health systems. Specific challenges are related to: a) aligning health strategies with overall

development programs that takes into account intersectoral needs to generate health outcomes; b) reconciling vertical – diseases specific programs with overall health system strengthening; and c) creating sufficient fiscal space to increase financial aid and achieving harmonization and alignment of the larger and growing number of actors operating in the health sector.

Development agencies agreed on the PARIS DECLARATION as a way of ensuring harmonization and alignment.

The multiagency context of cooperation with Governments of developing countries for supporting health sector reforms becomes complex and involving a myriad of stakeholders. CSH could help in building consensus around the critical issues surrounding health sector reforms, yielding commitments for all stakeholders; and take due account of people's health needs and expectations.

CHAPTER 10

10. *THOUGHT EXPERIMENT USING POST-MODERN SYSTEMS APPROACH*

"It has to be accepted that all knowledge is partial, provisional and contingent"

M Jackson, 2000

10.1. Introduction

From the description of what actually happened in relation to scenarios A, B and C (described in step one), this chapter (step two) will interrogate Post-Modern Systems Approach using a process of intervention in four stages: appreciation, analysis, assessment and action. The aim is to explore ways that could assist health managers in promoting diversity in health systems practice, using PSA. Post modernists believe that the real world is too complex, coercive and diverse to enable order and prediction; therefore, they advocate for local and temporary solutions that could be briefly equivalent to the "carnival" metaphor.

10.2. Relevance of Specific Post-Modern Systems Approach to HS Thinking

Despite the fact that post-modernist thinkers reject rationality, truth and progress at the point of denying science as a pathway to knowledge and development; they accept multiple interpretations of the world and tolerate differences. These views can facilitate inclusiveness, ensure diversity and stimulate creativity. The employment of PSA in Public

Health practice, could enhance mechanisms of community participation, develop multi-sectoral action and motivate multi-agency work. Therefore, it could help in dealing with excessive centralization and fragmented partnerships. Nevertheless in my view, the fact that post-modernists deny science as a way of generating new knowledge and development, becomes problematic in the context of health sector reforms because of the critical importance of science and technology in the solution of specific public health problems.

10.3. Thought experiments

10.3.1. Scenario A: Vertical Programmes (VPs) versus Integrated Approach of Programmes in Health Sector Reforms

10.3.1.1. Appreciation. - Corresponding to Deliberation I phase of PANDA'3Ds. It consists in the exploration of discourses used in the problem situation. The current stage opens the space for discussion, including selecting participants and defining purposes. The scenario describes a situation in which the Government aims at implementing its Health Sector Reform to provide all citizens with equitable access to cost effective and quality health care, as close to the family as possible. The implementation of the reform depends actually from the Government and other health stakeholders. The problem is that managers of vertical priority health programmes (VPs) were marginalized from the reform process. Nurses in particular, felt excluded. Professional Associations expressed concern about the dependence on donor funding.

10.3.1.2 Analysis – This phase corresponds to what Jackson (2000) calls DEBUNKING. It reveals whom existing power/knowledge structures marginalizes. From the description of

what actually happened in scenario A, the researcher found out that managers of Vertical Programmes and technical staff are marginalized by the overriding political power of the MOH and dominated by the strength of the decision maker's created Health reform Implementation Team (HRIT). The MOH management structures at central level have an excess of power in detriment of other agents of reform, such as ChoB and related structures and staff more directly involved in health sector reform implementation at decentralized level.

The overlapping roles and functions of the CBoH and the transitional HRIT (see paragraph 6.2.1) created a space of manoeuvre for the political leadership, the Minister to dictate the rules during the reform process, rather than relying in MOH structures and related functions.

The use of deconstruction methods such as Derrida's deconstruction, Focault's genealogy, Topp's formative system and Taket's deconstructive strategies could further help to retrieve the conflict.

The use of Taket's deconstructive strategies could help in debunking with more detail those currently marginalized by the existing power/knowledge structure of the Ministry of Health.

Because of the fact that the study is based on Thought Experiments; the fact that the researcher at the time was not in possession of critical systems thinking armoury, and taking into consideration the limitations of PSA in terms of specific methods, tools and techniques,

some of the details required for application of Taket's strategies d and f were missed. This should be recognized as shortcoming of the current thesis.

10.3.1.3. <u>Assessment</u> – It relates with the use of diverse forms of pluralism to surface subjugated discourses and to allow marginalized voices to be heard. It is equivalent to the phase of DEBATE of PANDA's 3Ds. It involves identifying options, researching options (which could include consulting on options) and comparing options (Jackson 2000). The aim is to deepen understanding of the options under consideration. In the context of Scenario A, other options would be as follows: *Option 1* would consist in avoiding the creation of the HRIT to prevent the duplication of roles and responsibilities with the CBoH and leave the latter to perform its duties. This would prevent full control of the political leadership over the health reform implementation process. It would also enable a more effective contribution of the managers of VPs in improving the technical performance of the MOH towards the achievement of its goal. *Option 2* would be to avoid the structural split between the MOH and the CBoH but rather keep the technical and the political functions of the health sector in the same structure – the MOH. *Option 3* would be to put the Minister of Health in charge of the MOH functions and the Deputy-Minister in charge of the CBoH functions; the risk would be the splitting of power rather than enhancing cohesiveness; and this would happen because of political ambitions and existing tensions between the Minister and the Deputy-Minister. The researcher would recommend *option 1* that would enable VPs managers to participate in policy development, definition of health packages at different levels of the health pyramid and harmonizing VP interventions at operational level (district level).

10.3.1.4. Action – This step consists in local strategizing and subversion in an endeavour to promote diversity. It is equivalent to the DECISION phase of PANDA's 3Ds. It intends to address problem situations characterized by both high complexity and diversity of participants. It must ensure that marginalized voices are recognized and heard. It should involve both deciding action and recording decisions (Jackson, 2000 – Systems Approaches to Management) that will guarantee diversity and encourage creativity.

According to Flood and Jackson (1991) matrix of grouping problem contexts, the *systems dimension* of Scenario A is characterized by:

- A large number of elements (MOH, CBoH, HRIT, PHA, DHO…);

- Many interactions between the elements, horizontally and vertically;

- The attributes of some elements such as VPs and HRIT were not predetermined;

- The interactions between the different elements of the system is loosely organised;

- The elements of the system, both structures and individuals are probabilistic in their behaviour;

- The MOH health sector reform evolves over time;

- The MOH system integrates sub-systems such as the CBoH, HRIT, Regional Directorates of Health, District Health Offices, District Hospitals and Health Centres that are purposeful and generate their own goals;

- The MOH and the CBoH are subject to national political, diplomatic and economic influences; and DHOs, DHBs and related local health facilities are subject to local and changing environments; and

- The MOH is largely opened to the environment.

We could therefore say that Scenario A is regarded as highly complex health system.

In relation to *participants dimension* in Scenario A:

- They have a basic compatibility of interest – improving health of people;

- Their values and beliefs diverge to some extent – different backgrounds and interests of politicians, managers and technicians (health staff of different categories). Different health stakeholders, partners, NGOs, and faith-based institutions willing to cooperate with the Government in the implementation of the health sector reform;

- Different health stakeholders don't share necessarily the same views upon health objectives, strategies and resources, but compromise with the MOH/Government was possible;

- Not all participants are involved in decision-making (VPs managers, CBoH.); some coerce (political leadership and HRIT) and other accept decisions (CBoH, PHAs and DHOs);

- Not all participants act in accordance with agreed objectives. For example the CBoH was not acting according to its mandate and expectations, but rather the HRIT.

Therefore, Scenario A describes a Health System in which the participants dimension is pluralist with some degree of coercion. The problem context is highly complex and pluralist and SSM and IP are the most relevant methodologies to tackle it. But to address the extent of coercion, PSA (or CSH??) could help in understanding the problem but without relevant tools for problem solving. This would be a limitation for the study.

10.3.2. **Scenario B: Application of User Fees Policy in the Context of Health Sector Reforms**

10.3.2.1. Appreciation - Exploration of discourses used in the problem situation. Corresponding to Deliberation I phase of PANDA'3Ds. It consists in the exploration of discourses used in the problem situation. The scenario describes a situation in which the MOH of AFROLAND was implementing the user fees policy (UFP) in the context of health sector reform. According to UFP every citizen should pay health care fees except those below 5 and over 65 years old, obstetrics and gynaecology patients, chronic conditions, sexually transmitted diseases, patients in epidemics and patients in extreme poverty. In a context of economic depression and raising costs of health care, the AFROLAND's Government was seeking additional funding to meet the costs of the essential health care package to be granted to all citizens, in line with the national health policy and the agenda of health sector reform. The implementation of UFP depends on the MOH, the Ministry of Community Development and Social Services (MCDSS) the health care facilities and the people. There was a problem of awareness of the policy among the people and particularly the aspects of exemptions, taking into account the extreme poverty of most of people.

10.3.2.2. Analysis - Revealing whom existing power/knowledge structures marginalizes. This phase corresponds to what Jackson (2000) calls DEBUNKING. It reveals whom existing power/knowledge structures marginalizes. From the description of what actually happened in scenario B, the researcher found out that most of people, in particular the poor, illiterate and residents in the most remote areas were not fully aware about the existence and the meaning of the user fees policy. They did not participate in the policy decision and the information was

not reaching them; therefore, most of people were marginalised by the existing power and knowledge structures of the Ministry of Health. They could not afford radio, TV and journals and therefore unaware of the limited information provided by the media.

10.3.2.3. _Assessment_ - Use of diverse forms of pluralism to surface subjugated discourses and to allow marginalized voices to be heard. It relates with the use of diverse forms of pluralism to surface subjugated discourses and to allow marginalized voices to be heard. It is equivalent to the phase of DEBATE of PANDA's 3Ds. It involves identifying options, researching options (which could include consulting on options) and comparing options (Jackson 2000). In the context of scenario B, other options could be considered, such as: _option 1_ just abolishment UFP from the general policy of the MOH just because of the context of extreme poverty of most of people. Option 2 to ensure the representation of people in the UFP development and disseminate the related information by all means, avoiding exempted participants to miss their treatment just because of ignorance or lack of information. Option 3 to make the MOH in charge of Health and Social Affairs to ensure that exemptions would be decided at health facility level rather than joint decision by the MOH and the MCDSS that was quite cumbersome and discouraging process. Option 4 would be to intensify the roles of the media and health workers in disseminating the UFP.

10.3.2.4. _Action_ - This step consists in local strategizing and subversion in an endeavour to promote diversity. It is equivalent to the DECISION phase of PANDA's 3Ds. It intends to address problem situations characterized by both high complexity and diversity of participants. In light of Flood and Jackson (1991) matrix of problem contexts scenario B is characterized by complexity, pluralism and some degree of coercion. If wee look at

Government and people as key participants there is a need for clear methodology to address the small degree of coercion. Otherwise, SSM and IP could assist in dealing with it. The lack of mature PSA specific method, limits its application beyond the understanding of the problem.

10.3.3. Scenario C: Health Systems Response to Crisis – Man-made Disaster

*10.3.3.1. **Appreciation*** - Exploration of discourses used in the problem situation. Scenario C describes a problem context in which a situation of crisis restricts the performance of the health system. The political leadership faces a rebellion. The population has different feelings about the current political situation, but nobody dares to criticize the current administration because of fear of repression. The instability and uncertainty affects the environment in which the Health System evolves. Part of the people is directly exposed to the civil war and their health and lives are threatened. The political leadership of the country manages the high interests of the State but has difficulties to ensure the security of citizens in affected areas.

*10.3.3.2. **Analysis*** - Revealing who is marginalized. The current power/knowledge structures of the Government, keeps the Ministry of Health out of the flow of reliable data and intelligence and therefore outside the process of State's decision. People and decentralized structures of the Government are in a situation in which the Government is not able to provide the usual support services.

*10.3.3.3. **Assessment*** - Use of diverse forms of pluralism to surface subjugated discourses and to allow marginalized voices to be heard. In fact this situation does not occur in scenario C.

10.3.3.4. <u>Action</u> – would consist in local strategizing and subversion in an endeavour to promote diversity. But there is no much PSA could offer in such context.

10.4. Summary

Post Modern Systems Approach revealed itself useful to promote diversity in scenario A and B, but not in C. It enabled the identification of a particular group of human beings that were marginalized by the current Ministry of health structure of power and knowledge. Because of the nature of the study – Thought Experiments, it was not possible to allow marginalised voices to be heard and relevant HS stakeholders to express their diversity. It was neither possible to undertake the relevant action, but it was possible to realize to what extent this approach could help in promoting diversity in Health Systems Thinking and Practice.

Chapter 7. 8. 9 and 10 end with Step 1 of the Research Methodology that interrogates the current state of Health Systems thinking using Jackson's 4 key approaches. It concludes that the current state of Health Systems thinking is fundamentally functionalist; and other Systems Thinking paradigms can offer solutions to address matters for which the functionalist approach is limited.

In the next chapter, we will enter the current state of Health Systems Thinking, and conduct Thought Experiments interrogating the world of researcher's own experience (public health – reflected in scenarios A, B and C) using Critical Systems Thinking and Creative Holism to yield "Critical Health Systems Thinking".

CHAPTER 11

11. THOUGHT EXPERIMENT USING CRITICAL SYSTEMS PRACTICE:

Creative Holism

"What kind of issue can be managed with what kind of methodology?"
Flood and Jackson, 1991.

11.1. Introduction

Scenarios A, B and C demonstrate that Health Systems dimension can vary from simple to highly complex and participants relationships can range from unitary to pluralist and exceptionally coercive. Nevertheless the prevailing public health problem contexts identified are complex-pluralist, holistically translated as an *organic* metaphor (open system view). The health needs are to be met to contribute to physical, mental and social well-being and ultimately to achieve the development endeavours and improved quality of life of all citizens. Because of the changing environment, Health Systems should be reformed while ensuring responsiveness to people's needs and expectations. Its internal environment may become complex with too many stakeholders, different categories of health professionals and several types of demands from people. The external environment may create shortage of resources, climate change, new information and communication technologies and new health technologies. People's perception and needs about health may also vary from different cultural and religious backgrounds. The organic view can call for other strands of more effective health systems thinking that have the power to cope with high complexity, diversity,

turbulent environments and uncertainty. Critical Systems Thinking, Total Systems Intervention and Critical Systems Practice found the answer for Health Systems to be strengthened in terms of goal seeking and viability using Viable Systems Model, exploring purposes and encouraging pluralism through Soft Systems Methodology, promoting fairness and equity by means of Critical Systems Heuristics and supporting diversity with Post Modern Systems Approach.

Public Health alone cannot ensure technical performance of Health Systems. It requires managerial expertise for more accurate responsiveness to people's expectations, getting things done rather than focussing on measuring health needs and defining technical norms and standards. Systems ideas can bring more clarity in Health Systems Thinking, both in terms of ideas and concepts. It brings more insights to Health Sector Reforms and the related interventions could be conducted using relevant systems approaches and methods in a more systematic and effective manner. The systems dimension and relationships of participants make Health Systems highly complex, diverse and uncertain. This may require combination of different approaches and methods. In fact it would be the application of the advanced pluralism born in 1984 with Linstone book on *Multiple Perspectives for Decision Making* and Jackson and Keys *Systems of Systems methodology* (SOSM). The multi-methodology approach that evolved with Flood and Jackson's (1991) *Total Systems Intervention* (TSI) and Jackson's (2003) *Critical Systems Practice* (CSP) will guide the current chapter of the Thesis. The researcher will interrogate Critical Systems Practice in the context of Scenarios A, B and C.

11.2. Relevance of Creative Holism to HS Thinking

Health problems are interrelated and call for systems approach. The analysis of scenarios A, B and C using thought experiments revealed that the four generic social paradigms as conceptualized by M Jackson are relevant to address certain types public health problem contexts. But what type of problems can be solved with those approaches and methodologies? The types of problems are mainly related with Health Sector Reforms: health policy analysis and development, consensus building, health organisation diagnosis and design, exploring the micro politics of engagement of managers and low-ranking staff in the MOH decision making process, community participation, maximizing efficiency in resources management, knowledge management. Other problems contexts such as, defining health priorities in specific contexts, consensus building, lack of coordination among partners, multi-agency health initiatives, health information systems and evaluation of health policies, strategies, plans and programmes, addressing governance and other ethical considerations, can also be tackled by Critical Systems Practice with Critical Systems Thinking as underpinning framework of ideas.

The advantage of creative holism is to have a systemic approach in problem definition and be creative in the problem solving with the possibility of generation new knowledge. Decision-makers, health managers, and public health practitioners should seek the usefulness of viewing health organisations (their institutions and health facilities) through the lenses and armoury offered by Jackson's four approaches; this could facilitate a more detailed and critical analysis of Health System. The selection of an appropriate methodology for a particular intervention or the combination of methodologies can bring new insights and

creativity in health sector reform processes. The latter gives substance to methodological

pluralism such as Total Systems Intervention and Critical Systems Practice much relevant to

address Health Sector Reform related problems as those categorized by Saltman and Figueras

(1997) and by Lambo and Sambo (2003), see details in Section 3.5.2.2 of this Thesis.

Creative Holism is about the creative use in combination of different ways of being holistic

(Jackson 2003). It makes sense in Health Systems thinking and practice.

11.3. Thought Experiments

11.3.1. Scenario A: Vertical Programmes (VPs) versus Integrated Approach of Programmes in Health Sector Reforms

> *"The job of the management scientist is to assist all the participants of an organisation to design a desirable future for*
> *themselves and to invent ways of bringing it about"*
> *R.Ackoff*

11.3.1.1. Creativity

i) Task: to identify concerns, issues and problems

The researcher will be using systems metaphors as organizing structures to help think

creatively about the Ministry of Health in Scenario A. The key problem creating inability for

the MOH to learn and adapt is structural.

ii) Tools: Perspectives of 4 paradigms receive proper attention

Under the *functionalist view* there is emphasis on structure, hierarchy, financing and technology, but the human resource role is overlooked. *Interpretive systems thinkers* would argue that the changing process doesn't seek mutual understanding and incorporate the concerns and perceptions of the managers of Vertical Programmes. *Emancipatory systems thinkers* would say that as a matter of fact Vertical Programmes are not seen within the current boundary of the Health System; therefore the current design is not fair but rather discriminating and compromising their emancipatory interest. *Postmodern thinkers* would reclaim conflict in an environment in which the Minister, the staff and partner have different perceptions and views about the MOH; they would ensure diversity in public health and bring marginalized voices forward.

iii) Outcome: Dominant and dependant concerns, issues and problems

The metaphor that better reflects the current thinking about the MOH structures, strategies and goals is the ORGANIC metaphor, because the key problem creating the inability for the MOH to learn and adapt is structural; and the current health system is striving to survival and adaptability rather that goal-seeking; it is an open system drawing inputs and providing outputs to the environment; it promotes change and improved responsiveness of the national health service in a quite complex internal environment and with large diversity of health stakeholders; and also quite dynamic and competitive external environment.

The metaphor that makes sense of the current MOH difficulties and concerns is "POLITICAL-pluralist coalition" because of the context of "politics" in the MOH in which the political leader and the top management use their power to impose their preferred strategies upon mid-level health managers and technical staff more directly involved in the operations and limiting their capacity to adjust to the local environment. There is a loose coalition deriving from divergent interests; there are conflicts of interests sometimes originating positive developments; the power is mainly at the top of the structure.

The alternative systems metaphor better capturing what is more desirable to the MOH is the NEUROCYBERNETIC as the dominant metaphor to address the critical problem of organisational structure and viability. Also because the Heath Sector Reform process should stimulate active learning, promote dynamic goal seeking based on learning and inspire creativity.

11.3.1.2. Choice

i. *Task: Choice of methodologies, methods, models and techniques*

The choice is based in Functionalist Systems Approach and the dominant methodology is Organisational Cybernetics/Viable Systems Model to guide the intervention to address the problem situation. Because the organic metaphor fails to understand that organisations are socially constructed facts, a complementary systems metaphor – CULTURE is chosen as a mean to better understand other related problems in the background. To address these problems, two complementary methodologies are chosen: SSM to look at people as actors in the Health System and CSH to address the issue of disempowerment of the Central Board of

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Health and the discrimination of the VP managers, mid-level managers and technical staff from the decision-making process.

ii.   Tools: Analysis of strengths and weaknesses of methodologies, methods, models and techniques.

- OC/VSM selected as the dominant methodology has revealed in the thought experiment – Scenario A (see paragraphs 7.3.1.3 and 7.3.1.4) to emphasize and improve the organisational structure of the Ministry of Health as well as communication and control devices. But, it neglected the quality inputs of Health System human actors. It encourages intrinsic control of the MOH but not intrinsic motivation of the health staff. Neglecting the purposeful role of the staff can lead to autocratic management system. Because Organizational Cybernetics tend sometimes emphasize stability at the expense of change, there is a risk of compromising the process of Health sector Reforms.

- SSM as a complementary methodology   (see sections 8.3.1.3 and 8.3.1.4) demonstrated its power in bringing about mutual understanding, in terms of practical interest. It was noticeable that technical and emancipatory interests of different category of health staff could not be tackled by the logic of SSM. But it came up very clear that SSM can assist in building coalition among health stakeholders. In combination with OC, excepting in situations of coercive contexts, SSM can lend meaningful support in health reform processes.

- CSH has also been selected as a complementary methodology. Thought experiments (see sections 9.3 and 9.5) demonstrated that CSH is helpful in making transparent the normative content of the MOH design. It brought up insights on how best to put emphasis on the underlying values of the National health Policy such as equity, human rights, and social justice. It also illustrated the consequences and side effects of MOH design to those affected but not involved in decision-making. The tool also demonstrated capacity to accommodate political and ethical considerations related to public health. The application of CSH revealed that Health Systems boundaries are dynamic and they are defined according to specific conditions in order to meet its normative content. There is therefore an unavoidable and persistent lack of comprehensiveness of HS either in the diagnosis or in the design mode. It should also be recognized that the tool could assist in critical reflection about the MOH, debate and actions according to the power of the best argument, but we missed this aspect due to the nature of the study. It could be useful in problem situation exhibiting some degree of coercion. As weaknesses, it should be said that beyond the findings on the MOH current design and what ought to be the design, there was no method to integrate all these findings to be applied more systematically throughout the process of intervention. This could be an interesting area for further research.

iii.   Outcome: Dominant and dependant methodologies for use.

Therefore the dominant methodology is OC/VSM and SSM and CSH as complementary methodologies.

11.3.1.3. Implementation

i.   Task: Implement specific positive change

This consists in employing the dominant methodology to translate the dominant vision of the Ministry of Health, its structure and the general orientation into specific proposals of change that address the related concerns and problems. The dominant methodology is OC/VSM that used in the diagnosis mode identified the critical problems as mentioned in paragraph 7.3.1.3. Its application in the change mode yielded the new organisation structure of the MOH according to figure 21 in pages 244.

ii.   Tools: Select methodologies and methods according to the logic of "CSP Mode 2"

The intervention will be guided by the concerns and pressures of the MOH problem situation rather than the multi-methodology, similar to SSM Mode 2 compared with SSM Mode1. OC/VSM as dominant methodology operationalises the vision of the MoH contained in the dominant metaphor NEUROCYBERNETIC. We need to have one dominant and two satellite metaphors that are illuminating. Therefore VSM will guide the intervention for change and two complementary systems methodologies SSM mode2 and CSH will serve as corollary in order to address the satellite needs in the process of intervention. The employment of SSM mode 2 as subsidiary methodology brought up the proposed changes

mentioned in paragraph 8.3.2.4; and the employment of CSH will bring the changes at the MOH as described in paragraph 9.3.1.4.

iii.   Outcome: relevant and coordinated change.

The three methodologies are used in a complementary way to address different aspects of the same problematic context and respecting the different philosophical and theoretical underpinnings.

11.3.1.4. Reflection

i.   Task: to yield learning about current problem situation and methodology;

Flood and Jackson (1991) assert that systems emerged in the 1940's as response to the failure of mechanistic thinking to explain biological phenomena. Therefore the system view came from biology with many of the biological terminology such as survival, adaptability, homeostasis, internal and external environment, development, growth, stability, etc…The human body is made-up of cells, tissues, organs, and broader systems. The concept of human health goes beyond the physical condition of the human body to include mental and social aspects. With WHO (1948) definition of health encompassing "physical, mental and social wellbeing and not only the absence of disease or infirmity" we realized great developments in the field of medicine and other biomedical sciences to generate new knowledge and skills to tackle physical and mental health. Medicine, surgery, psychiatrics and other more specific medical specialities grew very fast during the last years as well as

related technologies and the development of professionals highly qualified. But the progress in terms of response to the social aspects of health was slow and concentrated in the Public Health discipline. New threats to people's health such as climate change, globalisation, natural and man-made disasters, economic constraints, poverty and inequalities are emerging and calling for a "New Public Health" approach with a different paradigm that should be social oriented and attain the objectives of responsiveness to people's expectations, fair financing (equity) and universal access to quality health care. This presupposes the delivery of health services by the national Health Systems and the delivery of health actions by other development sectors/systems involved in other health determinants such as education, environment, sanitation, information, housing, employment, transports and many others. Recognizing these interactions we must consider the need of defining cross-system health goals particularly in health promotion, prevention of diseases and protecting health of vulnerable segments of the population. There is evidence that both *social sciences* and *public health* are the two pillars of the "New Public Health" that according to Baum (2002) is about shaping the future and working to ensure it is as healthy, sustainable and equitable as possible. The New Public Health should learn more from social sciences and from systems sciences as a trandiscipline with the armoury to cross-fertilize other disciplines. It comes clear that social paradigms make sense in public health and the application of system ideas in Public Health is just as relevant as it is in other social disciplines. From the cell to the entire human body, from the individual to the family, community, national, or global perspective there is scope for health and development matters. But our level of concern, for the present study is the health of people in a given country.

From the problem context described in Scenario A we could learn that the primary health care (PHC) approach as a philosophy required a very strong and relevant theory – Public Health, for its translation into practice – health sector reform. We realized lack of relevant methodology to address the different marginal concerns/problem situations and guide the interventions in practice.

ii. Tools: Understanding about current situation of knowledge;

The current situation of Health System thinking is a transition from fundamentally *reductionist systems thinking* (considering HS as an aggregate of elements in which the whole is equal to the sum of the elements) to *systemic systems thinking* for which HS is a complex of highly interrelated network of elements exhibiting synergistic properties – the whole being greater that the sum of its elements. For example going back to Murray and Frenk (1999) theory, HS responsiveness relates to components such as respect for the dignity of the person, respect for the autonomy of the individual to make choices about his/her own health, respect for confidentiality, that depends on the attitude of staff in terms of dedication, love and care that are very difficult to quantify, but enhances the quality of care, users satisfaction and therefore the total output of the health system – higher that the quantifiable sum of its elements.

From analysis of existing literature on health systems and from what actually happened in Scenarios A, it is evident that current HS thinking is fundamentally goal-seeking and functionalist. Sometimes there is a fragmented view of the HS, for example, Vertical Health Programmes related to priority health problems were not seen as part of the Health System.

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It is therefore necessary to move from the current reductionist state of HS thinking – fragmented approach to a more systemic and advanced way of organizing our thoughts about health. This would be the first call to critical HS thinking based on Critical Systems Thinking to respond to human practical interests – mutual understanding.

Values and principles are not enough. We need the right norms, methods, techniques and tools consistent with the systemic knowledge to be applied and make sense in practice and respond to human technical interests – goal-seeking, prediction and control.

The translation of national health policy into practice is a major challenge in Health sector reform and improvement of health status of people.

HS are learning organisations and SSM as a complementary methodology revealed quite powerful in this exploratory type of research. The researcher became more familiar with basic facts and concerns about current Health Systems Thinking; the study yielded new ideas and hypothesis about health systems; the study itself determined the feasibility of conducting the research bringing forward innovative methodology; and finally, raised questions for future research.

Creative holism revealed that in Scenario A, vertical versus integrated approach is not an either/or option; each approach has situations when it yields the best dividends; therefore the focus should be on understanding when each approach provides best outputs and manage the transition processes between the two approaches.

iii.   *Outcome: Research findings - improved multi-methodology?*

- The study revealed the feasibility and relevance of combining Minger's 4 As approach with Jackson's 4 generic approaches and Critical Systems Practice.

- The research design was useful to interrogate the current situation of the Ministry of Health and propose a relevant change.

- The methodologies, tools and techniques used could pay attention to health reform process, content, and the role of the actors in different political, economic and socio-cultural context.

- The study provided concrete opportunity for conceptual clarification of HS ideas and theory in light of system ideas and concepts.

- Thought Experiments revealed limitations in terms of full application of some of the methodologies. One of the reasons is that some important data and information for appreciation, analysis, assessment and action were not captured in the thought experiments. Secondly, problems of memory and records may be occurred and thirdly at the time of scenarios A, B and C the researcher was not armoured with systems thinking theory and methodologies, and had different understanding and perception of problems.

11.3.2. Scenario B: Application of User Fees Policy (UFP) in the Context of Health Sector Reforms

11.3.2.1 Creativity

i. Task: Identification of concerns, issues and problems.

The researcher will use systems metaphors for better analysis, understanding and proposal of desirable model of thinking for the MOH in the context of the implementation of user-fees policy as part of the health sector reform policy. The key problem is that people are not involved in policy making, they are not well informed and are not prepared to participate in the UFP implementation.

ii) Tools: Perspectives of 4 paradigms receive proper attention

Functionalist systems thinkers would argue that the MOH structures (CBoH, HRIT, PHAs, DMOs, DHBs) and other relevant non-MOH structures, together with the related staff, should implement the user fees policy, through processes established by the administration and enforced by law. They assume that the policy goal will be achieved through managers in control of their structures and processes, using their power and knowledge at different levels of the health system.

An *interpretive systems thinker* would say that the MOH as a system should result from the purposes of health staff and recipient communities; and therefore the MOH should be able to accommodate shared purposes to bring about the health sector reform. However, the lack of involvement of communities in the UFP development and implementation might have curtailed the perceptions, expectations, values, beliefs and human interests.

An *emancipatory systems thinker* would express concern about lack of fairness of the health system in making extremely poor and marginalised people, to pay health care fees. Criticisms could also be expressed due to exclusion of disadvantaged people from the process of designing the UFP. Because of their condition of indigent, ignorant and marginalised, they were also missing the exemptions provided by the actual UFP.

A *post-modern thinker* would oppose to previous modernist rationality and bring the conflict between politicians, technicians and people to the forefront; and make the marginalized voices to be heard through a process of local strategizing and subversion.

iii)   *Outcome: Dominant and dependant concerns, issues and problems.*

The metaphor that better reflects the current thinking of the MOH in the context of scenario B is the POLITICAL coercive. First, because the current signals of breakdown are due to lack of recognition of people as actors of the system. Secondly, the political leadership of the MOH put emphasis on harmony, when in reality there are hidden conflicts and tensions. Thirdly, the few changes operated are externally generated by political and diplomatic clouds rather than endogenous by the system itself.

The metaphor that makes sense of the MOH problems and concerns related to the UFP is the POLITICAL – coercive (prison) because there is a focus on issues of interests, conflict and power. The newly elected political party has interest in showing positive changes in a reasonable period of time despite of existing constraints. Conflicts derived of politics in the MOH led to radical changes in some of the key structures such as CBoH and HRIT generating unease and mistrust. The political leadership of the MOH tends to overemphasize the handling of power at the expense of the organisational structure and pre-defined roles and responsibilities, giving room to unequally distributed power and possible domination and subjugation.

The alternative metaphor that could better capture the more desirable thinking of the MOH is the CULTURE metaphor. This is because, instead of putting the MOH reform concerned only with structure, control, technology and goal seeking, it would incorporate also the perceptions and values of the diverse categories of professionals, low ranking managers and people. Culture metaphor would also enhance the cohesion in the MOH in terms of bringing together different parts of the structure and different views of staff with different backgrounds. The risk is that culture, once installed, can inhibit innovation and change.

11.3.2.2. Choice

i.   *Task: Choice of methodologies, methods, models and techniques*

According to System of Systems Methodology (SOSM) for matching type of problem-contexts to system methodologies, the researcher concludes from the analysis of scenario B that the problem context is *complex* in terms of dimension and *pluralist* in terms of agreement among participants (the government and the people). Moreover, in light of the strengths and weaknesses of the four Jackson's social paradigms, the researcher selects Interpretive Systems Approach – SSM mode2 to guide the intervention. A key metaphor underpinning SSM is "CULTURE" as a way to understand the key problems and concerns. The POLITICAL system metaphor could be seen as supportive to unfold the problem related issues and inform the process of change with sound influence of politics and minimize damage to the technical performance of the MOH. A complementary methodology chosen is Ulrich's Critical Systems Heuristics to enlighten all health players, in particular the most disadvantaged and to empower them to participate in the design and re-design of User Fees Policy.

ii.   *Tools: Methods for revealing strengths and weaknesses of methodologies*

The chosen methodology SSM mode 2 has revealed in scenario B (see sections 8.3.2.3 and 8.3.2.4) relevance to assist in conceptualizing a Health System model that encapsulates different world-views of different participants, after structured debate. Under this perspective, we look at Health System as a mental construct of the observers. The critique to this paradigm is that P Checkland, the father of SSM fails to recognize its limited domain of application and does not recognize the relevance of using other methodologies in combination with SSM. However, we must be aware that SSM has the power of exploring purposes of different categories of MOH staff, different health stakeholders and different

partners. This should bring benefits in terms of consensus building, ownership of the health

sector reform agenda and subsequent implementation. SSM mode 2 can facilitate the

accommodation of political, managerial, economic, social and cultural contexts of health

sector reforms. In terms of Primary Health Care approach, SSM mode2 can stimulate

understanding around health determinants and the role to be played by different sectors.

Finally SSM mode 2 applied to Health Systems will attenuate the goal-seeking tradition in

benefit of managing the relationships among the health staff, between the Government and

People, and among other health stakeholders. This approach that seeks interpretation and

learning rather than optimization, should bring benefits to Health systems as learning

organisations because from practice, it explores purposes and yields new knowledge, which

in turn make sense of new experience; following Checkland's endless learning cycle in which

theory and practice create each other. Therefore, under this paradigm, Health System thinkers

and practitioners, mainly public health decision-makers and managers, should be aware of the

real world when they intervene in practice – *health service organisations* and be aware of

systems thinking world when they do thinking - *health system organisations*. And shift from

one world to other according to the concrete step of the learning process.

Critical Systems heuristics is selected as complementary methodology to ensure the

emancipatory endeavours of the poorest and marginalised people that have no opportunity to

participate in the definition of UFP that affects them, and make their voices to be heard. CSH

can also respond to the oppressing political power that does not give the opportunity of

liberation; and minimize the unfairness of catastrophic costs of health care that the poorest

among the poor cannot afford. Ethical and governance issues could also take benefits from

CSH.

iii.   Outcome: Dominant and dependant methodologies for use.

The dominant methodology is SSM mode2 and CSH is a complementary methodology.

11.3.2.3 Implementation of SSM mode 2

i.   Task: to implement specific positive change

The employment of SSM mode2 was used in thought experiments and demonstrated to be very useful in structuring the debate about Health Sector Reform issues and building consensus among different stakeholders. But SSM revealed powerless in guiding the implementation of concrete measures to materialize the change.

ii.   Tools: Selected methodologies and methods according to the logic of CSP

SSM mode 2 as dominant systems methodology could operationalise the User Fees Policy contained in the dominant metaphor "CULTURE". Critical Systems Practice mode 2, will be applied to identify and use other methodologies and methods to complement SSM mode2. The complementary methodology is CSH that could try to respond to problems surrounding the satellite metaphor "POLITICAL coercive system". The concrete contributions of CSH are spelt out in Chapter IX sections 9.3.2.2 and 9.3.2.4.

iii.   Outcome: Relevant and coordinated change.

The two methodologies SSM mode 2 and CSH are used in a complementary way to address the issue of the implementation of UFP. It is expected that at long term, CSP will lead to improved efficiency, efficacy, effectiveness, elegance, empowerment, emancipation, exception, emotion and ethics in Health Systems thinking and practice, as envisaged by Jackson (2003).

11.3.2.4. Reflection

i. *Task: to yield learning about current problem situation and methodology;*

From the problem context experienced in scenario B, we learned that weak involvement of people in the development of UFP related to their own lives, influenced negatively the adequacy and the sense of ownership and compromised its implementation.

SSM mode 2 demonstrated its adequacy to address an ill-structured problem in which there was no clear understanding of it, in fact it was a set of interrelated and interdependent problems compounded in a problematic. The root causes of the problem situation were associated to weak economic performance of the country, governance, financial crisis, extreme dependence from partners, dominant poverty of people and still the UFP was intending to extract money from already extremely poor people. The values, beliefs and interests of participants diverged but there was room for accommodation and compromise. In reality the real problem situation derives from contrasting views of different participants on

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the same endeavour of meeting the costs of the essential health package to be made accessible to all citizens, according to the national health policy.

From the application of SSM mode 2 in scenario B, the researcher also learned that the methodology disregards the Organizational Cybernetics insights that take care of the structure, communication and control of the Ministry of Health. It was also clear that SSM did not give full answer to the need of inclusiveness of low-ranking managers and technical staff in the decision- making process, neither to the discomfort created by the exercise of political power in the MOH structures. Health system cannot be seen at the core just as a social process, in which the world is interpreted in a particular way that legitimates shared actions and establish share norms and standards. The recognition of other paradigms and the combination of SSM mode2 with other methodologies make sense in Health systems thinking and practice, from a critical and holistic viewpoint. However, the researcher respects the current position of the interpretive school of thought that doesn't admit an alternative model of organisation neither the credit of combination of SSM with other methodologies. This could partially explain why Health Systems are predominantly functionalist. Soft Systems Thinking subsumes Hard Systems Thinking as a special case rather than a different paradigm(Checkland and Holwell 1998).

Thought experiment about scenario B demonstrated that crucial advantage of SSM mode 2, but it was clear that the improvement of health status of people is related to organisation and management of health systems, with strong economic support and good performance of all key public health functions (see Turnoc, Chapter III, section 3.2.5).

About SSM mode 2 methodology, we realised the consistency with Minger's 4As approach. It was also coherent to employ SSM in the context of Jackson's 4 generic approaches. Moreover, the researcher could straightforwardly and consistently use SSM either as dominant or as complementary methodology in Critical systems Practice – Mode2. These findings yield methodological lessons that could be considered beyond the scope of the current research.

ii.   Tools: to understand about current state of knowledge

The assessment of the 2nd generation of health sector reforms 16 years after Alma-Ata Declaration on primary health care revealed that in the African region eg, the fragmented view of Health Systems and the inadequate participation of local communities jeopardized the progress towards the objective of Health For All. Tarimo and Webster (1994) warned that least developed countries have been largely bypassed by the PHC movement and argued that emphasis in all countries should go to rising awareness about health and enhancing popular participation. This is a fundamental issue embedded in PHC philosophy that requires especial attention to enable the implementation of locally based and community oriented health policies and systems. The translation of such policy into practice, with use of relevant systems methodologies would contribute to critically trigger the paradigm shift from the current biomedical/reductionist/functionalist Health Systems Thinking to social/critical/holistic thinking. SSM demonstrated power, flexibility and relevance in its mode2 –within the flux of events and changes and could be further explored in Health Sector reforms in particular to address issues such as community participation, stakeholders' coordination, partnerships, and consensus building.

iii.   Outcome: Research findings - improved multimethodology?

Expressed in the previous section and also in the outcomes of Thought Experiments using Interpretive Systems Approach (to be checked and summarized in this section).

11.3.3. Scenario C: Health Systems Response to Crisis – Man-made Disaster

11.3.3.1.   Creativity

i.   Task: Identification of concerns, issues and problems

The researcher will use systems metaphors as part of TSI and CSP armoury to better perceive the type of issues and problems involving the MOH as a system in a situation of man-made disaster. The signals of breakdown of the MOH are related with politics, leading to a gap between the political and the technical leadership; the instability and disruption of the national health service's structures, organization and control mechanisms due to turbulent military and political situation; leading to breakdown of the national health system.

ii.   Tools: Perspectives of the 4 paradigms receive proper attention

Functionalist Approach – Organisational Cybernetics suggested that the organisational structure should be decentralised and the variety of HS operations should increase according to local level environment.

Interpretive Systems Approach – SSM mode 2 perceives the MOH system as resulting from the way the politicians, managers, staff and people observe it; and proposes a structured debate to share purposes and bring about the change. It looks into the technical interest, but it

ignores the practical and the emancipatory aspects of Habernas three human interests. It should be underscored that this approach could not answer to endeavours related to emotions and diversity of health stakeholders involved in preparedness and response to disaster.

The emancipatory Systems Approach perceived the MOH in a especial context within which a particular group of the population directly exposed to the situation of war was disadvantaged by the current systemic arrangement. The intervention guided by Critical Systems Heuristics brought clarity on what was being done and what ought to be done in order to improve the position of the disadvantaged population and empower them. But the methodology did not provide specific methods, techniques and tools to guide the intervention in a more specific and systematic manner. This would make disvantaged segments of the population to take responsibility for their own liberation, becoming empowered and emancipated.

Post-modern Approach opposing to modernism order and rationality based in science, brought-up the conflict between the political leadership and the technical leadership and suggested low-ranking health managers and local communities to be heard. It stimulated inclusiveness and diversity, but in the other hand the approach revealed not to bring sustainable changes.

iii)   Outcome: Dominant and dependant concerns, issues and problems.

The metaphor that better reflects the current thinking of the MOH in the context of scenario C is "POLITICAL pluralist coalition". The argument is that, in terms of *interests* there were two diverging groups with different views: the MOH leading the public health sector and the

Ministry of Defence (MINDEF) leading the medical services of the army, with quite loose coalition. In terms of *conflict* it was patent but inherent to the context of civil war since positive aspects were identified in both sides. In terms of *power*, the MINDEF was more powerful in terms of logistics, more disciplined and with more relevant intelligence for better understanding of the problem situation, better planning and operational capacity including in areas directly affected by the conflict.

The metaphor that makes sense of the MOH current problems and concerns is "POLITICAL coercive prison" because of fear of aggravating the different interests of the MOH public services and the MINDEF medical services. Also, because of fear of falling in a conflict that could lead to radical change of the whole MOH structure (e.g. militarization of the public health service or mix); in such case the power would be unequally distributed and lead to domination or even subjugation of the National Health Service by the Army.

The alternative systems metaphor capturing the more <u>desirable</u> scenario for the MOH is the "POLITICAL Unitary Team" because it would bring together the common interests and objectives of the MOH and the MINDEF health services; it would make conflict less likely to emerge; and power tensions could be replaced by team work, joint plans and interventions; and even collegial (or rotating) leadership, at least for a defined period of time.

11.3.3.2. Choice

i.   *Task: Choice of methodologies, methods, models and techniques*

According to SOSM, scenario C problem context should be classified as "complex and coercive" in spite of Flood and Jackson (1991) view that no systems methodology currently bases itself upon the assumptions that problem contexts are *complex and coercive*.

The arguments for a complex and coercive classification are the following: firstly, the "systems dimension" contains large number elements with loose interactions between them; the elements are probabilistic in their behaviour and strongly influenced by turbulent environment and uncertainty. The "participants" mainly two sides the MOH and MINDEF do not share common policies and interests. Their values and beliefs are likely to conflict. There is no agreement upon ends and means and no room for genuine compromise.

ii.   *Tools: Analysis of strengths and weaknesses of methodologies, methods, models and techniques.*

On the basis of "POLITICAL Coercive Prison" systemic metaphor the researcher suggests that future research deepens the understanding of this type of problems that in fact can occur in the real world and which type of methodology would suit the problem solving intervention. In light of Critical Systems Thinking and the armoury provided by Total systems Intervention (TSI) and Critical systems Practice (CSP) the researcher believes that we could further explore the combination of specific parts (methods, techniques, and tools) of relevant methodologies and use them *in a situation driven mode* to intervene in complex and coercive problem contexts. This presupposes a reductionist approach in decomposing the key methodology associated to the concerned GSP (generic social paradigm); in order to identify and select relevant components that could be used to construct appropriate combination of methodologies (?), methods, techniques and tools in a sort of complementarism that could

assist in guiding specific interventions. Minger's ideas "Towards Critical Pluralism" (1997) could offer a significant insight to such approach.

iii.   *Outcome: Dominant and dependant methodologies for use.*

Jackson's CSP and Minger's Multimethodology to be explored in future health system research studies.

11.3.3.3. Implementation

i.   *Task: to implement specific positive change*

No availability of specific social paradigm and methodology relevant to the problem context.

ii.   *Tools: Select methodologies and methods according to the logic of CSP*

No methodologies or methods available. Nevertheless, Flood and Jackson's (1991) Total Systems Intervention, Minger's (1997) Critical Pluralism, and Jackson's (2003) Critical Systems Practice logic, will certainly provide insights for new research and development of relevant multi-methodological approach or complementarism of methods techniques and tools.

iii.   *Outcome: relevant and coordinated change.*

Not applicable. The implementation would be subject to research and development of a new and relevant social paradigm or creative combination of relevant methodologies, in mode 2, guided by the flux of ideas and interaction in a context of complexity and coercion.

11.3.3.4. Reflection

No ground to refer to task, tools and outcome.

In light of the current literature on systems Thinking, there is no specific social paradigm and methodology to address complex and coercive problem situation as the one described in scenario C. Unless we consider Critical systems Thinking as a paradigm itself as questioned by M Jackson (2003), there is no generic paradigm to cope with this type of problem context.

Taking into account that only CST can cope with Habermas's three human interests and apply consistently different generic paradigms according to the interest to be served; the researcher considers CST as a multi-paradigmatic philosophy that could adjust different views and perceptions about the world, according to systems and participants dimensions of the problem situations. In this perspective, PLURALISM is the answer, but much more research is required, to guide multimethodology analysis and creative combination (synthesis) of its parts to guide interventions in a mode2 and copying with a larger number of problem contexts.

11.4. What could be a coherent critical alternative for Health Systems

Current Health Systems thinking is essentially functionalist, goal seeking and supply driven. Most of the current Health System literature describes system models that are static, integrating various components concurring to its goals. The description of the essential

Health System components is not uniform, reflecting therefore different perceptions of different authors probably with different backgrounds and in different contexts. Nevertheless, infrastuture, delivery of services and organisation are three components consistently mentioned as being parts of a Health System.

The researcher understands that different philosophies underpin different social paradigms and this influences the way people think about health. The history of public health and the history of medicine shows that thinking about health and medical thinking evolved according to socio-economic contexts and related state of development of science and technology.

It is proposed that public health decision-makers and managers consider the ideas brought by critical systems thinking to articulate different social paradigms and health ideologies. This could pave the way for better understanding of primary health care approach amongst other health development ideologies.

Being the current health systems thinking fundamentally functionalist and considering the New Public Health calling for a more holistic approach, critical systems thinking can illuminate the new approach and critical systems practice provides relevant way of combining different methodologies and methods towards a more critical health systems. This would improve the current health sector reforms that overlook hidden issues and concerns, and provide room for more systemic support from different health stakeholders and minimize fragmentation of health systems ideology, theory, methodology and practice. Nevertheless, health system boundary remains an issue to be defined according to specific health sector reform context, content, process and actors. The process od designing and redesigning health

systems is complex and affects its boundaries in a mechanism of identification and accommodation or rejection of elements (structures and relationships) in order to survive and perform better.

Having said that the researcher considers that the following elements could be considered as essentials in health systems development: *Policy, Infrastructure, Delivery of health care, Outcomes and Leadership and* Management. Now, the researcher will describe each one of the core components of a Critical Health system as follows:

i)   POLICY

Health policy should be evidence-based and result from the analysis of the situation in the geographic or organizational context in which the system operates. It describes the critical problems, the priorities, the purpose of leadership and target beneficiaries and the vision of change. The policy contains also the underpinning philosophy that incorporates the values and principles that should govern the design and behaviour of structures in charge of its implementation. Leadership and management are critically associated to this component that depends and affects all the other components.

ii)   INFRASTRUCTURE

This component represents the structural capacity for Health system's operations. It involves health and demographic statistics, information and intelligence; health and health related knowledge; health workforce development; physical structures (institutions and

health facilities); health care technologies and other relevant technologies; and fiscal and financial resources. The leadership and management component is related to infrastructure subsystem and below. This represents the essential input to enable the processing of health care delivery to recipient people within a given geographic or corporate context.

iii)   DELIVERY PROCESSES

Health care delivery is processed in a network of health institutions and facilities at different levels of the health or organisation pyramid, from top to bottom level. It consists on the implementation of the organisation's mission and the undertaking of roles and functions of the different structures that are part of the system. Health staff plays the different roles from different backgrounds and profiles, using the right knowledge and skills in the fulfilment of their responsibilities. In fact the staff manages the different structures and therefore the processes of interrelations between them; for this effect they use their knowledge and skills, they apply the defined norms and standards and they incorporate their own sentiments, interests, views and perceptions.

The Health System of a country delivers health care of four categories: preventive, promotion, curative and rehabilitative health care. These categories can be applied in different specific public health services – see the core seven basic health services defined by WHO expert Committee in 1953 (see paragraph 3.3.1), the eight Primary Health care components defined in1978 (see paragraph 3.2.1) and Turnoc's ten essential public health services defined in 2004 (see paragraph 3.3.1).

This component is also in charge of health research functions for the development of new knowledge and technologies that can improve the performance of health systems and the achievement of its goals.

iv)   MONITORING AND EVALUATION OF OUTCOMES

This component is about data collection and processing to generate information and intelligence that together with research findings constitutes the evidence for health policy development and decision-making at different parts and levels of recursion. Monitoring and evaluation of health outcomes should take into consideration the health security, the users satisfaction, the health care coverage, access to health care and ultimately the health status of people. This is usually translated through health and demographic indicators. The five criterions efficacy, efficiency, effectiveness, elegance and ethicality can also be used to assess the performance of Health systems.

v)   LEADERSHIP AND MANAGEMENT

This is the software of Health systems that runs each one of the components and the relationships among them. Leadership and management should be exercised at all parts of the system. This component is substantiated through the effective role of all agents of change, from leaders to low ranking staff and it should include representatives of all health stakeholders and beneficiary communities. Nevertheless, it appears that the need of leadership and management tends to decrease while the need for technical and operational skills tends to increase as we move from the top to the bottom of the health organization. From the

researcher viewpoint, only critical systems thinking can accommodate the wide range of public health problem contexts, its high complexity and pluralism in permanent change and accommodation.

vi)   MANAGING THE INTERFACE WITH ITS EXTERNAL ENVIRONMENT - OTHER HEALTH DETERMINANTS

The management of the internal environment of Health systems is not enough for its effective performance and achievement of its goals. The system is opened and therefore interacts with other natural and man-made systems that influence its performance and outcomes. It means that there are other health status determinants than Health System itself. Among them we can consider: life-styles (attitudes and behaviours), culture, heredity, climate, physical environment (ecosystem), economics, education, food, employment, income and housing are among the critical determinants of health of people. These sectors are in charge of delivery of very important determinant health actions that contribute to the improvement or deterioration of health. A critical approach of Health Systems Thinking and practice should encompass the other determinants within a social perspective of health rather that individualistic; with and holistic vision rather than fragmented; health staff thinking beyond the scope of their professions and bridging the gap between their domain of knowledge and skills. The critical analysis of health determinants should inform the leadership and management of health policy, infrastructures, delivery processes and outcomes. Critical Health Systems Thinking will certainly influence other development systems such as economics, education and income.

11.6. Summary

Health problems are interrelated but current health systems thinking is fundamentally functionalist. There is a call for systems approach through primary health care philosophy and the New Public Health theory. Critical systems thinking and critical systems practice can provide relevant articulation of paradigms and creative multimethodologies to guide interventions that are relevant to address identified and identifiable problems encountered in health systems practice – health sector reforms. The use of CST and CSP in scenarios A, B and C revealed that they could enhance the technical performance of health systems.

CHAPTER 12

12.   SUMMARY AND CONCLUSION

12.1. Brief restatement of the problem

According to World Health Organization, health definition implies physical, mental and social well-being and not only the absence of disease or infirmity. This concept is complex, pluralist and dynamic because the health status of an individual, society or nation at large is influenced by interrelated determinants of a different nature, which interact in a flux of events in a permanent process of change. Health systems are made-up of elements including values, principles, policies, structures, processes and negotiations among people, meant to improve the performance of public health functions and other health related actions aiming at better health outcomes. However, the current Health System concept and related terminology are vague and inconsistent, giving room to confusion. Nevertheless, there is a good deal of literature of people using systems thinking to address public health but I think that there is room for a more consistent and critical approach. Also, some of the intractable public health problems such as high maternal mortality ratio and high infant mortality rate for which knowledge and technologies are available remain a challenge; and this may be related to current ineffective strategies requiring change in a more systemic and creative way in order to improve the performance of health systems and ultimately improve the health status of people.

A study on *Health Sector Reforms in Sub-Saharan Africa: A synthesis of country experiences* published by Lambo and Sambo (2003) revealed that the most critical <u>factors triggering reforms</u>, in order of frequency, are related with poor delivery of health care, poor health status of people, change of political leadership and economic or financial crisis. The study revealed that the major reform <u>achievements</u> were recorded in the areas of reorganization of the Ministry of Health, decentralization and strengthening of district health systems, development of national health policies and plans, improving financial resources, enactment of relevant health legislation and definition of minimum health package. The authors referred that many countries were moving towards integrated service delivery, which they saw as sustainable, efficient and convenient for both providers and users; however, integration of health services versus vertical programmes was a major challenge, and service fragmentation was a serious problem. Many countries have attempted to enhance quality by introducing user fees and allowing health facilities to retain some or all of the revenue, it generates. However, cost-recovery measures have been frustrated by low household incomes and the poor quality of health care, particularly in the public sector. The introduction of user fees has also temporarily excluded the poor from benefiting from essential health care, especially where exemption policies were either not clear or difficult to effectively enforce.

I am persuaded that there are intractable issues that compromise the technical performance and responsiveness of health systems, for which we need more suitable philosophy and theory and more powerful methodologies. Some of these issues, from my viewpoint, are related with consensus building among different health stakeholders, coordination among health development partners, accommodating different aspirations, housing tensions among health professional groups, dealing with politics, anticipating

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changing contexts, facilitating community participation and sharing power between the

central and local level authorities.

I am concerned with the current state of health system thinking and explored systems

ideas to learn both in depth and breadth to enhance their understanding and yield new

knowledge for more successful health system reforms. This is a contribution for both critical

systems thinking and public health beyond the fact that the study also provided insights on the

use of different paradigms and methodologies in public health. I am deeply concerned with

the paradox of significant progress in the areas of health sciences and technology on one hand

and poor health outcomes for majority of people on the other hand. It seems that there are

personal, social and structural gaps that need to be addressed to accommodate different

individual health staff backgrounds, perceptions and meanings; to enlighten and empower

communities, families and individuals; to inform the decision-making process; and to

identify, select and implement innovative reforms.

Health Systems have been so far developed based on the positivist paradigm that puts

emphasis on what is observable and measurable, tending to ignore what is not measurable in

a scientific and objective manner. According to this view, health needs are identified through

epidemiological and demographic data and are governed by norms that do not house

considerations of equity, neither people's views nor aspirations. And this influences the

decision-making that should be based on all these concerns.

Current health research methods do not address in detail the systemic nature and

complexity of health in particular the social dimension of health. The interpretive school of

thought provided qualitative health research methods aiming at studying people in their natural settings (more used in ethnographic studies), either observational studies or unstructured interviews and focus groups. Nevertheless, the available literature on health systems is very poor in providing examples of health systems research in which interpretive, emancipatory, post-modern or holistic studies were conducted. There is a need to further explore other paradigms and innovate on health system research methodologies based on systems thinking approaches and related methodologies.

12.2. Specific response to key research questions

I explored existing literature on systems thinking and on health systems. Then, as a first step I conducted thought experiments using Jackson's four social paradigms. This revealed the current state of health systems thinking is fundamentally functionalist; and illustrated what other social paradigms can offer to enlighten health systems. As a second step I conducted thought experiments using Critical Systems Practice mode 2 in the same scenario contexts and this yielded knowledge about critical health systems thinking. Doing so, the three key research questions have been answered as follows:

A: What is the current state of Health Systems thinking?

Existing literature on health systems explains that _Health system ideology_ has been

influenced by socio-economic factors but fundamentally guided by evidence about the type of

problems facing health services and organisations, and the key factors influencing health. I

consider four major approaches in public health history: first, the _environmental approach_

before the enlightenment period (1830s) and that was concerned with problems of sanitation,

hygiene, clean water and clean cities; and believed that health was determined by

environmental conditions. Second, the _sanitation approach_ from 1830s to 1940s, that was

concerned with the sanitary reform to protect individuals and groups of persons against

infections by germs. Third, the _technological approach_ that dominated the bacteriological era

from 1940s to 1970s that was concerned about treatment of infectious diseases; and believed

that the response to health problems was on the development and use of new medicines,

vaccines and other technologies. Fourth, the _primary health care approach_ from 1970s so far,

that called for a paradigm shift from technological to social perspective of health. This

corresponds to the _New Public Health_ that is more concerned with health promotion, equity

in access to health care; community involvement, empowerment and ownership;

decentralisation and local capacity building; intersectoral and multidisciplinary collaboration

including the participation of different professions in health development.

I explored literature on both health systems and systems thinking. I analyzed different

thoughts and health system models such as Kleczkowski and Roemer's concept (1984),

Monekosso's African Health Development Framework (1985), Janovsky model (1996),

Murray and Frenk's model (1999) and Turnock's conceptual framework (2004). I analysed research papers containing different thoughts, proposing methodologies and models reflecting the possible use of systems thinking in public health.

The study interrogated the current state of health systems using Jackson's four key paradigms *functionalist, interpretive, emancipatory and post-modern*, and critical systems thinking. I found out that systems ideas are useful to improve the understanding and learning about health systems; and that despite of recent interpretive trends, current health systems thinking is fundamentally functionalist, seeking technical goal attainment; and there is room to explore new ways to improve its systemic knowledge and systemic practice.

In my view, the current functionalist health system approach sees health organizations as structures with hierarchy, with different levels of recursion, using human resources, technologies and financing to improve people's health. According to this approach, health sector reform emphasizes the analysis of health infrastructures and alternative arrangements towards efficiency and achievement of predetermined goals.

B. What other systems approaches can offer to enlighten Health Systems?

Thought experiments using Jackson's four key paradigms and applying Critical Systems Practice, generated learning on the way other systems approaches and critical systems thinking can help in improving the current state of health systems thinking. Figure 51 shows possible linkages between Jackson's four major paradigms and the type of problems in health systems practice. *Interpretive Systems Approach* revealed particular strength in

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providing insights of the problem situation, including the analysis of roles, norms and values of different stakeholders. SSM mode2 demonstrated advantage in unfolding messy situations and bring about the change with clear advantage in terms of efficacy, ethicality and elegance. I learnt that SSM could support the practical interest, facilitate the interaction and stimulate mutual understanding among health stakeholders. Actually, medical doctors, nurses, health managers, social scientists, politicians and people look at health with different lenses; from the same position they have different views that stems from different values, backgrounds, beliefs and cultural experiences. Different stakeholders tend to take different stances about what they want to achieve in health organisations and societies at large. Consensus building among different social actors, teamwork within health organisations and leadership are key factors of success in the process of change – health sector reforms. There is a need for different stakeholders and actors to have a more holistic approach of health that incorporates the physical, mental and social dimensions. SSM that focuses more on processes than content, can assist in capturing the subjective values and intentions of human beings involved in health care services. I describe the *interpretive health system approach* – the way of seeing a health organization as a social constructed world where politicians, decision-makers, health professionals and people are key actors whose intentions, motivations and actions play a significant role in shaping health system's infrastructure and performance. Health sector reform would put emphasis in exploring different purposes, consensus building and inclusiveness in defining the reform agenda and process; and generating learning about constraining public health and managerial issues.

Emancipatory Systems Approach using Ulrich's Critical Systems Heuristics revealed that MOH boundaries would be better established through dialogue, especially between the

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political leadership and decision-makers of the MOH on the one hand and those likely to be affected - the staff and people. CSH was successfully utilized to interrogate current health sector reforms using Kant's 3 quasi-transcendental ideas designed to critically check the standards of social systems: in relation to the systems *idea* I found out the lack of comprehensiveness in current attempts to map health systems reality; concerning the *moral idea* I found out that public health decision-makers and managers need to constantly question about the principles and values of policies and plans for their fair implementation, bearing in mind the implications for those affected and not involved in the decision making process ; and finally, in relation to the *guarantor idea* I felt the need for Ministers of Health to consult experts and different stake-holders for evidence-based and informed decision-making.

It demonstrated that in current health sector reforms the system idea is not well addressed because purposes are almost limited to those holding political power and it fails to capture and respond to views and perceptions of health staff and people. The moral idea is partially considered because current reforms are designed to improve the health of all citizens. The guarantor idea is not fully addressed because the advice of independent experts to public health decision-makers is in one hand limited and hardly followed in the other.

A more *critical* approach in health systems would make health organizations more transparent about their normative content and incorporate universal values and principles in their design and foresee the consequences and side effects for health staff and NHS users. Secondly, the *systems* idea should become more comprehensive and evoke the totality of relevant components from political, ideological, economic, social, cultural, geographical and environmental perspectives that despite being beyond the scope of the MOH, influence its

behaviour and performance as a system. Thirdly, the *heuristic* view would help in uncovering hidden aspects such as the reason why certain health managers are not associated to health sector reforms, why partners were pushing VPs and why people were not more effectively involved in decision making.
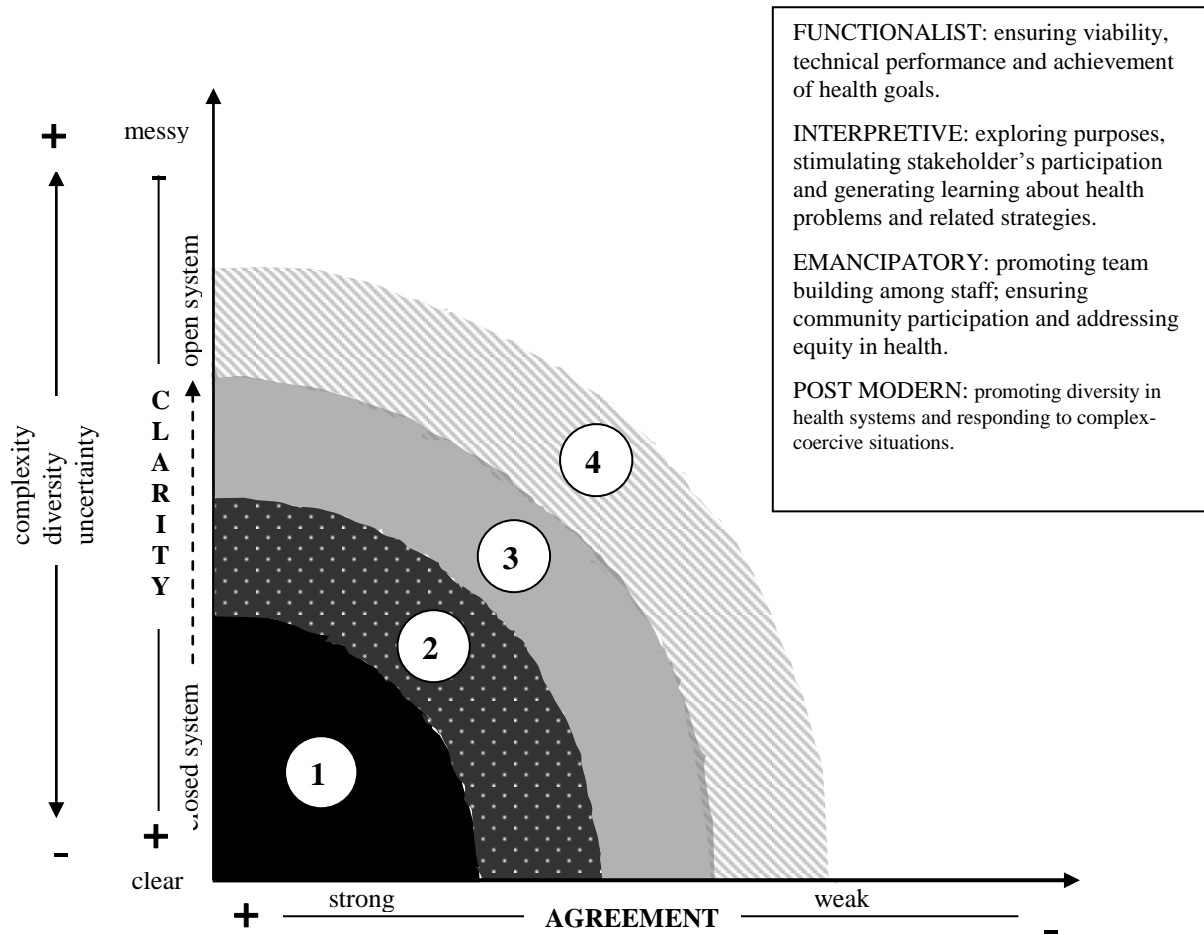
The use of Emancipatory Systems Approach confirmed Habermas view that "rationality emerges from dialogue" and Ulrich's and Midgley's assumption that systems boundaries can only be established through dialogue. The dialogue should involve the Government, health staff, civil society and other health stakeholders. This approach could certainly improve consensus building among different actors of health sector reform around issues of context, agenda and process. I learnt that the emancipatory approach could help in ensuring the fairness of health systems – equity and people's participation. *Critical Systems Heuristics* (CSH) can support the emancipatory interest of human beings as key health players, for more effective success of technical and practical interests, through freeing health workers and people from constraints imposed by power relations and bring them to the maximum development of their potential. CSH as methodology can be used to make sure that HS improve the human condition. Through the critical approach, the system idea and the heuristic process of unfolding messy issues, CSH demonstrated its capacity to reveal the interests and motivations of those taking decisions without involving or considering those affected with its implementation.

Community participation for health development remains an issue to be addressed more critically and it is recommended more adequate involvement of affected communities in shaping and setting health policies and their participation in Research and Development

programmes. In my view, the *emancipatory health systems approach* is about health organizations with boundaries established through dialogue between Government and community including individuals, families, community structures, for health policy development, reform agenda and process of change. In an emancipatory perspective, health reform would put emphasis on health related social practices, power relations, intersectoral collaboration, community participation, enlightening decision-making with evidence, respecting values such as equity and human rights.

Post Modern Systems Approach was interesting in promoting diversity in health sector reform. It was particularly useful in deepening the understanding of different options in considering how to address diversity in problem solving. PANDA was powerful in exploring discourses used in different scenarios, identifying who was marginalized by the current power structure and in identifying, researching and comparing different options to bring about the change. In terms of action PANDA was not good in guiding local strategizing and subversion as an endeavour to promote diversity; this is probably due to the nature of the thought experiments that made it difficult to conceptualise undertaking this important step. In terms of methodology and tools, I have doubts about the scope of the PSA particularly if I compare with functionalist, interpretive and emancipatory approaches. Nevertheless there is value in considering the *postmodern health systems approach* to look at health organizations as the ground of conflicts between players, politicians, health managers, health professionals and people that accept various interpretations of health and health systems on the basis of different and even opposed rationalities, perceptions and models. Health sector reforms would put emphasis in making marginalized voices to be heard and ensure diversity and creativity in health systems thinking and practice.

Figure 51 - Variations of Health System problem situation and related paradigm

FUNCTIONALIST: ensuring viability, technical performance and achievement of health goals.

INTERPRETIVE: exploring purposes, stimulating stakeholder's participation and generating learning about health problems and related strategies.

EMANCIPATORY: promoting team building among staff; ensuring community participation and addressing equity in health.

POST MODERN: promoting diversity in health systems and responding to complex-coercive situations.

C.   How could we yield knowledge on critical Health Systems thinking?

Health systems are highly complex and can't be understood on the basis of the single functionalist paradigm. The high complexity of health systems with high number of important variables and myriads of interactions makes it so intricate! We can't seek and find the most determinant structure and process responsible for its viability and technical performance. For its holistic learning and managerial capacity to deal with different problem situations we should borrow critical systems thinking to enlighten public health theory, methodologies and practice. Figure 51 illustrates the usefulness of 4 Jackson's paradigms in relation to the type of health system problems faced in health sector reforms. The key variables of the problems are *agreement* on its perception and *clarity* of its boundaries. In conclusion, first, as the agreement and clarity increases, complexity – diversity – uncertainty (CDU) tend to decrease; and health systems are apt to be closed and calling for functionalist approaches for problem solving. Secondly, as the agreement and clarity of problem-context decreases, CDU tend to increase; and health systems are inclined to be opened, calling for interpretive, emancipatory or post modern approaches. The range of problems that can affect health systems shows that the use of a single approach is not enough, unless we want to fix just one element of the system, what would be just a make-up, because health systems components and its attributes are in permanent relationships and wherever we change, it will affect the entire system. I advocate for the use of critical systems thinking as a framework of ideas; and Jackson's 4 paradigms + Mingers's 4 As approach as a *diagnostic tool* to assess the current state of a health system; and the application of critical systems practice mode 2 (following SSM mode 2) as a *tool of change* to undertake critical health system reforms. Of course, the use of other

pluralist frameworks and multimethodologies could equally be tested in a situation driven

mode. This is open for future research on the application of systems thinking in public health.

Table 12.12 as a complement of Fig 51, illustrates the practical intent in public health of the

different paradigms, theories and methodologies; with examples of type of problems that

might be able to address and related metaphors.

Table 12.12 Using systems approaches in public health

PARADIGMS	Functionalist	Functionalist	Interpretive	Emancipatory	Post modern	Creative holism
THEORY	Positivism	Realism	Hermeneutical/ Phenomenological	Emancipatory	Postmodern	Critical Systems Thinking
METHODOLOGY	Hard	Cybernetic/VSM	SSM	CSH	-PANDA -Derrida's deconstructio n device	CSP
PRACTICAL INTENT	Maximize efficiency of current Programs/Institu tions	Restructure current Programs/Institutio ns according to environmental needs	Handle pluralism in health services (Rethinking the concept of health and disease-from dif angles)	Challenging economic, political and social barriers. Empowering disadvantaged.	Promoting diversity in health care. Health stakeholders mushrooming. Addressing emotions of voiceless people.	Critical Health Systems Thinking and Practice (holistic approach)
EXAMPLES OF TYPE OF PROBLEMS THAT MIGHT BE ABLE TO ADDRESS	Logistics of medicines and vaccines	Non recognition of HIV/AIDS	Cultural pressures prevent people of taking triple vaccine in UK and taking polio vaccine in Nigeria. Different perception of health by traditional healers	Health resources denied for political reasons.	Managing health systems in situation of crisis.	Addressing all range of problems
METAPHORS	Machine	Organism/Brain	Culture/Politics	Prison	Carnival	Genome

12.3 Contribution to Knowledge

The study represents an original contribution to knowledge because in the light of the current literature on health systems and systems thinking, very few authors have previously argued for a critical systems approach to public health. In applying Jackson´s key paradigms as a methodological approach to interrogate the current state of health systems thinking I could demonstrate that in the area of public health, systems thinking is fundamentally functionalist in nature. Nevertheless, interpretive and emancipatory thoughts occasionally emerged in views expressed by some health institutions and authors, such as illustrated by the primary health care approach, the new public health theory and the analysis of literature dealing with public health and systems thinking. I argue that health system thinking is missing vital insights that could be provided by a more in-depth consideration of alternative paradigms and related methodologies.

In terms of the generation of knowledge about critical health systems thinking, I would consistently advocate the combination of different systems methodologies as demonstrated in the Thought Experiments. The creative combination of methodologies underpinned by different paradigms and based on critical systems thinking, as a theoretical framework, was useful to validate the knowledge about the current state of health systems thinking and generated a critical approach that could be used in the different contexts of health sector reform. The critical health systems approach will certainly help in achieving practical, technical and emancipatory interests in the field of public health.

In terms of contributions to Critical Systems Thinking, the study demonstrated CST 's power to analyze other spheres of knowledge; and I am the first to make a comprehensive study arguing to extend the use of critical systems thinking in public health.

The study also yielded new methodological knowledge by demonstrating the possible and relevant use of Critical Systems Practice mode 2 as a problem oriented and sense making device, learning from SSM mode 2. It also demonstrated the application of the selected methodologies (VSM, SSM, CSH and PANDA), underpinning Jackson's Key paradigms, for all the stages of Mingers 4As approach. This is a challenge to Mingers who allocates different methodologies to different stages.

In spite of its limitations, the study generated new insights and ideas, identified gaps and raised new hypotheses about health systems thinking, methodologies and practice. I learnt more about the way of perceiving certain types of public health problems and the approaches that can be used to better learn about and change them in a more creative and effective manner. It was obvious that current health system thinking should go beyond functionalist approaches and incorporate not only viability and goal seeking but also holistic, purposeful learning in innovative approaches that tackle in a more effective manner the complexity, change and diversity in health systems. The need for a more holistic and creative approach and the use of multi-methodologies in addressing health sector reforms became manifest.

Therefore it is clear that I have developed a unique and meaningful contribution in the subject field of *a critical approach to public health*. The thesis announces a new style of thought that enlightens public health issues with critical systems theory and contributes to

better management of health organizations. This is the first evidence-based call to *Critical Health Systems Thinking* learned from public health practice and grounded on critical systems theory. I hope there will be many examples of successful critical systems practice in this field in the future.

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