CHAPTER I INTRODUCTION

1.1. Introduction

The *Leiden Ethnosystems and Development Programme* (LEAD), which is a multidisciplinary Research & Training Programme in applied ethnoscience, based in the Faculty of Science of Leiden University in The Netherlands has been providing the overall framework for the present study in Serengeti in the Mara Region of Tanzania. Its mission embodies the *leitmotif* of the research to*: 'develop and strengthen the newly-developing field of Applied Ethnoscience within the context of development in various sectors of the society through international co-operation in education, training and research with students, scientists and counterpart institutions. By studying local systems of knowledge and practice and using them as a steppingstone in the development process in interaction with global systems, improved participation can be achieved, and by consequence sustainable development. This important aspect not only increases the societal relevance of the novel field of study, but also offers new opportunities for innovative research in modern science, such as in medicine, pharmacology, economics, communication and ecology (cf.* Slikkerveer 2018). As the LEAD Programme has been engaged in various joint activities and networks with counterparts in South-East Asia, East Africa and the Mediterranean Region involved in the study, analysis and explanation of Indigenous Knowledge Systems and Development (IKS & D) in various sectors, this research seeks to strengthening the indigenous knowledge base in Tanzania in public health management with a view to integrate global and local medical knowledge and practice in order to contribute to the achievement of the Sustainable Development Goals of the United Nations (2015) in East Africa and beyond.

In the general orientation of the Programme to focus on the applied aspects of its rather dynamic neo-ethnoscience approach of IKS&D, various sub-fields are covered, including Traditional Medicine (TM), Indigenous Agricultural Knowledge Systems (INDAKS), Traditional Ecological Knowledge (TEK), Conservation of Medicinal, Aromatic and Cosmetic (MAC) plants, and Indigenous Community Institutions (ICI). The emphasis on the applied aspects seeks to reach the integration between the traditional and modern – or local and global– systems of knowledge and technology, as has been realised in the recent approaches of *Integrated Microfinance Management* (IMM) and *Integrated Community-Managed Development* (ICMD) (*cf.* Slikkerveer 2012; Slikkerveer, Baourakis & Saefullah 2018).

Recently, the shortage of well-trained public health manpower in Tanzania was brought to the attention of the LEAD Programme through a request by the health institutions of the Kanisa la Mennonite Tanzania (KMT) ('Mennonite Church of Tanzania'), namely the Nyerere District Designated Hospital (NDDH) and the Kisare College of Health Sciences (KCHS). The initiative eventually pertains to the future establishment of a University with a Public Health Management Faculty in order to respond to the current need of supporting capacity building at an advanced master level in public health, with an emphasis on the training of a new cadre of public health managers.

As a result, the focus expressed by the Kanisa la Mennonite Tanzania (KMT), which currently operates the educational facilities of a number of health manpower categories in the area, concerns the future development of a local curriculum at the master level. It is to be accessible to Tanzanian health workers on BSc level, who aspire to work in the area and thereby reduce both prevailing public health management problems and related manpower deficiencies.

The aim of this study is to acquire advanced knowledge on local peoples' illness behaviour, both in a rural and in a rural semi-urban area. It will focus on the motives and behaviour which clients and patients display in relying on any configuration of local health institutions, classified as either traditional, transitional or modern (*cf.* Slikkerveer 1989). It will examine the availability, accessibility and patterns of health care utilisation, particularly where they are embedded in the local cultural heritage. In addition, it seeks to document, describe, analyse and explain the various independent background, intervening and dependent categories of factors influencing the reported utilisation patterns reported by the participants, *i.e.* the inhabitants of the survey areas. In the course of this research an analytical model will be implemented, in which the utilisation of the co-existent medical systems is related to the historical, cultural and economic factors which guide the daily life of the inhabitants of Serengeti in the Mara Region.

The implications of the analysis of the research data will support the formulation of recommendations for education and training in order to contribute to the achievement of integrated transcultural public health policies, as requested by the District Health Management Team of the Serengeti District and the Kanisa la Mennonite Tanzania (KMT). Consequently, the findings will also be used as input for the establishment of a new master course on *Transcultural Public Health Management* (TPHM) in the area, and elsewhere in similar conditions (Luby 2013). Special attention will be given to the documentation of indigenous medical knowledge, belief and practices of the local population in the research area.

The joint initiative for the master course is currently being developed among six counterparts of the international consortium in Tanzania, The Netherlands, Denmark and Greece, taking the health facilities currently operated by the Kanisa la Mennonite Tanzania (KMT) as a point of embarkation, i.c. Kisare and Shirati Colleges of Health Sciences, as well as other institutes such as Nyerere University and the Clinical Assistants Training Centre in Musoma. The selection of the region, the recruitment of the research assistants, the processing of the data, and the installation of hardware at the Kisare College in Mugumu, as well as the above-mentioned International Consortium on TPHM provide the broader background of the present study in Serengeti in the Mara Region of Tanzania.

1.2 The Need for a New Approach to Public Health Management.

This research follows the Leiden Ethnosystems and Development (LEAD) method, designed for the assessment of the health care utilisation behaviour of the plural medical configuration in Serengeti with a view to improve the public health situation of the largely poor people living in the in rural and semi-urban areas. The approach supports the presumption that rural development can and will only take place if the people who are the subject of development are involved in the entire decision-making process (*cf.* Warren, Slikkerveer & Brokensha 1995, Posey 1995, Rist & Dahdouh 2006). In order to support the improvement of health care against the background of the Serengeti area in the Mara Region of Tanzania, as many socio-cultural factors related to health and well-being as possible are taken into account. In this case, the process of health care utilisation is documented and analysed within the setting of a complex society which is trying to find a balance between its pluralistic indigenous culture, its colonial heritage, as well as global economic influences. The research results seek to contribute to the development of public health management, by including and emphasising the role of indigenous medical knowledge, beliefs and practices in the training of new categories of health manpower, as well as in the design of locally appropriate health care policies.

The analysis is built up ranging from district, to community to individual level. As many scientists in the public health field will recognise, there is currently not one generally suitable model in dealing with public health problems on the African continent. There may rather be a growing consensus on the idea that various customised models have to be developed in order to suit as many local situations *(cf.* Hörbst *et al.* 2017). The *WHO Agenda for the African Region* (2015) already covers a range of themes for 2030, including (i) improving health security; (ii) strengthening national health systems; (iii) sustaining focus on the health-related MDGs / SDGs; (iv) addressing the social determinants of health; and (v) transforming the African Region into a responsive and results-driven organisation, but anticipates their feasibility simultaneously: *'While the goals and targets in the 2030 Agenda for Sustainable Development are global in nature and universally applicable, the declaration envisages a situation with each government setting its own national targets guided by the global level of ambition but taking into account national circumstances'* (*cf.* WHO 2015; p.2 nr. 7).

Historical and contemporary examples of strategic choices, policies, plans, and operational implications are presented consecutively in the next Paragraph. As has been defined by Leslie (1976), Fabrega (1982) Slikkerveer (1982), and Helman (1994), the availability of more than one medical system connoted as either traditional, transitional or modern, being utilised simultaneously, alternately or consecutively, irreversibly leads to the need of discovering the mutual relations of these medical systems. Such a configuration of medical systems which is termed '*Medical Pluralism*' has internal dynamics which may disclose the essence of why people make choices to undertake specific actions in the utilisation of these systems (*cf.* Slikkerveer 1982, Hsu 2007, WHO 2013, Olsen & Sargent 2017).

In Sub-Saharan Africa, the co-existence of traditional and modern medicine is now more than a hundred years old (*cf.* McPake 2009), and so far, the combination of both medical systems has not yet been implemented as a complementary system, while the World Health Organisation (1978) has been encouraging such a co-operation, and several African governments have already adopted legislation to that extent, as well as commissioning national institutes to engage in research into indigenous herbal medicine (*cf.* Slikkerveer 2006).

At most, it has developed a symbiotic tendency in specific countries *e.g.* China, Indonesia or India. One may argue that through communication and commercialisation, currently exponents of all systems, such as African Traditional Medicine (TM), Complementary & Alternative Medicine (CAM), Chinese Traditional Medicine (CTM), and Ayurvedic Medicine (AM), have become increasingly available and accessible.

The awareness that the current health status finds it root in colonial history to this day, has reached all levels of academic debate, but the inventivity of finding ways to bridge these systems into a form of true integration has been limited. Ethnoscience is trying to meet this challenge in applying methods to find significant relationships to improve health care delivery within its - plural medical - cultural context. The 'complementarity' should imply that it evolves into a truly integrated medical system (*cf.* Ambaretnani 2012), an umbrella which covers all variants, instead of one system being co-opted by another, or considered intrinsically superior, while encompassing as many locally relevant socio-economic and psycho-cultural factors as possible.

1.2.1 History and Development of Public Health in Sub-Saharan Africa.

In the relevant literature on public health development, the focus on the definitions used to explain the public health concept, is largely placed on the relationship between establishing well-being of the larger population in a given area, and the application of monitoring, control and preventive policies, as well as of measurements involving medical practice on an individual level. (*cf.* Hobson 1965; Koplan *et al.* 2009). According to Koplan *et al.* (2009), public health first appeared as a concept as a result of social reform developments in 19th century western society, i.c. continental Europe and the USA, and the advancement in bio-medical knowledge, especially with regard to communicable diseases. The four elements underlying the concept are a) decision making based on data and evidence; b) a focus on populations instead of individuals; c) the goal to achieve social justice and equity; d) emphasis on prevention rather than curative care.

Since its establishment in 1948, the World Health Organisation remains the agency which is assigned to maintain global governance in health care, through the endorsement and monitoring of international norms and standards, and the co-ordination of the efforts of all member states. Its definition of public health has been formulated as; *'the science and art of preventing disease, prolonging life and promoting human health through organized efforts and informed choices of society, organizations, public and private, communities and individuals'*. (*cf.* Acheson 1988: 1; WHO 2017). So defined, it implies the involvement of an endorsed (centralised) authority with an administrative body, which is capable of implementing these policies, apart from having human as well as material resources or the appropriate infrastructure. Once the combination of these attributes is dissected however, the need to tailor the concept in its application to rural Africa becomes more distinct.

In order to analyse the role of public health in rural areas in Africa, several parameters have to be considered, as argued by Azevedo (2017a). He points at the combination of specific geographic, socio-economic, cultural, historical, and infrastructural features, creating a setting which cannot be compared to other rural settings in the Southern Hemisphere, without making elaborate distinctions. The reference to Africa in this research concentrates on what is called Sub-Saharan Africa (SSA) and as such is distinct from what is called MENA (Middle East and North Africa), which from this viewpoint is peripheral, with its own characteristics (*cf.* Beaglehole & Bonita 2009).

For a tangible historical perspective on a uniformly organised or 'institutionalised' health care on a national scale, it is instrumental to look at the relatively short time span of nation building on the African Continent, which was set in motion around the late fifties and early sixties of the former century. Before and right after that period of time most facilities were either managed under a local (colonial-) government, or dependent on religious organisations (or their affiliated NGO's) which built, owned and operated almost all curative inpatient institutions [1]. Moreover, these facilities largely served the Europeans who were deployed in Africa during the colonial period of time, while religious orders used the provision of health care as a means to convert the local population to Christianity. In the beginning, the organisation of interconnected curative and preventive health care on a large scale had not yet been established, and the only generally available medical system included the centuries-old indigenous system of Traditional Medicine [2]. However, this system has for a long period of time not been officially recognised, because of the negative attitude of both the colonial powers as well as the missionary congregations (*cf.* Slikkerveer 1988; Chirangi 2013). The cumulative effect of the limited scale of local rural economies, lack of resources, moderate

infrastructure, as well as cultural differences between providers and recipients, seemed to render the implementation of an approach of modern public health rather incompatible with the characteristics of the local population in rural areas.

The expectation that the conditions which make the public health concept work in large parts of the western world would be equally available, or attainable, in the African rural areas, was most probably based on an historical and political bias, as summarised by Chigudu (2015) in his analysis of what evolved around the Ebola crisis of 2014. Although that instance may possibly be regarded as dealing with only one aspect, *i.e.* Communicable Disease Control, it was far more intricate in its implications. The outbreak could technically be contained through great effort, but the suspicion among the general audience regarding the explanations given by authorities and staff, and their initial unwillingness to adhere to an advised code of conduct, showed how vulnerable the communities involved were, and how unprepared the system itself was for the potential hazards of the situation.

The introduction of biomedicine during the transformation process of a colony into an independent nation state rendered its role in the appearance of an institutionalised health care framework not necessarily controversial. Modern medicine became an alternative next to existing medical systems, while being associated with 'progress', and used by the authorities as a showcase for development. There is an analogy in the provision of formal education, primarily to enable and support socio-economic development. An underlying motive was to acquire international resources in the process, despite the fact that they were fragmented or inefficiently implemented. According to Prince & Marsland (2014), such failures often resulted from an imbalance between urban and rural facilities as well as between the owners of facilities, being either local government authorities (LGA's) or NGO's.

Apart from the influence of the natural environment, and the perceptions of health care by the local population, the concept of public health in SSA is also connected to the classification of 'tropical medicine'. According to Azevedo (2017a), the reference to 'tropical medicine' is inappropriate, as it comprises diseases which did not originate in the tropics but are rather associated with the geographical zone, after they started to occur there. In his view, it covers area specific properties such as climate and socio-demographic features, which should be the case everywhere, and he suggests that the term is suspect as a classical perception which finds its root in colonial history. In this way tropical medicine treated morbidities in a specific climatic zone as a phenomenon first defined by western science and as inherent to that zone, irrespective of the underlying socio-economic conditions or the factual historical cause of a number of morbidities which were classified as characteristic. Even more so, as the definition is still widely used today in many African institutions of higher learning, it had deserved to be rephrased in an earlier stage. Therefore, the connection between the concepts of public health and tropical medicine becomes a construct which needs to be prudently applied.

In the meantime, the initial public health movement of the mid-nineteenth century with its focus on health improvement of large population groups through environmental change was replaced in the 1980's by the era of 'new public health', where in addition to the creation of health-supporting environments, the local population was assisted to reclaim power and control over their own lives, pertaining to community empowerment in health (*cf.* Ashton & Seymour 1988, Awofeso 2004). The relationship between the new public health initiative, community health and the strategy of 'Health for All' by the World Health Organization (WHO 1981) is further elaborated in Chapter II.

1.2.2. The Policy of Structural Adjustment

The economic situation in most countries leading up to the recession of the 1980's, and shortly thereafter, was such that the structural adjustment policies advocated by the World Bank (1981) and the International Monetary Fund (IMF) (1974) led to unprecedented shortages in resources to maintain basic health services, especially in Maternal & Child Health (MCH) and Community Health (CH). Important landmarks in post-colonial history are the Alma-Ata Declaration (1978), with the Primary Health Care (PHC) concept [3], one of the first all-encompassing and uniformly implemented public health policies, followed by the Bamako Initiative (1988).

In the current definition Primary Health Care, is described by the World Health Organisation as; '*…ensuring people's health problems are addressed through comprehensive promotive, protective, preventive, curative, rehabilitative, and palliative care throughout the life course, strategically prioritizing key system functions aimed at individuals and families, e.g. primary care, and the population, e.g. public health, as the central elements of integrated service delivery across all levels of care'* (WHO 2018; p.1).

At the conference in Alma-Ata (1978) the WHO recognised that an estimated 80% of the population in developing countries depends on various forms of Traditional Medicine (TM) for their primary health needs, and the new PHC-concept not only created the possibility of collaboration with traditional healers and birth attendants (TBA's), but introduced a new paradigm of integrating traditional and modern medical systems to support health care development (*cf.* Bannerman, Burton & Wen-Chieh 1983). The World Health Organization then launched its new strategy of promoting the role of Traditional Medicine (TM) in Health Systems which was later implemented with increasing success, particularly in rural areas of developing countries (*cf.* World Health Organization 1978; 1993; 2000; 2002a; 2002b; Twarog & Kapoor 2004);

The primary goals of Bamako (UNICEF, WHO 1987-1988) include the improvement of access to elementary services through community involvement, a focus on essential drug supplies, increase the scale of services through immunisation campaigns, and a combination of limited user fees, sponsored free services, proper financial management, and community mobilisation. Community involvement translates into the knowledge of the underlying causes of existing health conditions. It means that the management of health problems by the community members themselves, includes related aspects in terms of food, environment, education, infrastructure and social cohesion. The community's resources are applied with consensus among inhabitants, and volunteers support local initiatives. In that aspect Community Health (CH) has a direct relationship with Primary Health Care (PHC) and 'New' Public Health (WHO 1995), as it is the translation of self-determination in dealing with health care problems at the local level. It is also where the conditions for accessibility in terms of geographical, economic and cultural barriers come together (*cf.* Sofoluwe & Bennett 1985, WHO 1995).

With the introduction of the new Community Health (CH) approach, the role of donor funding, whether international, bi-lateral or NGO-based, remained essential in the execution of these programmes, in addition to whatever a national government was able to contribute from the available budget. Although widely supported politically, the initiative did not deliver the desired result on the intended scale everywhere. The predominantly economically oriented analyses by Kanji (1989) and Jarrett (1992), show that the economic decline hindered the recovery of cost through user fees in order to maintain the level of service in health care. In addition to user fees, the

community leaders and local government authorities (LGA's) were faced with much more problems. The Community (Village) Health Committee had to provide premises for the Village Health Workers (VHW) who were supposed to be volunteers but expected compensation. The Revolving Drug Fund (RDF) did not generate enough turnover to replace the original budget, and simultaneously there were to be provisions for free medicine for poor people who could not cope with even the most elementary fees, but there was no criterion as to how to identify them. Moreover, there were no reservations for expanding the projected coverage -either by need or demand- once the initial amount was budgeted. All these facets together create a situation in which there was no practical solution presented for recuperating the actual cost. As a result, the utilisation of the formal health care system dropped, and staff motivation diminished because of their private economic situation, which in turn led to affect quality levels. With regard to the policies concerning local government authorities (LGA's) the decentralisation of power played a role, because the budgeting was also decentralised, and therefore became influenced by other local priorities besides health care, compensated only through the capacity of local tax levying (*cf.* Kanji 1989; Jarrett 1992).

Because of the association of biomedicine with 'external' influences, implicit in a 'modern' health system, identified through the involvement of western NGO's and UN-sponsored activities (sometimes imposed by local authorities) in some cases initial Primary Health Care interventions were even met with suspicion by the indigenous population (*cf.* Prince 2014). These situations pertained to lack of response to health education campaigns, or lack of adherence to community mobilisation, *e.g.* during the introduction of the Extended Programme on Immunisation (EPI–treks) or MCH mobile under-five clinics (UFC). Sometimes these were due to insufficient explicative communication, for example with reactions of infants to inoculations, sometimes to the unpopularity of preventive measures which were not considered as a priority by the local population. Examples include communal construction of public latrines, a ban on using water from a nearby river, or the imposition using mosquito nets while sleeping. During the author's qualitative research in Ghana from 1988 to 1992, the motives expressed underlying this behaviour indicated that many people did not recognise a relationship between these preventive measures and their experience of certain diseases, or their convictions as to the cause of some of them (*cf.* De Bekker 1993). The preventive measures moreover demanded adaptations of their lifestyle, very different from the ways they were taught by their ancestors, who had abided by traditions for hundreds of years without these adaptations. The spending of resources on preventive services, experienced as superficial while not being ill, was generally perceived as a paradox, and the promotion of collective health insurance on community level, inspired by various missions in its initial form, often flawed for the same reasons. The metaphor used by a local District Medical Officer of Health in despair at the time was: *"When you acquire a watchdog to guard your estate and the burglars don't come, does it mean the dog has been useless?"* (*cf.* De Bekker 1993).

In other research such as Muhammed *et al.* (2013) the underutilisation of Primary Health Care is attributed to a relatively high fee for preventive services, inadequate infrastructure in healthcare facilities, and occasional lack of medicine supply. What is essential though is that Mohammed *et al*. establish that people do directly use secondary and tertiary facilities but tend to evade preventive services. In their analysis, the majority utilise the modern health system primarily for curative instead of preventive services, and that modern health care facilities in fact compete with commercial pharmacies for medicine, which the latter always seem to win. Preventive health care, whatever the quality of service, is apparently not recognised or appreciated as essential. The

criticism is mostly aimed at unreceptive staff attitude, the absence of a doctor, and levies for officially free services or physical remoteness (*cf.* Muhammed *et al.* 2013). What needs to be addressed at this point is the long history with self-medication, following a holistic approach with regard to health and well-being, which is common practice in large parts of the continent. As such, there is a direct connection with home remedies, or private consultation of knowledgeable community members who offer advice or treatment primarily as part of a traditional medical system. That behaviour affects the role of preventive services in terms of their proximity, as the latter are less visible, must be acquired purposely, or offered within the social framework of the community. An additional problem which is reported is that the attitude of staff in the modern system is frequently described as distant, disapproving, or dismissive of applying traditional alternatives (*cf.* Chirangi 2013), which is intriguing, as staff and potential patients predominantly share the same cultural frame of reference. Furthermore, those public health services which are supposedly to be delivered for free, *e.g.* Maternal and Child Health (MCH), elderly care, or specific HIV/AIDS treatment, are frequently charged in cash in advance by modern health workers and create animosity towards them among the local population.

As regards the institutional aspects in this historical overview, one of the key attributes in the assessment of public health as experienced in many rural areas is the fragmentation of services. Because of the involvement of a large number of private & public partnerships, it was (and is) not uncommon to observe that a local clinic –and its annex outreach operations in the vicinity- owned by a religious institution with external sponsorship is often better equipped than a local government's public health department, just because a congregation of a particular faith exists in the community. In the process, essential demographic features or morbidity rates were apparently not taken into account by the external funding agencies in awarding their support. Some NGO's chose to focus on one aspect, *e.g.* Maternal & Child Health (MCH), Polio, Guinea-worm, Onchocerciasis, Leprosy, or safe drinking water, because of the support available from abroad, not because of prioritisation by the local government authorities (LGA's) concerned. These LGA's were however simultaneously expected to endorse the local mission's projects, because of the influx of the connected funds. In a similar way, a private commercial laboratory in town is executing tests because the nearby (mission-) hospital is not equipped to perform the same analysis. The number of private hospitals is increasing, but they mainly serve the privileged members of society. In that way privatisation is technically successful, and complementary, but it does not answer to the requirements inherent in providing a public service on the intended scale as in a national health system. It is evident that private commercialisation of health care can hardly be centrally controlled towards a purposeful application of available resources to support health policies, unless the commitment of local authorities, NGO's, and the central government to co-ordinate efforts is established. The imbalance in development happened within a larger framework however, because of the adaptation of the WHO's norms and standards by national governments and NGO's, as health care development is considered inherent to rural development and adhering to the themes prioritised by the WHO's policies implies gaining access to external funding.

Complementary to his analysis, Mpambije (2015) points at another factor which is suggested to have played a part in the unsatisfactory delivery of health care services. He refers to the aftermath of 1980's economic crisis, namely the decentralisation of health services by the central government as a part of Health Sector Reforms (HSR) by the Ministry of Health of Tanzania (*cf.* Chirangi 2013). Following the limited central revenue resources, and the unfulfilled weight of community

involvement, the distribution of funds to local government authorities (LGA's) and the utilisation of these funds on district and facility level are difficult to manage. As Mpambije (2015) argues, the application of funds in the Primary Health Services Development Programme (PHSDP), to the dedicated targets *e.g.* facility maintenance, upgrading, staff training, recruitment, standardised equipment, drug supply, special disease programmes have been incomplete. Kamugisha (2008) notices that the response to Community Health Fund (CHF) which is directly related to service delivery has been low, 10% instead of the projected 85% participation, because of the lack of fulfilment of the facilities covered by the fund, and the invisibility of benefits to large sections of the population. Although the adagium of Primary Health Care (PHC) has been that successful curative services yield better response to preventive services, the ambivalence remains whether these developments should be regarded as a flaw in the concept of Primary Health Care (PHC), or as a result of economically determined logistics, human resources and management problems. The perception that a combination of a lack of qualified staff and frequent unavailability of essential drugs is the major influence for people's low response to the formal health system does not provide sufficient answer. The description of Health Seeking Behaviour (HSB) (*cf.* Rosenstock *et al.* 1988; Metta 2016) and the three basic barriers to health care accessibility, formulated as geographical, economic and cultural, as implicated by the 'New Public Health' paradigm (*cf.* Sofoluwe & Bennett 1985; Ashton & Seymour 1988) provide more insight in the underlying phenomena.

1.2.3 Public Health Policies: Ignoring the Role of Traditional Medicine

Alongside the foregoing developments, attempts to incorporate both modern and traditional medicine into one comprehensive medical system took shape in the late 1980's and early 1990's. The interest in predominantly herbal traditional medicine specifically, has been revived to the extent that research centres into indigenous plant medicine were established in several countries, usually placed under a ministry of health, or an eligible institute of higher education (*cf.* Owusu-Ansah 2014). According to World Health Organization (2002:7): *"Traditional Medicine refers to health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being."*

As mentioned above, the original idea, promoted by the World Health Organization following the 1978 Alma Ata Declaration, was that the incorporation would lead to a reduction of pressure on the already overburdened official health care system. An additional motive was that such integration could disclose alternatives for the provision of basic health care on a larger scale at a fraction of the cost, if more effective resources could be traced in locally available herbal medicines, inherently accessible to the general public, and implicitly embedded in local culture (WHO 2000).

According to Meincke (2012) there were 39 countries which were WHO-member states in the African Region, including Tanzania, which had to a certain extent developed a national policy for the promotion of traditional medicine in 2011. Meincke makes a connection between the development of an overall increase in the interest in herbal medicine worldwide, and the regional expectation of TM evolving into an additional health resource in the nations in question, with an apparent consensus, as the initiative has also been endorsed by the African Union (2005). Traditional practitioners, including Traditional Birth Attendants (TBA's) were considered important individuals in improving community health, and some communities even selected them as Village Health Workers (VHW) (WHO 1978). They were known to the inhabitants, knew the local customs,

were trusted by their community, occupied with maintaining health, and were the bearers of indigenous knowledge. Subsequently, there was a change in emphasis because of the focus on herbal knowledge of TM, instead of using the wide range of traditional professionals as a health manpower resource alternative (*cf.* WHO 2002; Marsland 2007). Why a structural co-operation between traditional practitioners and the modern medical system did not materialise until now is attributed to a large number of factors, but in Meincke's (2012) analysis, supported by Chirangi (2013), it was largely due to a lack of political commitment as well as financial support by local government authorities (LGA's).

Considering the health expenditure deficiencies involved in regular service delivery at local level in most countries during that period of time, it could be regarded as a result of economically driven short-term decisions. The focus became uniformly shifted towards communicable disease control (CDC), donors following the priorities set by the WHO. As an additional factor, Meincke (2012) also refers to scepticism from modern medicine when traditional practitioners were attributed to cure HIV/AIDS or cancer (*cf.* De Bekker 1993), or were associated with witchcraft's distorting influence on social cohesion, which stigmatised them as disruptive within their own communities (*cf.* TAMA 2002)[5]. That leaves aside the possible distinction between types of healers, many of whom practice their profession with appreciation from their communities, *e.g.* the prestigious status of some bonesetters, spiritual healers and herbalists. (*cf.* Warren 1975; Bannerman *et al.* 1983).

As documented in the recent literature such as Hausmann-Muela (2000), Millar (2004), Marsland (2007), Meincke (2012), Denisenko (2013) and Chirangi (2103), the discussion centres around the combination of 'natural' or 'supernatural' causation. The concept of combining medical systems assumes a symbiosis of biomedical and ethnomedical systems, whether or not the latter has a distinct therapeutic character, or a ritual character, which could simultaneously carry communal symbolism and/or social significance. That specific discussion usually evolves into a trade-off between local cultural context and western scientific axioms, but that need not be the unavoidable outcome of trying to bridge these different qualities. In recent years there has been ample demonstration of more attention being paid to the indigenous viewpoint, increasingly relevant once the historic legacy of colonial influence, or the emphasis on current shortcomings in economic, manpower or infrastructural resources are left out of the equation (*cf.* Azevedo 2017; Konadu 2008; Marsland 2007).

Moreover, such ambivalence is not only applicable to Africa, but to indigenous cultures in Asia and the Americas as well, as they had all developed indigenous medicine long before western scientific influence was felt. Yet, according to Konadu (2008) the current position is that even national policies by local governments "perpetuate" the dichotomy between modern health care and 'traditional' healing to such an extent that a possibly desirable integration, or re-appreciation of combining both systems, seems far off. The option of allowing a traditional system to complement insufficient coverage by a modern system as an alternate resource, is currently not being reconsidered (*cf.* Chirangi 2013). There were however TBA trainers working with traditional midwives in the late 1990's, focusing on how to recognise emergencies crossing their span of control timely, and refer their patients to a nearby clinic in case of suspected pregnancy related complications (PRC's). Another example is the rather successful Primary Health Training for Indigenous Healers (PRHETIH) programme, introduced by Warren *et al.* (1982) as a strategy to co-ordinate human resources with the Ministry of Health. It involved different categories of indigenous healers, mainly TBAs, herbalists and priest/priestess healers in the Techiman District of Ghana.

Similar promising strategies have also been implemented in Ethiopia; Zaire and Nigeria (*cf.* Slikkerveer 1982; Yoder 1982; Bibeau 1982 and Brink 1982). In the early 1990's at some instances co-operation (*e.g.* Vane, Volta Region, Ghana, 1989) between modern and traditional medical systems was displayed where traditional healers were invited purposely to establish their practice across the road from the clinic entrance, in order to be able to refer an individual who would not respond to a specific therapy, and vice versa (*cf.* De Bekker 1993).

In Konadu's argument, even early academic accounts, as well by ethnographers as medical anthropologists, of what a traditional system is built up from, often deviate from the day to day reality of its practitioners, and thereby undervalue its essence (*cf.* Konadu 2008). Konadu presents it as another demonstration of the dominance of a western scientific paradigm. If one wants to remove this dilemma, one could look at the way the application of modern medicine was necessitated by the introduction of western borne diseases in non-western societies, obviously in a historical timeframe. The traditional medical system as well could not anticipate the development of a cure for unknown morbidities (*e.g.* tuberculosis) before that period of time.

The aspect which should be removed from this polemic is whether the classification of diseases and their respective applied therapies in a specific cultural area, are a result of the need of scientists to construct a theoretical framework to support their assumptions about human behaviour, or whether it comes forth from the desire to improve upon local living conditions. Otherwise stated, it should not be driven by a scientific paradigm, but rather by humanitarian pragmatism. Irrespective of the actual motivation of individuals to apply a certain therapy on the basis of the experience of a particular illness, the ultimate goal is to get well. The assignment of public health policies is to provide an environment in which as many health problems of the population can be prevented as possible.

During the preparatory meetings towards this study in 2014, the Serengeti District Health Management Team in its capital Mugumu, expressed the eagerness to deal with those instances in which health problems cannot be managed. Whether this is on the basis of logistics, quality, service delivery, or traditional beliefs does in the end does not matter. The ethnoscience method as it is defined, is to present phenomena from the perspective of the participant. It implies that those cases experienced as either effective, ineffective, hazardous, or inappropriate by the local population become the object of study. The connections between a certain disease and the options considered for therapy can be dependent of many factors and they are readily recognised by many health workers of both traditional and modern medical systems. The emphasis put on a supernatural dimension attributed by western scientists to traditional healing as an unverifiable factor, takes away the focus from what could be achieved. The research into the efficacy of traditional medicinal plants does not deserve to be labelled as 'neo-colonialism'. The focus should be on embracing new insights, irrespective whether they meet microbiological criteria, but rather their contribution to intellectual property (*cf.* Sackey *et al.* 2010).

As Meincke (2012) argues, if the knowledge is taken away from the healer, it would simultaneously diminish his role as a social mediator, which is exactly the added value in the entire concept of co-optation as a health worker. It also ignores the relationship of his personal qualities with the healing process (*cf.* Ambaretnani 2012). It would unjustifiably establish scientific criteria as the universal standard which determines whether traditional knowledge is valid, until proven otherwise. In the present research however, the documentation of the decisions as to which system is utilised, because of what perception, is regarded as nothing less than a consensus among the people

whom it concerns, and not the desire to mould it into a theoretical framework. In this way there is no motivation to regard any type of medical system intrinsically superior to another, but rather address the need to analyse and understand disease prevention and control in the most optimum fashion. The involvement of local researchers and respondents in the research area using the local language investigating the local perceptions and practices, is practically applying ethnoscience, and the ultimate basis to support development; '*…frame my analysis in terms 'of' an anthropology of public health, as opposed to an anthropology 'in' public health. The 'of' requires that anthropologists should put public health itself under the ethnographic lens, whereas the 'in' compels us to offer a service, such as cultural broker, to public health'.* (Prince & Marsland 2014: p.75).

Another approach to the assessment of the role of traditional medicine (TM), especially in relation to the incidence of malaria, is found in recordings after rounds of Focus Group Discussions with health workers in Tanzania (Comoro *et al.* 2003). It shows that there is widespread knowledge of elementary symptoms, but simultaneously there may be a missing link to the actual underlying morbidities, as has been demonstrated when anaemia or convulsions, and other indirect long-term physical effects, were not directly associated with malaria when they should have been. Additionally, it has been found that traditional herbal treatment is often regarded as a suitable option because of the role which women play in advising treatment within the household, similar to what traditional healers do within a community, in some cases excluding other treatment options where they may equally be lifesaving.

As Towns *et al.* (2014) note, following their work in West African Benin, there is a preoccupation with knowledge which resides with professional traditional healers, and, perhaps, too little with the knowledge already available at the household level in the form of 'home remedies'. That leaves aside whether that knowledge transcended from other family members or was originally acquired from professional traditional healers. The recommendations from their research put a link between the role of mothers in the health care of children, and their knowledge of herbal treatment, in the sense that more knowledge of TM would incline them to take better care of children overall. They also tend to consult modern medicine (MM) in an earlier stage because through their experience, they have a better understanding of the relationships between different symptoms and the efficacy of various treatments. That understanding is exactly one of the points of embarkation of ethnomedicine in integrating indigenous knowledge with health education, as is prioritised in developing the concept of Transcultural Public Health Management (TPHM). The present research also takes the gender influence on health care into account, as shown in chapter VII, following Towns *et al.* (2014: p 8) who state: '*future studies can ask women if a positive experience with one form of treatment would influence future decisions. Infant and Child Health Care will be enriched if local knowledge, illness concepts, and medicinal plants fit into a larger framework, which studies healthcare from a community perspective, including researchers from outside the biomedical field'.*

As Slikkerveer (2000) argues, indigenous medical knowledge can play an instrumental role in the integration of local and global medical systems, and one aim of the present study is to contribute tangibly to that objective in Tanzania. The 'bottom-up' approach has been often presented, but very rarely consistently implemented (*cf.* Hahn 1999). Osei Owusu (2011) recognises this phenomenon where he refers to the shift from 'eradication' to 'control' and emphasises the increasing participation of local people, as a focal policy trend in malaria control over the last two decades. The aim here is not to imply that a 'science based' public health concept would in no way be applicable to the current health problems as described in this study, but rather to prevent possible pitfalls as a

result of not detecting or ignoring the underlying factors, which may be essential to a rural communal setting. In order to illustrate the foregoing argument, Slikkerveer (1982; 1990) in his research in the Horn of Africa, demonstrates that the interrelated social-cultural factors are relevant in the process of development, especially in addressing the complexities in health care delivery in rural Africa. The applicability of the approach finds adherence today among various scientist. As all preceding authors underwrite, the process of developing public health into an appropriate model is ongoing, no matter the lack of consensus on a definition which encompasses all aspects. The actual situation is such, that area-specific problems are consistently being identified, and do receive attention, although it has not led to short term solutions in a practical sense. It does, however, support an approach with more attention to local details, especially in the socio-cultural sense, away from mainstream ideas. As Kelly *et al.* (2017; p.1) notice: '*For many African governments forced to restructure health activities in tune with the priorities of the World Bank, a public health system has only ever been a notional concept, or one greatly compromised by multiple social, material and political constraints'*

Besides this proposition, it must be added that recent developments in the SSA region have shown intricacies without precedent, referred to by Sanders *et al.* (2009) as "the double burden of disease". They contend that, apart from the influence of armed conflict, resulting in the migration of large number of refugees, it is the persistence of communicable diseases such as cholera, malaria, yellow fever, considered to be under control to a certain extent, while an additional number of 'new' diseases such as HIV/AIDS, multi-drug resistant TB (MDR-TB) and Ebola, have entered the arena, which pose increasing threats to an already challenged medical system. Additionally, the frequencies of chronic non-communicable diseases (NCD's) such as diabetes, cancer, cardiovascular deficiencies, hypertension and CARA are increasing in the region. Simultaneously, elementary provisions covering children's nutrition, safe water, or environmental hazard prevention, *i.c.* waste and pollution, are not yet on the desired level, in connection with population growth ratios. There may have been a shift in emphasis during the past two decades, but the present research supports a revision of that move, as mentioned by Prince (2014: p 8):*'The past decade has witnessed a narrowing of public health to target biologically defined (for example, HIV-positive) populations rather than a national public and citizenry. As such interventions focus more on the containment of diseases defined as "health emergencies" than on public health as a developmental goal, visions of public health have retreated further from the "health for all" goals.....pursued by many African governments together with the WHO*'. The shift of emphasis has recently been recognised as the WHO, in its latest African Regional Agenda (2017), has reiterated the need of paying more attention to the 'social determinants of health' among others as a lesson learnt from the precarious efforts in the containment of the Ebola crisis in West Africa, as well as the consistent health manpower problem.

With regard to the definitions concerning regional health targets as maintained by the WHO (2016), it is possible to arrive at a consensus towards a public health approach which would seem universally applicable. For example: public health is aimed at 'collective' and not 'individual' health, at access by any level of the population, at standardised quality and treatment protocols, at feasibility of services on a large scale with available resources, at both physical and mental well-being, and it takes into account non-medical factors, including socio-economic or environmental factors *(cf.* WHO 2016). Considered in such a way, it could be a model framework which enables socio-culturally differentiated and area-specific operations to be compared by identical norms,

without implications of being western-based or opposed to cultural relativism. The definition of what public health entails as a concept should preferably be taken away from ethnocentric scientific parameters, simply because of the humanitarian purpose of achieving its goal of providing "Health for All', especially if it can be done through a variety of themes, methods, or means stemming from an indigenous cultural knowledge framework. In the words of Akala (2006), the effectivity of a public health system is also dependent on the extent to which the organisation, which is responsible for it, can be held accountable, not monetary, but in terms of operational integrity. She finds complementary functions, *e.g.* PR-communications including information, education, promotion, and feedback, quality control, and intersectoral policy development to be the aspects which need attention in the future, again all non-biomedical, but up-to-date management aspects. Therefore, the *Transcultural Public Health Management Theorem* of the future will emphasise on the aspects outside the purely medical realm (*cf.* Krieger 2012; Appendix Nr. II).

1.2.4 Communicable Diseases Control and Promotional Programmes

During fieldwork carried out in the Volta Region and Brong Ahafo of Ghana, for several years (1988-1992), the fellow staff members of the District Public Health Department consistently agreed upon the notion that public health in a rural setting was always concerned with acknowledging local traditions, personal views, physical environment, and, especially, social communications (*cf.* De Bekker 1993). There were many examples in the efforts to consolidate the Primary Health Care concept at the time. It was necessary for the District Medical Officer of Health and his Public Health Department, to maintain good liaisons with the local people, community leaders and opinion leaders, in order to be able to monitor and at the same time cope with the health problems. It was considered a separate challenge alongside the problems of health manpower and facilities.

At that time there was a large number of parallel projects, almost entirely externally funded, encompassing training programmes for Traditional Birth Attendants (TBA's), the Ghana Leprosy Control Programme from Italy, the Polio Eradication Programme form the United Nations, Mobile Outreach Clinics and Under Five Clinics (UFC), EPI treks, the Extended Programme on Immunisation (EPI-treks), Family Planning Campaigns form UNFDP, Anthropometric Malnutrition Surveys, the Onchocerciasis Control Programme (OCP) by the WHO, the Guinea Worm Eradication from World Vision, and the Primary Health Training for Indigenous Healers (PRHETIH) programme (*cf.* Warren 1982; Ventevogel 1996). All these cases provided ample proof of the necessity of integration with grass root perceptions and practices, as with most of these programmes; the local Public Health Department was directly involved in their implementation (*cf.* Hahn 1999).

Over the years the type of morbidities which are dealt with within the domain of public health have not changed significantly, albeit that the intensity of various types of morbidities show notable fluctuations. Examples such as HIV/AIDS, Malaria, anaemia and waterborne diseases have been consistent challenges over time (*cf.* Serengeti PHD 2015). More recently, a specific hazard as the re-emergence of Ebola in 2014, although known and recognised as a threat since 1976, has refocused the public health agenda with regard to community involvement for the WHO (2017). The Alma Ata Declaration (1978) has led to the adoption of the 'Global Strategy for Health for All by the Year 2000' in 1981, defined by the WHO (1998: 2) as: '*the attainment by all the people of the world of a level of health which will permit them to lead a socially and economically productive life'*. The 'Global Strategy for Health for All' represented a formal beginning of the social model of health

with Primary Health Care (PHC) as its epitome. Again, the Sustainable Development Goals for 2030 by the United Nations (2017), which were set for reaching basic health for all people in developing countries by 2030, may demand the same attention as the original PHC concept did in 1978.

According to McMichael *et al.* (2005) there has been insufficient assessment of large-scale communicable disease interventions directed towards improving health in low resource environments. They state in connection to malaria control that collaboration between the sectors, community partnership and improving the management of monitoring and treatment capabilities are essential. The value of such an approach is in the integration of these components besides effective treatment. When interventions which have been regularly carried out over a prolonged period of time do not deliver expected results, it becomes essential to discover alternative methods to make future ones more successful (*cf.* Osei-Owusu 2012). Such an assessment does not include the underreporting as a result of cases treated at home, through the application of purchased commercial drugs, and those cases not officially diagnosed by health facilities. On the other hand, one is to be cautious in interpreting data, as there may also be subjective over-reporting of malaria because of a lack of proper diagnosis when not facilitated or unavailable. A perceived morbidity can be assumed on the basis of experience, or because of social acceptance in relation to the observed symptoms (Kwesigabo *et al.* 2012). With regard to promotional programmes, the themes are not always determined by the urgency of the problem at local level, and they are to a large extent dependent of facilities or funding made available by national or supranational agencies, who deliver the content as well as the media to enable exposure. At times one specific theme, *e.g.* early detection of female breast-cancer, may receive abundant support because some international NGO has adopted that specific theme. It implies that immediate relevance to a local situation is not decisive when resources are not available on local level (*cf.* Osei-Owusu 2012). Managing this type of health education as well deserves a concerted effort whereby mobile Public Address System campaigns ideally coincide with repeated regular media coverage to assure impact and recognition. Preferably and more effectively, they should be integrated with role play on community level, involving young people as a prime medium of transmission, and linking to the oral tradition.

Another problem related to the efforts of integration is the relationship between advanced treatment development and official treatment guidelines, as demonstrated in *Artemisinin-Based Combination Therapy* [4], which introduces an alternative to monotherapies, and commercially advertised pharmaceuticals which are commonly used on a large scale, but may become outmoded, outdated, or even ineffective. Some of these pharmaceuticals may lose their efficacy on account of improper dosage leading to parasite resistance (*cf.* Cheeseman 2012; Phyo 2012). It is probably a challenge to subject commercial pharmacies to a more rigid regulation with regard to unprescribed medicine, without creating resistance among the owners, who are predominantly economically motivated entrepreneurs. There are cases among these commercial pharmacies, where insufficiently qualified staffs, without the required knowledge of treatment advice, are consulted by unsuspecting patients (*cf.* Kamat *et al.* 2010). Malaria control is taken here merely as an example of current public health challenges, but these types of problems are obviously not limited to a single morbidity.

In the case of Serengeti's morbidity rates, the third largest in ranking is Urinary Tract Infection (UTI) which is not in the official data because of the externally provided software. Serengeti PHD staff indicated they could not add a new morbidity at will in the data set because of the restrictions in end-user modification possibilities. Occasionally the rates show epidemic proportions, but there is no consistent reporting among patients regarding causes or a set of recognisable preventive

measures (*cf.* CCHP 2015). As is described in Chapter VI, many respondents were neither capable of reproducing the proper set of symptoms, nor was there mention of a consistent causation, yet the classification of UTI was regularly made. Simultaneously different types of medication appear to be applied for UTI treatment, as observed during the fieldwork survey in the area.

The current AIDS/HIV incidence is characterised by problems of specific awareness, prevention, treatment and control. To complicate matters the registration on the district level is separate from the regular morbidity rates reported from the dispensaries, on account of its funding as a separate programme. The problem emerges when traditional medicine is utilised without proper diagnosis or even registration, as a result of shame, denial or despair of the patient in an advanced stage. In those instances, a person can bring his entire social circle in jeopardy unintentionally. They are not identified as HIV-positive but maintain physical contact with their social network. As indicated in Chapter VI, in the research area primarily religious organisations are found to take up responsibility and promote this person to person 'buddy system' communication to prevent people from social isolation or hazardous behaviour.

1.2.5 Multiple Health Care Challenges & Health Manpower Shortage

In compliance with the *Sustainable Development Goals* (SDG's) of the United Nations (2015), also known as the *Sustainable Development Agenda 2030*, the Tanzanian development policies had focused on specific themes and targets for the 2015 deadline of the preceding Millennium Development Goals (MDG's) of the United Nations (2000), such as Maternal and Child Health, Infant and Maternal Mortality Rate, safe drinking water and sanitation, and control of the major communicable diseases.

In the current Tanzanian Development Vision 2025, access to Primary Health Care (PHC), and access to Maternal and Child Health (MCH) are integrated. The reduction of Infant (IMR) and Maternal Mortality Rates (MMR) are addressed separately (MDG No. 4 & No. 5), as well as a public health related problems such as safe drinking water and sanitation (MDG No. 7) (UN 2000). As these targets of the Tanzanian Development Vision 2015 were formulated in the late 1990's, the awareness of the themes which reoccur in both MDG's and SDG's of the United Nations is quite substantial, and in fact have been an integral part of national development policies since the year 2000, *e.g.* the Health Sector Strategic Plan IV 2015-2020 (HSSP IV)

According to the analysis by the Finland Futures Research Centre (2015), the country is on the verge of achieving MDG No. 2 (Primary Education) and MDG No. 6 (HIV/AIDS, malaria and similar major diseases), and is approaching MDG No. 4 (Infant Mortality) while it is still struggling with MDG No. 5 (Maternal Mortality). These themes are also in line with regard to the focus in policies on national health planning. The intentions towards future achievements in public health indicate that an emphasis may be placed on quantitative targets, taking away the attention from consolidating the quality of public health development. These authors conclude that the country's health sector has reached the Abuja Declaration norm of 15% of the national budget, largely because of substantial donor funding (Luukkanen *et al.* 2015).

It is difficult to establish to what extent quality control could be applied to the specific targets of health care development in Tanzania, but there is a strong motivation to become independent of structural aid, which could possibly be substituted by more Public Private Partnerships (PPP), while here is a focus on Health Manpower Planning. At the same time however, as suggested by

Luukkanen *et al.* (2015), Tanzanian government officials perceive too much prioritisation in the MDG's imposed by either donors or international organisations, often at the expense of domestic views on their own priorities of public health development. The criticism is directed foremost at the complexity of addressing all the MDG's at the same time, implying that choices have to be made, with the risk to restrict the number of donor agencies who are committed to achieve one specific goal, and thereby limit the degree to which donor support could be obtained. The situation is reminiscent of the era of 'New Public Health' which had exactly the opposite purpose, whereby the self-determination of the society would be the leading principle for implementing national policies (*cf.* Sofoluwe & Bennett 1985; Ashton & Seymour 1988).

Another implication is that the measurement of the output in only quantitative results does not justify the investments made in various supportive initiatives which may provide results in a longer term or contribute indirectly to public health improvement, such as promoting health manpower training initiatives or incorporating traditional practitioners in primary health care. The present approach of the Government of Tanzania can be regarded as an extension of achieving the original MDG's for health care development for the next decade, as they are currently considered relevant but not achieved as yet. The wider implications of adhering to the new SDG's, seen as a continuation of pursuing the preceding MDG's, lead to another dilemma: African nations need a different approach for their own economic development in order to attain the SDG's. If they do not, they will never be able to finance the investments needed to attain these goals under the current conditions, especially if they want to disengage themselves from external donor funding. The most recent policy formulation in the Health Sector Strategic Plan IV 2015-2020 of the ministry of health, shows the continuation of this approach; *The unfinished work on reaching some of the MDG 2015 targets is taken forward in the HSSP IV, driven by the call for sustainability under the MDG successor global theme, 'Sustainable Development Goals'* (HSSP IV 2015; p.2).

In an operational sense this implies an extended preoccupation with the existing Communicable Disease Control programmes and an emphasis on the MCH-related themata, called 'Reproductive, Maternal, Neo-natal, Child & Adolescent Health' (RMNCAH). The indications are that the response to these services does not reach the intended level. Here as well there is an increase in Non-Communicable Diseases (NCD's), primarily related to changing lifestyles, accompanied by the assessment of an insufficient current capacity to address them adequately. Considering Primary Health Care aspects, human resources and drug supply reoccur as quality of care deficiencies, as is the physical distance to facilities in rural areas, which is primarily affecting MCH.

The Strategic Objectives which are derived entail; 1*) quality improvement, 2) equitable access, 3) community partnership, 4) modern management methods & innovative partnerships, 5) the social determinants of health* (WHO 2018). The WHO's target remains the standard guideline for comparison: the African Regional Office (AFRO) of the WHO maintains a Transformation Agenda (2017) to determine its policies in the area as a whole for the immediate future. It consists of:
(i) improving health security; (ii) strengthening national health systems; (iii) sustaining focus on the health-related MDGs/SDGs; (iv) addressing the 'social determinants of health'; and transforming the African Region into a responsive and results-driven organization (WHO 2017).

Following this AFRO directorate there are currently multiple challenges [6] to deal with, deliberately leaving refugees, armed conflict and environmental disasters out of the definition. The first is trying to contain communicable diseases through the increase of immunisation coverage, as described in the Universal Health Coverage (UHC) policy, as the directorate maintains that one in

five children do not have access to the complete range of available vaccines. According to the AFRO's report, it is still related to a household's economic status and education level, apart from physical accessibility. The second challenge is capacity building on community level through the so-called Integrated Community Case Management (ICCM). The strategy links up with the ethnoscience approach, as it highlights community involvement through local monitoring, and anticipates the lack of referral possibilities, while reducing the timeframe of intervention with sick infants on the village level. Simultaneously it would improve access to quality care because of the investment in local facilities. The main morbidities are identified as HIV/AIDS, which has separate Anti-Retroviral Therapy (ART) campaigns, malaria, diarrhoea and pneumonia. The short-term target is to reduce maternal and neo-natal mortality within five years from 2017 onwards. Alongside these areas of concern, the entire system has to anticipate the phenomenon of Anti-Microbial Resistance (AMR). In relation to the example of Tuberculosis (TB) treatment, and the underlying adherence to effective treatment, it is expected that a reduction of the expensive and time-consuming interventions could be achieved, but it would require an increase in diagnostic capabilities at rural facility level.

The range of Non-Communicable Diseases (NCD), covering cancer, diabetes, cardiovascular diseases, (chronic-) respiratory infections, obesity, and mental illnesses is wide and indirectly related to urbanisation and a change in lifestyle. Such strategies will become a new focus in a future public health approach, but will require concerted regulatory efforts, as they involve many aspects of modern consumerist behaviour among young adults, a side effect of global communications.

The Ministry of Health has indicated that there is a shortage of rural health staff (Health Sector Reforms III, 2009-2015), further elaborated by Mujinja & Kida (2014), Sirili *et al.* (2014) as well as Sue *et al.* (2016). The human resources challenge in health care in Tanzania lies at the foundation of the above-mentioned academic initiative of establishing a university in the Mara Region. It was brought forward and underlined earlier by Kurowski *et al.* (2007), and calculations from Sue *et al.* (2016) show a health manpower shortage estimated at 90.000 people, implying that the number of health staff currently available may not be sufficient to achieve the desired standard, not merely through numbers, but also due to a lack of an appropriate level of education and training. The health manpower challenge does not even touch upon aspects such as suitability of staff in terms of interpersonal and communicative qualities, insufficient motivation as a result of unfavourable labour conditions, lack of incentives, or lack of professional recognition (*cf.* Rowe *et al.* 2005). Regarding the importance of personal liaisons with community-based institutions, as underlined earlier, it provides an opportunity to integrate all these qualities into a comprehensive public health staff training programme, in particular if the right conditions are created to extend the current number of personnel trained on bachelor level.

The parallel organisational developments, however, remain largely focused on managerial aspects, such as human resources management (HRM), *e.g.* staff alignment, needs matching criteria, accountability and financial management, operational efficiency, improving data gathering, applied statistics, research, and strategic partnerships. As IJsselmuiden *et al.* (2007) describe accurately in their historic perspective on the 'mapping' of health education in Africa, the focus before the Millennium had been placed on training medical staff and on curative aspects, mainly following western models in the available curricula. They mention a limited capacity for academic training, not only in infrastructure, funding, eligible candidates, or the number of facilitating countries, but a lack of attention as well for senior level scientists and public health fieldworkers at both ends of the

spectrum. Although the topic did receive attention regionally, it did not lead to a change in policies to achieve a common approach in the short term *e.g.* through the Network of African Public Health Institutions (NAPHI 1995) and New Partnership for Africa's Development (NEDAP 2003). One of the precedents limiting these training facility resources was the accessibility to already trained health professionals, mostly doctors. It ignored the potential of training staff with specific qualities on another level which could contribute to the improved management of a medical system in a particular area. More attention should be paid to comprehensive medical and non-medical aspects of public health care development. In other words, the multidisciplinary character in the approach with access to middle level staff who were not necessarily physicians was not recognised. Secondly, the point is not only to have the right staff trained at the right level, but also to create the capacity for training personnel locally, *i.c.* the number of training stations with higher education qualifications within a target area.

During their mapping research, IJsselmuiden *et al*. (2007) established that 55% of the target countries on the continent did not yet offer public health courses on post-graduate level. Already at that stage it was advocated that the combination between education and research should become standard, where it was limited to only the larger academic institutions. In the current state of development in mainly rural areas where the improvement of public health management is needed, the emphasis is put on the quality of human resources as a priority by the policy planners (*cf.* Yeboah-Antwi 2016). Apart from the intended integration with indigenous community-based development agents and initiatives, the introduction of advanced monitoring systems which have an ICT basis is the new focus. Working with mobile device diagnostic screening of morbidities, such as such as the method of *Mobile Malaria Lab* (*cf.* MOMALA 2017), software allowing a smartphone to detect parasites, are the desired skills for the new generation of field staff. The importance of this development is based on the community level involvement which is still essential in reaching the health care coverage targets (*cf.* UHC). As the WHO guidelines (2017) express clearly, the contact with local contact persons to implement A-level micro plans, organise community registration as well as defaulter tracking, and the reception of mobile teams is crucial.

Such a community-oriented approach implies the identification of the appropriate stakeholders and uses all available techniques to enhance participation of the local population. In medical planning jargon that would be referred to as '*community-based interventions at sub-district level'* from Reach Every District (RED) guidelines (WHO 2017). Current research programmes such as the Johns Hopkins Programme for International Education in Gynaecology and Obstetrics (JHPIEGO), or Boston University all have strong human resources management (HRM) components (*cf.* Biemso *et al.* 2016). The indications are that these 'Community Health Assistants', as distinguished from previous 'Village Health Workers', correlate with a higher response to preventive services, meaning an increased coverage of elementary diagnostics as well as treatment. The experience which these programmes demonstrate is that the viewpoint of either recruiting staff from the community and train them with medical-technical skills or bringing in newly-trained health staff equipped with applicable socio-cultural skills, is a feasible policy which may contribute to the reduction of health manpower shortage (*cf.* Byrne & Morgan, 2011)[7]. However, the practice during these experiments showed that manpower shortages as a result of delayed remuneration, lack of transport, accommodation, or ad hoc personal problems, either private or domestic, are still present. These aspects should however be differentiated from a lack of technical skills, trustworthy equipment, or a solid knowledge base, because they pertain to labour conditions and not to the

quality of health care standards. The effect of the brain drain of physicians abroad [8] is also addressed in Chapter V. The impact of the loss of these human resources is accentuated by the investments made in the education of these physicians, not benefitting the nation for which they were intended, irrespective of the legitimacy of their individual intentions to make a career for themselves.

In an attempt to give direction to future priorities, Azevedo in the second of his twin publications (Azevedo 2017b), pleads to refocus public health on strengthening Primary Health Care, by emphasising prevention and education instead of disease emergencies *i.e.* containing communicable diseases outbreaks, because of the implicit advantage above cure. He also identifies the relocation of the production of essentially non-advanced medicines to the target countries in order to improve attainability and achieve cost-reduction in drug supply. Another method to increase coverage is supplementing the extension of rural infrastructure with mobile services, as has been achieved with the mobile Under Five Clinic (UFC) units in West Africa in the 1990's. In the analysis of Human Resources for Health (HRH) the chosen assumption follows an interesting lead, by using the viewpoint that in the structure of rural communities, kinship networks seem more relevant than professional status, *i.e.* 'it is not what you are but whom you know'. Within the context of the relationships between patients and staff at local health facilities, there are several answers as to why people can expect good service at one place, and not at another. As a phenomenon this could be classified as an extension of social cohesion, similar to reciprocal conditions on community level. However, as every person should be entitled to the same quality of care, the effect of personal preferences becomes dysfunctional. It cannot be acceptable that a patient receives better care because one is favoured by someone employed within the health service. In that respect a health insurance takes away the interpersonal relationship aspect, and theoretically replaces it with a non-subjective standard: either the insurance covers a particular service, or it does not. The paradox is that the existence of such a personal relationship is exactly what takes the role of the traditional healer beyond the experience in a modern facility. In such a situation MM can learn from TM, and such service attitude should be an integral part of exchanging knowledge.

Especially with a view to a Universal Health Coverage (UHC) within the *Sustainable Development Goals* (SDG's) on the agenda for 2030, it will be difficult to attain the intended coverage without a generally implemented National Health Insurance Fund (NHIF) scheme, irrespective of how it is done. The added value of a fund in typical western societies is that it implicitly provides a levelling mechanism, where higher fees pay part of the poor people's bills. A necessary functional aspect is that health insurance should no longer be regarded as a voluntary engagement, as it is in Tanzania's Community Health Fund (CHF), although that may have implications for the level of the fees. It would also only be acceptable if it is implemented for the entire population. For that constellation to work out in an African context, whereby the volume of a middle class which can carry such a system must be substantial, may be a challenge.

A related topic is the role of external funding of health care. In the current situation the estimate is over 36% dependence of donor money (Azevedo 2017b), which is substantial if the whole health service would have to be supported by its own income, *i.c.* NHIF reimbursement, over the counter payments, along with government subsidies. For some programmes the donor share is of such magnitude, that they would risk having to be abandoned all together (HIV / AIDS estimated over 90% donor funding (MoHSW 2013). In that respect as well integration of a traditional alternative is again attractive. The establishment of the Association of Schools of Public Health in Africa

(ASPHA) in Kenya in 2010, leading to the establishment of an office in Accra in 2014, can serve as an example of creating a platform to exchange the ideas connected to the Transcultural Public Health Management (TPHM) concept initiative (Appendix Nr. II).

Although the number of countries is currently limited, the impact of an institutionalised annual conference, and the snowball effect of having the educational staff involved from at least 26 institutions which offer a public health programme cannot be underestimated. The emphasis may be on streamlining epidemiological research as yet, but there is a direct opportunity to blend in with the development of training workshops and Information Technology, when introducing Ethnoscience, especially the research component, to be integrated into public health curricula. Because of the logistics involved in maintaining a local educational infrastructure, special attention could be given to distance learning opportunities, congruent with current ICT developments, the availability of mobile devices, and the introduction of e-Health applications as a new resource for information (Big Data-analysis) and individualised on-line promotional strategies.

Finally, as this research is focused on transcultural health care utilisation and health manpower, some aspects of public health in rural areas appear neglected or absent. It is however a deliberate selection, and the environmental challenges connected to safe drinking water, sanitation and hygiene are not overlooked. The management of environmental hazards with regard to air, soil and water deserve separate attention and will be addressed in the envisaged TPHM curriculum, *e.g.* subjects such as waste management, food safety, as well as occupational safety.

1.3 General Aim and Specific Objectives

1.3.1 General Aim

The general aim of this study is to document, study, analyse and explain the relationships between various categories of factors influencing the patterns of utilisation of the plural medical systems by the local population in Serengeti with a view to contribute to improved policy planning and implementation of public health management. The general research question is: *'what type of patient utilises what type of medical system for what kind of perceived morbidity'*. The sub-questions refer to the dimensions following the conceptual model of the research, as elaborated in Chapter III. These dimensions encompass socio-demographic, psycho-social, socio-economic, institutional and environmental factors, vis-à-vis the factors of utilisation of the medical systems, being the core of the quantitative research. The qualitative research with key–informants provides insight into the frame of reference of the respondents, their intrinsic motives, as well as their knowledge, belief and practice of the traditional medical system, including the utilisation of herbal medicine, and the role of the environment in their reported health and disease behaviour. In order to operationalise this general aim, a subdivision is made into a number of specific objectives to be achieved, which include the following:

1.3.2 Specific Objectives

Firstly: to document, analyse and explain the relationships between the independent, intervening and dependent factors of the conceptual model in the utilisation of the plural medical system by the local population.

Secondly: to study and explain the role of the local knowledge and belief of perceived illness causation in the utilisation process.

Thirdly: to present a sociographic description of the research area in Serengeti in general, and of the Kurya community in and around Nyamburi in particular.

Fourthly: to present an indigenous classification of local Medicinal, Aromatic and Cosmetic (MAC) plants, including their preparation and application, as well as their use for the treatment of specific illnesses.

Fifthly: to present the stepwise bivariate, mutual relations, and multiple regression analysis of the transcultural health care utilisation behaviour by the local population, in order to document and explain the interactions between the groups of factors operational in the research area.

Sixthly: to assess the perception of the local population of the current modern medical system in the area from the qualitative research, in order to improve the co-operation between the available medical systems.

Seventhly: to describe the theoretical implications of the research findings for the development of applied ethnoscience in the field of public health management, focussing on the influence of socio-cultural factors in attaining sustainable community development (*cf.* Slikkerveer *et al.* 2019)

Eighthly: to describe the methodological implications of the research findings for the further development of specific ethnoscience-based research methods and techniques as advocated by LEAD to contribute to sustainable community development. The implications substantiate the appropriate capacity of the 'Leiden Ethnosystems Approach' as an instrument to assess the emic factors in the process, and as such link up with the Impact Assessment Model as introduced in the concept of *Integrated Community Managed Development* (ICMD) by Slikkerveer (2018)

Ninthly: to describe the practical implications of the research findings for the improvement of the public health management policy planning and implementation process, with a focus on the development of comprehensive health plans by the Serengeti District Health Management Team, in providing a community-oriented contribution to the *Transcultural Public Health Management* (TPHM) Post-Graduate Course at Kisare College of Health Sciences in Serengeti.

1.3.3 Structure of the Study

Chapter I provides the context for the emergence of the research question, and its relationship with the role of the official counterpart in Tanzania (KMT), as it operates health care and training facilities in the area. It explains the need for health manpower training and the relationships with the defined medical systems, used complementary, instead of a focus limited to the official institutionalised service delivery. It shows where the approach to integrate Ethnoscience with public health management originated, and in what way knowledge of local culture and community involvement can enhance the efficacy of health care interventions.

Chapter II gives an overview of the theoretical framework by introducing the Ethnoscience approach as advocated by the LEAD programme. It gives descriptions of the underlying concepts. They are explained as terminology and definition, their internal coherence, and how they lead to the choice of methodology for the fieldwork. It furthermore provides examples of recently applied policies and the implications for this study.

Chapter III provides a description of the research methodology, starting from the conceptual model, through the definition of the chosen indicators for data collection, and the organisation of the fieldwork. It describes the methods used for analysing the data as performed in chapter seven.

Chapter IV describes the research area, covering Serengeti District, down to the area of Ikorongo and Nyamburi, the location for the household survey. It encompasses the socio-demographic and physical features as well as the historical development (*i.e.* Historic Dimension, HD). A section of the historical perspective is dedicated to the Kurya people who are predominantly indigenous to the household survey area (*cf.* Field of Ethnographic Study, FES).

Chapter V focuses on the health care situation in Tanzania in general, bringing it down to local area level, supported by data of the Public Health Department's District Profile. It provides a context for the analysis of the data pertaining to the prevalence of morbidities characteristic for the area, as well as the organisation of institutionalised health care Tanzania and in the district.

Chapter VI is a compilation of the qualitative research, as integral components of the Leiden Ethnosystems method (*i.e.* Participants' View, PV). It gives an historical perspective of Serengeti through the key informants' recollection. It reflects their opinion on current health problems and their experience with the plural medical system, as well as their personal assessment of the effectiveness. It serves as the elementary context for interpretation of the quantitative data. There is a classification of perceived morbidities, and a number of Medicinal, Aromatic and Cosmetic (MAC) plants reported in the household survey. They are presented in local and botanical terminology, their preparation and application for perceived morbidity.

Chapter VII presents the stepwise analysis of the quantitative data following the sequence of bivariate, mutual relations and multiple regression analysis (Non-Linear Canonical Correlation Analysis 'OVERALS'). It explains the interaction between the groups of independent and dependent factors following the conceptual model, in the utilisation of the plural medical system in the research area by the local population.

Chapter VIII addresses the conclusions and recommendations which result from the complementary qualitative and quantitative data analysis. It elaborates on the theoretical, methodological as well as the practical implications. It describes the intended spin-off, translated into recommendations contributing to public health management. It includes health manpower development, co-operation between the available medical systems, the contribution to sustainable community development, and the preservation of knowledge regarding indigenous MAC plants.

Notes Chapter I.

1. 'Hospital building seems to have started in Africa in the second half of the nineteenth century and intensified in the early part of the twentieth. The Sacred Health Hospital of Abeokuta (Nigeria) was built in 1865 and the first government hospital in Nigeria opened in 1871 in Lagos. Accra Hospital was built in 1882 with between 40 and 46 beds for Africans and a smaller number for Europeans. A new hospital was constructed for Europeans in Accra in 1916, the Korle Bu Hospital was built in Accra in 1923 and a maternity hospital was added in 1928. The first modern hospital was constructed in Somalia in 1925, in Berbera' (McPake 2009).
2. TM as well consists of preventive aspects, as besides curative methods, there is much attention to 'protection' by way of taboos, amulets, rituals, or specific deities which are connected to maintaining good health, foremost related to normative social behaviour (*cf.* Millar 2004).
3. PHC comprises eight elements: (i) education concerning prevailing health problems and the methods of preventing and controlling them, (ii) promotion of food supply and proper nutrition, (iii) adequate supply of safe water and basic sanitation, (iv) maternal and child health care, including family planning, (v) immunization against major infectious diseases, (vi) prevention and control of locally endemic diseases, (vii) appropriate treatment of common diseases and injuries, and (viii) provision of essential drugs (WHO 1978).
4. 'Currently Artemisinin-based Combination Therapy (ACT) is recommended for the treatment of P. Falciparum malaria. Fast acting Artemisinin-based compounds are combined with a drug from a different class. A co-formulated drug is one in which two different drugs are combined in one tablet; this is important to ensure both drugs are used' (malariaconsortium.org/pages/112.htm)
5. TAMA: Tanzanian Traditional and Alternative Medicine Act 2002 excluded certain spiritual healers from recognised traditional practice with the intention of trying to outlaw witchcraft, on account of its suspected impact on social cohesion.
6. They respectively include the 2030 Sustainable Development Goals (SDGs), the 2011-2020 Decade of Vaccines, the 2030 Universal Health Coverage (UHC) agenda, the 2011-2020 Global Vaccine Action Plan (GVAP), the Global Routine Immunization Strategy and Plan (GRISP), the Regional Strategic Plan for Immunization 2014-2020.
7. Tanzania Doctor to Population ratio = 1:23.000 (WHO standard = 1:5.000), and overall 5.2 clinical health workers per 10.000.
8. About 23,000 African health professionals (mostly physicians) migrate to developed countries every year costing $ 4 billion to replace (WHO 2017).