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Afya Jumuishi : towards Interprofessional collaboration between traditional and modern medical practitioners in the Mara Region of Tanzania

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Chapter VIII CONCLUSIONS AND IMPLICATIONS

8.1 Conclusions

Human health and health services have seen dramatic advances worldwide, including the development of new vaccines and medicines, improved technology and even the eradication of certain diseases. However, those developments have not closed the gap of the inaccessibility of health care to about 40% of the world's population, particularly in the developing countries, including Tanzania, where barriers exist both in terms of availability and affordability of medicines and services.

The contemporary world of plural medical configurations continues to take into consideration the 'classic' approach to repair imbalances and restore the holism of human health from the Traditional Medicine (TM), which has existed long before the emergence of Modern Medicine (MM). As such, Contemporary Alternative Medicine (CAM) and Traditional Medicine (TM) do not intend to discard the advancement of modern health care, but rather to revisit the ideology of humanity and the complex connectedness of factors affecting health and healing.

The recognition of utilisation and support for capacity development of traditional and alternative medicine are well founded by the World Health Organisation, with an emphasis on the objective to achieve fully integrated health care (WHO 2011). The African Union Heads of State, who declared the period 2000-2010 as the African Decade on African Traditional Medicine (Kofi-Tsekpo 2004), as well as the Tanzanian Health System Reform (HSR) strategy of 1993, introducing the Public-Private Mix package strategy which also expresses the new approach to include traditional medical practitioners into national health care systems.

Consequently, the Tanzanian Health Sector Reform (1993) which has been implemented through the *Health System Strategic Plan (HSSP) II* of 2007, is in line with the *Local Government Reform and Decentralisation by Devolution* of 1994, *The National Strategy for Growth and Reduction of Poverty* (MKUKUTA) of 2005, the *Millennium Development Goals* (MDG) for 2015 lasting through 2015 and the *Primary Health Care Services Development Programme*, (PHCSDP) of 2007-2017. Specifically for traditional and alternative medicine, expectations are to enforce the Tanzanian Act of 2002, governing products and services of Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM).

Regardless of the position on the outputs and outcomes - pessimistic or optimistic - the fact that traditional and alternative medical practitioners continue to be consulted by Tanzanians of all population groups both rural and urban, with different health-related needs, implies that the integration of both traditional and modern systems is indispensable. However, as the aim of health policy makers and managers is to reach *afya jumuishi* - the Swahili concept for a fully integrated medical system - the promotion of *interprofessional collaboration* between traditional and modern medical practitioners is an inevitable step along the continuum of strategies towards integration (Dotterich 2006).

As indicated in Chapter I, the benefits of the collaboration between traditional and modern medical practitioners in Tanzania are explored, the underlying reasons include the following:

- People's entitlement to freedom of association and heterogeneous beliefs are among the fundamental Universal Human Rights for all, including Tanzanians. Biomedical and ethnomedical practitioners shall be at liberty to collaborate peacefully, as heterodoxy and social heterogeneity are compatible (*cf.* Metertens 2000).

- Improvement of health care processes and outcomes while working effectively with others. (*cf.* Zwarenstein *et al.* 2009). By working in collaboration, resources are pooled together to achieve greater services and care for the clients and patients (*cf.* McNamara *et al.* 2011; Wood and Gray (1991).
- The utilisation of the untapped or underutilised supply of skilled traditional medical practitioners and their products (*cf.* Rappaport 1977). So the use of Traditional Medicine (TM) is to complement, and in some cases to substitute the use of Modern Medicine (MM).
- The industry of Traditional Medicine (TM) is a big business worldwide. In 2005, traditional medicines worth US\$14 billion were sold in China, while Brazil gained US\$160 million in income from traditional therapies in 2007 and the global market registered more than US\$60 billion (*cf.* Shetty 2010).
- Cultural values and worldviews affect the way in which people respond when they have health-related problems. Research has shown that Africans seek out traditional medical practitioners because they feel they are connecting with the vital transmitters and caretakers of African culture (*cf.* Swantz 1972; Lambo 1974; Rappaport 1977).
- Some health problems are better treated within a particular medical system (*cf.* Maclean 1971; Frank 1973; Rappaport 1977). Therefore it is sometimes necessary to refer patients with specific problems to the other system.
- To date, modern health care has neither given all the answers nor the solutions to human suffering, diseases and health. This is evident from the fact that for a number of diseases still no vaccines have been developed and remain incurable despite continued medical research Furthermore, careless use of Modern Medicine (MM), surgical procedures and health facility settings account for considerable *iatrogenesis* and *nosocomial* infections (hospital acquired infections) as noted by Weingart *et al.* (2000).
- The experience of witnessing successful interprofessional collaboration between these two medical systems, such as in the fully-integrated systems in China, Republic of Korea and Vietnam (WHO 2002b); Tanga AIDS Working Group, the THETA Non Governmental Organisation (NGO) on HIV/AIDS in Uganda; the Aro project of Nigeria; the Australian Integrative Medicine Association, can also become a triggering factor to encourage further collaboration in different areas worldwide.

This study embarks on the general aim to document, describe, and analyse the major factors which interact with the patterns of collaboration behaviour among traditional and modern medical practitioners in the Mara Region of Tanzania. Both qualitative and quantitative research methodologies are implemented in order to analyse the different categories of factors both at the individual and system levels which interact in such interprofessional collaboration between practitioners of the two medical systems.

By the use of both qualitative and quantitative research methods and techniques, the specific objectives of this dissertation have been fulfilled as follows:

Firstly, Chapter II presents the discussion of the theoretical orientation on interprofessional collaboration, a requirement of integrated health care delivery in a pluralistic medical configuration as part of the health system reforms. The justifications for collaboration between modern and traditional medical practitioners, both of which are well respected by many, are outlined in Paragraph 2.1. Cultural aspects are also discussed, including communicative, cognitive, behavioural, material and organisational components and their relationship to human health. The Paragraph also presents the *Mandala of Health* surrounded by the cultural factors which are shaping communities, individuals and medical systems (cf. Hancock & Perkins 1985).

The indigenous aetiology and health care utilisation by people in a pluralistic context as well as the role and management of medicinal plants are also presented, showing that 92.7% of modern medical practitioners believe that Traditional Medicine (TM) has a significant role to play in the national health system. Ranking the role of Traditional Medicine (TM), the overall results show that the top three roles are the prevention, diagnosis, and cure of diseases. Also, the challenges, facing Traditional Medicine (TM) are highlighted.

Health system reforms with earmarked components to be addressed in the Tanzanian health care system derived from different shifts in the paradigm are described in Paragraph 2.2. Analogously to the Tanzanian situation, the theoretical pyramid of the general needs by Greenhalgh (2007) poses a challenge to the classical view of putting a strong emphasis and resources into the health needs of the few in specialised hospitals (at the apex of the pyramid), and instead focuses on the needs of the general population (at the base of the pyramid). Components of the present Tanzanian Health System Reform (1993), including the public/private mix, which promotes active participation of the private sector where traditional medical practitioners are found in the present national situation.

Another reorientation is documented in the field of *Ethnobotanical Knowledge Systems* (EKS) where the Community-Based Approach (CBA) stresses research which is directed towards the identification of commonly used traditional herbal remedies and the way in which they are used in relation to local perceptions of health and healing (cf. Slikkerveer 2000). The Community-Based Approach (CBA) is recommended in the promotion of Traditional Medicine (TM), opposing the Clinic-Oriented Approach (COA), which focuses on laboratory research on medicinal plants and their industrial production.

The concept of integrating traditional and modern medical systems is described in Paragraph 2.3, documenting the recent focus on the integration between Traditional Medicine (TM) and Modern Medicine (MM) with an emphasis on trust between the practitioners involved. From the organisational theory, it is deduced that integration in health care is inevitable due to the increased differentiation and specialisation in various professions. The reference to the scheme of different forms of integration of Exelsson (2006) shows that collaboration has high levels of both vertical and horizontal integration. The same Paragraph continues to explain the degree of recognition of Traditional Medicine (TM) and the statement of the problem concerning the practical gaps within the rhetoric of Tanzania's health system reforms.

Paragraph 2.4 describes the theory of reasoned action, also relevant to health care reforms as it postulates that collaboration is also a behaviourally influenced act, which can be realised if there is a will if the people involved have a positive attitude towards the collaboration (cf. Ajzen & Fishbein 1980).

In addition, the more recent Behaviour Model of Fogg (2003), proposes that a practitioner will have a greater possibility of collaborating when he or she is sufficiently motivated and has

perceived simplicity, *i.e.* the ability to do so, while effective triggers are in place to remind them to collaborate.

This study, along with supporting literature on interprofessional collaboration in health care also points to substantial gaps, such as the lack of an unified conceptual framework and theories on the subject, as well as to the limited attention paid to the inclusion of only a few medical professionals, such as nurses, physicians, pharmacists and chaplains. In this Paragraph, the concepts are further described to the level of the design of the analytical model of relationships, taking into account the health care utilisation model of Kohn & White (1976), the theory of reasoned behaviour of Ajzen & Fishbein (1980), the conceptual scheme on stages of integration of Dotterich (2006), the behavioural model of Fogg (2003), the causal relationship leading into interprofessional collaboration by Axelsson & Exelsson (2006), and the interaction behaviour model of client health behaviour of Cox & Claus (1984).

Eventually, the analytical model of this study is built on the analysis of phenomena in the specific situation of a medical pluralistic configuration, characteristic for many developing countries, as has been operationalised in the transcultural interaction behavioural model of Slikkerveer (1990; 1995). In this model, recently successfully implemented by several researchers, the additional factor *trustworthiness* is introduced as a separate variable for the study in the Mara Region (*cf.* Doucette *et al.* 2005).

By consequence, the resulting analytical framework for interprofessional collaboration in this study is similarly composed of various blocks of respectively independent variables, enabling variables, variables of trustworthiness, organisational variables, and intervening variables, and dependent blocks of variables encompassing behaviour patterns of interprofessional collaboration of exchange of resources and of working jointly for clients and patients, as defined by the Centre for Advancement of Collaborative Strategies in Health (CACSH 2003) which considers interprofessional collaboration as part of synergy formation with two components of sharing of resources and working together under uniform management.

The Institutional support for Traditional Medicine (TM) is advocated in Chapter III. Weak governmental support for the traditional medical system leads to the insufficient fund allocations, especially compared to the modern medical system. Furthermore, there is a lack of a unified national and regional indigenous information system on the classification of local Medicinal, Aromatic and Cosmetic (MAC) plants and diseases. Similarly, such information system is also not available for questionable practices in terms of quality, efficacy and even morality, such as in the case of Traditional Birth Attendants involved in performing female genital mutilation. Also, there is no information available on the improper representation and participation of the traditional medical system in policy planning and implementation of health activities in the region as compared with the modern medical system. Another problem is highlighted with regard to the over-use of certain useful plant and animal species, taken from the wild for the preparation of traditional medicaments. This problem of the ‘nature on the run’ results in environmental and habitat degradation and irresponsible use of natural and land resources in relation to the growing population in the country.

Secondly, the description of the research setting of the Mara Region of Tanzania in terms of its sociography, livelihood patterns, cultural characteristics affecting the health and healing of the inhabitants are subsequently described in Chapters IV, V and VI. It starts in Paragraph 4.1 with the presentation of Tanzania at a glance as a multi-party democracy with many geographical religions. The country has many rich natural ecosystems and cultural sites, some of which have been registered in the World Heritage List of the UNESCO,

such as the Serengeti National Park (1981), the Kilimanjaro National Park (1987), the Stone Town of Zanzibar (2000), and the Central Slave and Ivory Trade Route (2006).

The people in the Mara Region reflect the country's demographic profile of various ethnic origins including the Bantu, the Cushitic, the Nilotic and the Khoisan. In the course of time, the majority of the Tanzanians still uphold the elements of African socialism and are united by the common Swahili language. These elements form the strong legacy of the late Mwalimu Julius K. Nyerere (1922 – 1999), who happened to come from the Mara Region, and who is generally considered as the 'Father of the Nation'.

Then, a discussion follows on the poor health status of the population of Tanzania, where people continue to suffer severely of many communicable, preventable diseases. The top ten frequently reported diseases, causing high morbidity rates, include malaria, anaemia, protein energy malnutrition, pneumonia, upper respiratory tract infections, diarrhoeal diseases and intestinal worms for all ages while, particular among women, pulmonary disorders, obstetric and gynaecological problems are prevalent. The financial constraints of the Government of Tanzania continue to affect both the current and future budget of the health care system. By consequence, shortages of health facilities, basic medical materials and supplies remain a problem, as well as the inadequacy in the supply of competent health manpower. A major step towards solving these problems is to incorporate and fully integrate Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM) in the mainstream modern medical system of Tanzania. Health system reform becomes an inevitable strategy for appropriate health policy formation and the prioritisation of needs in order to improve the quality of the national health care system of Tanzania.

Paragraph 4.2 presents the Mara Region and its sociography. The region has 429 villages within six councils of the local government, namely Musoma Rural, Musoma Municipal, Tarime, Rorya, Bunda and Serengeti, all situated in the Lake Victoria basin. The region has a projected yearly population growth of about 2.7% and has a population density of 43.7 inhabitants per square kilometre with an average household size of 5.5 members. The Mara Region as a multi-ethnic region is characterised by various unique traditions from different ethnic groups, but with the shared value of mutual respect and the continued utilisation of Traditional Medicine (TM). All traditional societies in the Mara Region are also patriarchal, whereby male domination over females continues to exist.

According to the Mara Regional Medical Officer Health Report of 2010, the ten most common diseases of the Mara Region are malaria, acute respiratory infections, pneumonia, diarrhoeal diseases, intestinal worms, schistosomiasis - caused by *schistoma mansoni*, a parasite found in Lake Victoria and other still waters - anaemia, upper tract infections, minor surgical conditions and HIV/TB. As is the case throughout the country, the region suffers from insufficient physical resources, including a proper infrastructure, medical equipment and medicines as well as inadequate human resources. It is estimated that the entire Mara Region has less than 50% of the required qualified manpower for the adequate delivery of health services.

In all district councils of the Mara Region, there are reported cases of uvulectomies and 'plastic teeth' extractions among children. The regional health surveys which have been conducted in 2004 and 2008 show that HIV infections had increased by 1.8% to reach 5.3% of the population. Major reasons of the spread of HIV/AIDS include female genital mutilation practices, the traditional custom of 'inheritance of wives', the traditional death cleansing rituals, persistent poverty and the dislike of use of condoms. The highest incidences are found in areas with concentrated mining and fishing activities.

The Paragraph also points out that in education, there is a large deficit in the number of teachers in the region, where the average student-teacher ratio for primary schools has been projected to be 58:1 while there is about 47% of classroom deficiency in the region. Generally speaking, the women are the key actors of the economic activities in rural areas; unfortunately they do not enjoy equally the fruits of their labour. Women have less access to the revenues from their work because of the existing patriarchal system in social life. The profile of the sample population of the study, which consists of traditional and modern medical practitioners in the Mara Region, is presented in Paragraph 4.3. Here, special attention is drawn on the unequal age distribution and the different education levels between the two groups of respondents in the sample.

Chapter V presents an overview of the general livelihood patterns of Tanzania and the Mara Region. While Paragraph 5.1 deals with the general norms, beliefs and philosophies and livelihood patterns of Tanzanians, Paragraph 5.2 focuses on the historical traditional leadership in the region, which was based on chiefdom divisions. The social institutions and patterns of life are described in Paragraph 5.3.

In Chapter VI, and specifically Paragraph 6.2, a discussion is presented of the plural medical system in the Mara Region as part of Tanzania. Both Traditional Medicine (TM) and Modern Medicine (MM) as upheld and practiced in the Mara Region are documented, while in Paragraph 6.3.1 the cultural characteristics of health are discussed in the Mara Region. Specific cultural characteristics which affect the health status of inhabitants of the Mara Region include mutilation of children's teeth; uvulectomies; unsafe, mass male circumcision; female genital mutilation; reckless swimming in the unsafe waters of Lake Victoria which harbour the bilharzia parasites; life-threatening activities to people with albinism; non-compliance with balanced dietary intake and the healthy livelihood; the patriarchal attitude of the suppressing women's rights; and minimal provision of health information. In addition, an indigenous classification and a list of common use of medicinal plants of the Mara Region are provided in Chapter VI, Paragraph 6.3.2.

The Chapter also describes the collaborative efforts between traditional and modern medical practitioners in the Mara Region through the organisation of an association called CHAWATIATA, which unite traditional healers, traditional birth attendants and circumcisers. Paragraph 6.3.3 also mentions the contribution of the *Jadi na Utamaduni katika Afya* (JUA) Project, which seeks to enhance the capacities of traditional medical practitioners through organised workshops and consultations. The *Jadi na Utamaduni katika Afya* (JUA) Project was the initial trigger which has led to the undertaking of this study in the Mara Region.

Thirdly, the description of the Tanzania health sector reforms and challenges facing contemporary Traditional Medicine (TM) in Tanzania has been presented as part of the theoretical orientation in Paragraph 2.2 of Chapter II. Here, the researcher lays the foundation of interprofessional collaboration as a major step towards the realisation of the planned health sector reforms of Tanzania under the public/private mix and change of ideology in order to involve more community participation in health planning, financing and management. The overall focus is to observe the need of a paradigm shift in the sector, where health care has to be demedicalised, culturally redefined and integrated.

The detailed problem statement with regard to Traditional Medicine (TM) in Tanzania is provided in the Paragraphs 2.3.3 where the required institutional support is advocated. The dissertation has categorically listed the major problems facing the traditional medical system in Tanzania as its lower status, especially in government circles, the generally poor performance with less support and lack of a sufficiently enabling environment. These problems

have caused persistent shortcomings, such as a weak institutional support of the Government to the traditional system, unavailability of allocations of funds as in the modern system, lack of a unified national and regional information systems, both for indigenous Medicinal, Aromatic and Cosmetic (MAC) plants and for local perceptions and names of diseases, absence of validation of some questionable local practices in terms of their quality, efficacy and even morality, such as the involvement of Traditional Birth Attendants (TBAs) in performing female genital mutilation, lack of proper representation and participation in health policy planning and implementation in the region, as compared with the modern medical system. Other problems have been indicated, including the increasing reduction of some medicinal plant and animal species, used for the preparation of traditional medicines. This so-called '*nature on the run*' problem is largely caused by irresponsible use of natural resources in the wild resulting in environmental degradation, and loss of available land to the increasing population.

Fourthly, the description the selected analytical model of interprofessional collaboration behaviour and its components, encompassing predisposing, enabling and intervening variables in relation to the dependent variables of patterns of interprofessional collaboration behaviour among traditional and modern medical practitioners in the research area is presented in Chapter III.

The outline of the major blocks of variables in the model and their descriptions are presented as to correlate to a certain degree of significance with the patterns of interprofessional collaborative behaviour between modern and traditional medical practitioner in the research area. The introduction of major block of variables of collaboration is mentioned in the formulation of the analytical model in Chapter II, Paragraph 2.4.5. Here, it is explained that a set of independent variables include predisposing, socio- demographic and psycho-social variables interacting with a set of dependent variables which on one hand include the behavioural variables of exchange of resources and on the other hand behavioural variables of working jointly towards clients and patients. Both the independent and dependent variables also interact in conjunction with the intervening variables of the model.

Table 8.1 Overview of the various blocks of variables used in the analytical model

Block number	INDEPENDENT VARIABLES
Block 1	Predisposing Variables (Socio-demographic Variables)
Block 2	Predisposing Variables (Psychosocial Variables)
Block 3	Enabling Variables (Socio- Economic Status)
Block 4	Trustworthiness Variables (Interprofessional Confidence to each other)
Block 5	Organisational Variables (Organisational Culture, Resources Capability)
	INTERVENING VARIABLE
Block 6	Government and International projects on interprofessional collaboration
	DEPENDENT VARIABLES
Block 7	Interprofessional Collaborative Behavioural Factor (Exchange of resources)
	Interprofessional Collaborative Behavioural Factor (Working Jointly)

Source: Fieldwork Survey 2006

Subsequently, the operationalisation of the conceptual model is presented in Paragraph 3.3, while the actual composition of blocks of variables in the structured questionnaire is shown to

link up with the deductive pattern of *concept - variable – indicator – category* in the measuring process, supported in the elaborated work of Kohn & White (1976), Slikkerveer (1990), Agung (2005), Ibui (2007), Djen Amar (2010) and Leurs (2011). An overview of the various blocks of variables used in the analytical model is presented in Table 8.1.

Fifthly, the provision of a list with the indigenous classification of medicinal plants commonly used in Mara Region is provided in Chapter VI, specifically in Paragraph 6.3.2. The medicinal plants are described in both the local names and in Latin names, together with an indication of the parts of plants which are used and how the herbal medicines are used in the local peoples' health and healing practices.

Sixthly The detailed step-wise data analysis is presented in Chapter VII, showing the results of respectively the bivariate analysis, the multivariate analysis and the multiple regression analysis which are leading up to the construction of the ultimate analytical model, indicating the statistical values of the strengths of interactions between the various blocks of variables which are interacting with the patterns of interprofessional collaborative behaviour between modern and traditional medical practitioners. This objective has been achieved by the use of SPSS Version 20.0, also referred to as *Predictive Analytics Software* (PASW), and also described in Paragraph 7.2.1 regarding the discussion of the general level of interprofessional collaboration. Furthermore, explanations of the bivariate analysis are given in Paragraph 7.2.2, followed by the multivariate analysis of variables known as OVERALS in Paragraph 7.2.3, and completed with the categorical regression analysis of blocks of variables in Paragraph 7.2.4. These interesting results have been achieved by the use of an *eigenvalue*, described by Van der Burg (1983) as a multivariate measure of association of all the variables concerned as an outcome of the technique of *Dimension Reduction-Optimal Scaling*.

With the available collected non-parametrical or categorical data, their observed counts, percentages, the tests of statistical independence and measure of association in degrees of significance, such as the Pearson's Chi-square, Phi, Cramers V and Kendall's tau-b, are also presented. It is worthwhile to note, that not all the results of the bivariate analysis show significant associations because some pairs do not meet the minimum statistical assumptions or simply because they do not show any significant correlation. As a result, the ultimate analytical model with calculated multiple correlation coefficients between the blocks of variables is presented, showing the variable 'trustworthiness' to co-vary more strongly (0.716) in the first dimension with interprofessional collaborative behaviour than all other variables, followed by the 'enabling variables' in the first dimension (0.682). These results put more weight on both the political will and the government efforts for the provision of an enabling environment as well as institutional support towards the collaboration between traditional and modern medical practitioners.

The third category of variables with a significant correlation (0.544) are the 'psycho-social variables', which include the perceived possibility of good working relationships in the future, the beliefs on the specialty in particular diseases of the medical system, and the attitudes, education, and awareness of the practice of interprofessional collaboration.

Based on Component Loading outcome of individual variables per each blocks of factors from Chapter VII, we can deduce that there are certain individual variables which have shown more strong significant correlation with the dependent variable which is interprofessional collaborative behaviour between traditional and modern medical practitioners.

Such results as presented in Table 8.2 prompts policy makers and all other health stakeholders in Mara region and Tanzania as a whole to pay much attention to such variables which act as major determinants of interprofessional collaboration among traditional and modern medical practitioners in the health sector reform set of strategies and activities. The interpretation of such strong variables can be translated to the following policy and strategic plans:

Table 8.2 Independent variables of strongest significant correlation with interprofessional collaborative behavioural variables results from components.

Block of Factors	Strongest Variable (Dimension 1)	Strongest variable (Dimension2)
Enabling	Gocoefot (.892)	SES (.740)
Intervening	Projeinv (.797)	
Trustworthiness	Mmtrust (.735)	Tmtrust (-.654)
Psychosocial	Knosect (-.637)	Percwrel (.477)
Organisational	Orgthink (.568)	Orginput (-.685)
Social demographic	District (-.537)	Profgrup (-.395)

Source: Computations based on Field work Survey 2006

‘Gocoefot’ & ‘SES’: efforts need to be directed towards creating enabling environment by both government and communities efforts (‘gocoefot’) to encourage interprofessional collaboration through facilitation of public campaigns and sensitisation activities on the benefit of interprofessional collaboration and rational utilization of both traditional and modern medicine services and products as appropriate. All Tanzanians have to work smart with accountability to raise the Social Economic Status (SES) of individuals by alleviating poverty for the improvement of health and wellbeing of the people of Tanzania.

‘projecin’: The Nation ought to continue vigorously to engage practitioners of both for traditional and modern medical systems to be involved in projects which fosters collaboration (projecin) among them as it has engaged some traditional birth attendants countrywide.

‘MM / TM Trust’: The leaders of professional health and allied health bodies in Medical, Nursing, Pharmacy, Diagnostic, Rehabilitation, Training Health Administration and all Traditional Health practices need to cultivate mutual trust among individuals and groups of practitioners modern and traditional medicine (MM / TM Trust) under the leadership of the umbrella organisation which unites both systems, the Ministry of Health and Social Welfare (MoHSW).

‘knowsect’ & ‘percwre’: More intensive courses on public health which include medical anthropology and Ethnobotanical knowledge systems needs to be incorporated into all medical and allied health studies in modern medicine. More frequent capacity building workshops have to be offered to traditional and alternative medicine practitioners to be able to acquire substantial knowledge about the entire health sector (knowsect) which include all available medical systems. The Health Management Information System (HMIS) is to be redesigned in such a way that it contains also data and analysis of the traditional medicine in terms of its practitioners, its clients, services and products. When this is done as well as when both sides are given chance to appraise the Strength, Weakness, Opportunity and Challenges (SWOC) analysis of both medical systems over time, there is a likelihood to observe a positive change of perception towards future good working relationship (‘percwre’) between the systems.

‘orginput’ & ‘orgthink’: It is essential that the Ministry of Health and Social Welfare (MoHSW) and the private health service providers ensure that there are satisfactory levels of organisational inputs (‘orginput’) in terms of competent human resources, finances, materials, infrastructures, and relevant information. Such strategy aims at improving working conditions and service delivery on both traditional and modern medical systems. Leaders and board members of all types of health facilities ought to be encouraged and sensitized to take it as part of their organisation cultures, to discourage the group think (‘orgthink’) attitude within their organisations.

‘district’ & ‘profgrup’: Affirmative action needs to be taken to alleviate the level of interprofessional collaboration between traditional and modern medical practitioners in Bunda and Tarime districts as compared to Serengeti and Musoma. The same can be said in terms of the type of professional group. More involvement of such groups of doctors, faith healers, fortune-teller, and traditional medicine vendors can increase their collaborative behaviours as it is seen to traditional birth attendants and modern medical attendants, nurses / midwives.

Seventhly, the presentation of the recommendations for integration and improvement of traditional medical services into the formal medical system of Tanzania with a view to achieve effective and successful health system reforms in the country is presented in Chapter VIII, Paragraph 8.2.1. The Paragraph starts with the explanation of the theoretical and methodological implications of this study, while Paragraph 8.2.2 describes the policy and the strategy on the avenue to fully integrated health care in Tanzania.

The Chapter also takes into consideration the health-related challenges which Tanzania is facing and the major issues which are relevant to the intended health system reforms. The proposed changes on the basis of the study may comprise *i.a.* attitude changes, policy changes, operational changes, and priority setting and evaluation changes, which include topics such as: the following:

- Sensitizing Leaders and Board members of health facilities to discourage the organisational *groupthink* syndrome which has encroached the political and professional ways on decision making and responding to pertinent issues for development of human and the country as a whole
- preparing medical practitioners to change their attitudes in order to appreciate the efforts towards integrated medical system, including collaboration among traditional and modern medicine practitioners;
- acquiring the ideological base to recognise the need for interprofessional collaboration and a shared will to achieve such collaboration;
- provision of a mandate and institutional support for the services, organisations and projects of practitioners of Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM);
- availability of a dialogue and the development of capacity among stakeholders in health care;

- strengthening research, training and development of indigenous knowledge related to health and well-being;
- rethinking religious doctrines in relation to nurturing good cultural heritage which has been displaced during the colonial and post-colonial periods of time;
- working towards international humane partnerships and cooperation;
- development of policies bringing together the interests in improved management of biodiversity and people's improved livelihood
- development of policies bringing together the interests of the pharmaceutical and biotechnological organisations in the improved management of biodiversity and in the improved livelihood of the people;
- development of a database and a network related to bio-cultural diversity within the country in conjunction with international institutions and networks;
- improvement of medical products and services offered by the traditional medical practitioners;
- upgrading of gender roles in order to recognise and provide equal opportunities to the marginalised women and children in the society for an improved health status and valuable socio-economic contributions to the community.

At the beginning of the 1970s, as Pearce (1982) notes, a radical change towards integration between Modern Medicine (MM), Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM) was introduced by many practitioners and health policy makers. Through the World Health Organisation in the Africa Region, the Heads of State of the African Union declared the period of 2000-2010 as Africa decade on African traditional medicine. In short, more planners and policy makers today are paying attention to the prevention, care and cure of people through the use of all possible resources from the modern, traditional as well as the alternative services, while also improving all other elements which affect the health of the population.

In Tanzania, and in Africa in general, the rather negative attitudes towards traditional and alternative medical practitioners, their medicaments and their services is the result of the long colonial suffering and kinked religious hermeneutics resuscitated by the 'groupthink' machinery which promotes high levels of forced, irrational consensus at the expense of consumer rights, efficiency and the overall reality of medical pluralism. This situation has to be changed as health policy makers and planners take a major step towards integrated health care development, beginning with a community-based approach to health promotion, the creation of conducive environment and institutional support towards interprofessional collaboration between traditional and modern medical practitioners.

8.2 Implications

8.2.1 Theoretical and Methodological Implications

Apart from the interesting results from the analyses of the correlation and interaction among various variables which influence the interprofessional collaboration behaviour between traditional and modern medical practitioners, this study has also led to some new theoretical and methodological implications. The research underpins the importance of incorporating significant independent variables, other than those at the individual level, including organisational variables. Even more interesting is the categorisation of some new variables in separate blocks in the multivariate analytical model, adapted from recent interactive-oriented studies by Slikkerveer (1995) and Ambaretnani (2012) for the pioneering application of a new behavioural model of interprofessional collaboration. The multivariate analysis of this study has shown to be able to capture the relationship among complex variables which are interacting in a differential mode to affect the way in which certain types of humans – in this case traditional and modern medical practitioners - collaborate as they provide different services to their clients and patients.

This research also shows that the specific technique of the development of a structured and pre-coded questionnaire is most useful for the execution of various household surveys in the Mara Region. Embarking on the development of a deductive scale from the definition of a concept through the factors into variables and their indicators to measurable answer categories, the questionnaire has been successfully adapted from Slikkerveer (1990; 1995). On the basis of the analysis of both qualitative and quantitative data of the research focused on two separate groups of traditional *versus* modern medical practitioners, the study highlights the importance of taking a pluralistic configuration of ethnosystems in the research area into account, as well as of contemporary systems of organisations related to sustainable health care development. In other words, the analysis needed eventually to implement a transcultural perspective on traditional and modern medical practitioners in the research area.

In order to study ostentatiously such a complicated problem of collaborative behaviour of diverse professionals in a pluralistic medical configuration, a set of multiple research methods and techniques are employed (Yin 1989). The selected methodology validates the combined use of a structured questionnaire, semi-structured interviews, workshops, personal observations and document analysis to explore, describe and analyse the correlations between and among various independent and intervening variables which are interacting with dependent variables of the patterns of collaborative behaviour of respondents. The results of the study have been further analysed by the use of non-linear correlation analysis (OVERALS) in order to obtain an ultimate model of interprofessional collaborative behaviour in health care in the research area.

The preference for the selection of this analytical methodology is the result of its ability to determine the degree of significance of the correlations among variables, and as such to understand and predict the values of the dependent variables, in this case the behavioural patterns of interprofessional collaboration between traditional and modern medical practitioners. The special analytical methods and techniques, developed by the Department of Data Theory of Leiden University, has been adapted and implemented rather successfully for human behaviour-oriented research in the transcultural configurations in developing countries by a number of researchers from different disciplines, including research in Ethiopia and West-Java, Indonesia by Slikkerveer (1990; 1995); in Bali, Indonesia by Agung (2005); in Kenya by Ibui (2007); in West Java, Indonesia by Djen Amar 2010; in Bali, Indonesia by Leurs (2011);

and in West Java, Indonesia by Ambaretnani (2012); and in the Mediterranean Region by Slikkerveer (2012).

The special analytical approach has the advantage not only to identify particular variables as significant determinants of behavioural patterns in a given configuration, but also to measure the relative strengths of the interaction of these determinants as they interact with each other in relation to the dependent variables. As indicated above, in this study, the analytical model has similarly shown to be rather functional in the identification, analysis and explanation of several significant determinants of interprofessional collaborative behavioural patterns of exchanging resources and working jointly for clients and patients by traditional and modern medical practitioners in the Mara Region of Tanzania.

8.2.2 Policy Implications and Practical Recommendations

‘As regards to policy implications, the inclusion of culturally appropriate health care and pluralistic plans of action are proposed in certain indigenous medical perceptions, practices and healers are integrated in order to achieve optimal use of all available resources by the entire population.’ This concise excerpt from Slikkerveer (1990: 287) from his pioneering study in Ethiopia also represents the implications from this study in the Mara Region. The evidence base for such integration of Traditional Medicine (TM) and Modern Medicine (MM) remains as yet rather limited. A review by Briggs & Garner (2007) indicates several important practical implications, with which the implications of this study link up as follows:

- Integration is not a cure for inadequate resources in health care. Inadequacy of competent human materials, financial and information resources must be addressed.
- There are more examples of statements and policies in favour of integrated health services than there are actual physical examples. Integration requires policy makers, managers, and health workers to be engaged on all levels as appropriate.
- Integrated services do not imply everything has to be integrated into one package. There are many possible arrangements which suit the situation and prevailing environments.
- Despite high levels of health provider integration, health service users may experience low levels of integration in their access to care, or vice versa. This may be due to poor communication and coordination.

Consequently, this study is associated with a variety of interrelated subjects, such as health system reforms, integrated health care, human resource management, organisational research and development, ethnosystems and the contextualisation of the *knowledge-belief-practice* complex, which necessitates a scrutiny on different available as well as intended policies in Tanzania and other developing nations with similar situations. Practical recommendations are therefore indicated in detail below with regard to the strengthening of interprofessional collaboration among different medical practitioners in conjunction with other related policies and strategies, aimed at achieving integrated health care development. These recommendations should not be taken as a conclusive panacea, but as evidence-based advice to be considered together with similar measures suggested by other researchers, academicians and scholars for the ultimate aim of improving human health and initiating positive socio-economic and cultural changes in Tanzania and elsewhere in the developing world.

1. Sensitizing leaders of health facilities to discourage the organisational groupthink syndrome.

Now that Tanzania has celebrated 50 years of independence from Tanganyika, all policymakers, health facility board members, health managers and medical practitioners are urged to enter a new phase of encouraging practical steps to prevent national and local health decision-making organisations and leaders from suffering from the known ‘business as usual’, epidemic of groupthink, which has long encroached the political arena worldwide. In order to depart from this syndrome, the Ministry of Health and Social Welfare (MoHSW) should demand critical thinking and open discussions from the village Primary Health Care Committee to the District Health Boards to the national level where stakeholders of traditional and alternative medicine are incorporated and represented with full participation. Full participation of representatives of primary health care teams (including traditional medical practitioners) would help to appropriately identify the population’s health problems and assessment of the health needs in the specified areas in question, as Lionis & Trell (1999) observed. At times, some of the members in different decision forums have to purposefully assume the role of the ‘devil’s advocate’ to question un-tested policies and plans.

Consequently, open and critical discussions could resolve conflicts and contradictions, as the masses continue to proclaim their grievances about health providers and the government indiscriminately, without taking into account the initiatives to contribute with positive criticism and actions to help raise the present health levels of the Tanzanians.

As Gardner (2005) highlights, it should also be recognised that collaboration is a journey, where all concerned parties such as practitioners and health policy makers need to learn to value and manage diversity, while developing constructive conflict resolution skills in order to create a win-win situation in times of controversial or conflicting ideas and scenarios.

2. Appropriate preparation of medical practitioners with the right attitude towards integrated health care and cultural sensitivity

As Abbott (2011) discovered with regard to students, and Winkler *et al.* (2010) discovered in people with epilepsy and their relatives, most medical and paramedical students in Tanzania also perceive a connection of mind, body and spirit. However, a more theoretical inputs into the discourse need to be incorporated by health care trainers into their syllabi in order to shape their attitude towards the utilisation and integration of Modern and Traditional and Alternative Medicine. Equally important is the fact that in addition to the *Muhimbili Institute of Traditional Medicine*, there should be more formal higher university education and research colleges of both traditional and alternative medicine as is the case *e.g.* in China, where there are more than 30 universities, 3 colleges, 51 medical. Schools; in the Republic of Korea, where there are research institutes, 11 oriental medical universities; in Vietnam where there are 3 research institutes, 3 faculties in medical schools, 2 medical technical). Tanzania would also benefit from centres with an inclusive system approach such as those in India, Sri-Lanka, Indonesia and Australia (*cf.* WHO 2002b). In the same way, all medical and paramedical colleges are advised to incorporate studies which relate health and disease to peoples’ culture, such as medical anthropology and Ethnomedicine.

Entrepreneurship in health care has also brought about moral issues which are facing the medical practitioners in both traditional and modern medical systems. Today, if a doctor, nurse, pharmacist, dentist, healer, bonesetter, soothsayer or any other medical practitioner is not thinking ceiling with waves of making more money, it is having more patient attendances if not contemplating gaining fame as a celebrity of a rare career in the society. No wonder that the agenda of the ‘brain drain’ of human resources in developing countries is losing its grip as an

inept response which is mirrored in the freedom of labour mobility just as soccer players move from one team to another so long as it goes with a transferring form with a heavier cheque.

Consequently, curriculums, teachings, internships or apprenticeships for medical practitioners need to be reviewed in order to reflect an effort towards a change in attitude from business to service orientation, from curative to preventive and from expertise to facilitation.

Despite the perspective of the melting pot, which refers to the increasing contacts between peoples of different cultures and as such render making the world a smaller village, the perspective of the kaleidoscope of cultural differences continues to be evident. Tanzania, like many other developing countries, continues to receive foreign medical practitioners either as part of the technical assistance programmes from abroad, or as the result of the individual freedom of movement and the worldwide open labour market. In response, the Ministry of Health and Social Welfare (MoHSW) is advised to create a kind of induction environment in respective local areas of service in order to ensure certain minimum level of cultural competence by the foreigner practitioners enabling them to appropriately treat all clients and patients with appropriate cultural sensitivity and respect.

It is highly appreciated when countries have prepared their candidates well for working abroad, such as the training of Tropical Doctors at the Royal Tropical Institute (KIT) in Amsterdam, The Netherlands, The Institute of Tropical Medicine in Antwerp, Belgium, the Royal Society of Tropical Medicine and Hygiene in London, United Kingdom, and the Australian College of Tropical Medicine in Red Hill, Australia, among others.

3. The ideological base for the need of interprofessional collaboration and definition

A shared recognition and definition of collaboration between the two medical systems and among other stakeholders is imperative, with the recognition that the goal is not about power, but about working together toward a common goal (*cf.* Morrison 1996). Collaboration between Traditional Medicine (TM) and Modern Medicine (MM) is capable to bridge the equity gap in global public health. There is a pressing need for all health service stakeholders to engage in critical thinking and dialogue in order to generate a knowledge base about the outcomes of interprofessional collaboration of both medical systems. Such thinking should be based on results of empirical studies showing efficacy as a means of achieving specific customer oriented health service outcomes and not as a mere political ideology. In the same way, there is a need to outline the resulting difficulties of collaboration for effective management, which the groups are expected to face (*cf.* Kvarnström 2008).

4. Mandate and institutional support

The Government of Tanzania is advised to give both a mandate and institutional support for the envisaged collaboration. The Ministry of Health and Social Welfare (MoHSW) should participate in the Health Sectors Reform Action Plan to implement the Traditional Medicine (TM) policy in accordance with the present enacted law of Tanzania (Act no.23 of 2002) governing the practices of Traditional and Alternative Medicine by encouraging the appropriate use of traditional medicines and giving incentives to those involved in the management of medicinal plants such as provision of land, knowledge of sustainable conservation and special recognition in the societies where they live.

Furthermore, the Government should acknowledge Traditional Medicine (TM) not only for health care provisions but also for income generation. Therefore, substantial institutional support should be given to the associations of traditional medical practitioners and medicinal plant collectors.

Policies should be designed not only for governing control of Traditional Medicine (TM), but also, in conformity with the law, of the conservation of the indigenous heritage, together with the fair and equitable sharing of the benefits arising from utilisation, including protection and compensation of Intellectual Property Rights for individuals and communities with indigenous 'hardware' and 'software,' based on the *United Nations Declaration of the Convention on Biological Diversity* (Article 8j and Article 29, UNEP 1992) concerning the rights of indigenous peoples of their sustainable community development.

Just as the modern health system has been developed and funded by governments, also the practitioners and institutions of traditional and alternative medicine should be developed, funded, and controlled. An effective mechanism for quality supervision and assurance of the collaboration between traditional and modern medical practitioners needs to be in place. For quality health services, Primary Health Care, especially in rural areas, need to be fully supported by regional, district and community authorities, as Lionis *et al.* (2004) suggest.

5. *Dialogue and capacity development among stakeholders on health*

Frequent healthy discussions about issues of collaboration among practitioners and health stakeholders in general such as the rational use of traditional medicines need to be encouraged. Such dialogue includes, but is not limited to traditional practitioners, physicians, nurses, botanists, agronomists, environmentalists, zoologists, pharmacologists, pharmacists, pharmaceutical technologists, anthropologists and economists. Biocultural diversity conservation also needs to be incorporated as a separate general subject in primary and secondary school curriculums.

Awareness campaigns on the utilisation and management of appropriate traditional medicines have to be instituted in combination with the national primary health and environmental conservation strategies. It can be achieved by the use of mass media, communication networks and capacity-building workshops which are targeting traditional herbalists, village health workers, business companies and individuals dealing with medicinal plant products, pharmaceutical companies and farmers. A major possible theme to be promoted during national festivals, such as when the freedom torch is run across the entire country, as well as in health-related campaigns and during public holidays, would be a slogan which promotes the role of traditional therapies and medical practitioners in the national health care system and the economy.

6. *Research, training and development*

Anderson and Kaleeba (2002) reviewed the collaborative projects (The TAWG – scheme in Tanzania) which incorporate Traditional Medicine (TM) in HIV/AIDS prevention and control. The review demonstrates that collaborative projects have been minimal, and that they suffer from financial constraints. They operate short-term in a unified local place and are mostly characterised as small-scale. The review shows that such projects are often inadequately reported and appraised. It is therefore suggested that further comparative research on collaboration between modern and traditional medical practitioners and their systems need to be conducted to reveal insights which may be applicable to other similar places.

The *Muhimbili Institute of Traditional Medicine* and the *National Institute for Medical Research* in cooperation with other scientific institutions of health studies in Africa and abroad ought to exert more efforts in the study of assessing the scarcity of priority plants, animal and minerals for use as medicines, especially with regard to the related over-exploitation and environmental degradation.

Researchers should be acquainted and make use of the present databases such as UCTAD, NAPRALET and PHARMEL, and consult *the International Brand for Plant Genetic Reserves* (IBPGR). Particular emphasis must be laid on development and adoption of an effective system for the protection of indigenous knowledge and the prevention of biopiracy from in- and outside the country. The Traditional Knowledge Digital Library (TKDL) of India is currently one of the most outstanding examples.

Pilot studies should be focused on assessing possibilities of large-scale production of priority medicinal plant species. The recent launching of a new herbal medicine processing plant of the Kenyan School of Alternative Medicine and Technology (Samtech) in Nyeri, Kenya for the production of tablets, syrups and capsules is a good example (1).

When considering research on Medicinal, Aromatic and Cosmetic (MAC) plants, it is a time of great importance also to take the Claridge 'model of total drug effect' into account. The preference and effects of any medication to an individual depends on many factors, such as the characteristics of the recipient, *e.g.* socio-cultural background, education, experience, personality, age; the characteristics of the provider or dispenser, *e.g.* sense of authority, trustworthiness, attitude, professional status, age; the setting, such as the environment in which the medicine is administered; and the characteristics of the medicines, such as taste, shape, colour and name (*cf.* Claridge 1970). For the purpose of utilisation of health care, it is vital to conduct pharmacognological and agrobotanical surveys on all so far non-codified systems of traditional herbal medicine in order to assist the updating of the selection of essential medicinal plants.

It is also useful to have an organisation with representation from different disciplines and ministries, to coordinate all efforts of the parties which are involved in integrated traditional medicine, including research institutes, documentation centres, health centres for clinical trials, to regions and districts authorities. Furthermore, a comprehensive consumer study of the services and products of Traditional Medicine (TM) needs to be taken in order to document how services of Traditional Medicine (TM) are currently conceptualised and utilised under the existing models of collaboration in terms of patients' needs and expectations. In a more realistic sense, researchers on health care utilisation are strongly advised to consider and use the explanatory models of multivariate analysis of patterns of relationships among various predisposing and enabling variables, including aetiology, traditional classifications of plants and diseases, and socio-psychological variables within the dynamic context of social and cultural change of the society concerned (*cf.* Slikkerveer 1990: 56-57).

Formal training and research guided by the World Health Organisation Guidelines (WHO 2000a; 2012b), the Ethnosystems Methodological Approach (Slikkerveer 1995), as well as the Hermeneutic Phenomenology Methodology need to be undertaken with rather flexible and open-ended inquiries in Tanzania in different fields, such as social and medical anthropology, ethnobotany and ethnopharmacology. This approach will further explore the nature of human experience *versus* the usually predictive and prescriptive theories. Such strategy, in turn, will contribute to the moral and socio-political dimensions in the contemporary process of integrated health care development. The results are also significant for revisiting the health sector reforms, with special consideration of the integration of Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM) into the national health care delivery system of Tanzania.

7. Revisiting religious doctrines in relation to traditional culture

'To condone all herbalists and traditional medical practitioners in a blanket is like staggering in a colonial hangover' (*cf.* Chirangi 2000)(2) In agreement, African religious leaders and theologians today have conceded that there is a need for contextualisation of African

Christianity in order to remove cultural foreignness, *e.g.* artefacts, liturgical expressions, songs, metaphors, the world view, symbols etc. and for the purpose of addressing some peculiar African socio-cultural issues such as indigenous medicine and aetiology, the spirit world, parental curses, extended family ties, and passage rite ceremonies.

A good example of this move is the preliminary explorations by Martin (1996) on the gospel and culture of the *Research Institute on Christianity in South Africa* (RICSA), a study which was sponsored by the *World Council of Churches* (WCC) (3). In the same way, Chavunduka (1999) in his article '*Christianity, African Religion and African Medicine*' concludes, that: '*The way forward for the Christian Church is to examine carefully African religion and medicine and other cultural aspects, with a view to identifying clearly those practices which are not against Christian faith and morals and incorporate them into modern medicine and Christian worship; if possible, they should also try to find a way out of what are considered non-Christian rites and other cultural practices. A few Christian churches are already doing this*'.

A failure to address this challenge is to lay unnecessary burdens to believers and perpetuate hypocrisy with the dualistic identity; of being an African (in hidden forms) and a Christian (openly) instead of being with one identity – an African Christian.

8. *Humane international partnership and cooperation*

International policies of the World Bank, the International Monetary Fund, the World Trade Organization and other international organisations governing the provision of international aid, cooperation and trade ought to encourage mutual respect among partners based on common understanding leading to poverty alleviation and improvement of the quality of life towards sustainable human development to people in developing countries. Developing countries need to be assisted more in gaining accessibility to the markets, to information as well as obtain better trade opportunities. Policies for lifting the accrued debt burden from poor countries are beneficial. One of the approaches of controlling bio-piracy is to take a shared benefit approach with indigenous people, such as through the model of *Access and Benefit Sharing* (ABS), which grants access to the traditional knowledge, but in return claims a fair share of benefits for the local society for every newly-developed medical product.

9. *Policies which link the interests of the pharmaceutical and biotechnology sector with improved management of biodiversity and people's improved livelihood*

The use of raw materials from the available biodiversity for pharmaceuticals and biotechnological companies has a direct link with the health and livelihood of peoples living in areas of biodiversity (Grifo & Rosenthal 1977). It has been suggested that the government should develop effective policies to ensure not only the conservation of biodiversity but also to support sustainable development of people living around. Considerations such as the nation's interests touches on researchers, businesses, prospectors and communities at large (Reid *et al.* 1993). These interests cannot continue to be left at the mercy of commercial investors in the name of 'corporate social responsibility'. Whilst this research is about collaboration in health care, collaboration in biodiversity conservation strategies, both traditional and modern for the development of sound management of Tanzanian's biological diversity can be an important national goal. With the aim of attaining the sustainable use of Medicinal, Aromatic and Cosmetic (MAC) plants, the issue of conservation needs to be addressed. Both plant research and harvesting practices need to be carried out in a responsible way.

Furthermore, as Rukangira (2001) mentions, *ex-situ* cultivation of specified species of Medicinal, Aromatic and Cosmetic (MAC) plants should be necessary to obtain raw materials grown under the same conditions of climate and ecology.

Pharmaceutical companies and any organisations profiting from indigenous knowledge need to give something substantial back to the people who own the knowledge. Such approach could be achieved through loyalty, corporate social responsibility projects and support of the promotion of knowledge and products of Traditional Medicine (TM), *e.g.* in trade exhibitions.

10. *Development of a database and strengthening networking in biodiversity*

Governmental and non-governmental organisations need to document medicines in the wild in the context of the plants and their surrounding cultures at the national documentation centre. Such strategy is only possible through an appropriate research and biodiversity network connecting all institutions and regions within the country, and through other international networks such as the *Natural Product Research for Eastern and Central Africa* (NAPRECA), the network and database on *Native and Naturalised Plants of the Mediterranean Region* (MEDUSA) and the *Leiden Ethnosystems and Development* (LEAD) Programme for exchange of information and preservation of important data on various species of Medicinal, Aromatic and Cosmetic (MAC) plants. The information to be recorded about each plant should be as comprehensive as possible and include both the vernacular and scientific names of the plant, its role, the habitat description, taxonomy, possible formulas (forms), storage, underlying indigenous knowledge and perception, harvesting practices, conservation status, possibilities for business and trade, any taboos/restrictions about the plant, etc.

It is paramount for the institutes and organisations in Tanzania to carry out data banking and promotion of safe and efficacious forms of Traditional Medicine (TM). Such organisations include the *Institute of Traditional Medicine* at the *Muhimbili University of Health and Allied Studies* (ITS- MUHAS), the *National Institute of Medical Research* (NIMR), The Commission of Science and Technology, the Tanzania Food and Drug Agency, the Government Chemist Laboratory Agency and CHAWATIATA, the organisation for traditional healers working in collaboration and coordination with *Natural Product Research for Eastern and Central Africa* (NAPRECA), of which the country office now is at the *Institute of Traditional Medicine* at the *Muhimbili University of Health and Allied Studies* (ITS- MUHAS).

11. *Improvement of medical products and services*

The public needs to be aware of the hazards of inappropriate use of medicines and other health services, not only on the status of individual and public health, but also on the economy and the society. Long-term disregard will end in the rationalisation that the inappropriate use of health services will not improve health. Therefore, correct information and quality products and services should not be compromised. The largest difference among medical practitioners refers to their attitude. In order to improve health care delivery, practitioners of both medical systems need to be motivated towards positive thinking, such as Martin (1991) mentions: ‘*You are what you think, and you feel what you want.*’ Consequently, the Ministry of Health and Social Welfare (MoHSW), the medical practitioners and their associations, such as *Medical Association of Tanzania* (MAT) and *Chama cha Waganga na Wakunga wa Tiba Asilia Tanzania* (CHAWATIATA) have to adapt their commitment, control and challenge (Kobasa 1979) with the following clarifications:

- *Commitment*: Making a positive commitment to oneself to learn to like working, create good relationships, and live in harmony with others as well as nature. This compels the Ministry of Health and Social Welfare (MoHSW) to give credit where it is due and to oneself on success stories.

- *Control*: Keeping one's mind focused on crucial things. Setting goals and priorities and visualising actions. Developing a strategy to solve problems, learning to relax, and be honest to one's self.
- *Challenge*: Being courageous, changing and improving regularly. This implies doing the best and not looking back, learning and grabbing new opportunities, asking questions about pertinent issues, and keeping in mind success is not judged by what you start with but what you end up with.

12. *Gender streamlining*

Last but not least, on basis of ample evidence, women in developing countries, especially in Sub-Saharan Africa in which the Mara Region is located, carry many tasks and responsibilities and are associated with a range of needs and contributions to both the national economic growth and the national health status, especially in rural families. Women are the most marginalised subsistence farmers and gardeners, major providers and promoters of folk preventive and curative health care, primary socialisers and caretakers who impart traditional knowledge and values to children. In this view, strategies to 'fight' gender inequality should go hand-in-hand with the empowerment of women, increased sensitivity and practical responses to women's special needs and their involvement in decision-making organisations of all ministries in the countries.

In conclusion, it is clear that traditional societies in Tanzania with unique diversity in terms of socio-cultural characteristics and a rich heritage have been practising and/or responding to traditional health care for many generations. Traditional healers and their trainees have managed and utilised medicinal plants in addition to other medicinal ingredients from animal products, minerals and spiritual exhortations, in order to alleviate and protect humankind from diseases, illness, misfortune and risks, as well as to improve the health and wellbeing of the population.

However, today Tanzanians, as is the case in many developing countries, witness their life in an uneven medical pluralistic configuration, where there is so much emphasis on modern medicine and practices to seek good health, often at the expense of traditional medicines. The socio-cultural changes and economic motives since the colonial era have gradually marginalised traditional health workers and their knowledge and practice into poorly managed, stigmatised conditions.

In order to redress this rather unacceptable situation, this study calls for affirmative actions for integration between traditional and modern medicine in the Tanzanian pluralistic medical system, along through the development of an ethnobotanical knowledge system and related bio-cultural conservation strategies of Medicinal, Aromatic and Cosmetic (MAC) plants. It should be known that adoption of mere health and or environmental policies based only on economic gain regarding the management and utilisation of these MAC plants will eventually prove to be ecologically unsustainable and socially unacceptable.

Therefore, careful consideration is needed for the intersectoral and interdisciplinary outcomes affecting individual citizens, local communities, and the nation at large and an equitable, humane and just international cooperation and interdependence. This integrative approach can be realised through the concerted efforts of different ministries, such as the Ministries of Health and Social Welfare; Education; Land and Human Settlements Development; Natural Resources and Tourism; Agriculture and Cooperatives; Science, Technology and High Education; Community Development, Gender and Culture; and Industries and Trade.

In addition, a country-wide involvement is needed from related Faculties and Departments in the Universities and Colleges throughout Tanzania, including various disciplines in the *Medical Social Sciences*, such as Medical Anthropology and Sociology; Ethnobotany; Ethnomedicine, Ethnopharmacology, Zoopharmacognosy, Social and Cultural Ecology, Agriculture, Palaeo-ethno-botany and Divinity. It is therefore paramount to ponder the words of Akerele (1987): who noted: *'Traditional medical practitioners constitute the most abundant and in many cases, valuable, health resources present in the community. They are important and influential members of the communities who should be associated with any move to develop health services at a local level.'*

Notes

1. This herbal medicine processing plant is the first of its kind in the common market for the Eastern and Southern Africa (COMESA) region for large-scale production of herbal medicines. The facility also acts as a training centre for herbal practitioners to update their knowledge in line with the demands of their contemporary clients the region. The news was also reported by James Njorege in Science and Development Network (Scidev net) and published at: <http://www.scidev.net/en/news/kenya-launches-herbal-medicine-processing-plant.html>. Accessed on 15th Jan, 2012.
2. Chirangi M (2000) *'Institution Capacity Development: Formulation of Management Systems and Policies. A Case Study of Tanzanian Church Hospitals'* Master's Thesis. The thesis urges church policy makers to establish Paragraphs on indigenous medicine under the department of health in dioceses.
3. Stephen Martin (facilitator and editor) co-writes this article from 10 June 1996, found at, <http://b.uct.ac.za/depts/ricsa/commiss/goscult/gosplcul.htm> (accessed 10 April 2011) entitled *'Gospel and culture in South Africa'* for the World Council of Churches (WCC). It is concluded that elements of traditional and modern culture which repress than express human dignity need the healing judgement of the gospel and the focus needs to be on the identity of the community.

