

# **Burden of Diseases in Poor Resource Countries: Meeting the Challenges of Combating HIV/AIDS, Tuberculosis and Malaria**

Key Note Address

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## **Introduction**

At the outset I would like to thank the organizers of this important conference for inviting me to give the key note address. Last year at the 19th Conference at this venue I had the opportunity to present a paper on globalisation and emerging and re-emerging diseases. The choice of this year's theme is therefore a very appropriate continuation from last year when you intend to respond to the challenges of combating HIV/AIDS, tuberculosis and malaria a disease group which is within the Millennium Development Goals being addressed by the global community during the period 2000-2015. As most of you may be aware, the globalisation process by the world community includes HIV/AIDS, TB and Malaria among the 8 goals.

Poverty, ill health and ignorance are closely interlinked and each is a determinant of the other. HIV/AIDS, malaria and tuberculosis are by far the commonest causes of ill health and death in the poorest countries of the world which happen to be in the tropics and temperate countries in Africa, Asia and South America.

Illness and death from these three diseases have a major socio-economic impact on individuals and communities due to the vicious cycle of poverty, ill health and ignorance.

For us in Tanzania ill health resulting from HIV/AIDS, tuberculosis and other febrile illnesses including malaria leads to irrecoverable losses in productivity, inadequately trained workforce due to absence from training by the sick, heavy health care budgets to treat these otherwise preventable diseases, less competitive economy, higher labour force turnovers and unstable national budgets. If not controlled continuing rise in incidence of HIV/AIDS, malaria and TB may threaten the survival of small enterprises and ability to attract foreign investments leading to a rise in unemployment. Thus, investments in the improvement of health including HIV/AIDS, malaria and TB if done well will bring substantial benefits for the national economy including increase in productivity, a better trained workforce, improved economy, strong business enterprises, lower unemployment, fall in disease trends and better social well being of the population. It is therefore encouraging to note that most progressive businesses in Tanzania and elsewhere invest significantly towards health care of their workforces and their families.

It is generally agreed that investing in health yields highest rates of return of between US\$3 and US\$10

- for every one dollar invested compared to investment in many other sectors of development which yield at most US\$1.5 for every 1 invested dollar.

In this presentation I will briefly review the impact of HIV/AIDS, TB and Malaria in Tanzania and attempt to propose how research can contribute to improved efforts towards more effective prevention and control efforts.

I will also suggest the need for multidisciplinary research efforts in addressing the three disease conditions instead of current and past experience when each of the three diseases have been researched on in isolation.

## **Millennium Development Goals and responding to HIV/AIDS, TB and Malaria**

Following the decision of the member states of the United Nations made in September 2000 and after consultations among international UN agencies including the World Bank, the IMF, the OECD and the specialized agencies, the General Assembly of the United Nations came up with the Millennium Development Goals as part of the road map for creating a global partnership for development with the following goals and targets which among other priorities address HIV/AIDS, TB and Malaria:

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria, and other diseases.
7. Ensure environmental sustainability
8. Develop a global partnership for development

HIV/AIDS, tuberculosis and malaria are among the top killers in the world (more than 6 million per year; 3 million from HIV/AIDS, 2 million from TB and 1 million from malaria according to WHO estimates) and all have the greatest impact on the poor.

### ***Targets and indicators on the HIV/AIDS, Malaria and TB goal are:***

Target 1 : Have halted the continuing spread by 2015 and begun to reverse the spread of HIV/AIDS

Indicators :

- : HIV prevalence among pregnant women up to 24 years
- : Condom use rate of total contraceptive rate
- : Condom use at last high risk sex
- : Percentage of 15-24 year olds with comprehensive correct knowledge of HIV/AIDS
- : Ratio of school attendance of orphans compared with attendance of non- orphans.
- : Chart on newly infected population with HIV/AIDS
- : Adult prevalence of HIV map

## **Target 2 : Have halted by 2015 and begun to reverse the incidence of malaria tuberculosis and other major diseases.**

Indicators:

- Prevalence and death rates associated with malaria
- Proportion of population in malaria endemic areas using effective malaria prevention and control measures including children using bednets.
- Prevalence and death rates associated with tuberculosis.
- Proportion of tuberculosis cases cured under directly observed treatment (DOTS).

### **Relevance of the Millennium Development Goal to Tanzania and to NIMR**

HIV/AIDS, acute febrile illness (malaria), tuberculosis and other infective agents account for up to 70% of causes of death in Ilala, Dar es Salaam and in Hai and Morogoro rural districts and it is likely that other parts of Tanzania are going through the same pattern. In fact for those of us who have recently been attending burials of relatives, neighbours and workmates, it does not need an expert to inform us which are the major causes of ill health and death; it is HIV/AIDS, TB and febrile illness. The millennium development goals are highly relevant to Tanzania and we should commend our Government for endorsing the strategy and for coming up with the Poverty Reduction Strategy Paper beginning 2000. It is therefore essential for NIMR and other health research institutions and their scientists to come up with strategies and initiate activities on how best to respond to the challenges preventing fast reduction of ill health and death brought about by the three diseases.

In doing so it will be necessary to have joint efforts addressing all the three diseases together because all of them lead to fever which is often taken as malaria for the reason that malaria is easily managed by affected individuals at home under the primary health care approach while TB and HIV/AIDS require professional health expertise. Among adults living in malaria endemic areas, presentation HIV associated conditions including tuberculosis, salmonellosis other than due to *Salmonella typhi* and other bacterial and fungal causes of septicaemia are the leading aetiologies of fever of more than 2 weeks duration while malaria is an insignificant finding. Moreover, for those with fever and blood stream microbial infections, one study in Dar es Salaam found that 81% had HIV infection (Archibold et al., 1998). It is also known that among under five years old children with fever and or pallor in malaria endemic areas, only between 38% and 70% are proven to have laboratory evidence of malaria (Nsimba et al., 2002, Tarimo D.S. et al 2001) thus there is a need to make intensive research efforts and advocacy into availing simple, accurate rapid and affordable diagnostic tests for malaria and consider to include investigations for HIV and TB for adults and children with febrile episodes.

Regarding tuberculosis, it is estimated that life time risk of acquisition of active tuberculosis in Tanzania is 10% for HIV free individuals and 50% for those with HIV with an overall annual incidence of about 1% for all forms of TB and 0.5% for smear positive tuberculosis.

Moreover it is estimated that more than 50% of all Tanzanian adults are living with quiescent *Mycobacterium tuberculosis* in their lungs which can flare up whenever immunosuppression sets in. It

is therefore clear that more accurate and cost effective simple/rapid methods for detection of tuberculosis are required instead of relying on microscopy alone in current use which has less than optimal sensitivity. It is encouraging to note that improved serological tests for TB are emerging.

## **HIV/AIDS, Malaria and TB in relation to Poverty**

While more than 95% of new cases of HIV/AIDS, malaria and TB in the world are occurring in developing countries including Tanzania, and while poverty is clearly associated with malaria and TB due to poor housing and environmental sanitation, there is no evidence yet to indicate that poverty within Tanzania is a risk factor for HIV/AIDS. On the contrary increased socio economic status of a few individuals living among the majority of the population with low incomes may increase HIV risk for the socio-economically better off compared with the poor majority. Further studies on the relationship of HIV/AIDS and socio economic status of individuals and their sex partners are therefore required in order to sharpen the current intervention measures against the HIV/AIDS crisis.

The socio-economic burdens of tuberculosis, malaria and HIV/AIDS on communities are huge, thus it has been estimated that at the individual level, tuberculosis costs up to four months of lost income to the individual amounting to up to 30% of annual household income while malaria has been estimated to reduce economic growth in Africa by 1.3% while when HIV/AIDS reaches a prevalence rate of 8% or more as is the case in many urban and rural communities in Tanzania, economic cost in growth is about 1% or more per a year.

## **Proposed Strategies to be adopted by NIMR and other Research and Development Institutions**

In fulfilment of the millennium development goals and Tanzania's Poverty Reduction Strategy, NIMR and other health research and development (R & D) institutions in Tanzania should strategize and plan on how research in their institutions can contribute to reduction of poverty in the remaining period before 2015. In this regard NIMR management and her Centres and Stations may wish to come up with clear and specific research goals, strategies and activities.

Since NIMR already has a Centre and a Station dedicated to malaria and tuberculosis research respectively, the institution may wish to consider the establishment of an HIV/AIDS research programme at one or more centres/stations which will concentrate on biomedical, clinical, epidemiology, public health and social behavioural studies in HIV/AIDS and related conditions. NIMR should also encourage the centre/station currently dealing with malaria and TB research to dedicate most of their research efforts in the coming few years to address the priority research needs towards poverty reduction.

Among priority research areas which could be undertaken include:

- Developing and evaluating simple/rapid diagnostic assays for malaria, TB and HIV infection to ensure cost-effective treatment and monitoring of trends of the diseases.
- Determining continuing role of poverty and illiteracy in trends of HIV/AIDS, malaria and

TB.

- Developing and evaluating safety, immunogenicity and efficacy of appropriate HIV, TB and malaria vaccines and vaginal microbicides against HIV and other sexually transmitted infections.
- Drug development and conducting clinical trials of therapies to manage HIV/AIDS, TB and malaria.
- Improving clinical management of HIV, malaria and TB including associated conditions.
- Preventing mother to child HIV transmission and involving their male partners.
- Monitoring and evaluating the implementation of the research programme on HIV, TB and malaria towards achieving the MDGs.
- Improvement of environmental sanitation against TB and malaria.

## Conclusion

I hope this conference will mark the beginning of efforts by NIMR and her other partners in working towards the millennium development goals in the area of HIV, TB and Malaria. I also hope that in working towards achieving the national poverty reduction strategy, the Government of Tanzania will consider the necessity of setting aside at least 2% of poverty reduction strategy funds to support research which is essential to provide the technology, skills and verifiable information.

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