

Meeting Report

Informal Consultation on Novel Approaches in the Prevention and Control of Neglected Tropical Diseases in the Western Pacific Region



16–19 March 2010
Vientiane, Lao People's Democratic Republic

REPORT

**INFORMAL CONSULTATION ON NOVEL APPROACHES IN THE
PREVENTION AND CONTROL OF NEGLECTED TROPICAL DISEASES
IN THE WESTERN PACIFIC REGION**

Convened by:

**WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR THE WESTERN PACIFIC**

In collaboration with:

**WORLD HEALTH ORGANIZATION
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**Vientiane, Lao People's Democratic Republic
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NOTE

The views expressed in this report are those of the participants in the Informal Consultation on Novel Approaches in the Prevention and Control of Neglected Tropical Diseases in the Western Pacific Region and do not necessarily reflect the policies of the Organization.

This report has been prepared by the World Health Organization Regional Office for the Western Pacific for governments of Member States in the Region and for those who participated in the Informal Consultation on Novel Approaches in the Prevention and Control of Neglected Tropical Diseases in the Western Pacific Region, which was held in Vientiane, Lao People's Democratic Republic from 16 to 19 March 2010.

List of Acronyms

ADB	Asian Development Bank
AusAID	Australian Agency for International Development
CLTS	Community-Led Total Sanitation
CWC	Council for the Welfare of Children
DANIDA	Danish International Development Agency
DENR	Department of Environment and Natural Resources
DFID	UK Department for International Development
DOA	Department of Agriculture
DOE	Department of Education
DSWD	Department of Social Welfare and Development
EIA	Environmental Impact Assessment
FBT	foodborne trematodiasis
HIA	health impact assessment
IEC	Information, Education and Communication
JICA	Japanese International Cooperation Agency
KAP	Knowledge, Attitude, Practice
LAC	Latin America and the Caribbean
LF	lymphatic filariasis
LGU	local government unit
M&E	monitoring and evaluation
MDA	mass drug administration
MVP	Malaria, Other Vectorborne and Parasitic Diseases Unit of WHO
NCDC	National Communicable Diseases Control
NEDA	National Economic Development Authority
NEIDO	National Emerging Infectious Diseases Coordination Office
NGO	nongovernmental organization
NORAD	Norwegian Agency for Development Cooperation
NTDs	neglected tropical diseases
OD	operational district
PHD	provincial health department
RNAS+	Regional Network for Asian Schistosomiasis and Other Helminth Zoonoses
SDC	Swiss Agency for Development and Cooperation
SIA	social impact assessment
SIDA	Swedish International Development Cooperation Agency
STH	soil-transmitted helminthiasis
TB	tuberculosis
TBA	traditional birth attendant
TDR	Special Programme for Research and Training in Tropical Diseases
TRG	Thematic Reference Group
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WB	World Bank
WHO	World Health Organization

SUMMARY

An Informal Consultation on Novel Approaches in the Prevention and Control of Neglected Tropical Diseases (NTDs) in the Western Pacific Region was held at the Green Park Boutique Hotel in Vientiane, the Lao People's Democratic Republic from 16 to 19 March 2010. The consultation was co-hosted by the World Health Organization (WHO) Regional Office for the Western Pacific, in collaboration with the WHO Country Office in the Lao People's Democratic Republic, and by the Special Programme for Research and Training in Tropical Diseases (TDR) and the Government of the Lao People's Democratic Republic. The 19 participants were representatives of WHO, TDR, ministries of health and agriculture, academic institutions and nongovernmental organizations (NGOs).

The goal of the consultation was to develop novel, integrated, multi-disease and multisectoral approaches in the prevention and control of neglected tropical diseases (NTDs).

The consultation consisted of country presentations, technical presentations on relevant NTDs in the Philippines and the Lao People's Democratic Republic and multisectoral, multi-disease interventions, and group discussions. These efforts led to the formation of a draft matrix that depicted different activities in disease prevention, control and/or elimination in different sectors and subsectors. The draft matrix supported the development of proposals to determine the feasibility and cost-efficacy of integrated, inter-programmatic, multisectoral, multi-disease approaches in the prevention and control of NTDs in selected study sites in the Philippines and the Lao People's Democratic Republic. The goals, purposes, objectives, expected results, activities, outputs and responsibilities were fixed in log frames for the two proposals. Budgeting and time frames were left open as more detailed information and expertise are needed.

The informal consultation concluded with a final round of feedback from all of the participants, who confirmed that more holistic and creative thinking is needed to develop truly integrated, i.e. multisectoral, multi-disease, approaches, which are a promising way to sustainably and efficiently tackle NTDs. Furthermore, these approaches have major potential to acquire new sources of funding for NTDs, and may ultimately even be applied to other infectious and non-infectious diseases. These approaches include the development of novel interventions and collaboration with existing programmes that target NTDs, as well as synergizing with non-public health interventions whose activities can be targeted to have an impact on disease prevention, control and/or elimination. For these approaches to be successful, it is crucial that local communities, the government and the private sector are involved. To ensure their commitment, tools to measure cost-effectiveness, cost savings and/or synergies between the sectors are necessary to demonstrate to donor agencies, academia, public health and all other sectors how they can benefit from the projects. The demonstration of the feasibility and efficiency of the multisectoral, multi-disease approaches is the highest priority of the proposals.

Representatives of TDR and the WHO Regional Office for the Western Pacific thanked all of the participants for their generous input and constructive comments throughout the informal consultation. Participants thanked the representatives of the Lao People's Democratic Republic for their warm hospitality in Vientiane.

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Keywords

Neglected diseases – prevention and control / Tropical diseases



Figure 1: Group photo of the participants of the Informal Consultation on Novel Approaches in the Prevention and Control of Neglected Tropical Diseases in the Western Pacific Region held at the Green Park Boutique Hotel in Vientiane, the Lao People's Democratic Republic, from 16 to 19 March 2010 (missing from this photo is Dr Jun Nakagawa).

1. INTRODUCTION

An Informal Consultation on Novel Approaches in the Prevention and Control of Neglected Tropical Diseases (NTDs) in the Western Pacific Region was held in Vientiane, the Lao People's Democratic Republic from 16 to 19 March 2010. The consultation was co-hosted by the World Health Organization (WHO) Regional Office for the Western Pacific, in collaboration with the WHO Country Office in the Lao People's Democratic Republic, and by the Special Programme for Research and Training in Tropical Diseases (TDR) and the Government of the Lao People's Democratic Republic.

Neglected tropical diseases derive from complex interrelationships between socioeconomic, cultural, environmental, ecological and biological factors. Working towards their prevention, control and elimination in a sustainable manner calls for a multisectoral approach to address the multiplicity of risk factors within and beyond the health sector. Several successful approaches have been applied to dengue, soil-transmitted helminths and American trypanosomiasis. Furthermore, WHO is pioneering integrated vector management (IVM) in the control of several vectorborne diseases. This approach has already attracted the support of donor agencies.

TDR is also focusing increasing attention on exploring and supporting research to determine the feasibility of multisectoral approaches in communicable diseases prevention and control. TDR established a Thematic Reference Group (TRG) on Environment, Agriculture and Infectious Diseases, and recently sponsored a meeting in China that brought together leading experts in diverse fields to provide direction for potential multisectoral communicable disease prevention and control strategies. Discussions on the need to explore multisectoral approaches in controlling and preventing NTDs also took place during the first TDR Regional Stakeholder Consultation on Infectious Diseases of Poverty in Western Pacific Countries held in Vientiane, Lao People's Democratic Republic on 23 October 2009.

The WHO Western Pacific Regional Office convened the informal consultation for leading experts in different fields to develop two proposals for testing the feasibility and cost-efficacy of multi-disease, multisectoral approaches to NTD prevention and control in the Philippines and the Lao People's Democratic Republic. These two countries are either among the poorest within the Western Pacific Region or have pockets of extreme poverty. Both tolerate a significant burden of NTDs. Existing health systems in both countries are relatively weak, particularly in terms of access of highly vulnerable population groups (e.g. ethnic minorities) to health care facilities. Schemes based on massive drug administration (MDA), which are currently among the most effective tools to combat NTDs, are difficult to sustain under these circumstances. Hence, there is an urgent need to explore other means to reduce the risk of exposure and mitigate the consequences of a high burden of NTD infections in high-risk population groups.

1.1 Objective

The consultation aimed to achieve the following goal: to develop novel multi-disease, integrated and multisectoral approaches in the prevention and control of NTDs.

1.2 Opening remarks

Dr John Ehrenberg, Regional Adviser, Malaria, other Vectorborne and Parasitic Diseases Unit (MVP), WHO Regional Office for the Western Pacific, welcomed all participants and delivered opening remarks. He elucidated again the objective and expected outcomes of the consultation and reminded the participants that they should venture to think beyond their fields of expertise. Next, Professor Sithat Insiengmay, Ministry of Health of the Lao People's Democratic Republic, thanked the WHO Regional Office for organizing the consultation in the Lao People's Democratic Republic and highlighted that NTDs are a significant burden to the country. He wished everyone a successful meeting and anticipated that innovative ideas for combating NTDs would be put forth at the conference. Dr Johannes Sommerfeld from TDR also welcomed the attendees and stated that the goals and objectives of the consultation were very much in line with TDR's own agenda. He emphasized that while it is still a long way to successful prevention, control and elimination of most NTDs, he is optimistic that the workshop would be an important step in the right direction.

2. PROCEEDINGS

2.1 Relevant helminth NTDs in the Lao People's Democratic Republic and the Philippines

Dr Aratchige, Medical Officer, MVP, WHO Country Office in the Lao People's Democratic Republic, presented a brief overview of relevant helminth NTDs in the Lao People's Democratic Republic and the Philippines. The following helminth NTDs are considered as potentially relevant:

- (1) soil-transmitted helminthiasis (STH) (*Ascaris lumbricoides*, *Trichuris trichiura*, *Ancylostoma duodenale*, *Necator americanus*);
- (2) schistosomiasis (*Schistosoma mekongi* in the Lao People's Democratic Republic and *S. japonicum* in the Philippines);
- (3) foodborne helminthiasis (*Opisthorchis viverrini*, *Paragonimus spp.*, *Heterophyes spp.*, *Fasciola spp.*, *Capillaria philippinensis*, *Taenia solium*); and
- (4) lymphatic filariasis (LF) (*Wuchereria bancrofti*, *Brugia malayi*).

Dr Aratchige briefly elaborated on clinical courses and symptoms of human infections, life cycles of the parasites, factors influencing transmission and guidelines and directions for prevention, control and/or elimination. Concluding his presentation, he stressed NTDs can cause severe morbidity, all parasites have complex life cycles, and factors influencing transmission, and consequently sustainable interventions for prevention, control and/or elimination, are multifactorial.

2.2 Country profile presentations

Dr Leda Hernandez and Dr Tayphasavanh Fengthong presented the country profiles of the Philippines and the Lao People's Democratic Republic to inform the other participants about the current epidemiological profile of NTDs as well as demographic, educational, socioeconomic, agricultural and aquacultural, meteorological and health care related characteristics of the different provinces. They also cited organizations whose existing activities could be used as a point of integration for new interventions.

2.2.1 Philippines

Dr Leda Hernandez, Division Chief of the Infectious Disease Office at the National Center for Disease Prevention and Control in the Philippines, gave a presentation with the aim to inform the other participants about the current epidemiological profile of NTDs in the Philippines and to identify a potential study area for the intended intervention. First, she provided background information about the government structures with a focus on the Department of Health, geography, demography, the economy, languages, and the educational and health systems. Currently, six NTDs are endemic in the Philippines:

- (1) LF (endemic in 42 out of 80 provinces);
- (2) schistosomiasis (endemic in 28 out of 80 provinces);
- (3) STH (endemic in 80 provinces);
- (4) foodborne trematodiasis (distribution unknown);
- (5) leprosy (distribution unknown); and
- (6) dengue (distribution unknown).

Four NTDs, namely LF, schistosomiasis, STH, foodborne trematodiasis, are public health problems targeted for control and/or elimination in national programmes. The following significant collaborations and relevant activities were established within national programmes:

- (1) Department of Agriculture (DOA) conducts LF mapping, environmental sanitation, environmental modification and snail control;
- (2) Department of Education (DOE) conducts capacity-building, health education and STH chemotherapy;
- (3) Department of Environment and Natural Resources (DENR) conducts LF disability prevention and vector control, environmental sanitation, environmental modification, snail control, and improvement of water and sanitation and hygiene activities;
- (4) Department of Social Welfare and Development (DSWD) conducts STH chemotherapy;
- (5) Council for the Welfare of Children (CWC) conducts STH chemotherapy;
- (6) local government units (LGUs) conduct active case finding and surveillance in schistosomiasis, environmental sanitation, environmental modification, snail control and STH chemotherapy; and
- (7) NGOs conduct LF and STH chemotherapy.

After a brief summary of existing programmes, Dr Hernandez highlighted the next steps, which include the formulation of a Strategic Plan 2011–2016 in consultation with the different governmental organizations and other stakeholders. She identified the sustainability of all programmes as the biggest challenge ahead.

2.2.2 Lao People's Democratic Republic

Dr Tayphasavanh Fengthong, representative from the Laotian Ministry of Health, presented comprehensive epidemiological data on NTDs accompanied by geographical, demographic, sanitary, socioeconomic, educational, health care related, agricultural and aquacultural, and meteorological

characteristics of different provinces in the Lao People's Democratic Republic. The Lao People's Democratic Republic is endemic for the following seven NTDs:

- (1) STH (every province);
- (2) opisthorchiasis (OV) (most provinces);
- (3) schistosomiasis (focalized distribution);
- (4) LF (focalized distribution);
- (5) cestodiasis (unknown distribution);
- (6) paragonimiasis (unknown distribution); and
- (7) rabies (unknown distribution).

Malnutrition in children under five is a serious problem in the Lao People's Democratic Republic. An estimated 37.9% of all children under the age of five present as underweight, 41.2% present with stunting and 7.4% with wasting. Simultaneously, 53.9% of Laotian children aged 24–59 months are harbouring at least one of the following parasites: *Ascaris lumbricoides*, hookworm, *Trichuris trichiura*, *Opisthorchis viverrini*, *Fasciolopsis buski*, *Hymenolepis nana*, *Strongyloides stercoralis*, and *Giardia lamblia*. The most common infections are ascariasis (37.5%), hookworm (16%) and trichuriasis (17.5%).

The threat of rabies as a public health problem in the Lao People's Democratic Republic is extensive. However, the number of rabies cases is not accurately estimated due to the lack of a monitoring system. A more precise system exists in the Philippines, where rabies is monitored via a health programme funded by the Bill and Melinda Gates Foundation. Success stories of rabies prevention and control in the Americas indicate that some of the efforts employed there could be transferable to the Lao People's Democratic Republic.

Important collaboration for fighting these NTDs exists between the following organizations:

- (1) Swedish International Development Cooperation Agency (SIDA), (institutionalization of a national drug policy);
- (2) World Bank (WB) (Health Service Improvement Project, Avian and Human Influenza Control and Preparedness Project);
- (3) Global Fund to Fight AIDS, TB and Malaria (Grant: LAO 809-G11-H);
- (4) Japan International Cooperation Agency (JICA) (Project for Human Resources Development of Nursing/Midwifery);
- (5) WHO (communicable disease control, health system development, human resource planning and child and adolescent health);
- (6) United Nations Children's Fund (UNICEF) (capacity strengthening of village health volunteers and traditional birth attendants (TBAs), strengthening of planning and monitoring and evaluation [M&E] system of health centre, operational district [OD] and provincial health department [PHD]);
- (7) Asian Development Bank (ADB) (Center for Disease Control Phase Two); and
- (8) GAVI Alliance.

2.3 Project site selection

2.3.1 Philippines

Dr Hernandez proposed to select the municipalities of Irosin and Juban in the province of Sorsogon in Luzon as the potential project sites in the Philippines based the following detailed list of criteria:

- (1) possibility of synergy or integration with existing health initiatives and other non-health initiatives;
- (2) Human Development Index 2005;
- (3) functioning local health zones;
- (4) presence of committed health workers;
- (5) presence of existing partners (national and local);
- (6) presence of any two NTDs plus foodborne trematodiasis (FBT);
- (7) municipality with a population of 75 000 to 250 000 in either Luzon or Visayas region;
- (8) priority areas (F1) of the Department of Health;
- (9) political commitment; and
- (10) high poverty area.

Participants supported the proposed study site selection. Endemic NTDs in Sorsogon include schistosomiasis, STH, LF, FBT and cestodiasis. Furthermore, the intervention could have substantial impact beyond its intended targets as a very low proportion of households (69.8%) currently have access to safe water in the proposed study area.

2.3.2 Lao People's Democratic Republic

Dr Tayphasavanh Fengthong proposed to select Attapeu Province, the south-eastern most province, as the potential study site in the Lao People's Democratic Republic based on the following criteria:

- (1) presence of multiple NTDs (FBT, STH, LF, dengue, *Taenia solium* and rabies) and possibly malaria;
- (2) significant proportion of ethnic minorities in the population;
- (3) high poverty level;
- (4) low literacy level; and
- (5) low water, sanitation and hygiene levels.

The participants supported the proposed study site selection. LF is found only in the southern most part of Attapeu Province and is highly focalized, increasing its attraction as a target for elimination.

A one-year MDA against helminths, which is currently under way, covers all primary schools in Attapeu Province. A framework that includes MDA until 2016, and which also tackles water, sanitation and hygiene, is currently in the development stage. Furthermore, there may be NGOs working in Attapeu Province and they should be identified as potential entry points for integration with the projects.

2.4 Group formulation of the fundamental components of multisectoral, multi-disease approaches to NTDs in the Philippines and the Lao People's Democratic Republic

The presentations illustrated a wide range of current public health concerns. Participants judged that although health workers appear to be very committed to their work, they will most likely be unable to meet their targets and several interventions (e.g. chemotherapy/MDA) are currently not sustainable. Accordingly, these problem areas may serve as potential entry points for the intended multisectoral, multi-disease interventions that the consultation aims to produce. In order to holistically pursue this principal aim of the workshop, the participants made the following points regarding the development of intended interventions:

- (1) The development of interventions that could synergize with existing activities carried out by other sectors requires thinking unconventionally and breaking through the constraints of strictly disciplinary training. An ecosystem approach to health, which includes every dimension that influences human health, from climate and natural resources to human social systems and behaviour, is strongly recommended.
- (2) Strategies to reduce poverty or enhance productivity have positive effects on human NTDs because of the close links between NTDs and poverty. However, it is also important to emphasize NTD prevention, control and/or elimination as an important tool for poverty alleviation, as many people are only aware of the reverse association.
- (3) A multisectoral, multi-disease approach could help to acquire new sources of needed funding for further interventions, particularly through the involvement of the private sector. Additionally, an efficient synergistic use of resources would result from a multisectoral approach.
- (4) The final project should be a research project and not a development project. Furthermore, the final project must include sections on cost-effectiveness, evaluation of the feasibility and sustainability. These components would also serve as selling properties for the project and further widen the opportunity for funding.
- (5) Properly measuring the cost-effectiveness of the intended multisectoral, multi-disease NTD interventions, which will be synergized with existing programmes and structures, will be very difficult. It may be more practical to concentrate on cost-saving. However, having such an economic assessment tool will be crucial not only to sell the proposals to donor agencies, but also to evaluate the feasibility and advantages of integrated approaches.
- (6) Data on specific disease burdens, quality of health facilities, etc. are important for the evaluation of costs, effects and sustainability of the intended interventions. Unfortunately, such data are often lacking. Participants were advised to continuously consider potential creative methods to evaluate costs, effects and sustainability.
- (7) Community involvement and awareness are critical. In addition to the governmental sector, the local communities as well as the private sector should be included in order to make the approach truly multisectoral. A strict top-down approach can be avoided through the incorporation of essential practical field experience from local experts and communities. However, the proposal development procedure was intended to first have an informal expert

consultation to gather novel approaches, which would be later refined, and only then work with the beneficiary populations to develop the final project plans.

(8) All levels of the management structure should be considered before the launch of the projects to ensure that the most appropriate and qualified people and institutions become involved.

(9) The following sequence of actions for the project development was recommended:

- (a) write a draft proposal;
- (b) discuss the draft proposal with other experts, possibly in an additional series of meetings/workshops at the regional, national and local levels;
- (c) agree on the principal recipients of funding in each country;
- (d) establish a multisectoral committee in each country to oversee the development of the two showcase projects (M&E);
- (e) synergize with existing non-public health interventions and target activities to have an impact on disease prevention, control/transmission and/or elimination;
- (f) refine proposals with input from the multisectoral committee in each country; and
- (g) identify staff at the project level (external "pushers") to assist the project manager advance the projects in case of delays and other serious problems, and to avoid the top-down approach.

2.5 Terminology clarification

Terminology throughout the proposal development process should be clearly defined and formulated. Technical terms should be adapted to those of potential donor agencies while remaining easily understandable for non-native English speakers, for example:

- (1) "livelihood", "income generating activities: micro-financing scheme, revolving funds" and "tourism" should be clearly defined;¹
- (2) the distinction between "fair trade" and "free trade", which are not equivalent, should be clearly stated;²

¹ According to the UK Department for International Development (1999): "A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base." Hence, the term "livelihood" focuses on the means of living and should not be confused with even more generic terms like "life improvement" or "quality of life".

² The Oxford English Dictionary defines fair trade as "trade between a company in a developed nation and a producer in a less-developed nation, in which the former ensures the latter receives a fair price, and aims to ensure that the workers involved have good working conditions and fair pay". Free trade is defined as "trade or commerce conducted without the interference of customs duties designed to restrict imports or subsidies to encourage local production".

- (3) "direct/indirect beneficiaries of the projects" should be used instead of "targeted populations" and "targeted communities";
- (4) "multisectoral, multi-disease" should be used instead of "integrated", which should be avoided as it implies ambiguous meanings; and
- (5) "showcase project" should be used instead of "research project", which should be avoided as it implies strict design and testability.

2.6 Example project: integrated, multi-programmatic, multisectoral, multi-disease pilot interventions

Dr Ehrenberg presented a showcase study on integrated, multi-programmatic, multisectoral, multi-disease pilot interventions. The project was launched within three adjacent countries under the same name and one of the very appealing characteristics of the project was its transborder theme. The project consisted of the following components:

- (1) Component I: Multisectoral approach
 - (a) An action plan for directing multisectoral, multi-programmatic actions to improve health and quality of life with emphasis on prevalent NTDs prepared.
- (2) Component II: Health
 - (a) An action plan focused on surveillance, prevention, control and/or elimination of NTDs prepared.
 - (b) Managerial and operational linkage mechanisms with malaria, TB and HIV/AIDS, and other health programmes established.
 - (c) System to identify risks linked to NTDs as public health problems established and protective factors strengthened.
- (3) Component III: Environment
 - (a) Environmental sanitation coverage and basic housing conditions, including risk prevention and management improved.
 - (b) A consensus-based, community land-use plan aimed at sustainable and healthy environmental management negotiated and implemented.
- (4) Component IV: Production
 - (a) Sustainable practices for increasing productivity that are appropriate to the culture, climate, soils, vegetation, fauna and water resources implemented.
 - (b) Food security throughout all seasons of the year increased.
 - (c) Microenterprises at the community level developed.
- (5) Component V: Economic
 - (a) System established to monitor the cost-effectiveness of the project.

The presentation intended to demonstrate the expected results of the participants work over the following days. However, Dr Ehrenberg pointed out that the goal of the current workshop was not simply to replicate the showcase project, but to go beyond it in terms of all inclusiveness and integration.

2.7 Matrix completion

Participants completed a matrix prepared in advance by the WHO Regional Office for the Western Pacific Secretariat that depicted activities for prevention, control and/or elimination of NTDs in different sectors. Sectors were initially arranged as the headings of the matrix and activities pertaining to prevention, control and/or elimination of NTDs were later incorporated into the matrix. Due to time constraints, the matrix was actualized for activities targeting only schistosomiasis and not for the other NTDs. However, most activities pertaining to prevention, control and/or elimination of helminthic diseases are similar. The WHO Regional Office for the Western Pacific Secretariat transferred all activities included in the schistosomiasis matrix as potentially pertinent to the prevention, control and/or elimination of other NTDs to their own matrices after the workshop. The matrix for schistosomiasis is depicted in Annex 3. Annex 3 also depicts the adapted matrices for FBT and cestodiasis, STH, LF and dengue. The following issues in need of further consideration were identified during the matrix development.

- (1) Microfinance and micro-insurance sector involvement should be discussed in the frame of poverty alleviation.
- (2) Micro-teaching, which consists of short informal sessions (maximum of 15 minutes) with key messages and taught through peer information networks, should be considered as it takes into account people's cultural and social backgrounds, including their limited available time. Parent–teacher associations should be considered as an important educational stakeholder in the Lao People's Democratic Republic.
- (3) A transborder theme should be considered for the Lao People's Democratic Republic proposal as an efficient means to reach mobile populations.
- (4) Religious organizations should be considered for crucial community information dissemination, education, mobilization and participation.
- (5) Healthy (food) markets, which promote and scale-up markets and products with positive health effects, should be considered.
- (6) Community-led total sanitation (CLTS) should be considered as an important tool to improve water, sanitation and hygiene.³
- (7) Emerging infectious diseases should be considered and efforts to prevent the unrecognized spread of any diseases due to project activities must be guaranteed.
- (8) The constraints and pressures that beneficiaries of the project face (e.g. financial, physical, social) and the incentives that they have to participate in the project should be understood in order to determine the feasibility of specific intervention activities the means to enhance participation (e.g. social marketing).
- (9) The process of obtaining ethical clearance may delay projects. Therefore, the ethical clearance restrictions should be kept in mind when designing potential interventions (e.g. MDA

³ For more information on Community-Led Total Sanitation visit the website of the Institute of Development Studies (2011) at <http://www.communityledtotalsanitation.org>.

against FBT would be a research issue and consequentially need ethical clearance) in order to avoid delays in project implementations.

2.8 Log frame development

Goals, purposes and objectives developed from the draft matrices were defined in log frames for the proposals of the Philippines and the Lao People's Democratic Republic. The matrices' five sectors were converted into five components in the draft log frames. A sixth component focusing on the overall project coordination and management was added. Descriptions of activities in the matrices were rewritten into objectives for the log frame components. The participants observed all elaborated activities and compared them with current, ongoing activities in the respective countries in order to identify where novel efforts would be needed from the intended projects and where certain efforts already existed and did not necessitate the implementation of the projects.

Expected results, indicators and assumptions of each component were also identified in the log frames. The means of verification in the log frames, detailed budgeting and scheduling were not determined during the workshop. They will be finalized by the WHO Regional Office for the Western Pacific Secretariat and then proposed to all meeting participants and collaborators. The following issues in need of further consideration were identified during the development of the log frames.

- (1) "Synergies" in the context of the intended multi-disease, multisectoral approach need further attention.
 - (a) Many expected results, activities and indicators are cross-cutting issues that belong to all components in the log frame, such as participation, acceptance, capacity-building, cultural sensitivity, assessment of the impact of synergies, project coordination and management and selection of key staff.
 - (i) It should be stated whether the term "synergies" refers to only those between one sector and the intended objective to prevent, control and/or eliminate NTDs, or to all synergies between all sectors.
 - (ii) As a potential solution, truly multisectoral synergies between all the different sectors should be included in the expected results of component six. However, synergies between one sector and the intended objective to prevent, control and/or eliminate NTDs also should be included in the expected results of the first five components to reinforce their importance.
 - (b) Appropriate means to measure and evaluate synergies, especially with regard to cost-effectiveness, must be determined and may include:
 - (i) cost-benefit analysis that includes avoided cost due to less illness, less treatment and less out-of-pocket spending;
 - (ii) benefit incidence analysis;
 - (iii) cost savings ;
 - (iv) simple costing;
 - (v) household-based asset index to evaluate socioeconomic effects of the interventions;
 - (vi) a semi-quantitative tool to measure evidence of participatory involvement; and

- (vii) an in-depth interview procedure as a qualitative method to assess experiences.
 - (c) Methods to enhance existing synergies and identify additional synergies should be in place.
 - (d) Considerable synergies may come from data sharing across sectors and diseases. In addition to combining already existing data sets, further data collection could be much more efficient.
- (2) Each impact assessment should be moved to its appropriate log frame component, i.e. the environmental impact assessment (EIA) to the environmental and ecosystem management component, the health impact assessment (HIA) to the health component, and the social impact assessment (SIA) to the social and economic development component. The combination of EIA, HIA and SIA would comprise a complete impact assessment.
- (3) The indicators are very unrefined and not directly measurable. They require further refinement in order to become simplified and qualitatively and/or quantitatively measurable.
- (4) Clarification of the combined vertical design of the project at this early proposal development stage, in contrast the essential condition of community involvement, is needed.
- (a) The risk that the projects are strictly designed top-down is displayed by the absence of the beneficiaries of the projects, from the log frames. The direct and indirect beneficiaries of the project should be incorporated into the log frame, while also realizing that log frames inherently produce certain top-down dimensions.
 - (b) The expected output of the informal consultation is a decent working paper rather than an advanced proposal draft, which should be as inclusive as possible to be further discussed with other experts, perhaps at the national, regional and local levels. Therefore, the next step is to bring the proposals to the level of the beneficiaries of the projects, which requires assistance from the country representatives in the workshop and later from a multisectoral task force or steering committee.
 - (c) The assistance of a multisectoral task force is an essential pre-condition in order to design all aspects of the projects to be as sustainable as possible. Furthermore, the beneficiaries of the project must be empowered to operate and maintain the plan on which they collaborated. These crucial points must be clearly communicated to all potential donor agencies.
 - (d) Input from all participants working in the Lao People's Democratic Republic and the Philippines is critical as only they can provide detailed information at the national/regional/local levels at this early proposal development stage.
- (5) All levels of the management structure should be considered before the launch of the projects to ensure that the most appropriate and qualified people and institutions become involved. The WHO Regional Office for Western Pacific Secretariat has proposed the following structure:
- (a) A project manager will oversee both projects in the two Member States by participating at the ground level and reporting to the multisectoral task forces (M&E). It was clarified that the position of project manager is not an expert position (such as the multisectoral task forces), but rather a true manager position and therefore, a single project manager should suffice. This person may also serve as a bridging element between the two projects in the Lao People's Democratic Republic and the Philippines.

- (b) Multisectoral task forces, one in the Lao People's Democratic Republic and one in the Philippines, will advise the project manager and have the power to appoint as many external "pushers" as needed in case of delays and other serious problems.
 - (c) "Pushers" (most likely external consultants), as needed, will help the project manager to advance the projects in case of delays and other serious problems.
- (6) The responsibilities of forming the multisectoral task forces and selecting the project manager, pushers and participants at the ground level must be delegated into jobs further in the proposal development process.
 - (7) These positions must be considered during the budgeting process. At least 80%–90% of all resources should reach the beneficiaries of the projects.
 - (8) The problem of access in its broadest meaning (i.e. availability, accessibility, accommodation, affordability and acceptability, as defined by Penchansky & Thomas [1981]) must be considered further into the development of the proposals.
 - (9) Any treatment that has not yet been approved should not be included in the intended projects as it would need ethical clearance and would considerably delay the projects. Therefore, MDA of FBT was not included in the log frame because it is not yet a standard procedure.
 - (10) Agencies that will be approached to support the proposals should be identified further into the proposal development process.
 - (11) Care should be given with regard to politically sensitive issues as evidenced by the discontent of the Laotian Government in response to a recent study that examined inequities in health in the country. The development of sound development and research projects is needed to avoid these issues.

2.9 Identification of potential stakeholders for collaboration

A very important component of the projects at all levels is the political buy-in of the respective authorities. It is critical that the Laotian and Philippine experts understand the current log frames as well as the subsequent proposal developments as these experts will eventually be responsible for presenting and selling the proposals in their countries. If those efforts fail, then the projects will fail as well. The following procedures were recommended to facilitate collaboration between partners.

- (1) WHO or the Department/Ministry of Health of the Philippines and the Lao People's Democratic Republic should invite potential partners to convene in order to determine which actors will initiate the intended projects.

Agencies that may be approached to support the proposals include the World Bank, ADB, United Nations Development Programme (UNDP), UNICEF, Australian Agency for International Development (AusAID), Danish International Development Agency (DANIDA), DFID, JICA, Norwegian Agency for Development Cooperation (NORAD), Swiss Agency for Development and Cooperation (SDC), SIDA, United States Agency for International Development (USAID), National Economic Development Authority (NEDA) (Philippines), National Emerging Infectious Disease Coordination Office (NEIDO) (Lao People's Democratic Republic), National Communicable Disease Control (NCDC) (Lao People's Democratic Republic), Regional Network for Asian Schistosomiasis and Other Helminth Zoonoses (RNAS+), Bill and Melinda Gates Foundation and other NGOs.

Many different multisectoral projects already operate in the Lao People's Democratic Republic (e.g. HIV/AIDS programme, National Environment Committee) and their experiences, activities and partners should be assessed to identify possible synergies for the intended proposal.

Publications of and presentations at Chambers of Commerce, Rotary/Lions Clubs, livestock producers associations and universities were identified as potential channels for information dissemination. As there is no independent journal in the Lao People's Democratic Republic, the *Bulletin* may also be a publishing source. Newspapers were excluded because of potential polemics with a non-familiarized audience. Monasteries (mainly in the Lao People's Democratic Republic) and churches (mainly in the Philippines) should also be identified as partners in the educational sector. A significant number of people may be taught in these religious institutions, which do not necessarily report and/or belong to the respective Ministries of Education. These institutions may serve as additional important sources of information and activities.

While some general health education already exists in advanced student curriculums in the Lao People's Democratic Republic, the general need for more specific health education was confirmed by the Laotian experts and represents a potential point of intersection for collaboration.

2.10 Discussion on budget and schedule

The budget and schedule of the intended proposals were initiated in the log frames but were not completed due to time constraints. One column labelled as counterpart support possessed costs incurred by stakeholders in the project. Another column demonstrated the expected savings that would result from successful multisectoral approaches to multiple diseases and synergies with existing activities. The following issues regarding scheduling and budgeting require further consideration.

- (1) A matrix with costs correlated with specific time periods and associated activities should be prepared by the WHO Regional Office for the Western Pacific Secretariat.
- (2) A working calendar with timelines for clearly defined activities should be created to facilitate identifying coinciding activities and hence opportunities for synergy.
- (3) The initiation of the projects at the ground level would present an ideal time for the organization of additional workshops to train experts to think in a multisectoral and multi-disease process. Furthermore, participants of the workshops at the ground level could educate peers about multisectoral approaches. This approach could add additional benefits to the project and also increase community awareness, participation, empowerment and capacity-building.
- (4) Costs at the level of expected results should be budgeted as packages as opposed to individual entities. The "estimated cost" column should reflect this procedure in order to avoid the appearance of independently functioning activities.
- (5) The log frames should demonstrate where one sector (component) could profit from another in order to avoid the appearance of five completely vertical programmes in which each component would function independently. Potential gains or cost savings due to synergies should be explicitly demonstrated in the proposals to serve as an essential selling point with which to approach donor agencies.
- (6) Donor agencies vary in their stringency regarding their compliance with approved budgets. Some are very strict with budgeting and each fund must be spent in the way that it was

originally proposed. Others often allow for more flexibility. Such specificities should be considered when budgeting and submitting final proposals to donor agencies.

(7) Better knowledge of key denominators and variables is needed in order to demonstrate the methods to calculate deductions. Hence, budgeting should be referred to the local experts once the WHO Regional Office for the Western Pacific Secretariat has revised and compiled the currently obtained information.

2.11 Closing remarks

The representatives of TDR and WHO expressed their satisfaction with the informal consultation and thanked all the participants. They expressed their intent to continue to work on what had been accomplished during the course of the consultation but also explained that they will have to further rely on the participants' expertise. The Laotian experts expressed their happiness that the development of these novel approaches had been initiated in their country. Both the Laotian and Philippine experts clearly stated the importance of NTD prevention, control and/or elimination in their countries. Thanks were expressed towards TDR and the WHO Regional Office for bringing the multisectoral, multi-disease work for NTDs back on the agenda. However, all participants were reminded to continue thinking creatively in order to develop novel approaches and further raise the awareness for these issues so that the links between sectors are strengthened beyond the dedication of only a few individuals. The participants thanked the representatives of the Lao People's Democratic Republic for their warm hospitality in Vientiane.

3. CONCLUSIONS

3.1 Participants confirmed that truly integrated, i.e. multisectoral, multi-disease, approaches are a promising way to advance the sustainable prevention, control and/or elimination of NTDs. By cleverly combining and coordinating the interests of each sector, traditionally wealthier sectors (e.g. agricultural sector) as well as less endowed sectors (e.g. health sector and especially NTDs) could profit from each other and more efficiently solve tasks.

3.2 Many promising and original ideas, which were developed during the informal consultation, should be further refined during the upcoming weeks and months.

3.3 There remain many obstacles to truly integrated approaches, such as the lack of tools to measure cost-effectiveness, cost savings and synergies between the sectors, which are necessary to ensure the involvement of donor agencies, academia, public health and all other sectors essential to the projects' success. However, participants are confident that the results will outweigh the cost of overcoming these limitations, especially for the beneficiaries of the intended projects.

3.4 Flexibility must be maintained in the projects and programmes. Participants should constantly re-evaluate them for potential improvements and incorporate solutions into the proposal development.

3.5 If the projects and their novel multisectoral, multi-disease approaches are ultimately successful, the activities of the projects may be applicable to other infectious and non-infectious diseases.

3.6 Experts from Cambodia and Thailand stated that such integrated approaches have potential to be implemented in their respective countries.

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**ANNEX 1: AGENDA FOR THE INFORMAL CONSULTATION ON NOVEL APPROACHES
IN THE PREVENTION AND CONTROL OF NTDS IN THE WESTERN PACIFIC REGION**

March 16 (Day 1): Introduction/ Brainstorming		
08:00-08:30	Registration	Secretariat
08:30-08:45	Introduction	WPRO, TDR, MoH
08:45-09:00	Objectives of the workshop	Dr. J. Ehrenberg
09:00-09:30	Introduction to the Topic Brief overview of relevant NTDS	Dr. P. Aratchige
09:30-10:00	Background Information: Epidemiological profile of NTDS; socio-economic, demographic characteristics and presence of other initiatives in the Lao People's Democratic Republic	Dr. S. Insiengmay
10:00-10:20	Discussion Identification of target areas, diseases, partners & coordination	
10:20-10:40	Coffee break	
10:40-11:20	Background Information Epidemiological profile of NTDS; socio-economic, demographic characteristics and presence of other initiatives in the Philippines	Dr. L. Hernandez
11:20-11:40	Discussion Identification of target areas, diseases, partners & coordination	
11:40-12:10	Case Study: Pilot Interventions in LAC Overview of multisectoral, multi-disease based interventions	Dr. J. Ehrenberg
12:10-12:30	Discussion	
12:30-13:30	<i>Lunch</i>	
13:30-18:00	Brainstorming on opportunities for multi-disease, multisectoral based interventions	Dr. J. Ehrenberg Workshop participants
18:00-19:00	Dinner	
March 17 (Day 2): Proposal Development (Log Frame): Lao People's Democratic Republic		
08:00-10:00	Proposal Development: The Lao People's Democratic Republic Project goals and objectives; Identification of expected results	Dr. J. Ehrenberg Workshop participants
10:00-10:20	Coffee break	
10:20-12:30	Identification of expected results (continuation)	
12:30-13:30	<i>Lunch</i>	

13:30-14:30	Identification of expected results (continuation)	Dr. J. Ehrenberg
14:30-15:30	Identification of indicators	Workshop participants
15:30-15:50	Coffee break	
15:50-18:00	Identification of indicators (continuation) Identification of activities	
March 18 (Day 3): Proposal (Log Frame) Development: Lao People's Democratic Republic / Philippines		
08:00-09:00	Identification of activities (continuation)	Dr. J. Ehrenberg
09:00-10:00	Budgets	Workshop participants
10:00-10:20	Coffee break	
10:20-12:00	Budgets (continuation)	
<i>12:00-13:00</i>	<i>Lunch</i>	
13:00-15:00	Proposal Development: Philippines Project goals and objectives; Identification of expected results	Dr. J. Ehrenberg
15:00-15:20	Coffee break	Workshop participants
15:20-17:00	Identification of expected results (continuation)	
March 19 (Day 4) Proposal (Log Frame) Development: Philippines (continuation)		
08:00-09:00	Identification of expected results (continuation)	Dr. J. Ehrenberg
09:00-10:00	Identification of indicators	Workshop participants
10:00-10:20	Coffee break	
10:20-12:00	Identification of indicators (continuation) Identification of activities	
<i>12:00-13:00</i>	<i>Lunch</i>	
13:00-14:00	Identification of activities (continuation)	Dr. J. Ehrenberg
14:00-15:00	Budgets	Workshop participants
15:00-15:20	Coffee break	
15:20-17:00	Budgets (continuation)	
17:00-17:20	Final review of proposals Presentation of the Lao People's Democratic Republic proposal	WPRO / Country Representatives
17:20-17:40	Comments and discussions	
17:40-18:00		
18:00-18:20	Presentation of the Philippine proposal Comments and discussions	

ANNEX 2: LIST OF PARTICIPANTS

1. TEMPORARY ADVISORS

Dr Khieu Borin
Director
Centre for Livestock and Agriculture Development
P.O.Box 2433 Phnom Penh 3
Cambodia
Tel. : +855 (0)23 223 640, (855)-12 828 942
E-mail : khieu_borin@celagrid.org

Dr Watana Theppanha
Senior Veterinary Officer, National Animal Health Centre ,
Department of Livestock and Fisheries
Ministry of Agriculture
Vientiane
The Lao People's Democratic Republic
Tel. : +856 21 216380
Fax : +856 21 216380
E-mail : wtheppangna@hotmail.com.

Dr Tayphasavanh Fengthong
Director of Enviromental Health Division
Department of Hygiene and Prevention
Ministry of Health
P.O. Box 1232, Vientiane
The Lao People's Democratic Republic
Tel. : +856-21-214010
E-mail : Tayphasavanh@yahoo.com

Prof Megumi Hirayama
Associate Professor
Meiji Gakuin University,
Faculty of International Studies
1518 Kamikurata-cho
Totsuka-ku, Yokohama Kanagawa 244-8539
Japan
Tel. : +81 45-863-2232
Fax : +81 45-863-2265
E-mail : megumix@k.meijigakuin.ac.jp

Prof Sithat Insiengmay
Deputy Director
Department of Hygiene & Prevention
Ministry of Health
Simuang Road, Vientiane 01000
The Lao People's Democratic Republic
Tel. : +856 20 9801753
Fax : +856 21 241924
E-mail : Sithat_@hotmail.com; sithat_in@hotmail.com

Dr Leda Hernandez
Division Chief
Infectious Disease Office, National Center for Disease Prevention
and Control
Department of Health
Building 14, 3rd floor, Sta. Cruz, Manila
Philippines
Tel. : 63-2-743-83-01 loc. 2350-2352
Fax : 63-2-732-99-66
E-mail : dr_ledamher@yahoo.com

Dr Siripen Supakankunti
Director and Associate Professor,
Centre for Health Economics (WHO collaborating centre for Health
Economics)
Faculty of Economics
Chulalongkorn University, Bangkok,
Thailand
Tel. : (662)-218 6278
Fax : (662)-218 6279
E-mail : ssiripen@chula.ac.th, Siripen.s@chula.ac.th

Dr Bruce Wilcox
Center for Infectious Disease Ecology
Asia-Pacific Institute for Tropical Medicine and Infectious Diseases
Department of Tropical Medicine and Medical Microbiology
John A. Burns School of Medicine
Honolulu, Hawaii, 96813 USA
Tel. : 1-808-692-1602
Fax : 1-808-692-1979
E-mail : bwilcox@hawaii.edu

Dr Arve Lee Willingham
WHO/FAO Collaborating Centre for Parasitic Zoonoses
Section for Parasitology, Health and Development
Department of Veterinary Pathobiology
Faculty of Life Sciences
University of Copenhagen
Dyrlaegevej 100, 1870 Frederiksberg
Denmark
Tel. : +45 35332775
Fax : +45 35332774
E-mail : awi@life.ku.dk

2. SECRETARIAT

WHO TDR

Dr Johannes Sommerfeld
Scientist
NPR Research for Neglected Priorities, TDR
World Health Organization
Geneva, Switzerland
Tel. : +41 22 79 13954
E-mail : sommerfeldj@who.int

WHO/WPRO

Dr John Ehrenberg
Regional Adviser
Malaria, Other Vectorborne and Parasitic Diseases (MVP)
WHO WPRO
Manila, Philippines
Tel. : +63 252 89725
Fax : +63 252 11036
E-mail : ehrenbergj@wpro.who.int

Dr Jun Nakagawa
Technical Officer
Malaria, Other Vectorborne and Parasitic Diseases (MVP)
WHO WPRO
Manila, Philippines
Tel. : +63 252 89721
Fax : +63 252 11036
E-mail : nakagawaj@wpro.who.int

Ms Glenda Gonzales
Fellow
Malaria, Other Vectorborne and Parasitic Diseases (MVP)
WHO WPRO
Manila, Philippines
Tel. : +63 582 8001 loc. 89370
Fax : +63 252 11036
E-mail : gonzalesg@wpro.who.int

Mr. Thomas Furst
Intern
Malaria, Other Vectorborne and Parasitic Diseases (MVP)
WHO WPRO
Manila, Philippines
Tel. : +63 252 89721
Fax : +63 252 11036
E-mail : thomas.fuerst@unibas.ch

**WHO LAO PEOPLE'S
DEMOCRATIC REPUBLIC**

Dr Padmasiri Aratchige
Medical Officer
Malaria, Other Vectorborne and Parasitic Diseases
WHO Country Office in the Lao People's Democratic Republic
Vientiane, The Lao People's Democratic Republic
Tel. : +856 213 53902
Fax : +856 213 53905
E-mail : aratchigep@wpro.who.int

Dr Chitsavang Chanthavisouk
Technical Officer
Malaria, Other Vectorborne and Parasitic Diseases
WHO Country Office in the Lao People's Democratic Republic
Vientiane, The Lao People's Democratic Republic
Tel. : +856 213 53902
Fax : +856 213 53905
E-mail : chanthavisoukc@wpro.who.int

Dr Francette Dusan
Epidemiologist
WHO Country Office in the Lao People's Democratic Republic
Vientiane, The Lao People's Democratic Republic
Tel. : +856 213 81832
Fax : +856 213 53905
E-mail : dusanf@wpro.who.int

3. REPRESENTATIVES / OBSERVERS

**SWISS TROPICAL
INSTITUTE**

Dr. Peter Steinmann
Swiss Tropical- and Public Health Institute
c/o National Institute of Parasitic Diseases, China CDC
207 Rui Jin Er Road
Shanghai 200025
People's Republic of China
Tel. : +86 136 71 61 60 56
Fax : +86 215 46 55 78 7
E-mail : peter.steinmann@unibas.ch

**THE LAO PEOPLE'S
DEMOCRATIC REPUBLIC**

Dr Jeff Gilbert
ILRI/EcoZEID Project Coordinator
(Ecohealth approach to Zoonotic Emerging Infectious Diseases)
c/o CIAT PO Box 783,
Vientiane

Tel. : +856 21 770 090 X104

Fax : +856 21 770 091

E-mail : J.Gilbert@cgiar.org

ANNEX 3: DRAFT MATRIX DEPICTING COMPONENTS THAT SHOULD BE CONSIDERED IN NTDS PREVENTION, CONTROL AND/OR ELIMINATION IN DIFFERENT SECTORS AND SUB-SECTORS. DEPICTED BELOW: SCHISTOSOMIASIS

Sector	Sub-sector/ Programme	Components of Disease Prevention and Control		
		Prevention	Control/ transmission	Elimination
Health	NTD (Schistosomiasis)	-Mapping to determine distribution and magnitude of the problems (e.g. use rapid assessment methods) -Preventive chemotherapy -Community health education -Building healthy public policies -Health Information system/ data analysis and sharing	-MDA to all at risk population -Adequate M&E of program -Preventive chemotherapy -Health Information system/ data analysis and sharing	-MDA to all at risk population -Adequate M&E of program -Verification/certification of elimination tools -Preventive chemotherapy -Health Information system/ data analysis and sharing
	Nutrition		-Multi intervention package such as joint administration of Vit A, deworming, school feeding programs	
	Maternal and Child Health	-IMCI -Provide treatment for pregnant women who are at risk, through antenatal care and other women's health programs -Treatment of pre-school age children and women of child-bearing age	-IMCI -Provide access to primary health care (anthelmintic treatment can be dispensed through health services; ensuring good case management of symptomatic cases) -Treatment of pre-school age children and women of child-bearing age	-IMCI -Provide access to primary health care (anthelmintic treatment can be dispensed through health services; ensuring good case management of symptomatic cases) -Treatment of pre-school age children and women of child-bearing age
	Food safety			
	EPI	-Health education -Training of community volunteers for early referral of patients		
	Malaria			
	TB			
	Environmental Health	-Surface water/ habitat management	-Surface water/ habitat management	-Surface water/ habitat management
	Community Participation	-Social mobilization and communication	-Social mobilization and communication	-Social mobilization and communication
Social and Economic Development	Micro/ Macro-economic Development Including livelihood Improvement	-Environmental and health impact assessments on all devt. projects including tourism, building of dams, transportation, communication, infrastructure -Adapt land use management practices -Piggy back on other/existing devt projects -Work with community/women's groups -Income generating activities: micro financing scheme, revolving funds -Tourism through proper advocacy campaigns promoting local products/attractions -Fair trade/marketing products (arts,crafts & agri products)	-Environmental and health impact assessments on all devt. projects including tourism, building of dams, transportation, communication, infrastructure -Adapt land use management practices -Piggy back on other/existing devt projects -Work with community/women's groups -Income generating activities: micro financing scheme, revolving funds -Tourism through proper advocacy campaigns promoting local products/attractions -Fair trade/marketing products (arts,crafts & agri products)	-Environmental and health impact assessments on all development. projects including tourism, building of dams, transportation, communication, infrastructure -Adapt land use management practices -Piggy back on other/existing devt projects -Work with community/women's groups -Income generating activities: micro financing scheme, revolving funds -Tourism through proper advocacy campaigns promoting local products/attractions -Fair trade/marketing products (arts,crafts & agri products)
	Human Resources Development	-Identification of potential collaborators outside the health and education system (e.g. microfinance)	-Training, sustainable involvement of community health workers including boosting community surveillance, case detection, treatment	-Training, sustainable involvement of community health workers including boosting community surveillance, case detection, treatment
	Cultural Harmonization	-Culturally appropriate IEC materials and strategies	-Culturally appropriate IEC materials and strategies	-Culturally appropriate IEC materials and strategies

ANNEX 3: DEPICTED BELOW: SCHISTOSOMIASIS (continued)

Education	Formal/Non-formal Education	-Conduct of health education in schools -Incorporate health education into school curriculum	-Teachers conducting MDA -Conduct of health education in schools -Incorporate health education into school curriculum	-Teachers conducting MDA -Conduct of health education in schools -Incorporate health education into school curriculum
	Community Participation	-Micro-teaching (short messages relying to villager to villager communication network) -In order to stimulate IEC and social mobilization activities: 1. Establishment of parent/ teachers association 2. Women's groups (Lao women's union) 3. Religious organizations on the ground	-Micro-teaching (short messages relying to villager to villager communication network) -Use these groups to support community based control activities	-Micro-teaching (short messages relying to villager to villager communication network) -Use these groups to support community based elimination activities
	Environmental Education	-Culturally sensitive targeted environmental education interventions -Capacity building	-Culturally sensitive targeted environmental education interventions -Capacity building	-Culturally sensitive targeted environmental education interventions -Capacity building
	Health Education	-Culturally sensitive targeted health education interventions targeting high-risk groups including women, children, farmers -Capacity building	-Culturally sensitive targeted health education interventions targeting high-risk groups including women, children, farmers -Capacity building	-Culturally sensitive targeted health education interventions targeting high-risk groups including women, children, farmers -Capacity building
Environment, Ecosystem Management	Water and Sanitation	-Improve water management (e.g. Income generating activities to build water reservoirs for human use) -Latrine construction & use -Sewerage system -Biogas production -build water reservoirs for human use -Healthy markets (FBT, cestodes, STH)	-Improve water management (e.g. Income generating activities to build water reservoirs for human use) -Latrine construction & use -Biogas production -Surface water management/ snail control	-Improve water management (e.g. Income generating activities to build water reservoirs for human use) -Latrine construction & use -Biogas production
	Land use/ Forestry/ Agro-forestry	-Novel irrigation system	-Novel irrigation system	-Novel irrigation system
	Habitat Protection	-Rational habitat protection schemes such as wetland management	-Rational habitat protection schemes such as wetland management	-Rational habitat protection schemes such as wetland management
	Community Participation	-Compost production (FBT, cestodes, STH) -Community based interventions such as building latrines, irrigation, Community Led Total Sanitation (CLTS)	-Compost production (FBT, cestodes, STH) -Community based interventions such as building latrines, irrigation, Community Led Total Sanitation (CLTS)	-Compost production (FBT, cestodes, STH) -Community based interventions such as building latrines, irrigation, Community Led Total Sanitation (CLTS)

ANNEX 3: DEPICTED BELOW: SCHISTOSOMIASIS (continued)

Production	Agriculture/ Aquaculture	-Explore sustainable alternate agricultural activities -Use of protective gear (e.g. rubber boots) -Agricultural extension for improved livestock management and agricultural output (e.g. use of dams)	-Explore sustainable alternate agricultural activities -Use of protective gear (e.g. rubber boots) -Agricultural extension for improved livestock management and agricultural output (e.g. use of dams)	-Explore sustainable alternate agricultural activities -Use of protective gear (e.g. rubber boots) -Agricultural extension for improved livestock management and agricultural output (e.g. use of dams)
	Animal Husbandry	-Fencing where feasible and appropriate -Improvement of livestock waste management (e.g. compost)	-Fencing where feasible and appropriate -Improvement of livestock waste management (e.g. compost)	-Fencing where feasible and appropriate -Improvement of livestock waste management (e.g. compost)
	Veterinary Public Health	-Map distribution of relevant animal reservoirs -Determine distribution and magnitude of problem in relevant animal reservoir -Proper management of animal reservoirs	-Removing infected cattle and other animal reservoirs -Treating infected cattle and other animal reservoirs -Proper management of animal reservoirs	-Removing infected cattle and other animal reservoirs -Treating infected cattle and other animal reservoirs -Proper management of animal reservoirs
	Community Participation	-Stimulate active involvement of farmers, and other key players including big producers/ private sector	-Stimulate active involvement of farmers, and other key players including big producers/ private sector	-Stimulate active involvement of farmers, and other key players including big producers/ private sector

**ANNEX 3:. DEPICTED BELOW: FOODBORNE TREMATODIASIS AND CESTODIASIS
(continued)**

Sector	Sub-sector/ Programme	Components of Disease Prevention and Control		
		Prevention	Control/ Transmission	Elimination
Health	NTD (foodborne trematodiasis and cestodiasis)	<ul style="list-style-type: none"> -Conduct rapid epidemiological assessment -Preventive chemotherapy -Adequate M&E of program -Improve diagnostic capacity -Availability of drugs (triclabendazole) -Integrate MDA with schistose control -Building healthy public policies -Health Information system/ data analysis and sharing 	<ul style="list-style-type: none"> -Conduct rapid epidemiological assessment -Preventive chemotherapy -Adequate M&E of program -Improve diagnostic capacity -Availability of drugs (triclabendazole) -Health Information system/ data analysis and sharing 	<ul style="list-style-type: none"> -Improve diagnostic capacity -Availability of drugs (triclabendazole) - Health Information system/ data analysis and sharing
	Nutrition	<ul style="list-style-type: none"> -Implement school food programme in affected areas -Provide info on FBT in educational activities - Improve food preparation methods 	<ul style="list-style-type: none"> -Implement school food programme in affected areas - Improve food preparation methods 	
	Maternal and Child Health	<ul style="list-style-type: none"> -Inter-programmatic health education -Treat pregnant women at risk, through antenatal care and other women's health programs 	<ul style="list-style-type: none"> -Conduct health education for mothers 	
	Food safety	<ul style="list-style-type: none"> -Improve food inspection & control (aquatic products, meat) 	<ul style="list-style-type: none"> -Improve food inspection & control (aquatic products, meat) 	
	EPI			
	Malaria			
	TB			
	Environmental Health			
Community participation				
Social and Economic Development	Micro/ macro economic development including livelihood improvement	<ul style="list-style-type: none"> -Improve infrastructure (water drainages, water supply, waste disposal and latrines) -Improve cooking method -Identification of potential collaborators outside the health and education system -Income generating activities: micro financing scheme, revolving funds 	<ul style="list-style-type: none"> -Identification of potential collaborators outside the health and education system -Income generating activities: micro financing scheme, revolving funds 	<ul style="list-style-type: none"> -Identification of potential collaborators outside the health and education system -Income generating activities: micro financing scheme, revolving funds
	Human resources development	<ul style="list-style-type: none"> -Identification of potential collaborators outside the health and education system (e.g. microfinance) 	<ul style="list-style-type: none"> -Training, sustainable involvement of community health workers including boosting community surveillance, case detection, treatment 	<ul style="list-style-type: none"> -Training, sustainable involvement of community health workers including boosting community surveillance, case detection, treatment
	Cultural harmonization	<ul style="list-style-type: none"> -Culturally appropriate IEC materials and strategies 	<ul style="list-style-type: none"> -Culturally appropriate IEC materials and strategies 	<ul style="list-style-type: none"> -Culturally appropriate IEC materials and strategies

**ANNEX 3: DEPICTED BELOW: FOODBORNE TREMATODIASIS AND CESTODIASIS
(continued)**

Education	Formal/Non-formal education	-Conduct of health education in schools -Incorporate health education into school curriculum	-Teachers conducting MDA -Conduct of health education in schools -Incorporate health education into school curriculum	
	Community participation	-In order to stimulate IEC and social mobilization activities: 1. Establishment of parent/ teachers association 2. Women's groups (Lao women's union) 3. Religious organizations on the ground -Micro-teaching (short messages relying to villager to villager communication network)	-Use these groups to support community based control activities -Micro-teaching (short messages relying to villager to villager communication network)	-Use these groups to support community based elimination activities -Micro-teaching (short messages relying to villager to villager communication network)
	Environmental education	-Culturally sensitive targeted environmental education interventions -Capacity building	-Culturally sensitive targeted environmental education interventions -Capacity building	-Culturally sensitive targeted environmental education interventions -Capacity building
	Health Education	-Culturally sensitive targeted health education interventions targeting high-risk groups including women, children, farmers -Capacity building	-Culturally sensitive targeted health education interventions -Capacity building	-Culturally sensitive targeted health education interventions -Capacity building
Environment, Ecosystem Management	Water and Sanitation	-Improve water drainages, water supply, waste disposal -Construction and use of latrines -Health education on reducing open defecation -Healthy markets (FBT, cestodes, STH)	-Improve water drainages, water supply, waste disposal -Construction and use of latrines -Health education on reducing open defecation	-End open defecation
	Land use/Forestry/ Agro-forestry	-Develop safe aquaculture methods	-Develop safe aquaculture methods	-Develop safe aquaculture methods
	Habitat protection			
	Community participation	-Compost production (FBT, cestodes, STH) -Community based interventions such as building latrines, irrigation, Community Led Total Sanitation (CLTS)	-Compost production (FBT, cestodes, STH) -Community based interventions such as building latrines, irrigation, Community Led Total Sanitation (CLTS)	-Compost production (FBT, cestodes, STH) -Community based interventions such as building latrines, irrigation, Community Led Total Sanitation (CLTS)
Production	Agriculture/ Aquaculture	-Improve/increase KAP on livestock, aquacultural and agricultural production to prevent zoonotic transmission -Improve food inspection & control (aquatic products, vegetables)	-Improve/increase KAP on livestock, aquacultural and agricultural production to prevent zoonotic transmission -Improve food inspection & control (aquatic products, vegetables)	
	Animal husbandry	-Farmer education on proper management of livestock and fisheries -Confinement of livestock	-Farmer education on proper management of livestock and fisheries -Confinement of livestock	-End open grazing/roaming of livestock
	Veterinary Public Health	-Map intermediate and reservoir hosts distribution -Detect and treat infected intermediate and reservoir hosts -Improve food inspection & control (aquatic products, meat)	-Map intermediate and reservoir hosts distribution -Detect and treat infected intermediate and reservoir hosts -Improve food inspection & control (aquatic products, meat)	
	Community participation			

ANNEX 3: DEPICTED BELOW: STH (continued)

Sector	Sub-sector/ Programme	Components of Disease Prevention and Control		
		Prevention	Control/ Transmission	Elimination
Health	NTD (STH)	-Mapping to determine distribution and magnitude of the problems (e.g. use rapid assessment methods) -Preventive chemotherapy -Community health education -Proper management of animal reservoir -Building healthy public policies -Health Information system/ data analysis and sharing	-Mapping to determine distribution and magnitude of the problems (e.g. use rapid assessment methods) -Preventive chemotherapy -Community health education -Proper management of animal reservoir -Health Information system/ data analysis and sharing	-Mapping to determine distribution and magnitude of the problems (e.g. use rapid assessment methods) -Preventive chemotherapy -Community health education -Proper management of animal reservoir -Health Information system/ data analysis and sharing
	Nutrition	-Implement school food programme in affected areas -Improve food preparation -Integrate info on STH in educational activities	-Implement school food programme in affected areas -Improve food preparation -Integrate info on STH in educational activities	-Implement school food programme in affected areas -Improve food preparation -Integrate info on STH in educational activities
	Maternal and Child Health	-IMCI -Inter-programmatic health education -Treat pregnant women at risk, through antenatal care and other women's health programs -Treatment of pre-school age children	-IMCI -Inter-programmatic health education -Treat pregnant women at risk, through antenatal care and other women's health programs -Treatment of pre-school age children	-IMCI -Inter-programmatic health education -Treat pregnant women at risk, through antenatal care and other women's health programs -Treatment of pre-school age children
	Food safety			
	EPI			
	Malaria			
	TB			
	Environmental Health			
	Community participation			
Social and Economic Development	Micro/ Macro-economic development including livelihood improvement	-Improve infrastructure (e.g. drainage, water system, etc) -Improve cooking method, facilities -Improve latrines -Improve land use system -Income generating activities: micro financing scheme, revolving funds	-Improve infrastructure (e.g. drainage, water system, etc) -Improve cooking method, facilities -Improve land use system -Income generating activities: micro financing scheme, revolving funds	-Improve infrastructure (e.g. drainage, water system, etc) -Improve cooking method, facilities -Improve land use system -Income generating activities: micro financing scheme, revolving funds
	Human Resources Development	-Work with community associations; Identify collaborators	-Work with community associations; Identify collaborators	-Work with community associations; Identify collaborators
	Cultural Harmonization			
Education	Formal/Non-formal education	-Conduct of school based health education (including STH prevention, foot protection) -Incorporate health education into school curriculum -Conduct of school based MDA	-Conduct of school based health education (including STH prevention, foot protection) -Incorporate health education into school curriculum -Conduct of school based MDA	-Conduct of school based health education (including STH prevention) -Incorporate health education into school curriculum -Conduct of school based MDA
	Community participation			
	Environmental Education			
	Health education	-Conduct of school based health education (including STH prevention, foot protection) -Incorporate health education into school curriculum	-Conduct of school based health education (including STH prevention, foot protection) -Incorporate health education into school curriculum	-Conduct of school based health education (including STH prevention, foot protection) -Incorporate health education into school curriculum

ANNEX 3: DEPICTED BELOW: STH (continued)

Environment, Ecosystem Management	Water and Sanitation	-Integrate information on disease in educational activities -Improve water drainages, water supply, waste disposal -Construction and use of latrines -Health education on reducing open defecation -Biogas latrines	-Integrate information on disease in educational activities -Improve water drainages, water supply, waste disposal -Construction and use of latrines -Health education on reducing open defecation -Biogas latrines	-Integrate information on disease in educational activities -Improve water drainages, water supply, waste disposal, latrines -Biogas latrines -End open defecation
	Land use/Forestry/ Agro-forestry	-Improve land use -Integrate information on disease in educational activities		
	Habitat protection			
	Community participation			
Production	Agriculture/ Aquaculture	-Proper management of manure (e.g. treatment of night soil; composting)	-Proper management of manure (e.g. treatment of night soil; composting)	-Proper management of manure (e.g. treatment of night soil; composting)
	Animal husbandry	-Deworming of infected animals (specify)	-Deworming of infected animals (specify?)	-Deworming of infected animals (specify?)
	Veterinary Public Health	-Map animal reservoir distribution	-Removing infected animals -Treating infected animals	-Removing infected animals -Treating infected animals
	Community participation			

ANNEX 3: DEPICTED BELOW: LF (continued)

Sector	Sub-sector/ Programme	Components of Disease Prevention and Control		
		Prevention	Control/ transmission	Elimination
Health	NTD (LF)	- Community health education - Mapping to determine distribution and magnitude of the problems (e.g. use rapid assessment methods)	-MDA to all at risk population for 4-6 years -Adequate M&E of program	-MDA to all at risk population for 4-6 years -Adequate M&E of program
	Nutrition			
	Maternal and Child Health	-IMCI	-IMCI	
	Food safety			
	EPI			
	Malaria			
	TB			
	Environmental Health			
Social and Economic Development	Community participation			
	Micro/ Macro-economic development including livelihood improvement			
	Human Resources Development	-Work with community associations/women's groups on clinical care	-Work with community associations/women's groups on clinical care	-Work with community associations/women's groups on clinical care
Education	Cultural Harmonization			
	Formal/Non-formal education	-Conduct of health education in schools -Incorporate health education into school curriculum	-Teachers conducting MDA -Conduct of health education in schools -Incorporate health education into school curriculum	-Teachers conducting MDA -Conduct of health education in schools -Incorporate health education into school curriculum
	Community participation			
	Health education	-Conduct of health education in schools -Incorporate health education into school curriculum	-Teachers conducting MDA -Conduct of health education in schools -Incorporate health education into school curriculum	-Teachers conducting MDA -Conduct of health education in schools -Incorporate health education into school curriculum
Environment, Ecosystem Management	Environmental Education			
	Water and Sanitation			
	Land use/ Forestry/ Agro-forestry			
	Habitat protection			
Production	Community participation			
	Agriculture/ Aquaculture			
	Animal husbandry			
	Veterinary Public Health			
Production	Community participation			

ANNEX 3: DEPICTED BELOW: DENGUE (continued)

Sector	Sub-sector/ Programme	Components of Disease Prevention and Control		
		Prevention	Control/ transmission	Elimination
Health	NTD (Dengue)	- Community health education - Mapping to determine distribution and magnitude of the problems (e.g. use rapid assessment methods)	-Adequate M&E of program	
	Nutrition			
	Maternal and Child Health	-IMCI	-IMCI	
	Food safety			
	EPI	Health education Training of community volunteers for early referral of patients		
	Malaria			
	TB			
	Environmental Health			
	Community participation			
Social and economic development	Micro/ Macro-economic development including livelihood improvement	-Improve land use system -Income generating activities to build water reservoirs for human use	-Improve land use system -Income generating activities to build water reservoirs for human use	
	Human Resources Development	-Work with community associations/women's groups	-Work with community associations/women's groups	
	Cultural Harmonization			
Education	Formal/Non-formal education	-Conduct of health education in schools -Incorporate health education into school curriculum	-Conduct of health education in schools -Incorporate health education into school curriculum	
	Community participation			
	Environmental Education			
	Health education	-Conduct of health education in schools -Incorporate health education into school curriculum	-Conduct of health education in schools -Incorporate health education into school curriculum	
Environment, Ecosystem management	Water and Sanitation	-Improve water management (e.g. Income generating activities to build water reservoirs for human use) -Improve garbage collection	-Improve water management (e.g. Income generating activities to build water reservoirs for human use)	
	Land use/ Forestry/ Agro forestry	- Improve land use to eliminate bleeding sites	- Improve land use to eliminate bleeding sites	
	Habitat protection	-Rational habitat protection schemes such as wetland management	-Rational habitat protection schemes such as wetland management	
	Community participation			
Production	Agriculture/ Aquaculture			
	Animal husbandry			
	Veterinary Public Health			
	Community participation			

