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Technical Consultation with Partners for Elimination of Kala-azar in Endemic Countries of WHO South-East Asia Region

Behror, Rajasthan, India, 29–31 August 2005



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Executive Summary

The political commitment for the elimination of kala-azar in the three endemic countries in the South-East Asia Region (WHO/SEAR) is strong. A memorandum of understanding was signed by the Ministers of Health of Bangladesh, India and Nepal to eliminate kala azar through intercountry cooperation at an event organized during the World Health Assembly in May 2005.

Elimination of kala-azar is a priority for the Region. The Regional Director of WHO/SEAR Office has constituted a Regional Technical Advisory Group (RTAG) on the subject. The first meeting of RTAG was held in 2004 where the regional strategic framework for the elimination of kala-azar was discussed and endorsed. The RTAG also recommended formation of a partners' forum.

A technical consultation with partners was organized by WHO/SEARO in collaboration with the Division of Control, Prevention and Eradication (CPE/WHO/HQ), and Special Programme for Research and Training in Tropical Diseases (TDR/WHO/HQ) at Behror Rajasthan, India, from 29 to 31 August 2005. The participants included representatives from UNICEF, the World Bank, the Bill and Melinda Gates Foundation, the GTZ (the German aid agency), and Drugs for Neglected Diseases Initiative (DNDI), selected members of RTAG, programme managers from Bangladesh, India and Nepal, TDR, WHO SEARO and WHO staff from the three endemic countries.

The consultation was organized to develop a common understanding among partners on various interventions for the elimination of kala-azar in the endemic countries by reviewing the situation and developing a consensus on the strategic interventions based on the Regional Strategic Framework that can be applied. The goals and targets for the elimination of kala-azar as recommended by RTAG were endorsed.

Recommendations

- (1) The five pillars of kala-azar elimination strategy were adopted by the partners in the consultation. These comprised of: (1) early diagnosis and complete case management; (2) integrated vector management; (3) effective disease and vector management;

- (4) social mobilization and partnership building; and (5) clinical and operational research recommended by RTAG in December 2004. These should be promoted by all partners, including WHO, for the elimination of kala-azar.
- (2) The partnerships should be established and sustained by the following three important principles: (1) common interest; (2) clarity of roles; and (3) continuous dialogue through ongoing communication. The partnership may be developed in the form of a regional alliance or a partners' forum. The role of partners should be clarified through regular information exchange and meetings in accordance with their comparative advantage.
 - (3) Advocacy for kala-azar should be undertaken by partners showcasing the importance of kala-azar elimination to mitigate poverty among the poorest, promotion of equity and strengthening of the health system. The unique opportunity afforded by the programme for the elimination of kala-azar should establish partnerships within the health sector, the private sector, NGOs and corporate sector.
 - (4) The countries should prepare operational plans inclusive of budget with identification of the resource gap to facilitate advocacy for the mobilization of additional resources. The operational plan should be realistic and should be based on the absorptive capacity of countries. Funding support should be solicited from international and bilateral partners and by mobilization of resources through local partnerships with philanthropic institutions and the corporate sector.
 - (5) Since kala-azar affected contiguous districts in the three endemic countries, a multi-country approach (MCA) should be used for developing standard operating procedures (SOPs), and for preparing tools and guidelines. This should be utilized for capacity development in the endemic countries through training, procurement and management of supplies and logistics.
 - (6) The kala-azar elimination programme should be implemented in well-defined pilot districts for the operationalization of the strategic interventions identified in the regional strategy framework. The experience in these pilot districts would help in the preparation of operational plans while scaling up the elimination programme.

- (7) Clinical and operational research should complement the programme for the elimination of kala-azar. New products and approaches that are evidence-based should be incorporated into the strategic framework, which can be revised as appropriate after consultation with the Regional TAG and partners.

For regular communication and updates on kala-azar, an interactive website should be developed with support from TDR/HQ. This will facilitate communication among the countries and partners.

1. Background

The political commitment for the elimination of kala-azar in the three endemic countries in the South-East Asia Region is strong. Elimination of kala-azar is a priority for the Region. The WHO Regional Director has constituted a Regional Technical Advisory Group (RTAG), on the subject. The first meeting of RTAG was held in 2004 where a regional strategic framework for the elimination of kala-azar was discussed and endorsed. The RTAG also recommended formation of a partners' forum. The Ministers of Health of Bangladesh, India and Nepal signed a memorandum of understanding (MOU) for the elimination of kala azar through intercountry cooperation.

This technical consultation with partners was organized to share the strategic framework with them and to develop a consensus on the key interventions for the elimination of kala-azar. The inputs from partner organizations were expected to help augment their commitment and to enlarge the base of technical expertise necessary for the elimination of kala-azar.

2. Opening session

Dr Bjorn Melgaard, Director, Programme Management, WHO/ SEARO welcomed the participants on behalf of the WHO Regional Director. Dr Melgaard read out a message from the Regional Director, which said that visceral leishmaniasis or kala-azar, was a critical public health problem that affected the poorest of the poor in Bangladesh, India and Nepal, the three endemic countries of the Region. About 147 million people are at risk, with about 100 000 estimated cases, which was 20% of the global burden of kala-azar. Nearly 50% of the problem was prevalent in the border districts of these three countries. If untreated, the disease was most fatal. Trends indicated that the disease was spreading eastwards and northwards. Kala-azar drove the affected poor into further poverty, from which they had no escape. It retarded their socioeconomic development and deprived them of a healthy and productive life.

Elimination of kala-azar was not only a challenge but also an opportunity for the Region. There was a chance for all partners to work together.

The Regional Director's message pointed out that a historic event took place in Geneva during the 58th World Health Assembly in May 2005 when an MoU was signed by Ministers of Health of the three affected countries. Key partners were present on this occasion. It was felt that advantage should be taken of the political mandate to build a consensus on the technical interventions by partners as a first step towards building and sustaining partnerships for the elimination of kala-azar. It was an opportunity, since in South-East Asia Region, sandfly was the only vector and humans were the only host. Effective vector control was possible because the vector was highly sensitive to the available insecticides, including DDT. Miltefosine, a very effective oral drug, was developed as part of collaboration between the WHO Special Programme for Research and Training in Tropical Diseases (TDR), the Indian Council of Medical Research and the pharmaceutical industry. The drug was already registered in India and will be registered in Bangladesh and Nepal as well. 'rk 39' was a good screening test. This reduced the need to perform invasive tests like bone marrow aspiration or splenic puncture, which were invasive. The Geographical Information System (GIS) could be put to effective use to focus and guide the implementation of indoor residual spray (IRS) as part of the strategy for integrated vector management (IVM).

In pursuance of its efforts to eliminate kala-azar, the Regional Director of WHO has established a Regional Technical Advisory Group (RTAG) which recommended the elimination of kala-azar and endorsed a draft regional strategy framework in December 2004. All endemic countries had prepared operational plans using the regional strategic framework and the guidelines for operational plans prepared by WHO. The Regional Director added that in the elimination of kala-azar, research should be a continuous process with identified priorities at the national level. It should complement the efforts to scale up the elimination programme. Clinical and operational research was required. The present meeting had been organized jointly by WHO/SEARO, the World Bank, UNICEF, the WHO Special Programme for Research and Training in Tropical Diseases (TDR) and the Division of Control, Prevention and Elimination (CPE), WHO/HQ. Partners' presence was encouraging and rewarding and he thanked GTZ, the Gates Foundation, DNDI, UNICEF, the World Bank and USAID for their participation.

Dr Robert Ridley, Director TDR/WHO/HQ, and also representing CPE, WHO/HQ, described the efforts towards the elimination of kala-azar as the result of intensive work and cooperation amongst the endemic countries, work at the regional level and support by the international community. The energy generated by the signing of the MoU should be utilized to accelerate the efforts to eliminate the disease from the region. Drugs, diagnostics and other research had contributed to the present efforts. He acknowledged the contributions made by the Bill and Melinda Gates Foundation, the ICMR and the pharmaceutical industry. Dr Ridley said that there was a need to undertake further research and mobilize additional resources on a sustained basis. TDR's commitment as a partner was reiterated. It would be important to engage with the HIV programme to deal with the HIV-kala-azar co-infection, and ensure compliance in the treatment.

Dr G.N.V. Ramana of the World Bank referred to the current Vector-Borne Disease Control Programme in India and its commitment towards the elimination of kala-azar as articulated in the national policy. The World Bank had a large programme to support the sector-wide work. At present in India, there were separate programmes for disease control. It was important to package the kala-azar programme the same way as the TB DOTS programme. At the same time, the operational aspects of the programme, its management and monitoring of its performance will be critical and should be incorporated in the operational plans.

Dr K. Suresh, Health and Nutrition, UNICEF, stated that kala-azar had a low priority in UNICEF's current portfolio. However, UNICEF was interested in the control/elimination of any disease that impacted adversely on the health and survival of children and young people. In this context, UNICEF would like to support the disease elimination effort as part of Integrated Management of Neonatal and Childhood Illness (IMNCI) in the affected states. He recommended the adoption of an integrated approach to the control of vector-borne diseases and be a part of the integrated approach to the management of neonatal and childhood illnesses. The capacity of the providers should be increased. Dr Suresh recommended that the end-planners (at district level and below) should be empowered to manage vector-borne diseases at the implementation level.

Dr Thomas Brewer, Bill and Melinda Gates Foundation, said that the driving principle of the elimination strategy should be to increase

access by the poor to health care and to reduce disparity. Paromomycin should be considered as a therapeutic tool. 'rk 39' diagnosis was recommended. The challenge was effective vector control, and surveillance of the disease. There was a need to develop operational plans for implementation at district level and to identify health care deliverers in the programme. The Gates Foundation would consider providing financial and technical help that might be needed to eliminate the disease.

Dr Johann Steinman, Programme Leader, GTZ India, felicitated the three endemic countries on signing of MOU and WHO for taking the initiative to eliminate kala-azar. This was important for the upliftment of the deprived communities. GTZ was interested to support health systems development and reproductive health strengthening. For success, it would be important to build bridges with the private sector, including the pharmaceutical industry, to enhance social responsibility. GTZ laid emphasis on PHC and integration of health services, but it was ready to contribute to the elimination of neglected diseases like kala-azar.

Professor NK Ganguly, Director-General, Indian Council of Medical Research (ICMR), was selected as the chairman and Dr MK Banerjee, Senior. Health Administrator, Nepal, as the co-chairman. Dr ATM Mostafa Kamal, Programme Manager, Bangladesh was declared as the rapporteur of the meeting. The list of participants is given at Annex I.

3. Objectives of the meeting

3.1 General objective

To develop a common understanding among partners on various interventions for the elimination of kala-azar in the endemic countries in the Region.

3.2 Specific objective

- (1) To review the situation of kala-azar in the; endemic countries in the Region;
- (2) To develop a consensus on the strategic interventions based on the Regional Strategic Framework that can be applied in the elimination of kala-azar in the Region.

The specific outcomes expected were:

- (1) To identify the progress made, the gaps, the constraints and the lessons learnt;
- (2) To establish collaborative partnerships and develop a common understanding among partners for the Regional Strategic Framework;
- (3) To provide support in the preparation of a road map for the elimination of kala-azar by partners.

4. Rationale for kala-azar elimination and Regional Strategy Plan

Dr Chusak Prasittisuk, Regional Adviser, WHO/SEARO summarized the rationale for the kala-azar elimination programme. The areas affected were geographically contiguous and therefore it would be prudent to consider the task of elimination them as one area. Kala-azar affected 50 districts in 4 states of India, i.e. Bihar, West Bengal, Jharkhand, and Uttar Pradesh, 34 *Thanas* in Bangladesh, and 12 districts in the Terai area in Nepal. There is an increased in the trend in the reported cases with more than 25 000 cases reported during 2003. Dr Chusak summarized the favourable factors and the challenges in the elimination of kala-azar, and described the goals and strategies of elimination. The road map for 2005 was also described. All the landmarks identified in the road map had been achieved. The future plans included, assistance in the development of national capacity, including establishment of partnerships and linkages among centres of excellence, promotion of a public policy for improving the domestic and peri-domestic environment, strengthening of disease surveillance systems with streamlining of the reporting system, improvement in the reporting formats and supporting the evidence base with emphasis on operational and implementation research.

Dr Vijay Kumar, Temporary Adviser, WHO, presented the Regional Strategy Framework for the elimination of kala-azar. The target was to reduce the annual incidence of kala-azar to less than one case per 10 000 population by 2015 at the district or sub-district levels (*upazila* in Bangladesh, sub-district or community health centre in India and district

Nepal). After describing the objectives (impact and process), the five strategic pillars for elimination were enumerated.

- (1) Early diagnosis and complete treatment
- (2) Integrated vector management and vector surveillance
- (3) Effective disease surveillance – active and passive case detection
- (4) Social mobilization and partnership building
- (5) Clinical and operational research

The implementation of the five pillars of the strategy was proposed to be done in phases comprising of the preparatory phase (two years' duration, 2005–2006), attack phase (five years' duration, 2007–2011), consolidation phase (3 years' duration, 2012–2014) and maintenance phase (duration to be determined, starting from 2015). The progress made thus far and the future plans were presented.

Discussions

- (1) Kala-azar, although a formidable enemy, was conquerable and was the right thing to do for the sake of the poor and the marginalized populations. It was both a challenge and an opportunity. Even though three countries were affected, it was only one contiguous geographical area that was involved and this provided optimism for the elimination of the disease.
- (2) Efforts towards the elimination of kala-azar provided an excellent entry point for strengthening the health system that was responsive to the needs of poor people.
- (3) The challenge was more managerial than technical. It required mobilization of both human and financial resources. Planning of the programme at district level, building access to diagnosis and treatment, ensuring adherence to treatment and the use of a limited number of simple measurable and verifiable indicators should be the main thrusts of the programme.
- (4) The meeting should have a broad agreement on the guiding principles. The strategy was acceptable in principle, although it could be revised based on evidence. This support should be

provided by synchronization of work between TDR and RTAG/SEARO.

- (5) The programme should be built on existing control/elimination programmes and the unique features of the elimination of kala-azar should be built in with coherence in the policy with specific reference to drugs, insecticides and surveillance. The programme should have 2–3 key indicators to track the progress of implementation. Treatment completion will be a very important indicator of the programme with specific criteria to define cure.
- (6) The elimination of kala-azar may be considered as a special programme within the vector-borne disease control programme in the endemic countries.
- (7) The target for the elimination of kala-azar as stated in the national policy in India was 2010.
- (8) Policy issues were important. The drugs for kala-azar, miltefosine and paromomycin, should be registered for use. Miltefosine had been registered in India and it will soon be registered in Bangladesh and Nepal. There should be provision for free treatment since kala-azar was a disease that affected the poorest among the poor who could afford the treatment. Experience had shown that DDT was still an excellent insecticide but there were limitations about its use in Bangladesh and Nepal. Pyrethroids were expensive and they may lose their efficacy after a few years of use. The South Asian Association for Regional Cooperation (SAARC) had recommended that an exception should be made about the use of DDT, specifically in the control of vector-borne diseases.

5. Strategy for kala-azar elimination

5.1 Early diagnosis and complete treatment

The issues relating to early diagnosis and complete treatment were summarized by Dr S.K. Bhattacharya, Director, National Institute of Cholera and Enteric Diseases, Kolkata, India, (Member of RTAG). The cases of kala-azar should be suspected based on standard case definition.

The case definition should include criteria like fever of more than two weeks and presence of splenomegaly in a patient in an endemic area. The suspected cases should be referred to a health centre where 'rk 39' testing can be done and the patient examined for splenomegaly. Confirmatory diagnosis was not necessary for starting the treatment since these tests could be done only in a few hospitals and were invasive. The role of peripheral health workers and volunteers was to suspect cases and send them to health centres/clinics for diagnosis by 'rk 39'. They should also help in follow-up of the patients to help them complete the treatment. The cases should be classified as probable and confirmed.

The equipment and supply needs at different levels were identified. Sodium antimony gluconate (SAG) could be used as the first-line drug if there was no resistance. Since this was a toxic drug (side-effects included diabetes, kidney failure, heart problems and retinal detachment), efforts should be made to register safe and effective drugs.

Miltefosine was the first-line drug. Paromomycin could be very useful in females in reproductive age, but it was recommended for use only after being licensed. Amphotericin B was recommended as a rescue drug. Other requirements for supportive treatment to be used at different levels of the health system were identified. Complete treatment and increased access of treatment for the poor were important issues. Follow-up was important to ensure drug compliance, drug response and to monitor the side effects of drugs. There was a need to collaborate with dermatologists for the diagnosis of cases of post kala-azar dermal lesions (PKDL). Treatment regimens for the cases of PKDL needed to be standardized.

Discussion

- (1) The countries were using SAG as the first-line drug and amphotericin B or liposom/e as the rescue drug. The evidence for resistance to the first-line drug was available in some districts in north Bihar in India. However, the drug was quite toxic and the treatment regimen was difficult to adhere. Phase IV trials had shown miltefosine to be a safe and effective oral drug, although it could not be used in early pregnancy and was to be avoided in women of child-bearing age. Miltefosine had been registered for use in India. The participants agreed that miltefosine to be recommended as the first-line drug, and

paromomycin could be used in women of child-bearing age but the drug had to be licensed for use. The use of SAC had to be phased out because of its toxicity.

- (2) Success in the treatment of kala-azar will depend on nutritional support and treatment of anaemia. Both these problems were common in poor people. UNICEF could help in the efforts in Bihar, especially when the treatment of kala-azar was considered a part of Integrated Management of Neonatal and Childhood Illness (IMNCI) which stressed a lot on nutrition and anaemia control.
- (3) Increasing access to diagnosis and treatment was a priority. It was important to map the facilities for rational operational planning. Financing issues needed to be addressed. Innovations were needed and social marketing, social franchising and voucher schemes should be considered. The poor should get the treatment free of cost.
- (4) 'rk 39' was a good screening test although it could not help in assessing the response to treatment of kala-azar.
- (5) The PKDL cases were not recognized and their treatment was difficult. Partnerships are needed with dermatologists for the diagnosis of PKDL and operational research was required to find effective treatment regimens for PKDL.
- (6) To maintain the efficacy of drugs in the treatment of kala-azar, there was need for quality control. Search for new drugs and combination drugs should be pursued vigorously since the drugs that were currently available may not remain effective for long. Drugs for Neglected Diseases Initiative (DNDI) could be a co-opted partner in the development and testing of new drugs and combination drugs.
- (7) After the development of the symptoms of kala-azar, it took 2–3 months for the patient to get treatment from a government health facility. For early and complete treatment, the demand for services should be increased and the people, especially the poor should have a voice.
- (8) Private doctors have their own interests and this fact should be understood and honoured if their participation was to be enlisted.

- (9) The access issues should be addressed in more holistic ways by creating drug depots and also providing transportation when the poor needed to be hospitalized. Poor people could not afford to access treatment and continue it since there are expenditures involved in transport and loss of daily wages. Compensation should be considered to cover for their losses. Injection safety will be a big issue in the states where kala-azar was endemic and HIV was becoming a cause for concern.
- (10) The experience with the phase IV trials had been positive but this did not guarantee operational success. The meeting recommended implementation of the whole package of diagnosis and treatment, vector control and intensive monitoring in a pilot district during the preparatory phase. This should be intensively monitored and constraints and opportunities identified. This would provide operational experience and could form the basis for expansion.

5.2 Vector surveillance and control

Mr N.L. Kalra, WHO, Temporary Adviser, summarized important issues concerning vector surveillance and control for kala-azar elimination. He said that sandflies were thermophilic and hygrophilic. *Phlebotomine argentipes* was the only vector of kala-azar in the South-East Asia Region. Breeding was favoured by the alluvial soil which was capable of retaining capillary-bound moisture and high organic content. The vector was an indoor rester, and its flight range was limited to short hops. Common breeding sites were cattle sheds, thatched houses with loose soil. Sandflies were difficult to locate. Their biotic potential was low. It laid 30–40 eggs and had an extended life cycle of 40–50 days. The vector had a low peak in March–April and high peak in August–September. Therefore, spraying was advised twice a year. No true resistance to insecticides was reported. Indoor residual spraying (IRS) was very effective.

The disease had been eliminated in Tamil Nadu, and the incidence had been brought down by 70% in Bihar in the 1990s. The other option was environmental management, which was sustainable, but operationally difficult. Community involvement and environmental sanitation were necessary for its success required for its success.

Communication for Behavioural Impact (COMBI) should be fully utilised. Insecticide-treated bednets (ITNs) should be considered for use where IRS is not done. The experience from Africa may not be very useful since the vector in Africa was thermophilic while it was hygrophilic in SEA Region. However, available literature provided conflicting reports about the efficacy of ITNs. The experience in Bangladesh had shown good personal protection, while experience in India and Africa had shown that the sandfly could enter the mesh, negating the protection.

Adequate information about the vector in the Region was not available. Dusk biting was known to be predominant. A study in Bihar had shown that people who slept on the floor had higher infection rate as compared to those who slept on cots. Vector surveillance and monitoring were important and an integral part of the programme for the elimination of kala-azar. The programme required efficient planning and this should be based on the data available. Operational research on the problem of resistance to insecticides, and entomological data to determine resistance were recommended. Studies on ITNs' efficacy, needs assessment and communication strategy were a priority.

Discussion

- (1) Two rounds of spraying were recommended. The timing should be decided according to the local pattern of transmission. DDT will be used by India and pyrethroids by Nepal and Bangladesh. The high cost of pyrethroids was a major concern. The quality of insecticides was an important issue. WHO recommends the use of the products which were passed and recommended by the WHO Pesticide Evaluation Scheme (WHOPES).
- (2) Operational plans should include IRS in pilots and operational research on ITNs and environmental management.
- (3) IRS should be selective and the selection of villages should be on the basis of the established criteria and the presence of water bodies in the endemic areas. The GIS and remote sensing technology could be very useful in mapping out the areas that would benefit from IRS. However, capacity development was needed before this technology could be used in the programme.

- (4) Healthy public policy should be adopted to advocate environmental management.
- (5) A health impact assessment was important. Experience in Bangladesh had shown that silted areas were more susceptible. This had implications for macro management of water.
- (6) Operational issues to be considered included the choice of insecticides, the number and timings of spraying rounds, synchronization of IRS across the borders, capacity needs of the teams, follow-up and behavioural change communication.

5.3 Surveillance and reporting system

Dr M.K. Bannerjee, Senior Health Administrator, Nepal (Member of RTAG) introduced the topic of surveillance and reporting for kala-azar elimination in the Region. The limitations in passive case detection included lack of access to diagnosis by serology, non-use of public health facilities by a large proportion of patients, and non-reporting of cases by the private sector and other institutions. Active case detection was not done regularly except in India. There was no monitoring of therapeutic efficacy. The stress of the programme on tracking of progress will be on probable cases. A strong surveillance system had to be an integral part of the programme for kala-azar elimination. The programme should adopt a uniform system of case definition. Probable diagnosis was to be based on case definition and positive serology. Suspected cases need not be included in reporting.

Similarly, only a few cases were likely to be confirmed and these may not be included in the reporting of cases. The reporting unit should be the district or sub-district, which is the target for elimination. In addition, reporting of cases by passive surveillance should include the private sector and NGOs that report cases on the basis of case definition and positive serology. Passive surveillance should also include reporting of cases of PKDL. For this, networking with dermatologists was required, and active surveillance was recommended. In the beginning of the programme this should be done at least once a year but its frequency should be increased to treat the largest number of cases. The reporting units should be those that are able to make a probable diagnosis of kala-azar. These units should report to the district/subdistrict once every month. All the districts should report to the state once every quarter. The

consolidated report should be shared with the national programme and WHO once every year. The reporting system should be supported by sentinel surveillance units which should be networked. There was a need for regular review and validation of the reports. The kala-azar surveillance system should be linked to the health management information system (HMIS) and integrated disease surveillance programme (IDSP).

Dr Vijay Kumar, WHO, Temporary Adviser, summarized the monitoring and evaluation needs of the kala-azar elimination programme. Monitoring and evaluation (M&E) were important to track progress, assess performance and undertake performance-based planning. It was important to prepare an M&E plan and constitute a technical working group to guide the programme. Adequate resources for M&E should be built into the operational plans right from inception. For M&E to be effective, it is necessary to develop capacity based on the institutional environment and the expected standards. Linkages with medical colleges, research institutions and large private hospitals are important since these institutions can provide ongoing technical support in M&E. Linkages are also required with HMIS and IDSP and with other related programmes. At the outset it is necessary to map the M&E work as well as undertake a quick situational analysis. This would help to build on what already exists and reach a consensus on what is practicable. In M&E the focus should be on the input, process, output and outcome indicators that are simple, measurable and verifiable. A minimum number of indicators selected should be introduced in the pilot districts during the preparatory phase, using the reporting formats developed in the reporting units identified in the district. The documentation should include an analysis of the reports and the feedback. Regular programme reviews, and surveys should be an integral part of M&E. Investments should be considered in supporting studies on the burden of disease, socio-economic implications of kala-azar control, poverty alleviation, quality of diagnostics, drugs, insecticides and monitoring of drug resistance. This will be necessary for sustaining the political commitment, academic endorsement and mobilizing additional resources.

Discussion

- (1) Surveillance of kala-azar can broadly be a part of HMIS or IDSP. However, specific surveillance needs for kala-azar elimination have to be determined, incorporated in the

operational plans and be the responsibility of the elimination programme. The disease-specific components cannot be addressed by HMIS or IDSP. Baselines are important to establish and this activity is important for performance-based results. Baselines should be established as quickly as possible.

- (2) Sentinel surveillance units should focus on the quality of information, monitoring of quality of drugs, diagnostics and insecticides and monitoring of therapeutic efficacy. The sentinel surveillance units should also report treatment failures.
- (3) The reporting of cases should be simplified and made uniform by a focus on probable cases based on case definition and serological diagnosis. This would help in the assessment of progress towards elimination.
- (4) Reporting of cases of PKDL should be made an integral part of surveillance. Partnerships are required to be established with dermatologists.
- (5) Both active and passive surveillance are crucial for the elimination programme. However, active surveillance is expensive and labour-intensive. In the beginning, stress should be on passive surveillance and sentinel surveillance. Active surveillance should be built in and expanded with experience. It becomes more important as the number of cases of kala-azar decline. Active surveillance will be useful in reaching out to the poor and the marginalized and inaccessible population groups.
- (6) A simple surveillance system for kala-azar should include the number of cases disaggregated by age and sex. The reporting unit should be a district/subdistrict that is targeted for achieving the goals. The reporting should include the number of cases who are treated and those who complete treatment. Both numerators and denominators will be important. The case fatality rates should be a part of the reporting system.
- (7) Information should be broad-based, including the private sector and all hospitals and medical colleges. Zero reporting should be included in the system.
- (8) The number of target households and target populations and the coverage with insecticides should be identified. On a sample basis, the density and parity of the sandfly may be included.

5.4 Communication for Behaviour Impact (COMBI)

Dr Asok P. Sharma, National Professional Officer, WHO, Nepal, presented the experiences in Nepal on (BCC) in the elimination of kala-azar. IEC materials were being used in the form of posters, pamphlets and other materials. 'Kala-azar Fortnights' were organized once a year in India and a kala-azar week was organized in one district in Nepal. A social behavioural study conducted in Nepal showed that fever as a sign of kala-azar was enumerated by about half of the respondents, less than 20% attributed kala-azar to mosquitoes, and more than a half felt that this was a killer disease. Nearly one third of the adults slept on the floor and a large proportion of the families slept outdoors. The traditional approach to IEC was not as effective as the use of street dramas and messaging on the radio. The media is useful in spreading awareness about the treatment facilities but it had a limited reach among the poor. BCC strategy was cross-cutting, and required a communication and marketing strategy. It should be blended with other programmes for leveraging. Dr Sharma showed examples of the umbrella logo, street drama, Haat (village market) bazaar miking, leaflets, flipcharts, wall paintings and posters developed in the project. The experience could be useful in evolving a COMBI strategy with clearly-articulated impact objectives. BCC required commitment of appropriate resources and involvement of social and behavioural scientists.

Discussion

- (1) The behavioural impact objective should be identified and measured for impact to build a marketing strategy and the mix decided for communication. Development of the materials, and synchronization of messaging are important. BCC could be effective if there was service support and back up available.. It required commitment of substantial resources, in-service provision, exploring the role of social marketing and social franchising and voucher system. Involvement of community and local government were crucial. For effective BCC, action should be coordinated at the district level.
- (2) The kala-azar programme should consider dissemination of three messages: (1) environmental control, (2) spraying and (3) early care-seeking and complete treatment. COMBI may

be expensive but it was effective. The logo and a slogan were very important. In the public sector, social marketing did not work very well, while in the private and NGO sectors, it seemed to work better. It was important to have a communication strategy. Social and behavioural scientists should be involved in the preparation of this strategy.

- (3) Among the poor and marginalized populations, BCC should be done without the help of the media, TV and telephones while communication systems that were locally relevant should be considered. Advantage should be taken of local health workers/volunteers like ASHA (India), Bari workers (Bangladesh) and FCHVs (Nepal) in the strengthening of communication and outreach work for the elimination of kala-azar. Village self-help groups and women were quite useful in mobilizing the community. Support from UNICEF could be quite rewarding in the area of BCC.

5.5 Clinical and operational research

The issues relating to clinical research and operational were summarized by Professor N.K. Ganguly, Director-General, Indian Council of Medical Research (Chairman of RTAG). A lot of progress has been made to provide optimism for the elimination of kala-azar. Partners had contributed to providing the evidence base and the tools required for the elimination of the disease. Research (both clinical and operational) must be sustained and synchronized with the programme to sharpen the efforts further. The parasite of kala-azar was an intracellular parasite and no intracellular parasite had yet been conquered. To maximize the impact of IRS and to avoid wastage of insecticide, the Geographical Information System (GIS) and Remote Sensing (RS) technology should be an integral part of vector control efforts. Research should track the changing epidemiology with changes in the environment, including global warming. The currently available screening test 'rk39' was useful in diagnosing the disease but did not help to assess the response to treatment. Completion of treatment was important and for this it was important to map the health system, determine the care-seeking behaviour of the people, and consider factors that influenced treatment completion. The treatment of patients who had HIV-TB co-infection and diagnosis and treatment of PKDL should be a research priority. The interplay of nutrition (with special reference to vitamin A, zinc and iron) with kala-azar also needed to be studied.

The drug miltefosine, was effective but may not remain effective for long. Paromomycin was also reported to be effective. However, it required registration and large-scale field operations. Research should be done to contain the emergence of drug resistance by monitoring the therapeutic efficacy and quality of drugs. Research on new drugs and combination drugs should be a high priority so that alternatives could be recommended as soon as drug resistance developed. Research was needed on the efficacy of ITNs and in support of healthy public policy through improved housing design for vector control. These will be crucial in the implementation of the integrated vector management (IVM) strategy. For sustained political commitment research was recommended to illustrate the socioeconomic aspects of kala-azar. The role of migration and cross-border movement should be studied. This may be an important factor to contend with in the elimination of the disease.

6. Progress of country workplans

Dr Mostafa Kamal, Programme Manager, Bangladesh, summarized the progress of the kala-azar control programme and development of operational plans for its elimination. A task force had been proposed but not established yet in Bangladesh. It was proposed to have 3 members on the task force from medical colleges. This task force will guide the elimination programme in the country. An operational plan had been prepared. The Regional Strategic Framework and guidelines for the operational plan were used to prepare the national operational plan. A case definition was available but was not used consistently. The diagnostic screening test was used in a few areas. The treatment was done by sodium antimony gluconate SAG and there was no report of resistance to SAG. Access to treatment was a problem and a large proportion of patients were treated in the private sector. Facilities for treatment were available at the upazila (sub-district) level. Bangladesh did not use DDT since the stocks had been exhausted and the policy also did not permit its use. Entomologists were available only in half of the endemic districts and a revamping of vector control was required. The diagnosis and treatment will be strengthened at the *upazila* level and extended to the *Union* level. There were spray teams functioning in the endemic districts. In the strategic plan it was proposed to have dedicated staff and to make provision to enhance the capacity for the kala-azar programme in each district. The Japan International Cooperation Agency

(JICA) has promised to provide volunteers to help in the BCC efforts. It was necessary to involve NGOs in the programme.

On behalf of Dr P.L. Joshi, Programme Manager, India, Dr C.K. Rao, National Professional Officer, WHO India, presented the national plan for kala-azar elimination in the country. Dr Rao said that the kala-azar elimination was a part of the National Vector-Borne Diseases Control Programme (NVBDCP). The national policy goal was to achieve the elimination of kala-azar by 2010. An operational plan had been prepared, and it is proposed to implement the programme in four phases. The government had made an allocation of US\$49 million for the elimination of kala-azar. The identified gap was about US\$10 million per year and this may have to be revised. An advisory committee guided the programme on technical matters. State-level and district-level societies were responsible for the disbursement of funds. It was important that they should be increasingly involved in providing guidance and coordination. They should broadly conform to the sector reforms and the rural health mission mandate. The India programme had a logo for NVBDCP. WHO had assigned eight state-level coordinators to provide technical support during programme implementation. Such support should be extended to districts and advocacy was required to mobilize the additional resources needed. India conducted a "Kala-azar Fortnight" as part of active surveillance. This served to increase awareness in community. The drug, miltefosine had been registered and 'rk 39' had been found useful during the Phase IV study on miltefosine. The entomological component was weak at all levels, including regional and the state levels. During the last three years the number of reported cases have increased. In Bihar, kala-azar was a notifiable disease. There was a need for policy change and operational plans needed to be revised. For successful implementation of the programme, partnerships will be needed with the private sector and NGOs. Behavioural change communication and effective and focused, indoor residual spraying (IRS) with revamped surveillance will contribute to the elimination of kala-azar.

Dr M.B. Bista, Director, Epidemiology and Disease Control Programme, Nepal, summarized the national plan for kala-azar elimination. He said that the plan was developed jointly with partners. Nepal presented data from selected sites where the number of cases was rising while deaths remained static. The programme management and coordination comprised of national coordination committee and a kala-azar elimination unit at district level. It is proposed to link six regional

centres to support kala-azar elimination in Nepal. Three of them were operational but needed strengthening. The early warning alert and response system (EWARS) was operational in all 12 endemic districts. It was a good input into surveillance of selected communicable diseases in Nepal. Miltefosine had not been registered but efforts were being made to register the drug as soon as possible. 'Rk 39' was very useful in diagnosing kala-azar and its use was proposed to be expanded. Nepal did not permit the use of DDT. Other insecticides were very expensive and entomological support was not adequate. Dr Bista pointed out the shortfalls in the national programme and also at other levels. The resource gap was to the tune of US\$ 20 million while the government was expected to provide about US\$5 million. The operational constraint was that there was a freeze on the creation of new posts and this had to be overcome. Ways were being explored to overcome the problem.

7. Operational plan and roadmap

National operational plans and roadmap for the elimination of kala-azar was introduced by Dr Vijay Kumar, WHO Temporary Adviser. The countries had prepared operational plans for kala-azar elimination. These had been consolidated into a project document, which identified the resources likely to become available from the national budgets and the likely shortfalls. The operational plans needed to be refined and district implementation plans were required to be formulated. Multi-country activities comprising of formation of an intercountry task force, preparing standards and standard operating procedures, capacity development, networking, research and mobilization of resources were important. A partners' forum should be established and partnerships sustained based on the interest and comparative advantage of different partners. The operational plans should lay stress on developing advocacy plans, monitoring and evaluation plans, BCC strategy and district-level partnerships. The operational plans should also include the development of capacity, especially in programme management at district level. Plans for procurement of supplies and logistics were important.

- (1) A meeting of the programme managers from Bangladesh, India and Nepal was proposed immediately after the technical consultation meeting of partners. The operational plans and the roadmaps developed should be reviewed and refined during that meeting.

- (2) The operational plan should reflect the costing for the elimination of kala-azar. The costs for drugs and diagnostics had been worked out by TDR. The costs of ITNs were known. Efforts were needed to work out the costs of BCC. The absorptive capacity for funds and their timely utilization should be considered while preparing the plans. To the extent possible, the costing should be complete in all respects. A case should be made on reflection of costs in terms of disability adjusted life years (DALYs) averted. This was likely to strengthen the advocacy efforts.
- (3) Synergies and convergence and development of management capacities at district level and utilization of the vast potential of NGOs, the private sector and other related departments like nutrition should be tapped. Lessons learnt from polio eradication, leprosy elimination, TB control and lymphatic filariasis elimination programme could be incorporated into the operational plans.
- (4) It would be important to build in the plans strategies that would attract the poor to seek early treatment and adhere to it. The treatment should be free of cost (in the government and private sectors) with nutritional support, and if possible, incentives for completing the treatment to compensate for the loss of wages.
- (5) Outreach activities should be an integral part of the programme. Outreach workers from the national Rural Health Mission in India, Bari, Bangladesh Rural Advancement Committee (BRAC) and other volunteers in Bangladesh, and Female community Health Volunteers (FCHVs) in Nepal should be fully involved in the outreach work in the elimination of kala-azar.

8. Regional alliance/partnerships

The basis for partnership in kala-azar elimination presupposes that a strong national support and political commitment was already available. Considerable resources had been committed by the national governments. WHO/SEARO was also fully committed. It had formed a Regional Technical Advisory Group (RTAG) and assisted in the signing of

the Memorandum of Understanding (MoU). The Regional Office would continue to provide technical and managerial guidance. It was flexible partnership that was likely to be continued through multi-country activities. Other partners such TDR/WHO, CPE/WHO/HQ, ICMR and other institutes had been providing support in the past. This technical consultation had identified the role of the Department of International Development, (DFID) (UK), The United States Agency for International Development (USAID), the World Bank, UNICEF, the Bill and Melinda Gates Foundation and JICA to provide country-level support. Others were likely to join in the partnership.

There was a need for coordinated operational and clinical research to provide an evidence base for policy. This can be channelized through networking of institutes which can act as a bridge between research and implementation. Medical colleges in the vicinity of the endemic districts can play a very useful supportive role. New tools should be developed and implementation research introduced in the programme. Partnership with civil society and with the private sector has a lot of potential. Common guidelines are needed for application in the private and NGO sectors with the involvement of civil society. Partnerships can take the shape of district-level societies at local level. GIS technology has a lot of promise and this can be introduced with the help of partners.

During the formation of partnerships it may be useful to work cooperatively without establishing new structures. Partnerships should seek to integrate activities with the programmes already functioning, e.g. vector-borne disease control programme. At the same time there should be a focus on the elimination of kala-azar. As partnerships develop, there is need to sustain them and define partners' responsibilities and commitments based on their mandate. Advocacy plans were needed and these should be implemented and monitored with clear milestones. The continued interactions will be meaningful only if specifics were defined and agreed and the timelines were met. Partnerships will work only if there was a win-win situation. It was a contractual arrangement with clearly identified goals to be reached.

Public-private partnerships at the country level had a lot of potential. There was a lot of interest among the chief executive officers (CEOs) of the corporate sector in the country but they had to get a mandate. GTZ could act as a neutral organization to facilitate the involvement and support of the corporate sector. This programme could

serve as an entry point and could serve as an example for health systems development. The private health care sector should work closely with the public health sector. Lessons could be learnt from the TB control programme to engage the private sector in the partnership.

Sustainability of partnerships was an important concern since the elimination efforts were expected to last for 10 years or longer. Partnerships based only on donations or charity were not sustainable. It was important to clarify the objectives of the partnership, the capacity and the interest to contribute and match it with the mandate of the partner while the partnerships were being formed. A strong commitment which can be expressed in many different forms was necessary.

It was important to recognize that by partnering in the elimination of kala-azar, there was not only an opportunity to create history but also to provide an example for the strengthening of the health system and be able to address the problem of poverty and underdevelopment, in general. Being mindful of each other's needs will go a long way in initiating partnerships and sustaining them. Frequent discussions and information exchange were recommended to continue to sustain the interest of partners.

For partnerships to succeed there should be a commitment to the cause, a commonality of interest, clarity of role of each partner and continuous ongoing communication. WHO and RTAG could act as a forum for advocacy and for providing an opportunity for regular exchange of information, review of progress and constraints and also to improve strategy.

The Gates Foundation proposed to be a partner in the kala-azar elimination programme and recognized this as an opportunity to contribute to people's welfare. It was important to recognize that fundamental problems existed and solutions for them were not yet available. NGOs and private establishments were delivering a lot of health care but this was not the right care. The innovations in Bihar comprised of delivery of health care through private establishments, but this needed to be enhanced and strengthened.

Support to kala-azar elimination efforts was a part of the portfolio of the Bill and Melinda Gates Foundation, which also included dengue and Japanese encephalitis (JE). It proposed to support strategic research,

participate in ongoing partnership in the control of vector-borne diseases, policy support and working with partners. It was willing to support a demonstration project in Bihar on innovations in elimination tools. The focus will be on innovations that fit in with the national policy by matching the plans developed for implementation at district level and below. This was a test case of transition of technology and research to programme implementation and ultimate success in elimination.

Control of communicable diseases was not a part of UNICEF's main functions in India. However, it was ready to support interventions that were likely to improve the health of children and women. UNICEF will also support intensive village planning in districts where community ownership was stressed. It will also support the study of behavioural patterns and planning of BCC strategies. UNICEF could also help in the details of BCC at village level and assist in providing inputs to the training module at ground level. This could be in the form of adaptation of IMNCI modules for kala-azar elimination in Bihar.

GTZ could act as a neutral organization to facilitate the involvement and support of the corporate sector. There was a lot of interest among CEOs from the corporate world to contribute to the social sector. It was also important to determine possible contributions from the private sector in areas where they would see the world of their investments rather than treat it as charity. The role of the elimination programme in contributing to general health system development was another important area to focus on where GTZ might be interested.

DNDI had included kala-azar in its portfolio of neglected diseases. Work was going on in the area of development of combination drugs.

TDR/WHO/HQ will work in a flexible way to support through operational and clinical research to synchronize with the kala-azar programme. This, together with networking among researchers and national research councils, will help to bring to the programme new tools for diagnosis and treatment, vector control and surveillance, and behavioural change that would be useful in the elimination of the disease.

Multi-country activities was another example of partnerships that could address problems relating to cross-border migration, mapping of health services, capacity development in GIS, cross notification, development of standards and SOPs, and an interactive website.

9. Recommendations

- (1) The five pillars of kala-azar elimination strategy were adopted by the partners in the consultation. These comprised of: (1) early diagnosis and complete case management; (2) integrated vector management; (3) effective disease and vector management; (4) social mobilization and partnership building; and (5) clinical and operational research recommended by RTAG in December 2004. These should be promoted by all partners, including WHO, for the elimination of kala-azar.
- (2) The partnerships should be established and sustained by the following three important principles: (1) common interest; (2) clarity of roles; and (3) continuous dialogue through ongoing communication. The partnership may be developed in the form of a regional alliance or a partners' forum. The role of partners should be clarified through regular information exchange and meetings in accordance with their comparative advantage.
- (3) Advocacy for kala-azar should be undertaken by partners showcasing the importance of kala-azar elimination to mitigate poverty among the poorest, promotion of equity and strengthening of the health system. The unique opportunity afforded by the programme for the elimination of kala-azar should establish partnerships within the health sector, the private sector, NGOs and corporate sector.
- (4) The countries should prepare operational plans inclusive of budget with identification of the resource gap to facilitate advocacy for the mobilization of additional resources. The operational plan should be realistic and should be based on the absorptive capacity of countries. Funding support should be solicited from international and bilateral partners and by mobilization of resources through local partnerships with philanthropic institutions and the corporate sector.
- (5) Since kala-azar affected contiguous districts in the three endemic countries, a multi-country approach (MCA) should be used for developing standard operating procedures (SOPs), and for preparing tools and guidelines. This should be utilized for capacity development in the endemic countries through

training, procurement and management of supplies and logistics.

- (6) The Kala azar elimination programme should be implemented in well-defined pilot districts for the operationalization of the strategic interventions identified in the regional strategy framework. The experience in these pilot districts would help in the preparation of operational plans while scaling up the elimination programme.
- (7) Clinical and operational research should complement the programme for the elimination of kala-azar. New products and approaches that are evidence-based should be incorporated into the strategic framework, which can be revised as appropriate after consultation with the Regional TAG and partners.
- (8) For regular communication and updates on kala-azar, an interactive website should be developed with support from TDR/HQ. This will facilitate communication among the countries and partners.

10. Closing session

At the closing session, Dr Narain, Director, CDS, WHO/SEARO thanked all partners and participants for their valuable contributions during the consultation. He also thanked the support staff that helped in the organization and logistics of the meeting. He was confident that the recommendations of the consultation would be used in refining the operational plans that were proposed to be developed in the intercountry Programme Managers' meeting. This consultation had provided an opportunity for furthering the collaboration among partners who were desirous of supporting the elimination of kala-azar from the three endemic countries in the Region.

Annex 1

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Annex 2

Programme

Monday, 29 August 2005

08.30 – 09.00	Registration
	Session I – Opening Session
09.00 – 09.40	Inaugural address of Dr Samlee Plianbangchang, Regional Director, WHO South-East Asia Region (To be read out by Dr Bjorn Melgaard, Director, Programme Management, WHO/SEARO) Remarks by Dr R. Ridley, Director, TDR/CDS/HQ Remarks by Dr Jai P. Narain, Director, CDS/SEARO Remarks by the World Bank Remarks by UNICEF Objectives of the meeting and introduction of participants – Dr Chusak Prasittisuk, VBC, WHO/SEARO Nomination of Chairman, Co-chairmen and Rapporteur Administrative announcements – Dr Chusak Prasittisuk, VBC, WHO/SEARO
09.40 – 10.00	Background of Bill and Melinda Gates Foundation activities on kala-azar elimination - Representative of Global Health Program, Bill and Melinda Gates Foundation
10.00 – 10.30	Group photograph followed by Tea/coffee Session II – Regional Strategic Framework for Kala-azar Elimination Programme Moderator: CDS/SEARO
10.30 – 10.45	Rationale for kala-azar elimination programme in SEA countries – Dr Chusak Prasittisuk
10.45 – 11.30	Regional strategic framework for kala azar elimination – Dr Vijay Kumar, WHO Temporary Adviser
11.30 – 12.15	Discussions

12.15 – 12.30	Summary of discussions
12.30 – 13.30	Lunch break
	Session III – Review of Regional Strategies for Kala-azar Elimination
	Moderator: Prof. N.K. Ganguly, Chairman, RTAG Kala-azar
13.30 – 14.00	1) <i>Early diagnosis and complete treatment</i> a) Diagnosis of kala-azar – Dr Sujit K Bhattacharya, Member, RTAG
14.00 – 14.15	Discussions
14.15 – 14.30	Summary of discussions
14.30 – 15.00	b) Complete treatment of kala-azar– Dr Sujit K Bhattacharya, Member, RTAG
5.00 – 15.15	Tea/coffee
15.15 – 16.00	Discussions
16.00 – 1630	Summary of discussions
16.30 – 1700	Meeting of the WHO Secretariat

Tuesday, 30 August 2005

08.30 – 09.00	2) <i>Vector surveillance and Control</i> – Mr N.L. Kalra, WHO Temporary Adviser
09.00 – 09.15	Discussions
09.15 – 09.30	Summary of discussions
09.30 – 10.00	3) <i>Disease surveillance</i> Kala-azar surveillance and reporting – Dr Manas Kumar Banerjee (Nepal) (Member, RTAG)
10.00 – 10.15	Discussions
10.15 – 10.30	Summary of discussions
10.30 – 10.45	Tea/coffee break
10.45 – 11.15	4) <i>Monitoring and Evaluation</i> Monitoring and Evaluation – Key indicators Dr Vijay Kumar, WHO Temporary Adviser
11.15 – 11.30	Discussions
11.30 – 11.45	Summary of discussions

11.45 – 12.15	5) <i>Communication for Behavioural Change – Communication for Behavioural Impact</i> Dr Ashok P. Sharma, NPO, WR Office, Nepal
12.15 – 12.30	Discussions
12.30 – 12.45	Summary of discussions
12.45 – 14.00	Lunch
14.00 – 14.30	6) <i>Operational and Clinical Research</i> Research issues, implementation and clinical research to support elimination programme – Prof NK Ganguly, Chairman, RTAG
14.30 – 14.45	Discussions
14.45 – 15.00	Summary of discussions
15.00 – 15.15	Tea/Coffee
	Session IV – National plan to eliminate kala-azar Moderator: Dr Chusak Prasittisuk, VBC/SEARO
15.15 – 15.45	Bangladesh – Infrastructure and national plan – Programme Manager from Bangladesh
15.45 – 16.00	Discussions
16.00 – 16.30	India –Infrastructure and national plan – Programme Manager from India
16.30 – 16.45	Discussions
16.45 – 17.00	Summary of discussions
17.00 – 17.30	Meeting of the WHO Secretariat

Wednesday, 31 August 2005

Session IV – Continued

08.30 – 09.00	Nepal – Infrastructure and national plan – Programme Manager from Nepal
09.00 – 09.15	Discussions
09.15 – 09.30	Summary of discussions
09.30 – 10.00	Operational plan and road-map – Dr. Vijay Kumar (WHO Temporary Adviser)
10.00 –10.15	Discussions

10.00 – 10.15	Summary of discussions
10.30 – 10.45	Tea/coffee
	Session V – Regional Alliance – Moderator: Dr. Robert Ridley, Director, TDR/HQ
10.45 – 11.30	Discussion on regional alliance and partnership for elimination of kala-azar – Prof. C P Thakur, Member, RTAG
11.30 – 12.30	Drafting group work on conclusion and recommendations
12.30 – 13.00	Lunch
	Session VI – Conclusion and recommendations – Moderator: Prof. N K Ganguly, Chairman, RTAG
13.00 – 15.00	Presentation of the recommendations – Chairman/Rapporteur
1500 – 1530	Session VII – Closing session