1. Title of Research and Development： Japanese Technical Cooperation Project for Research and Development of Prevention and Diagnosis for Neglected Tropical Diseases (NTDs), especially for Kala-azar
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4. Results of Research and Development: Refer to Next page

Kala-azar (KA), also known as visceral leishmaniasis (VL) or black fever, is the number one paracytic killer in NTDs. Ninety percent of those cases are taking place in Indian sub-continent and East-Africa. VL is a vector-borne communicable disease that accounts for an estimated 500,000 cases annually in all over the world before the launch of SATREPS. Leishmaniasis is a zoonotic disease communicable by a miniature vector, namely sandfly. The victim of VL is younger in age from lower income family and often suffers for a long period of time. The negative socio-economic impact of the disease is enormous in those countries. Memorandum of Understanding was signed by the ministers of health of India, Bangladesh and Nepal, and the Southeast Asian Regional Office of the World Health Organization during the 2005 World Health Assembly to eliminate VL over a targeted period of 2005 – 2015. The document described a specific aim to decrease the incidence of VL below 1 case per 10,000 in VL-endemic areas by 2015 from the current level of incidence 25 cases per 10,000. Bangladesh fell behind that schedule. SATREPS, with the collaboration of DNDi and icddr,b, settled SKKRC (Surya Kanta Kala-azar Research Centre) at the forefront of VL based on the request from Bangladesh government to the promotion of official developmental assistance. Appurtenances such as Biochemistry Analyzer, a hemocytometer, pure water supplier, ultrasonographies, microscopes, autoclaves, and generators were installed for clinical practices. Equipment such as RealTime PCR, ELISA plate readers, centrifuges, refrigerators, deep freezers, culture system for Leishmania parasites, and so on were installed for clinical researches. SATREPS demonstrated a capture procedure of vectors, examined vector preferences, sensitization to permethrin etc, and implementation of Olyset Net to sandfly in the limited area approved for investigation. SATREPS increased diagnostic accuracy of VL in SKKRC by teaching proper use of the machines and introducing new technologies. GIS analysis clarified that the focal points which covers 80% of VL are limited to less than 10% of 933 villages in endemic area. Urine anti-Leishmania antibody exams at elementary schools successfully detected the difference of VL disease burden at focal points and further discriminated microfocus at the focal point. As an efficient tool for VL eradication, further elaboration is necessary to achieve the technical transfer. It is reportedly known that the catalytic site structure of mitochondrial respiratory chain complex II in trypanosomatid is different from human. This site is the target of pharmaceutical development. SATREPS researchers determined the same findings in Leishmania and found promising chemical compounds to VL treatment. The prospective use of UMIN registration system identified potential long-term side effects of certain prescription to VL and PKDL. SKKRC is actively receiving VL cases, and currently treating more than 70% of VL. It is now acknowledged by the Bangladesh government as a sustainable mission.