During about 20 years from 1982 to date, we made an intensive investigation on leishmaniasis in South and Central Americas, especially in Ecuador. The research project was supported at the early phase by JICA, and then supported by the Ministry of Education, Science, Culture and Sports, Japan. Such a long term financial support has been playing the role of driving force to disclose the bio-medical features of New World leishmaniasis. In the project, an intensive study has been done, in order to get information on the disease and its transmission, from multidisciplinary points of view. The aim of project at the early phase was to consider a suitable control measure, by disclosing transmission mechanisms of the disease in each endemic area of Ecuador. By performing country-wide epidemiological surveys, factors relating to the transmission of leishmaniasis, such as the causative agents (6 Leishmania spp.): \( L.(L.) \) mexicana, \( L.(L.) \) amazonensis, \( L.(L.) \) major-like, \( L.(V.) \) braziliensis, \( L.(V.) \) panamensis, \( L.(V.) \) guyanensis, the vector sandflies (4 Lutzomyia spp.): \( Lu. \) hartmanni, \( Lu. \) trapidoi, \( Lu. \) gomezi and \( Lu. \) ayacuchensis, and the reservoir hosts (8 spp. of mammals): anteaters, sloths (2 spp.), squirrels (2 spp.), kinkajous, rats and dogs, have been known at different endemic areas of Ecuador. \( L.(V.) \) equatorensis from arboreal mammals (sloth and squirrel) was described as a new species, with no human cases. Andean type of leishmaniasis was reported for the first time in Ecuador; the disease form is very similar to Peruvian uta, but the causative agents and vector sandflies are completely different. We tried to search for suitable drugs and treatments of the disease, which would be effective and easily applicable at field conditions; several ointments, lotions and oral drugs such as antimalarials were found to be effective and useful. Furthermore, comparative study was made to have a suitable sampling method applicable for molecular techniques, such as PCR diagnosis. Besides, in the talk several experiences were mentioned, demonstrating cases we face to the problems at field surveys, taking blood samples, skin-testing and etc.