

Control and Elimination of Five Neglected Diseases in Latin America and the Caribbean, 2010 - 2015

Analysis of Progress, Priorities and Lines of Action for Lymphatic filariasis, Schistosomiasis, Onchocerciasis, Trachoma and Soil-transmitted helminthiases



**Pan American
Health
Organization**



Regional Office of the
World Health Organization

Pan American Health Organization
Communicable Disease Prevention and Control Project

“Control and Elimination of Five Neglected Diseases in Latin America and the Caribbean, 2010 – 2015. Analysis of Progress, Priorities and Lines of Action for Lymphatic filariasis, Schistosomiasis, Onchocerciasis, Trachoma and Soil-transmitted helminthiases”
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1. Neglected infectious diseases in Latin America and the Caribbean
2. Approach to inter-sectoral and inter-programmatic actions to control and eliminate NIDs in LAC
3. Panorama, needs and opportunities for control and elimination of NIDs
4. Strategic actions 2010-2015 for PAHO’s support to Member States to control and/or eliminate NIDs in LAC

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Recommended citation: Ault SK, Saboyá MI, Nicholls RS, Requejo RH. Control and Elimination of Five Neglected Diseases in Latin America and the Caribbean, 2010 – 2015. Analysis of Progress, Priorities and Lines of Action for Lymphatic filariasis, Schistosomiasis, Onchocerciasis, Trachoma and Soil-transmitted helminthiases. Pan American Health Organization: Washington D.C., 2010.

Executive Summary

In the framework of CD49.R19 Resolution which expresses the commitment of PAHO's Member States to achieve the elimination or reduction of neglected diseases and other infectious diseases (NID) to certain levels such as they are no longer considered public health problems in 2015, a qualitative analysis of gaps and needs in technical cooperation is presented in order to make progress towards the elimination goals for onchocerciasis, schistosomiasis, trachoma, lymphatic filariasis (LF) and soil-transmitted helminthiasis (STH) for 33 countries in Latin America and the Caribbean (LAC).

As a result of the analysis, countries were classified and prioritized into four groups:

- Group 1:** This group concentrates the majority of population at risk for the main NIDs. These countries have 66.8% and 67.4% of Pre-school age children (Pre-SAC) and school age children (SAC) population at risk in LAC for soil-transmitted helminthes (STH). Four countries have foci of onchocerciasis with 421,000 people at risk. Three countries have foci of schistosomiasis with nearly 25 million people at risk. Three countries have foci of trachoma with 50 million people live in risk areas and four countries have foci of lymphatic filariasis with more than 9 million people at risk. This group includes countries working to eliminate onchocerciasis, LF and trachoma, one with the possibility to eliminate schistosomiasis; Suriname is expecting validation of lymphatic filariasis elimination. This group needs technical cooperation to develop and implement integrated, inter-programmatic and inter-sectoral plans to combat NIDs including STH.
- Group 2:** This group has 26.8% and 26.1% of PreSAC and SAC population at risk for STH in LAC. Two countries have foci of onchocerciasis with 115,070 people at risk. One country has foci of schistosomiasis. There is no evidence of lymphatic filariasis in this group. In 2010 an article showing clinical evidence of trachoma in an indigenous community in Colombia (cases found in 2007) was published. This group includes countries also eliminating onchocerciasis and targeting schistosomiasis. These countries need technical cooperation to improve current inter-programmatic and inter-sectoral coordination and include STH into NID integrated actions.
- Group 3:** This group has 5.4% of PreSAC and SAC population at risk for STH in LAC. There is no evidence of presence of onchocerciasis, schistosomiasis, trachoma and lymphatic filariasis. These countries need technical cooperation to focus activities for NIDs at local level and rural areas, with emphasis on STH.

Group 4: This group has 1.03% and 1.09% of PreSAC and SAC population at risk for STH in LAC. There is no evidence of presence of onchocerciasis, schistosomiasis, trachoma and lymphatic filariasis. These countries need technical cooperation on monitoring and evaluation. Costa Rica and Trinidad and Tobago are expecting validation of lymphatic filariasis elimination.

The purpose of this classification is to define the nature of technical cooperation that each group requires in order to focus resources. It is important to note that if actions were focused on Groups 1 and 2, the following groups could be reached:

- 84.5 million of people at risk for four diseases, i.e., onchocerciasis, schistosomiasis, lymphatic filariasis and trachoma; and,
- 94% (12,088,816) of pre-school age (PreSAC) and 93.5% (29,927,933) of school-age children (SAC) population at risk for soil-transmitted helminths (STH) in LAC could be reached with deworming activities (Table 3).

Group 1 includes Bolivia, Brazil, Dominican Republic, Ecuador, Guatemala, Guyana, Haiti, Mexico, Peru, Saint Lucia and Suriname (Table 1). Its main features are: 1) these countries have the majority of foci of schistosomiasis, onchocerciasis, trachoma or lymphatic filariasis in LAC; 2) as a group they have the best information about deworming coverage for STH; 3) together these countries have 66.8% and 67.4% of the total Pre-School Age Children (Pre-SAC) and School Age Children (SAC) populations at risk for STH in LAC; 4) deworming is mainly done in SAC and 82% of countries reported data between 2005 and 2009; 4) since 2005, Non-Government Organizations (NGOs), Faith-based Organizations (FBOs) and other collaborators were responsible for approximately 16.8% of deworming activities, both for Pre-SAC and SAC.

Table 1. Diseases, foci, population at risk and treatment coverage in Group 1 countries.

Diseases in countries of Group 1	Foci	Population at risk	Treatment coverage
Onchocerciasis	This group has 9 of 13 onchocerciasis foci in LAC: Brazil (1), Ecuador (1), Guatemala (4) and Mexico (3)	421,000 people	Second Round 2009: Brazil 89%; Guatemala 93%; Mexico 93%; Ecuador 96%;
	Transmission interrupted in 6 foci: Mexico (2), Guatemala (3), Ecuador (1)		

Diseases in countries of Group 1	Foci	Population at risk	Treatment coverage
Lymphatic filariasis	This group has all of the lymphatic filariasis foci: Brazil, Dominican Republic, Haiti and Guyana. Suriname is expecting validation of elimination.	More than 9 million people	MDA in 2009: Haiti 3 million people treated; Brazil 177,000; Guyana: 129,189; Dominican Republic has not carried out MDA for LF since 2007
Schistosomiasis	Foci in 3 countries: Brazil, Suriname and Saint Lucia. Transmission suspected in Dominican Republic	Nearly 25 million people at risk	Treatment coverage: Brazil 83% cases treated of cases detected; 21 cases were treated on 2009 in Suriname.
Trachoma	Foci in Brazil, Guatemala and Mexico	50 million people live in risk areas	No data available

Group 2 includes Belize, Colombia, El Salvador, Honduras, Panama and Venezuela (Table 2). The main features of this group are: 1) only Colombia and Venezuela have onchocerciasis foci and transmission of schistosomiasis occurs only in Venezuela; 2) these countries have important information about deworming coverage for STH; 3) together these countries have 26.8% and 26.1% of the total Pre-SAC and SAC populations at risk for STH in LAC, 3) the deworming is mainly done in SAC; 4) since 2005 NGOs, FBOs and other collaborators have been responsible for half of deworming activities (52,7%). This group of countries would benefit from technical cooperation to improve current inter-programmatic and inter-sectoral coordination and include STH into NID integrated actions.

The difference between groups 1 and 2 is the number of foci of onchocerciasis, schistosomiasis, trachoma and lymphatic filariasis and the high number and concentration of PreSAC and SAC population at risk. Group 1 has foci for all four diseases and group 2 only has onchocerciasis and schistosomiasis foci. Besides, group 1 has on average 66% of PreSAC and SAC population and group 2 has 26%. Both groups have countries with NIDs targeted for elimination.

Table 2. Diseases, foci, population at risk and treatment coverage in Group 2 countries.

Diseases in Group 2	Foci	Population at risk	Treatment coverage
Onchocerciasis	This group has the remaining 4 of the 13 foci of onchocerciasis in LAC: Colombia (1) and Venezuela (3)	115,070 people at risk	Second Round 2009: Venezuela South focus 85%, Northeast focus 95%, North – central focus 99%. The Colombian focus is in post-treatment surveillance.
	Transmission interrupted in Colombia focus		
Schistosomiasis	Foci in Venezuela	No data available	No data available

Group 3 includes Nicaragua, Argentina and Paraguay, countries that need technical cooperation to focus activities for NID control at local and rural areas. These countries have 5.4% of PreSAC and SAC population at risk of STH and there are no foci of schistosomiasis, onchocerciasis, trachoma or lymphatic filariasis. However, the Chaco area that includes neighboring parts of Argentina, Paraguay and Bolivia (this country belongs to Group 1) needs to complete mapping and an integrated action plan for NID control.

Group 4 includes Antigua and Barbuda, Bahamas, Barbados, Chile, Costa Rica, Cuba, Dominica, Granada, Jamaica, Trinidad and Tobago, Uruguay, Saint Kitts and Nevis and Saint Vincent and Grenadines. These countries require technical cooperation for monitoring and evaluation in order to advance on STH control. They have no active transmission of any the other four diseases.

Most of these countries have no updated results of nationwide surveys of prevalence and intensity of infection of STH. Groups 1 and 2 have the greatest gaps in sanitation coverage and a clear opportunity to integrate intersectoral and inter-programmatic actions for integrated NID control, in the framework of primary health care systems and addressing the social determinants of health.

Table 3. Pre-Sac and SAC population at risk for soil-transmitted helminths in LAC, 2009.

Group of countries	PreSAC at risk of STH		SAC at risk of STH	
	Number	Percentage	Number	Percentage
1	8,630,605	66.8%	21,569,079	67.4%
2	3,458,211	26.8%	8,358,854	26.1%
3	697,895	5.4%	1,727,941	5.4%
4	130,844	1.01%	349,341	1.09%
TOTAL	12,917,455	100%	32,005,215	100%

Moreover, there is an opportunity to focus actions in the Chaco area (Group 3) which is shared by three countries where needs converge in a population with high rates of poverty, barriers in access to health services, low coverage of drinking water and proper sanitation services, and which is also a region of interest to implement local strategies. The experience in Nicaragua, which has linked deworming with the expanded program of immunization, is an opportunity to share lessons learned with other countries in Central and South America, in order to reach progress on inter-programmatic actions.

Although countries in Group 4 do not have large gaps on sanitation coverage and do not have onchocerciasis, schistosomiasis, trachoma and lymphatic filariasis foci, it is necessary to promote monitoring and evaluation of STH prevalence and of deworming coverage. Validation of lymphatic filariasis elimination in Costa Rica and Trinidad and Tobago must be achieved.

In the framework of the main challenges in LAC to reach the goals for control and elimination of NIDs it is necessary:

- To advance Integrated Plans for elimination and control of NIDs
- To advance mapping and re-mapping at first and second national level in selected countries: technical and financial resources
- Monitoring and evaluation of regional goals
- To integrate or articulate inter-programmatic and inter-sectoral actions where feasible: IMCI, EPI, water and sanitation, housing programs, healthy schools
- Advocacy with Ministries of Health, Education and other Ministries to focus on social determinants as well as control and elimination
- Maintain and strengthen partnerships: LAC Trust Fund, regional and country initiatives
- To mobilize financial resources for NID control or elimination in LAC in the face of a bigger burden disease in the African Region
- To establish a systematic process of knowledge generation in order to share evidence and lessons learned.

- To develop processes and tools for validation/certification of NID elimination to apply in LAC.

The financial resources needed for 2010-2015, in order to push the NID Agenda in LAC, are focused on:

- 1) Advocacy and resources mobilization
- 2) Formulate integrated national and sub-national action plans, including operational research.
- 3) Mapping and re-mapping (including new baseline or follow-up parasitological/disease burden studies), and
- 4) Strengthening epidemiological surveillance system information

It is estimated that to promote the NID Agenda at national and sub-national level for 2010-2015 (just for advocacy and seed resources), in order to reach the goals set in Resolution CD49.R19 it is necessary to allocate US \$ 7.5 million (Table 4). This figure does not include the cost of implementation of actions in each country.

Table 4. NTD Strategic Plan: Costs to promote the achievement of goals, 2010-2015

Action line		First year	Second year	Third year	Fourth year	Fifth year	Total per line
1	Advocacy and resource mobilization	\$315.000	\$225.000	\$315.000	\$255.000	\$375.000	\$1.445.000
2	Integrated national and sub-national action plans	\$875.500	\$925.000	\$875.000	\$655.000	\$715.000	\$4.022.500
3	Mapping and re-mapping (including new baseline or follow-up parasitological/disease burden studies)	\$335.000	\$345.000	\$375.000	\$175.000	\$25.000	\$1.255.000
4	Strengthening epidemiological surveillance and information systems	\$50.000	\$300.000	\$160.000	\$160.000	\$165.000	\$835.000
TOTAL		\$1.557.500	\$1.795.000	\$1.725.000	\$1.205.000	\$1.275.000	\$7.557.500

Control and Elimination of Five Neglected Diseases in Latin America and the Caribbean 2010 – 2015: Analysis of Progress, Priorities and Lines of Action for Lymphatic filariasis, Schistosomiasis, Onchocerciasis, Trachoma and Soil-transmitted helminthiases

Introduction

This paper presents an analysis of the main needs and priorities for control and elimination of NIDs (Neglected Infectious Diseases) in countries from Latin America and the Caribbean (LAC), in the context of PAHO's contribution towards goals of Resolution CD49.R19 for the elimination of neglected diseases and other poverty-related infections and the development of a Regional Trust Fund for Neglected Infectious Diseases.

Thirty three countries were included in this analysis, and these countries were classified into 4 groups according to the information about prevalence of soil-transmitted helminthiases (STH), onchocerciasis, lymphatic filariasis, schistosomiasis, trachoma, and of deworming and mass drug administration (MDA) coverage. The current inter-programmatic actions and known partners working on deworming were also analyzed. Information was obtained from data reported by countries, from PAHO's 2009 "Epidemiological Profiles of Neglected Diseases and Other Infections Related to Poverty in Latin America and the Caribbean", from the Country Cooperation Strategy¹, from actions reported by the Vaccination Week in the Americas, and from data about deworming reported by Non-Government Organizations (NGOs) and Faith-Based Organizations (FBOs). The population data were obtained from the United Nations.

The purpose of this analysis is to offer a path to develop advocacy, mobilize resources and choose activities in countries according to their profile, to control and eliminate the NIDs, and in accordance with PAHO's Resolution CD49.R19 approved by the Directing Council on October 2, 2009.

¹ The Country Cooperation Strategy (CCS) reflects a medium-term vision of the Pan American Health Organization/World Health Organization for its cooperation with a country and defines a strategic framework to work based on the achievement of results. The time frame is generally 4-6 years. The CCS is the framework for PAHO/WHO cooperation concerted with each country, highlighting what PAHO/WHO will do, how it will do it and with whom. It clarifies the proposed roles and functions of PAHO/WHO in supporting National Health Development.

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1. Neglected infectious diseases in Latin America and the Caribbean

1.1. Context

In the framework of the Global Plan to Combat Neglected Tropical Diseases 2008-2015 (WHO 2007), neglected tropical diseases (NTDs) and zoonoses are a devastating obstacle to human settlement and the socioeconomic development of already impoverished communities. A growing body of evidence demonstrates that control of these diseases can contribute directly to achievement of several Millennium Development Goals (MDG). Interventions against NTDs and zoonoses have already benefited millions of people, protecting them from physical pain, disability and poverty².

Most of the NTDs affect almost exclusively poor and marginalized populations living in settings where poverty is widespread and where resources, or access to livelihood opportunities, are scarce. These diseases have an enormous impact on individuals, families and entire communities in developing countries in terms of the burden of disease, loss of productivity, aggravation of poverty and the high cost of long-term care. They hinder socioeconomic development in endemic countries and affect the quality of life at all levels.³

About 582 million people live in Latin America and the Caribbean, 78.8% in urban areas, and have a life expectancy at birth of 73.5 years⁴. Some 127 million people live in a state of poverty (income under two dollars per day), and 50 million in extreme poverty (income under one dollar per day). The majority of these people—including traditionally vulnerable groups such as indigenous populations, rural inhabitants, the elderly and impoverished women and children—live in conditions that favor a greater burden of disease.⁵ The population using improved sources of drinking water in 2006 was 91% and those using improved sanitation facilities only 78% (Table 1).

² WHO. Global Plan to Combat Neglected Tropical Diseases 2008-2015. Geneva, 2007. WHO/CDS/NTD/2007.3

³ *Ibídem*

⁴ PAHO. Situación de salud en las Américas. Indicadores básicos 2009.

⁵ PAHO. Epidemiological profiles of neglected diseases and other infections related to poverty in Latin America and the Caribbean.

Table 1. Socio-economic indicators in LAC

Socio-economic indicators	Data	Year
Literate population (Total 15+ years old) (Total in %)	89.9%	1999-2005
Gross National Income (US\$ per capita PPA value)	9,787	2007
Population using improved sources of drinking water (total in %)	91%	2006
Population using improved sanitation facilities (total in %)	78%	2006

Source: PAHO. Health Situation in the Americas, Basic Indicators, 2009

The importance of neglected diseases and others related to poverty is evident when seeking to improve health and living conditions in the Americas by reducing the burden of infectious diseases. In order to better control or eliminate these diseases, a collective effort is necessary not only within PAHO/WHO but this also must be accompanied by strong political commitment from the Member States as well as commitment of stakeholders and partners from different sectors and types of organizations, and participation of affected communities.

A number of these diseases exist with high possibilities for achieving their reduction to levels that no longer represent a public health problem—a reason that merits additional efforts to reach their elimination. The availability of new technologies and strategies and the improvement of the health service infrastructure—particularly rising support for primary care—make their control and eventual elimination feasible. The goal of eliminating or achieving a significant reduction of neglected diseases by 2015, at the regional, sub-regional and country levels was mentioned by Dr. Mirta Roses on February 2008 in her inaugural speech at the beginning of her second mandate as Director of PAHO. Since that time, a series of efforts have been stepped up in the Americas Region in order to advance actions to strengthen the fight against NIDs.

In June 2008 the Bill and Melinda Gates Foundation held a stakeholders meeting in Seattle and reached an agreement with PAHO, the Global Network for Neglected Tropical Diseases (Global Network), a major initiative of the Sabin Vaccine Institute, and the Inter-American Development Bank (IADB) to develop a regional initiative for the prevention, control and elimination of neglected diseases and other infectious diseases (NID) associated with poverty in Latin America and the Caribbean. The initiative and partnership, including the LAC Trust Fund, is being supported in part by a grant from the Bill & Melinda Gates Foundation awarded to the Global Network.

In this context in December 2008 a forum was held at PAHO headquarters to discuss with Member States, partners and stakeholders the establishment of a LAC Trust Fund

as an innovative model or tool within the partnership that would seek to pool public and private resources, as well as those from individual philanthropists and other benefactors, to support cost-effective neglected infectious disease (NID) prevention, control and elimination efforts, in order to reduce inequities in health by serving the poorest of the poor in the Region, in full collaboration with the countries, partners and stakeholders. The forum also discussed the feasibility of a comprehensive approach to combating neglected infectious diseases supporting a combination of interventions including preventive chemotherapy, technical cooperation to improve health information systems, and disease control and elimination programs, liaising with other sectors towards integrated vector management and disease prevention.

The primary objectives of the Trust Fund are:

- Rapidly increase the impact of health interventions to control and eliminate the NID through mass drug administration (MDA) as preventive therapy and other public health interventions integrated into primary health care;
- Support the strengthening of national and local health systems in order to integrate prevention and control of NID in primary health care; this includes mapping and re-mapping of NID (especially areas where they overlap or "hot spots"); and,
- Drive the integration of sectoral and inter-sectoral approaches to NID prevention and control efforts in order to combat the root causes and the Social Determinants of Health of the NIDs, mainly vector control, education, social mobilization, water supply, sanitation and environmental management.

Since 2009, PAHO, the IADB and the Global Network have been working to create a LAC Trust Fund to support country-level elimination of NIDs, as well as for the comprehensive implementation of two pilot demonstration projects of integrated control of NIDs in Chiapas, Mexico, and in Recife, Brazil.

On October 2009 PAHO's Directing Council approved Resolution CD49.R19 which expresses the commitment for the elimination or reduction of neglected diseases and other infectious diseases to certain levels such as these diseases are no longer considered public health problems by the year 2015, and help to achieve MDG 1 and MDG 6 on health, amongst other MDGs. Within this framework, PAHO's main mandates are: 1) advocacy and active mobilization of resources, 2) provide technical cooperation to the countries, 3) promote the use of evidence-based interventions, 4) promote implementation of guidelines, 5) promote research and scientific development, 6) support health surveillance systems and primary health care, 7) strengthen cross-border collaboration between countries and 8) continue to support and strengthen the mechanisms for acquiring medicines⁶.

⁶ PAHO. Resolution CD49.R19. Elimination of neglected diseases and other poverty - related infections. October 2009.

In the PAHO Resolution two groups of NIDs were defined: Group 1: Diseases that have a greater potential for being eliminated with available cost-effective interventions (Chagas disease, congenital syphilis, human rabies transmitted by dogs, leprosy, lymphatic filariasis, malaria, neonatal tetanus, onchocerciasis, plague and trachoma) and Group 2: Diseases whose prevalence can be drastically reduced with available cost-effective interventions (schistosomiasis, soil-transmitted helminthiases).

In this framework, PAHO and partners in the Trust Fund, in a first phase of work, is supported the control and elimination of lymphatic filariasis, onchocerciasis, schistosomiasis, soil-transmitted helminthiases and trachoma as a window of opportunity to integrate actions with other neglected infectious diseases, other health programs, other sector (water and sanitation) at national, sub-national and local level to reach the elimination goals.

1.2. LAC burden of neglected infectious diseases

A summary of the situation for each of the diseases included in Resolution CD49.R19 (2009) follows.

Chagas Disease: Vector-borne transmission by the main vectors has been interrupted in all or part of 10 countries in the Region, and there has been a decrease in domestic infestation rates in the other endemic countries. Outbreaks of food-borne acute Chagas disease have increased. Eighteen countries have universal screening for Chagas disease in blood banks. Prenatal diagnosis of maternal infection for appropriate diagnosis and treatment of newborns infected through the placenta has also increased. Sub-regional Initiatives for the Prevention, Control and Treatment of Chagas Disease (Southern Cone (INCOSUR), Central America (IPCA), Andean (IPA), Amazon (AMCHA) and Mexico) continue, with coordination with other agencies and partners such as AECID, JICA, CIDA, IADB and IDRC.

Congenital syphilis: In 2009, PAHO and other partners launched the "Regional Initiative for the Elimination of mother to infant transmission of HIV and congenital syphilis in Latin America and the Caribbean", which aims to increase to over 95% coverage of prenatal and delivery health care, screening for syphilis and HIV in pregnant women, HIV prophylaxis and treatment of syphilis in pregnant women and children, and integration with other health services. The technical framework of the Regional Initiative: concept paper, clinical guideline and monitoring and evaluation document have been recently completed.

Human rabies transmitted by dogs: The elimination of human rabies transmitted by dogs is a contribution to health security that member states are achieving with support from PAHO / WHO. There were 268 cases of human rabies in 1983 and just 16 in 2009 (10 due to dog aggression). In 2009 and 2010 endemic countries have implemented measures recommended in the regional evaluation of national programs led by PAHO

(December 2008). Some achievements are: In Haiti and Dominican Republic 400,000 and 1.5 million dogs were vaccinated, respectively (Vaccines donated by Brazil); however there are factors of insecurity exacerbated by the earthquake in Haiti. In Bolivia, PAHO/WHO supported the national program to cut in half the cases of human and canine rabies.

Leprosy: In 27 countries leprosy (Hansen's disease) has been present in the past three years. Only in Brazil, the national prevalence did not reach the goal of "elimination as a public health problem" (less than one case per 10,000 people). In 2009 48,432 cases, 39,398 new ones, 2,513 of them with grade 2 disability, were reported in the Americas (6% of the total reported in the Americas).

Lymphatic filariasis: More than 9 million people remain at risk for lymphatic filariasis in the Region, with the highest proportion living in Haiti. The January 2010 earthquake in Haiti and the Dominican Republic has complicated the timely delivery of medicines. A meeting convened by PAHO in February 2010 with international partners created solidarity in support of Haiti to continue the work and reach the elimination goal. The remaining foci of filariasis in Brazil, Dominican Republic and Guyana are intensifying their efforts to eliminate it. Costa Rica, Suriname and Trinidad and Tobago are expecting validation of LF elimination.

Malaria: The continued reduction in the number of malaria cases reported in 18 of the 21 malaria endemic countries in the region provides strong evidence that the elimination of malaria transmission is possible at least in some areas. This milestone has been reached in many parts of the region, especially in most of the Caribbean area in recent decades. The Amazon Malaria Initiative has recently expanded to include other countries. Now the elimination of transmission in Haiti and the Dominican Republic, in Mexico and Central America, as well as in Argentina and Paraguay, is considered feasible.

Neonatal tetanus: It has been eliminated as a public health program in all Latin American countries, with the exception of Haiti which has reported between 50% - 60% of all reported cases during the last 5 years. The vaccination activities conducted in 2009 and 2010, after the earthquake, include tetanus toxoid for women of child bearing age.

Onchocerciasis: Transmission has been interrupted in seven of the 13 known foci: two in Mexico, three in Guatemala and in each of the single foci of Colombia and Ecuador, which are in post-treatment surveillance. In 3 of the 6 remaining foci the transmission could be interrupted in 2010 or 2011.

Trachoma: There is evidence of trachoma in Brazil, Guatemala and Mexico. Approximately 7,000 cases have been identified, mainly in Brazil. Recently clinical evidence of trachoma in an indigenous community in Colombia was published. PAHO/WHO is promoting mapping activities at the municipal and community levels and

the definition of comprehensive plans for implementation of the SAFE strategy in Brazil, Mexico and Guatemala. Strategic alliances are being pursued with institutions, universities, NGOs/FBOs and donors to support comprehensive plans for elimination of trachoma in Guatemala and Brazil.

Schistosomiasis: There is transmission of schistosomiasis in four countries in the Region, Brazil, Saint Lucia, Suriname and Venezuela, with a total of 25 million people at risk, most of them in Brazil. The mapping of the transmission has to be completed, except in Brazil. In 2009, PAHO supported the development of a protocol for a national survey of prevalence and intensity of helminths infection and schistosomiasis in Suriname, which was completed in October 2010. Survey design is underway for Saint Lucia and Venezuela is preparing to start a program.

Soil-transmitted helminthiases: PAHO estimates that there are in the region 13 million of preschool age children and 33 million school-age children at high risk of soil-transmitted helminths infection and morbidity due to lack of basic sanitation. In recent years there has been an overall increase in annual deworming coverage in the region. In 2009 4,805,522 preschool age and 37,430,165 school-age children received deworming at least once a year per data reported.

Plague: The disease is present in wild foci in 5 countries with sporadic cases: Bolivia (no reported cases during last 10 years), Brazil, Ecuador, Peru and United States. Currently the number of cases throughout Latin America is low (around 12 cases per year); most of the cases reported are in Peru; very few are fatal; the cases usually occur in small rural villages with extreme poverty.

2. Approach to inter-sectoral and inter-programmatic actions to control and eliminate NIDs in LAC

2.1. General context of integration

Integration can be understood as implementing various supporting actions for each neglected disease or condition or group of NIDs depending on the specific needs of each country and population at risk. These consist of both supporting actions from within the health sector, as well as from those interested parties and stakeholders which are normally outside the health sector (Figure 1).

Work with other sectors should be done in the context of promotion of socioeconomic development and employment, environmental sustainability, risk reduction and combating poverty. Interventions for the control or elimination of NIDs are excellent vehicles to address poverty, deprivation, malnutrition and social stigma. However there are few models, particularly public-sector-led models of how this can be done.

In any case to advance an inter-sectoral and inter-programmatic approach to combat the NIDs it is necessary to make progress in structuring integrated plans that allow reaching the goals at national, sub-national, local and community levels. To develop integrated action plans it is necessary to work in two main phases: 1) Information and planning and 2) delivery of services. Although in the present document just five NIDs have been included, the integrated interventions can be done for other diseases or within some already existing programs.

Stakeholders on each level should be identified in the first phase, within the health sector and in other sectors (education, environment, water and sanitation, community leaders, infrastructure, poverty reduction, community development, agriculture and livestock, nutrition, gender, human rights/indigenous peoples' rights, nutrition, etc.). Also, it is necessary to analyze the geographical distribution and overlapping at local and community level of NIDs (mapping of "Hot Spots"). That information should be complemented with information and mapping about social determinants related with NIDs (water, sanitation, housing, malnutrition and unemployment) and that are important in order to know the structural causes which should be addressed on the intervention. This information is relevant to the development of linkages with other sectors, in order to recognize the relation and needs of reliable figures and the real situation.

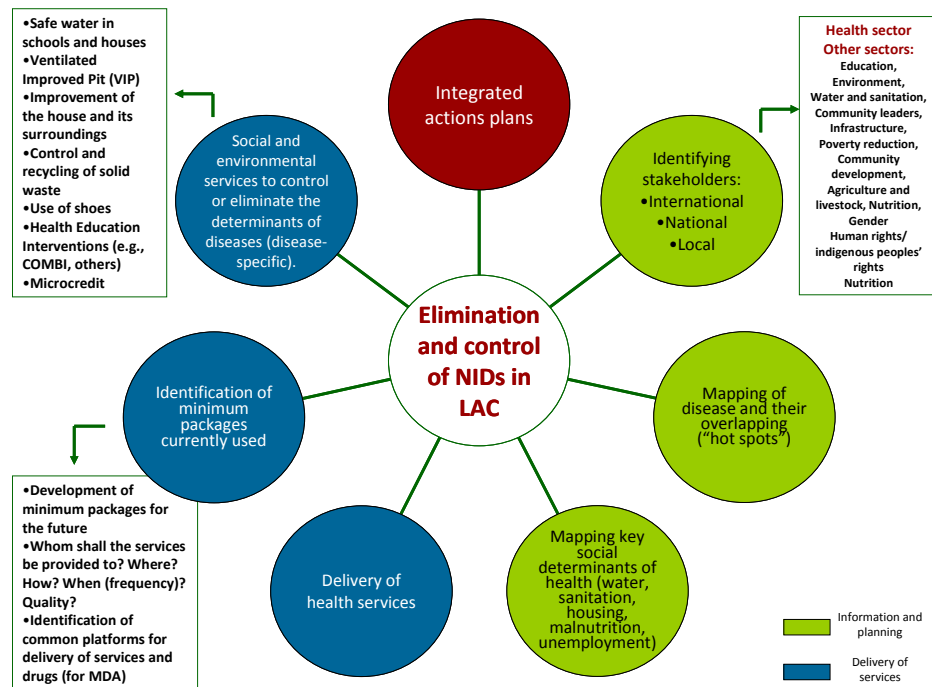


Fig. 1. Approach to inter-sectoral and inter-programmatic actions for the control and eliminate NIDs in LAC.

Once the first phase has been structured, it is possible to advance to the second phase to define the services that should be delivered to the population at a specific level and under specific conditions. These actions require identification of minimum packages currently used, in order to define the development of minimum packages for the *future*. For this purpose, some questions should be answered: Whom shall the services be provided to? Where? How? When (frequency)? Quality?; This will make it possible to identify common platforms, for example, for delivery of services and drugs (for MDA) and to identify delivery of health services and social and environmental services to control or eliminate the social and environmental determinants of diseases (disease-specific): e.g., Safe water in schools and houses, Ventilated Improved Pit (VIP) latrines, well-designed septic tanks or sewerage systems, improvement of the house and its surroundings, collection control and recycling of solid waste, use of shoes or sandals, social communication planning (e.g. COMBI) and health education interventions, microcredit and others.

2.2. Integration as approach in LAC

The integration of actions to combat NIDs may have three approaches based on the particular situation within each of the LAC countries. Although this document has focuses on five NIDs, it is necessary to have a broad vision regarding integration

between these diseases and other programs, health platforms, inter-sectoral actions and key social actors at local level.

Mass Drug Administration: inter-programmatic integration

The first approach is based on mass drug administration in the framework of using drugs in geographical areas where there is overlapping of diseases and it is possible to do massive treatment and to impact in one or two diseases. This is the situation in countries with lymphatic filariasis foci where it is possible to combine treatment for LF (Diethylcarbamazine-DEC) with treatment for STH (Albendazole). This approach reduces costs and improves the treatment coverage to reach populations affected by NIDs. Usually this approach can be implemented in areas with foci of schistosomiasis, onchocerciasis, trachoma and lymphatic filariasis adding treatment for STH. Additionally if foci of two or three NIDs coexist in one area a high number of people can be treated with just a few drugs.

In LAC countries without foci of schistosomiasis, onchocerciasis, trachoma and lymphatic filariasis, it is possible integrate deworming activities for PreSAC and SAC populations through other massive intervention programs as the expanded program immunization-EPI, vitamin A supplementation or nutritional programs, because usually they reach population in mass vaccination days or house to house delivery of nutritional complements/supplements. These programs have trained human resources, financial resources to reach urban and rural communities and are an important window of opportunity to deliver deworming treatment at low costs.

This approach allows for a rapid reduction of the burden of disease with sustainable treatment coverage and to mitigate the suffering due to these diseases, but it is necessary to intervene on the social determinants in order to interrupt the transmission and guarantee reaching the elimination goals.

Integration of actions into health systems in LAC: Primary Health Care

A second approach defines integration as the process by which activities for disease control are merged or strongly coordinated within the context of a multifunctional and integrated health care system. Integration, thus understood, may be more difficult to achieve than co-implementation of some key activities, increasing the accessibility and equity in services⁷. These programs should be part of the health and social systems, in order to reduce dependency on funding cycles⁸.

⁷ Gyapong JO; et al. Integration of control of neglected tropical diseases into health-care systems: challenges and opportunities. *Lancet* 2010; 375: 160–65

⁸ Utzinger J., et al. Schistosomiasis and neglected tropical diseases: towards integrated and sustainable control and a word of caution. *Parasitology*; 136(13): 1859-74, 2009 Nov.

Isolated vertical programs are not compatible with local health systems; do not have sustainability and local ownership. In this framework the mass drug administration involve a considerable workload for health systems in countries where these systems are weak, where there is lack of human resources, poor information and lack of coverage in the poorest communities⁹. Therefore, integrating these activities within the existing systems should be tried as much as possible. Integration should begin to strengthen health systems, which serve as support or base for the delivery of drugs, and other preventive and curative services¹⁰.

Although implementation of disease-specific programs, such as those for lymphatic filariasis and onchocerciasis, without recourse to the general healthcare delivery systems might be beneficial, integration of such programs into mainstream health systems can result in greater efficiency, place the elimination priority in the context of other services, and have more sustainable political and community support. For integration of neglected tropical diseases to be effective, the health system needs to develop beyond the health centres, interventions should be co-implemented, and financial resources should be coordinated through effective plans and budgets at national and district levels¹¹.

The process of integration and co-implementation needs careful planning. Published reports indicate that careful planning and preparation need to precede implementation of the integration process. This stage should include a realistic situation analysis, commitment building, formulation of clear plans for integration, training of health workers, and provision of adequate and timely information to the public¹². Strengthening of primary health-care activities is essential if neglected tropical disease control is to be integrated into the general health service.

Inter-sectoral approach and community participation

There is a third approach, postulating that in addition to the integration within existing health systems, emphasis must be given to inter-sectoral action and social participation. Integration should include work with other sectors such as water supply, housing, sanitation, education and agriculture, together with the need for a preventive environmental approach led by the community. Programs should be based on local health systems. Interventions must be locally adapted based on local priorities and idiosyncrasies, focusing on the neediest, therefore, in addition to the environmental factor, it is necessary to consider the social context and health. This approach promotes

⁹ Ault SK. Intersectoral approaches to neglected diseases. *Ann N Y Acad Sci*; 1136: 64-9, 2008.

¹⁰ PAHO. Bibliographic review to support the development of a guideline for integrated plan to NIDs in LAC. Work document. 2010.

¹¹ Gyapong JO; et al. Integration of control of neglected tropical diseases into health-care systems: challenges and opportunities. *Lancet* 2010; 375: 160–65

¹² PAHO. Bibliographic review to support the development of a guideline for integrated plan to NIDs in LAC. Work document. 2010.

an inter-programmatic and horizontal approach, which addresses the social, economic and environmental factors responsible for the diseases of poverty and calls to consider the social determinants of health.

This approach raises the combination of prevention programs and incorporated into those sectors related to the determinants of disease. This type of approach has the advantage of operating in several diseases simultaneously and is effective; this was the strategy used in industrialized countries such as USA and Japan to eliminate NTD which were once considered as public health problems¹³.

Community participation in all stages of the process to eliminate NIDs is necessary: Identification of priorities and designing of policies and strategies, implementation phase and evaluation: The interventions must be guided by the community to maintain community involvement and should become part of the health services. The success of a program or strategy will depend on the adjustment of structures, beliefs and values of the community, and it is therefore necessary to include all stakeholders, such as religious leaders, healers, etc. Integrated programs have to be adapted to eco-epidemiological and socio-cultural conditions, giving particular attention to the alignment, harmonization and "ownership" of programs¹⁴.

A practical package of inter-sectoral approaches may include the following¹⁵:

- Establishing inter-sectoral technical committees and networks of stakeholders
- Improving water supply and sanitation in high risk communities
- Strengthening links between the communicable diseases and the agricultural and livestock sectors
- Advocacy and communication with at-risk communities and key external stakeholders about the environmental and social determinants of health, security, and poverty
- Community mobilization and participation
- Partnerships
- Environmental education
- Community economic development

Integrated mapping, monitoring and surveillance systems

One of the difficulties to implement and monitor programs and diseases is the lack of information on prevalence and intensity of the most important NIDs, especially at local level. For integrated plans and actions it is important to know the epidemiological profile at subnational level, including risk factors and social determinants that affect

¹³ Ibidem.

¹⁴ Hotez PJ., et al. Rescuing the bottom billion through control of neglected tropical diseases. *Lancet*; 373(9674): 1570-5, 2009 May 2.

¹⁵ Ault SK. Intersectoral approaches to neglected diseases. *Ann N Y Acad Sci*; 1136: 64-9, 2008.

groups of population. Hence local surveys are prerequisite for program integration. These studies are necessary to adjust the programs to each local reality prior to interventions, which is a prerequisite to guarantee the cost-effectiveness^{16, 17}.

Activities also need to integrate mapping, monitoring and surveillance pre and post elimination of NIDs. Each program has its own mechanisms for identifying communities at risk and monitoring the progress of the program. The development of an integrated monitoring and evaluation system could set priorities and include an agreed set of indicators that allow program managers a set of standardized collection of information allowing comparison through the time, between geographical areas and diseases. Also it is necessary to integrate information resources within human and animal public health system, as many human infectious diseases are zoonotic¹⁸.

Further development and the use of rapid methods for mapping, which must be applied to sub-national units, trying to determine overlapping of diseases are needed. Epidemiological data currently use geo-referenced data with spatial statistical analysis and geographic information systems. Progress has been made in the modeling of climate, environmental and socioeconomic data, which allow predicting the presence of disease, using Bayesian geo statistical models.

¹⁶ PAHO. Bibliographic review to support the development of a guideline for integrated plan to NIDs in LAC. Work document. 2010.

¹⁷ Lammie PJ, et al. A blueprint for success: integration of neglected tropical disease control programmes. *Trends Parasitol*; 22(7): 313-21, 2006 Jul.

¹⁸ PAHO. Bibliographic review to support the development of a guideline for integrated plan to NIDs in LAC. Work document. 2010.

3. Panorama, needs and opportunities for control and elimination of NIDs

3.1. Analysis in the Latin American and Caribbean countries

With the support of the Trust Fund it was decided to strengthen work for diseases whose elimination goal was considered achievable in the medium term. The diseases to focus upon in the first phase are lymphatic filariasis, onchocerciasis, schistosomiasis, soil-transmitted helminthiasis and trachoma. The purpose is to establish an integrated approach especially in communities where there is overlapping of some of these 5 diseases as well as other NIDs such as Chagas disease and leishmaniasis. The main lessons learned and challenges in LAC for elimination and control of NIDs and specifically of onchocerciasis, schistosomiasis, lymphatic filariasis, trachoma and soil-transmitted helminthiasis 2009-2010 are presented below:

Lessons learned in LAC for NIDs
PAHO Resolution CD49.R19 has helped with advocacy and fund raising in LAC
Mapping at national and sub-national level supports better decision making, but it is not always an important issue in the countries, therefore advocacy and resource mobilization are necessary to keep these actions in the country Agenda.
Partnership is necessary to reach the regional goals and for fund raising
Tools and procedures for the certification of elimination process are an urgent issue in LAC (LF, Onchocerciasis)
Demonstration projects provide an important opportunity to develop models for integrated plans and interventions.

Challenges in LAC for NIDs
To advance Integrated Plans for elimination and control of NIDs: issue guidelines
To advance mapping and re-mapping at the first and second national levels: technical and financial resources
Monitoring and evaluation of the regional goals
To integrate inter-programmatic and inter-sectoral actions: IMCI, EPI, water and sanitation, housing programs, healthy schools
Advocacy with Ministries of Health and other Ministries to focus on the social determinants of NIDs
Maintain and strengthen partnerships: Trust Fund, regional and country initiatives
Financial resources for LAC vs. bigger burden disease in African Region
Promote community participation as a local approach

Onchocerciasis in LAC

Lessons learned

It is possible to achieve disease elimination with community participation, partnerships and sustained MDA

Post treatment surveillance is as important as the MDA phase, and it requires substantial resources and technical cooperation

Experience with onchocerciasis as a platform to scale-down and eliminate other diseases

Challenges

Achieve interruption of transmission by 2012 in the shared focus of Venezuela and Brazil (Yanomami indigenous population)

To ensure post treatment surveillance in foci where transmission interrupted

Incorporate STH activities in places where transmission has been interrupted

Start the WHO certification of elimination process in Colombia (2011), Ecuador (2013), Guatemala and Mexico (2014), Venezuela and Brazil (2016)

Maintain the operation and resources to achieve goals

Lymphatic filariasis in LAC

Lessons learned

Linking LF and STH is an opportunity to start an integrated approach to NID in Guyana and Haiti

Each country needs a specific approach to link LF activities with an integrated vector management strategy

Technical cooperation is important to maintain LF elimination in the country agenda

Natural disasters and other emergency situations in LAC are a big issue to keep activities ongoing: Haiti earthquake, Guyana MoH fire, Guatemala disaster by Agatha storm in 2010

Challenges

Safeguard gains achieved by MDA

Maintain MDA in Haiti post-earthquake disaster

Guarantee technical cooperation to integrate activities on integrated vector management strategy

To expand link between LF and STH

Accelerate the certification of elimination process for Costa Rica, Suriname and Trinidad and Tobago: guidelines and processes are necessary

Reinforce community activities and expansion of COMBI strategy adapted to LF

Schistosomiasis and STH in LAC

Lessons learned

Mapping SCH and STH jointly as a window of opportunity for decision making and integrated plans at local level

Deworming activities for STH have increased in AMRO and the support of NGOs and FBOs is important

Information systems for deworming and MDA is still an issue

Actions for SAC population deworming have been increasing, but the approach to PreSAC population is still weak

Challenges

Improve MDA and deworming coverage, also epidemiological information systems for monitoring and evaluation (M&E)

Promote joint mapping of SCH, STH and Fasciola

Technical cooperation to integrate inter-programmatic and inter-sectoral actions

Encourage a social determinants approach to achieve goals

Advocacy, partnerships and resources are needed to stimulate STH actions in LAC

Promote the integration of deworming actions with IMCI, EPI, nutrition programs, healthy schools

Incorporation of water and sanitation

Trachoma in LAC

Lessons learned

LAC region has the opportunity to achieve the elimination goal

Foci are identified and mapping and re-mapping is ongoing

Vision 2020 is a framework that promotes an integrated approach

Partnerships to implement SAFE strategy in Brazil and to support elimination in Brazil, Mexico and Guatemala

Political commitment to eliminate trachoma has been achieved

Challenges

Guidelines and process to certify elimination are urgently needed

Encourage the implementation of the SAFE strategy as part of integrated plans for NID on the identified foci

Promote and maintain partnerships to achieve the elimination goal

Strengthen the incorporation of treatment, surgery and care through primary health care systems

Integrate actions with other programs and sectors, such as water and sanitation, to address the social determinants of health

3.2. Analysis by groups of countries

Methodology

In order to facilitate the analysis of the NID situation by country in LAC, a classification of countries into groups follows and information about epidemiological profiles, situation on elimination or control, progress, needs and integration perspectives is presented.

Taking into account that for onchocerciasis, schistosomiasis, trachoma and lymphatic filariasis the data come only from countries with foci (some countries), and that for soil-transmitted helminths (STH) data of prevalence and intensity of infection are not available for all countries in LAC, the definition of groups was based on qualitative categories. These categories were constructed from an analysis of some parameters of the 33 countries in LAC which were included in a matrix. These variables were a combination of both quantitative and qualitative data. The group of quantitative variables included sanitation coverage (2006), population at risk for STH, deworming coverage on PreSAC and SAC population, population at risk, prevalence and treatment coverage for onchocerciasis, schistosomiasis, trachoma and lymphatic filariasis. The qualitative variables included current inter-programmatic actions, partners working on deworming, needs within the framework of technical cooperation, mapping, health system information, coordination, and opportunities for integrated actions.

Once all the information related to each variable was filled for each country (Annex 1), and through a qualitative analysis made of all the information available, it was possible to identify four categories of needs regarding technical cooperation in order to make progress toward elimination goals in the framework of PAHOs Resolution CD49.R19: 1) Countries that need technical cooperation to develop integrated and inter-programmatic and inter-sectoral plans to combat NIDs; 2) Countries that need technical cooperation to improve inter-programmatic and inter-sectoral coordination and include STH into NIDs integrated actions; 3) Countries that need technical cooperation to focus activities for NIDs at local level and rural areas, and 4) Countries that need technical cooperation for monitoring and evaluation. The purpose of this classification is to facilitate the approach of technical cooperation for the control and elimination of these five neglected diseases based on features that are shared by the countries (Table 2).

Table 2. Group classification of LAC countries to address technical cooperation for control or elimination of onchocerciasis, schistosomiasis, lymphatic filariasis, trachoma and soil-transmitted helminths.

Group	Population at risk (Number of people at risk by each disease)	Approach of technical cooperation to NIDs	Countries
1	<ul style="list-style-type: none"> ▪ 66.8% of PreSAC and 67.4% of SAC at risk for STH of total in LAC ▪ 421,000 for onchocerciasis (Targeted for elimination) ▪ 25 million for schistosomiasis (Targeted for elimination in Saint Lucia) ▪ 50 million for trachoma (Targeted for elimination) ▪ More than 9 million for lymphatic filariasis (Targeted for elimination) 	Countries that need technical cooperation to fully develop integrated, inter-programmatic and inter-sectoral plans to combat NIDs.	Bolivia, Brazil, Dominican Republic, Ecuador, Guatemala, Guyana, Haiti, Mexico, Peru, Saint Lucia and Suriname
2	<ul style="list-style-type: none"> ▪ 26.8% of PreSAC and 26.1% of SAC at risk for STH of total in LAC ▪ 115,070 for onchocerciasis ▪ A focus for schistosomiasis 	Countries that need technical cooperation to improve inter-programmatic and inter-sectoral coordination and include STH into NIDs integrated actions.	Belize, Colombia, El Salvador, Honduras, Panama and Venezuela
3	<ul style="list-style-type: none"> ▪ 5.4% of PreSAC and SAC at risk for STH of total in LAC 	Countries that need technical cooperation to focus activities for NIDs at local level and rural areas	Argentina, Nicaragua, Paraguay, Bolivia*: The Chaco área
4	<ul style="list-style-type: none"> ▪ 1.03% of PreSAC and 1.1% of SAC at risk for STH of total in LAC 	Countries that need technical cooperation on monitoring and evaluation	Antigua and Barbuda, Bahamas, Barbados, Chile, Costa Rica, Cuba, Dominica, Granada, Jamaica, Saint Kitts and Nevis and Saint Vincent and Grenadines, Trinidad and Tobago, Uruguay

*Bolivia is included on group 1, but has border in The Chaco area.

Below detailed information is presented for each one.

3.2.1. Group 1 Countries: Countries that need technical cooperation to develop integrated and inter-programmatic plans to combat NIDs

This group has 11 countries: Bolivia, Brazil, Dominican Republic, Ecuador, Guatemala, Guyana, Haiti, Mexico, Peru, Saint Lucia and Suriname.

Table 3. Sanitation coverage and population at risk, Group 1 countries.

Country	Population with access to improved sanitation facilities (2006) Percentage*			Population at risk 2009 (population without access to improved sanitation) Number of people**	
	Total	Urban	Rural	PreSAC	SAC
Bolivia	43%	54%	22%	566,787	1,328,671
Brazil	77%	84%	37%	2,948,254	7,953,689
Dominican Republic	79%	81%	74%	182,497	438,176
Ecuador	84%	91%	72%	177,234	456,169
Guatemala	-	-	-	1,702,790	3,733,185
Guyana	81%	85%	80%	10,249	30,352
Haiti	19%	29%	12%	809,827	1,932,493
Mexico	81%	91%	48%	1,550,667	4,002,645
Peru	72%	85%	36%	663,530	1,645,053
Saint Lucia	-	-	-	11,688	30,305
Suriname	82%	89%	60%	7,082	18,341
TOTAL				8,630,605	21,569,079

*Pan American Health Organization, Health Information and Analysis Project. Health Situation in the Americas: Basic indicators 2009. Washington, DC., United States of America, 2009.

**UN data population 2008 Rev., were used to estimate population at risk.

(-) For these countries was not available data published about percentage of access to improved sanitation facilities (2006). It was assumed 100% PreSAC and SAC population at risk.

The bigger gaps in access to improved sanitation are in rural areas mainly in Brazil, Bolivia, Haiti, Mexico, Peru and Suriname (Table 3).

Of the total PreSAC (Pre School Age Children) and SAC (School Age Children) population at risk in LAC, this group has 66.8% and 67.4% of PreSAC and SAC population at risk, respectively.

Soil-transmitted Helminthiases (STH) in Bolivia, Brazil, Dominican Republic, Ecuador, Guatemala, Guyana, Haiti, Mexico, Peru, Saint Lucia and Suriname.

Nine countries have information about deworming. Suriname has informed does not have a deworming program due to low prevalence and Saint Lucia has not reported about deworming to PAHO (Table 4).

Table 4. Deworming coverage in PreSAC and SAC population, 2005-2009, Group 1 countries.

Country	SOIL TRANSMITTED HELMINTHIASES									
	Deworming coverage* Pre SAC					Deworming coverage* SAC				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Bolivia	0.0%	-	0.0%	0.0%	0.0%	3.3%	-	1.7%	45.7%	4.3%
Brazil	0.0%	0.0%	0.1%	0.0%	0.0%	41.6%	0.0%	0.1%	0.2%	2.2%
Dominican Republic	0.4%	2.0%	1.1%	0.0%	0.0%	105.9%	110.8%	92.2%	77.5%	365.5%
Ecuador	45.4%	0.0%		0.0%	0.0%	62.2%	85.0%		0.0%	1179.0%
Guatemala	0.0%	8.5%	13.3%	13.1%	0.0%	65.9%	65.3%	27.9%	13.1%	65.6%
Guyana	52.3%	-	28.5%	0.0%	-	66.2%	-	0.0%	23.8%	-
Haiti	46.9%	0.0%	14.7%	158.6%	5.0%	44.8%	27.3%	120.5%	83.3%	137.4%
Mexico	48.7%	49.4%	0.0%	0.0%	56.6%	59.1%	59.4%	80.9%	74.6%	360.0%
Peru	0.0%	0.0%	0.2%	0.3%	0.6%	26.1%	29.3%	2.1%	14.6%	277.2%
TOTAL	16.89%	14.73%	1.41%	6.13%	54.19%	48.14%	30.72%	32.28%	29.24%	145.61%

*Data for 2009 on PreSAC and SAC population were estimated over population at risk. Numbers over 100% may reflect twice per year treatment, use of a smaller denominator to estimate at risk population and /or over-reporting.

In this Group deworming activities have been concentrated in the SAC population; deworming reports are not always disaggregated by age groups, thus it is assumed that the data correspond to SAC treated. However this may cause overestimates of the coverage data for SAC. Also double-counting of deworming activities from NGOs, FBOs and agencies may be reflected in 2009 data where the coverage was estimated in population at risk and figures for some countries are above 100% of the population at risk.

Mexico, Dominican Republic, Haiti and Guatemala have made efforts to maintain their deworming coverage (Table 4). In this group of countries 4,660,882 (54.19% coverage) preschool age children and 31,291,775 (29.24%) school age children were dewormed in 2009 (Table 6). Between 2008 and 2009 deworming coverage of PreSAC reported increased, but this is due to the change in the estimation of population at risk; while for 2005-2008 the coverage was estimated using the total PreSAC and SAC population as the denominator, for 2009 the estimation was made with respect to the population at risk, defined as the population without access to improved sanitation. For this group five of eight countries that reported SAC treated in 2009 have figures over 100%, which is an effect due to the change in the estimation of population at risk. For this reason in fig. 3 just the data for 2005-2008 are presented; coverage in SAC for 2008 was 29.24% (see fig. 2 and 3).

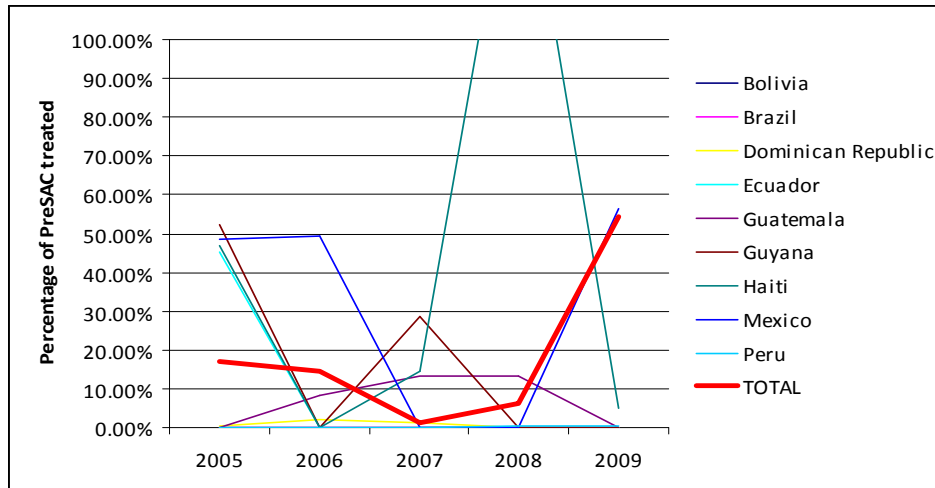


Fig. 2. Percentage of PreSAC dewormed in Bolivia, Brazil, Dominican Republic, Ecuador, Guatemala, Haiti, Mexico and Peru, 2005-2009

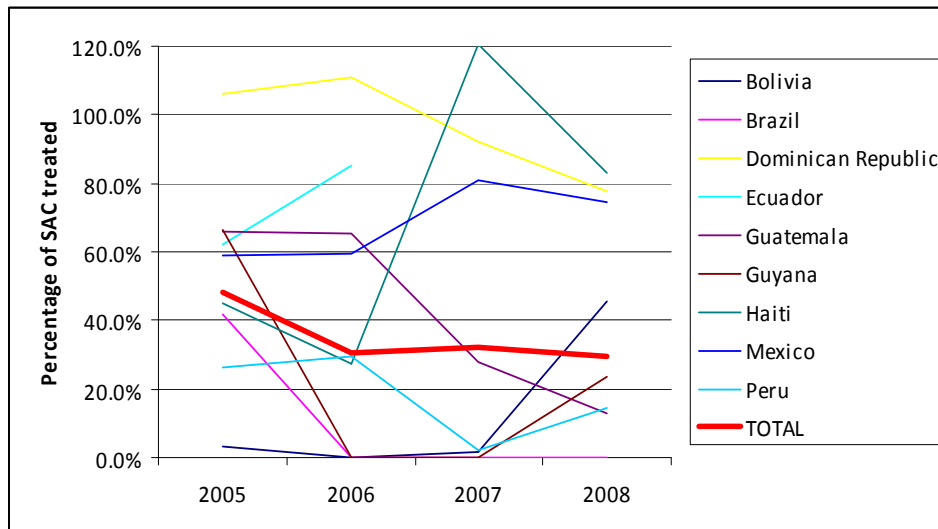


Fig. 3. Percentage of SAC dewormed in Bolivia, Brazil, Dominican Republic, Ecuador, Guatemala, Guyana, Haiti, Mexico and Peru, 2005-2008.

For nine countries there is information from NGOs, FBOs and other collaborators on deworming activities (Table 5 and 6). There are some examples where these organizations have been making an important contribution to deworming: since 2005 until 2008 in Guatemala 100% of deworming data were reported only by NGOs; in Peru, between 2005 and 2007 100% of deworming data were reported by NGOs and in 2009, 45.5%. In 2006, 25.5% of deworming data in this group of countries was reported by NGOs; however this proportion decreased to 13.81% in 2009, suggesting an increase in government-reported coverage.

Table 5. Collaborators for deworming activities in Group 1 countries

	Country	Collaborators for deworming activities
1	Bolivia	Vitamin Angels, Food for the Hungry, World Food Program, Ministry of Health (MoH)
2	Brazil	INMED Partnerships for Children and MoH
3	Dominican Republic	MoH/World Vision, Batey Relief Alliance, Direct Relief International, Vitamin Angels and MoH/Program of elimination of lymphatic filariasis (PELF)
4	Ecuador	MoH/INNFA, MEDPHARM, Wow Now
5	Guatemala	Operation Blessing International, World Food Program, MEDPHARM, Wow Now, Food for the Hungry, Direct Relief International, Vitamin Angels, MoH-PROEDUSA, XELA Aid
6	Guyana	MoH/PELF, Save the children, PAHO, UNICEF
7	Haiti	MoH/PELF, World Concern, Vitamin Angels, World Food Program, Wow Now, Food for the Hungry, World Concern, Save the Children, International Action, Visitation Hospital, Direct Relief International, Deworm the World, Operation Blessing International
8	Mexico	MoH, Operation Blessing International
9	Peru	Operation Blessing International, World Food Program, Food for the Hungry, INMED partnership for children, Fondo Minero Antamina, Wow Now, MoH/Dirección General de Medicamentos, Insumos y Drogas, Children Healthy Features

Four countries have reported prevalence studies of STH at national level. Latest data available are: Guatemala in 2003, 16.05%; Guyana in 1999, 13.20%, Suriname in 2010, *Ascaris lumbricoides* (1.0%), hookworm (0.6%) and *Trichuris trichiura* (0.5%) and Saint Lucia in 2005, 35.36%. These data are from PAHO databases reviewed for making the epidemiological profiles of neglected diseases and other infections related to poverty in Latin America and the Caribbean, published in 2009. Suriname data were provided by the Bureau of Public Health from preliminary report of national survey of STH and schistosomiasis finished on October 2010. Prevalence data at first and second sub national level can be reviewed in Annex 1.

Mexico has been deworming with albendazole during its annual Child Health Weeks in joint nationwide campaigns with the immunization program for many years.

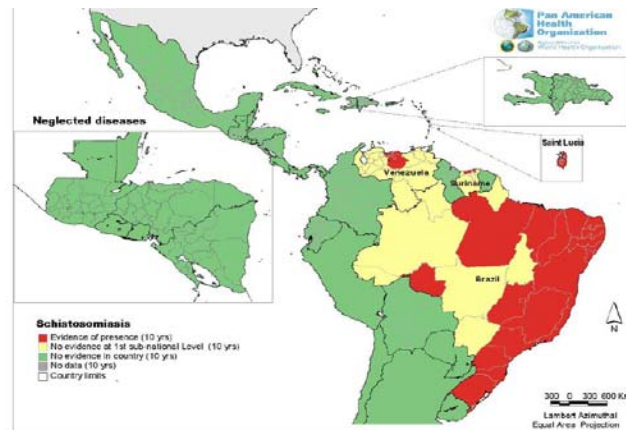
Table 6. Total number of PreSAC and SAC treated, 2005-2009 and proportion of treated reported by NGOs, FBOs or agencies, Group 1 countries.

COUNTRY	2005			2006			2007			2008			2009		
	Total PreSAC treated	Total SAC treated	Reported by NGOs, FBOs or agencies	Total PreSAC treated	Total SAC treated	Reported by NGOs, FBOs or agencies	Total PreSAC treated	Total SAC treated	Reported by NGOs, FBOs or agencies	Total PreSAC treated	Total SAC treated	Reported by NGOs, FBOs or agencies	Total PreSAC treated	Total SAC treated	Reported by NGOs, FBOs or agencies
Bolivia	-	74,500	74,500	-	-	-	-	39,000	39,000	-	1,059,262	1,059,262	-	57,269	57,269
Brazil	4,311	14,110,141	-	6,118	14,895	-	8,535	20,219	-	-	64,200	64,200	-	176,179	64,200
Dominican Republic	3,052	2,193,660	-	17,180	2,299,925	185,000	9,101	1,916,712	55,000	-	1,612,665	-	-	1,601,414	105,000
Ecuador	520,703	1,763,823	-	-	2,415,000	2,415,000	-	-	-	-	500	-	-	5,380,283	5,000
Guatemala	-	2,272,026	2,272,026	138,000	2,298,880	2,436,880	220,000	1,000,800	1,220,880	220,000	480,200	700,200	-	2,450,648	1,005,000
Guyana	33,571	105,215	220,000	-	-	-	17,000	-	17,000	-	38,251	-	-	-	-
Haiti	462,876	1,047,789	-	-	642,311	10,500	145,852	2,849,682	1,706,750	1,579,941	1,978,751	2,530,453	40,564	2,655,053	650,012
Mexico	4,115,423	12,858,722	-	4,133,026	12,840,047	-	-	17,333,455	-	-	15,855,753	-	4,616,686	14,410,489	1,000,000
Peru	-	1,539,500	1,539,500	-	1,729,412	1,729,412	3,632	122,425	126,057	7,132	859,947	23,157	3,632	2,502,440	2,077,657
TOTAL	5,139,936	35,965,376	4,106,026	4,294,324	22,240,470	6,776,792	404,120	23,282,293	3,164,687	1,807,073	21,949,529	4,377,272	4,660,882	31,291,775	4,964,138
Proportion reported by NGOs, FBOs or agencies	9.99%			25.54%			13.36%			18.43%			13.81%		

Schistosomiasis, Onchocerciasis, Lymphatic Filariasis and Trachoma in Group 1 countries

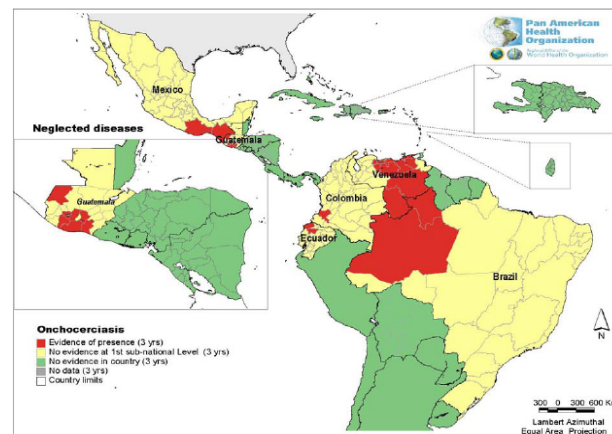
There are foci of schistosomiasis in Brazil, Venezuela, Saint Lucia and Suriname (see fig. 4). Only one country (Brazil) reported treatment for 2009 (Table 7). The coverage of mass drug administration (praziquantel) is still very low in the region. In this group of countries there are also foci of onchocerciasis in Brazil, Ecuador, Guatemala and Mexico (Table 7 and see fig. 5).

Two onchocerciasis foci (Northern Chiapas, Mexico and Ecuador) are under post-treatment surveillance. The Chiapas foci and the Guatemala Central focus might interrupt treatment in 2012. Efforts to eliminate onchocerciasis are being led by OEPA. Figure 6 shows the scaling-up and projected scaling down of MDA with ivermectin for onchocerciasis in the region.



Source: PAHO/HSD/CD based on: Ministries of Health of Brazil, Saint Lucia, and Suriname & Alarcón de Noya, B. et al. Schistosomiasis mansoni in Areas of Low Transmission. Epidemiological Characterization of Venezuelan Foci. *Memórias do Instituto Oswaldo Cruz*. Rio de Janeiro; 2002; 91(1): 5-10.

Fig. 4. Presence of schistosomiasis at the first sub-national level, LAC 1998-2007.



Source: PAHO/HSD/CD based on data from: Onchocerciasis Elimination Program for the Americas (OEPA). Available from: www.oepa.net Accessed October 2008.

Fig. 5. Presence of onchocerciasis at the first sub-national level, LAC 2005-2007.

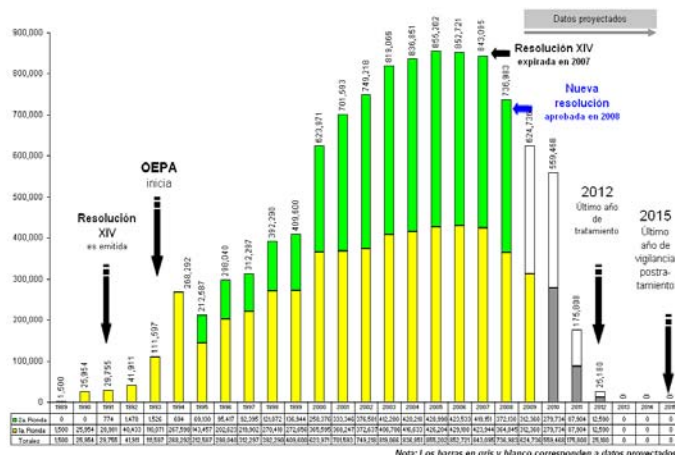
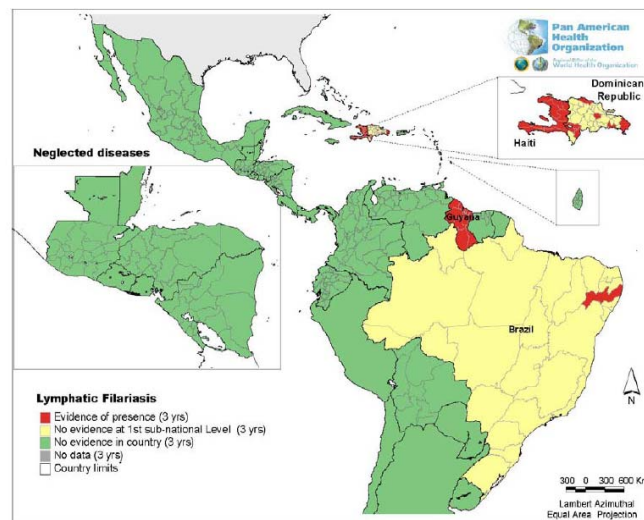


Fig. 6. Progress of Mectizan® treatment in LAC, 1989 - 1st Round 2009 and projections 2nd Round 2009-2015.

In this group, four countries have foci of lymphatic filariasis transmission (Brazil, Dominican Republic, Guyana and Haiti) (see fig. 7). More than 9 million people remain at risk for lymphatic filariasis in the Region, with the highest proportion living in Haiti. The January 2010 earthquake in Haiti has compounded the timely delivery of medicines, both in Haiti and in the neighboring Dominican Republic, which received a large number of displaced Haitians. The remaining foci of LF in Brazil and Guyana are intensifying their efforts towards elimination. The number of people treated through MDA activities for lymphatic filariasis in 2009 was: Haiti about 3 million of people treated, Brazil 177,000 and Guyana 129,189.



Source: PAHO/HSD/CD based on reports submitted by the Ministries of Health to PAHO/WHO for the Program for the Elimination of Lymphatic Filariasis, 2005–2007.

Fig. 7. Presence of lymphatic filariasis at the first sub-national level, LAC 2005-2007

There is evidence of the presence of blinding trachoma in Brazil, Guatemala and Mexico (see fig. 8). An estimated 50 million people live in risk areas and about 7,000 cases have been identified, mainly in Brazil.

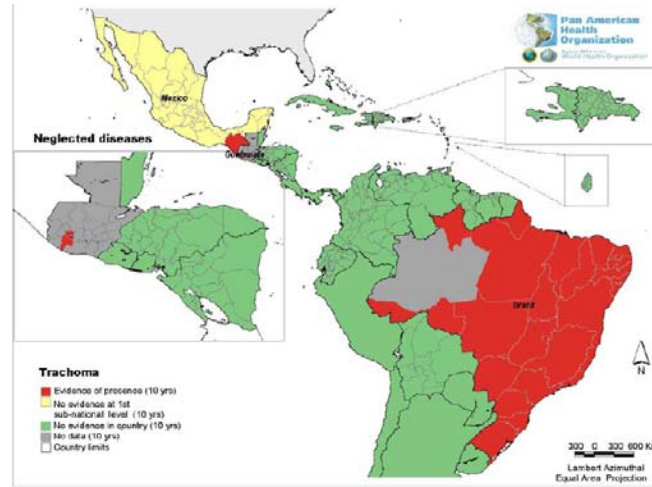


Fig. 8. Presence of trachoma at the first sub-national level, LAC 1998-2007

Table 7. Prevalence and treatment coverage data for schistosomiasis, onchocerciasis, lymphatic filariasis and trachoma in Group 1 countries.

Country	PREVALENCE DATA AND MDA or TREATMENT COVERAGE			
	SCHISTOSOMIASIS	ONCHOCERCIASIS	LYMPHATIC FILARIASIS	TRACHOMA
Brazil	<p>Prevalence: 5.63% prevalence in endemic states in 2007, Areas of major risk: States of Bahia, Alagoas and Minas Gerias, but present in 19 of the 27 states</p> <p>Treatment coverage: 83% of all detected cases are treated</p>	<p>Prevalence: Focus in Amazonas State: 6.5% prevalence in 2007. The endemic states of Roraima and Amazonas border with Venezuela</p> <p>Treatment coverage: in 2008-2009 ranged from 88% to 93% in each of the two rounds.</p>	<p>Treatment coverage: In 2009 MDA covered about 177.000 individuals, in the municipalities of Recife, Olinda, corresponding to 10% of the total population living in the endemic areas. Two IUs reported MDA in 2009, Recife and Olinda. In these municipalities (IU), 25 districts were elected for MDA with DEC. IUs reported coverage of MDA ranged from 62% to 95%</p>	<p>Prevalence: 4.9% prevalence (2002-2007) in SAC, 10 states have prevalence rates of 5% or higher.</p> <p>Treatment coverage: No coverage treatment data available</p>
Mexico	NA	<p>Population at risk: 161,223 in 2009. There are 2 foci in Chiapas State: one in post treatment surveillance and one under treatment. The only focus in Oaxaca is in post treatment surveillance</p> <p>Treatment coverage: 93% in 2009</p>	NA	<p>Prevalence: 101 active trachoma cases TF/TI in 2008. Five municipalities in Chiapas have cases: Cancuc, Chanal, Oxchuc, Huixtan and Tenejapa.</p> <p>Treatment coverage 76% in 2008</p>

PREVALENCE DATA AND MDA or TREATMENT COVERAGE				
Dominican Republic	<p>Prevalence: Areas where transmission is suspected: Seibo, Higüey and Hato Mayor (2008) Incidence rate: 4.2 / 100,000 inhabitants (2003) This information was taken from SESPAS document about control and eradication of schistosomiasis in Dominican Republic, January 2008</p> <p>Treatment coverage: data no available</p>	NA	<p>Prevalence: There are 17 endemic areas with 638,966 inhabitants (2009) Treatment coverage: No MDA made since 2007</p>	NA
Haiti	NA	NA	<p>Prevalence: 92% of the country population at risk. Treatment coverage: More than 3 million people treated in 2009</p>	NA
Ecuador	NA	<p>Prevalence: 0% prevalence 2006. Focus on the Province of Esmeraldas Treatment coverage: above 85%. On post-treatment surveillance since 2010.</p>	NA	NA
Guatemala	NA	<p>Prevalence: 0.4% prevalence of ocular morbidity in the Central focus and 0% in the foci of Escuintla, Huehuetenango and Santa Rosa (2007). Treatment coverage: 2008-2009 above 90%.</p>	NA	<p>Prevalence: 1,944 cases in Sololá (TF=1,130; TI=379; TS=388; TT=40; OC=5) 2002. Treatment coverage: data not available</p>

	PREVALENCE DATA AND MDA or TREATMENT COVERAGE			
Guyana	NA	NA	Prevalence: 9.3% in 63 villages (2005), Treatment coverage: 19.9% MDA program coverage reported in 2009	NA
Suriname	Prevalence: National survey in 2010: 0% prevalence on School age children by Kato Katz; 8.3% in endemic districts and 9.2% in non-endemic districts by Elisa test in SAC. Treatment coverage: 95% in 2010	NA	NA	NA
Saint Lucia	Prevalence: 6/100,000 incidence (2007) Treatment coverage: no information on treatment coverage	NA	NA	NA

Table 8. Needs and opportunities for integrated actions to control and eliminate NIDs in Group 1 countries: Brazil, Mexico, Bolivia, Dominican Republic, Haiti, Ecuador, Guatemala, Guyana, Peru, Suriname and Saint Lucia.

Country	Needs	Opportunities of integrated action
Bolivia	<p>Mapping: 1) STH mapping at national and sub-national level.</p> <p>Integrated actions: 1) To define a national strategy for integrated control of soil-transmitted helminths. 2) To improve deworming in PreSAC population</p> <p>Coordination: 1) To strengthen MoH capacity to coordinate actions with NGOs and FBOs</p>	<p>1) To support the integration of actions between IMCI, “Faces, voices and places” and “Malnutrition Zero” as a window of opportunity to implement a national strategy for integrated control of soil-transmitted helminths (support with human resources); 2) To integrate NTD actions with fascioliasis control by MDA; 3) To integrate NTD actions within El Chaco area, with Argentina and Paraguay; 4) Planning and implementation of integrated actions with other sectors and health programs (water and sanitation, MCH, healthy schools, etc.).</p>
Brazil	<p>Integrated actions: 1) To improve deworming coverage, including SCH, with a focus on population at high risk; 2) To improve deworming in PreSAC population; 3) To define a national strategy for integrated control of soil-transmitted helminths, based on forthcoming survey results; 4) To strengthen integrated actions (inter-sectoral and inter-programmatic) to combat NIDs.</p> <p>System information: 1) To improve information systems for monitoring and evaluation of NIDs;</p> <p>Monitoring and surveillance system: 1) To evaluate foci considered extinct for LF and preparation of dossiers for</p>	<p>1) In 2010, the MoH Brazil will begin the implementation of a national survey on SCH and STH, 2) Demonstration project on Pernambuco State (leprosy, lymphatic filariasis, soil-transmitted helminthiases, schistosomiasis) with PAHO, IADB, SABIN and MoH to develop and implement an integrated plan to combat NIDs, 3) To integrate actions with strategies like IMCI, and “Faces, voices and places”¹⁹ and indigenous health program to combat the NIDs, 4) To integrate or coordinate actions with Lions International to eliminate trachoma in Pernambuco State; 5) Planning and implementation of integrated actions with other sectors and health programs; 6) To eliminate schistosomiasis foci</p>

¹⁹ Faces, Voices and Places is an effort to build political will at the highest level while at the same time providing technical assistance to address the social and economic determinants of health at the local level. It advocates for the most vulnerable and helps build citizenship with a focus on shared rights and responsibilities. This is achieved through intersectoral and interagency collaboration that unites efforts and commitment toward the achievement of the Millennium Development Goals. PAHO. Faces, voices and places of the millennium development goals. Brochure available on <http://www.ops-oms.org/English/MDG/index.htm>, consulted August 10, 2010.

Country	Needs	Opportunities of integrated action
	each focus (apart from Belem, Para State) demonstrating evidence of elimination	in DF/Goias and Rio Grande do Sul.
Dominican Republic	<p>Mapping: 1) STH, SCH mapping and LF remapping</p> <p>Integrated actions: 1) To strengthen integrated actions (inter-sectoral and inter-programmatic) to combat NIDs (human resources support), 2) To define a national strategy for integrated control of soil-transmitted helminths, 3) To improve deworming in PreSAC population</p> <p>Monitoring and surveillance system: 1) Monitoring of LF foci to define current status of transmission, prevalence and MDA needs,</p> <p>Coordination: 1) To strengthen MoH capacity to coordinate actions with NGOs and FBOs</p>	<p>1) To support the initiative of the MoH to have an integrated plan to combat NIDs, 2) To support the integration of actions between IMCI, “Faces, voices and places” and the immunization program as a window of opportunity to implement a focused strategy for integrated control of intestinal parasitism on population at risk, 3) Planning and implementation of integrated actions with other sectors and health programs.</p>
Ecuador	<p>Mapping: 1) STH, fasciola, paragonimiasis, cysticercosis/taeniasis mapping to see overlapping at national and sub-national levels</p> <p>Integrated actions: 1) To define a national strategy for integrated control of soil-transmitted helminths, fascioliasis, cysticercosis/taeniasis and paragonimiasis, 2) To include regular deworming in the onchocerciasis foci under post-treatment surveillance; 3) To improve deworming in PreSAC population, 4) To explore how deworming coverage could be extended by piggy-backing on Chagas disease vector control and surveillance</p> <p>Information system: 1) To improve information systems to have deworming data</p> <p>Coordination: 1) To strengthen MoH capacity to coordinate actions with NGOs and FBOs;</p>	<p>1) To support a national plan to integrate actions on fasciola, STH, cysticercosis/taeniasis and paragonimiasis; 2) Integration between tuberculosis and paragonimiasis due to similar symptoms; 3) Integration of actions within CIDA project on indigenous population to introduce deworming and integrated vector management initiative; 4) To support the integration of actions between IMCI, “Faces, voices and places”, nutrition and immunization program as a window of opportunity to implement a focused strategy for integrated control of soil-transmitted helminths on population at risk;;5) To include NID actions on Country Cooperation Strategy, 6) Planning and implementation of integrated actions with other sectors and health programs.</p>

Country	Needs	Opportunities of integrated action
Guatemala	<p>Mapping: 1) STH, trachoma and Fasciola mapping at national and sub-national level</p> <p>Integrated actions: 1) To define a national strategy for integrated control of soil-transmitted helminths in areas with onchocerciasis and trachoma (advocacy with MoH); 2) To improve deworming in PreSAC population.</p> <p>Information system: 1) To improve information systems to obtain deworming data;</p> <p>Coordination: 1) To strengthen MoH capacity to coordinate actions with NGOs and FBOs.</p>	<p>1) To support a national plan to combat NIDs (Trachoma, Onchocerciasis, Chagas, Rabies, STH); 2) To support the integration of actions between IMCI, healthy schools and indigenous population programs as a window of opportunity to implement a focused strategy for integrated control of soil-transmitted helminths on population at risk, 3) Planning and implementation of integrated actions with other sectors and health programs.</p>
Guyana	<p>Mapping: 1) STH mapping at national and sub-national level;</p> <p>Integrated actions: 1) To define a national strategy and action plan for integrated control of soil-transmitted helminths in areas with Lymphatic filariasis (advocacy with MoH); 2) To improve deworming coverage in PreSAC population;</p> <p>Information system: 1) To improve information systems to collect deworming data;</p> <p>Coordination: 1) To strengthen MoH capacity to coordinate actions with NGOs and FBOs; 2) Ensure recovery of data lost in fire of MoH HQ (2009).</p>	<p>1) To support a national plan to combat NIDs (Lymphatic filariasis, dengue, malaria and STH); 2) To support the integration of actions between malaria, dengue, LF, IMCI, healthy schools as a window of opportunity to implement a focused strategy for integrated control of soil-transmitted helminths and LF in the population at risk; 3) Planning and implementation of integrated actions with other sectors and health programs (TB, HIV, nutrition); 4) NTD advocacy with Guyana expatriates community (Diaspora).</p>
Haiti	<p>Integrated actions: 1) To maintain in 2010 the number of people treated for LF that were covered in 2009 (3,000,000), including ALB treatment; 2) To address NIDs in camps of the displaced post-earthquake.</p> <p>Monitoring and surveillance: 1) To restart actions to have information to take decisions for NIDs.</p>	<p>1) Coordination with NGOs and FBOs that supported LF treatment in 2009, 2) Coordination of activities with Plan to build capacity in Haiti, to include NIDs, 3) Integrated control of LF and STH; 4) Coordination with IDB projects for water and sanitation; 5) Coordinate with International Action, Vitamin Angels and other international NGOs working in water and sanitation, vitamin A, etc.</p>

Country	Needs	Opportunities of integrated action
Mexico	<p>Mapping: 1) STH mapping at national and sub-national level;</p> <p>Integrated actions: 1) To implement the Chiapas State Plan for NID Elimination and Control; 2) To define a national strategy for integrated control of soil-transmitted helminths (advocacy with MoH)</p> <p>Information system: 1) To improve information systems to collect deworming data by age group</p> <p>Coordination: 1) To strengthen the MoH capacity to coordinate actions with NGOs and FBOs.</p>	<p>1) To integrate actions with Chagas program and the integrated vector management strategy; 2) To extend the experience in Chiapas to other states and with other diseases; 3) Consultancy on Social Determinants of Neglected Infectious Diseases in Yucatan, Mexico (Community, and inter-sectoral approach), 4) Planning and implementation of integrated actions with other sectors and health programs as e.g. Mesoamerican Initiative²⁰.</p>
Peru	<p>Mapping: 1) STH and Fasciola mapping at national and sub-national level</p> <p>Integrated actions: 1) To define a national strategy for integrated control of soil-transmitted helminths (advocacy with MoH); 2) To improve deworming coverage in PreSAC population; 3) To design an Integrated Plan to Combat NIDs (human rabies transmitted by dogs, fascioliasis, plague, hydatidosis, cysticercosis/taeniasis and STH);</p> <p>Information system: 1) To improve information systems to collect deworming data;</p> <p>Coordination: 1) To strengthen MoH capacity to coordinate actions with NGOs and FBOs.</p>	<p>1) Integration of actions within the CIDA project on indigenous population to introduce deworming and integrated vector management initiative; 2) To include NIDs actions in the Country Cooperation Strategy; 3) To support the integration of actions between IMCI, “Faces, voices and places” and nutrition as a window of opportunity to implement a national strategy for integrated control of intestinal parasitism focused on population at high risk; 4) To integrate actions with the Gates project for control of cysticercosis/taeniasis (including deworming), review and integration of databases from Tumbes 2004-2010 (project in progress); 5) Planning and implementation of integrated actions with other sectors and health programs.</p>

²⁰ The Mesoamerican Initiative is a set of sub regional inter-country initiatives and programs aimed at achieving social equity by improving the health of affected populations, including moving towards improved and equitable health conditions and building capacity and ability to respond to the health needs of the population. The system is designed as a platform for effective and timely response to health needs of the region by coordinating the development of joint activities and technical cooperation.

Country	Needs	Opportunities of integrated action
Saint Lucia	<p>Mapping: 1) STH and SCH mapping at national and sub-national levels;</p> <p>Information system: 1) To improve information systems to collect deworming data;</p> <p>Integrated actions: 1) To design an Integrated Plan to Combat NIDs (elimination of SCH and control of STH);</p>	<p>1) To coordinate actions with Windward Islands Research and Education Foundation and University of St. George's, Grenada, for STH and SCH survey and implementation of plan to eliminate schistosomiasis and control STH, 2) Planning and implementation of integrated actions with other sectors and health programs.</p>
Suriname	<p>Integrated actions: 1) To design an Integrated Plan to Combat NIDs (elimination of SCH and control of STH) based on results of national survey, 2) To strengthen laboratory capacity for Chagas disease and other NID's; 3) Ensure rapid access to medicines used to treat schistosomiasis and Chagas disease;</p> <p>Information system: 1) To improve information system on STH data.</p>	<p>1) Implementation of an Integrated plan for elimination of SCH and STH control at national and sub-national level according to the results of the ongoing survey, 2) Planning and implementation of integrated actions with other sectors and health programs; 3) collaboration between Suriname and Guyana for surveillance of LF and mosquito control at the border.</p>

3.2.2. Group 2 Countries: Countries that need technical cooperation to improve inter-programmatic and inter-sectoral coordination and include STH into NID integrated actions

This group, Group 2, comprises six countries: Belize, Colombia, El Salvador, Honduras, Panama, Venezuela.

Table 9. Sanitation coverage and population at risk, Group 2 countries.

Country	Population with access to improved sanitation facilities (2006) Percentage*			Population at risk 2009 (population without access to improved sanitation) Number of people**	
	Total	Urban	Rural	PreSAC	SAC
Belize	-	-	-	28.944	71.642
Colombia	78%	85%	58%	788.174	1.939.432
El Salvador	94%	99%	90%	28.572	82.904
Honduras	66%	78%	55%	260.233	621.158
Panama	93%	98%	83%	19.328	46.640
Venezuela	-	-	-	2.332.960	5.597.078
TOTAL				3,458,211	8,358,854

*Pan American Health Organization, Health Information and Analysis Project. Health Situation in the Americas: Basic indicators 2009. Washington, DC., United States of America, 2009.

**UN data population 2008 Rev., were used to estimate population at risk.

(-) For these countries was not available data published about percentage of access to improved sanitation facilities (2006). It was assumed 100% PreSAC and SAC population at risk.

The bigger gaps in access to improved sanitation are in the rural areas of all the countries in this group (Table 9).

This group has 26.8% and 26.1%, respectively, of the PreSAC and SAC populations at risk for STH.

Soil-transmitted Helminthiases (STH)

In this group all the countries have reported deworming activities (Table 10). Deworming activities have been concentrated in the SAC population; deworming reports are not always disaggregated by age groups. Hence it is assumed that the data correspond to SAC treated; this caused overestimation in the coverage data. Also mistakes are possible because of double counting of deworming activities from NGOs, FBOs and agencies that may be reflected in the 2009 data where the coverage was estimated in the population at risk and figures for some countries are above 100%.

Table 10. Deworming coverage in PreSAC and SAC population, 2005-2009 in Group 2 countries.

Country	SOIL TRANSMITTED HELMINTHIASES									
	Deworming coverage* Pre SAC					Deworming coverage* SAC				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Belize	0,0%	59,0%	0,0%	0,0%	65,9%	6,7%	55,1%	42,1%	7,0%	80,9%
Colombia	-	-	-	1,1%	0,0%	-	-	-	4,8%	77,3%
El Salvador	0,0%	0,0%	0,8%	0,0%	0,0%	40,0%	59,0%	4,0%	38,9%	1475,2%
Honduras		0,0%	0,0%	0,0%	0,0%		76,0%	15,4%	26,8%	215,1%
Panama	17,1%	0,0%	34,9%	8,3%	497,07%	0%	84,2%	12,4%	25,8%	780,2%
Venezuela	0,0%	0,0%	0,0%	0,0%	-	1,4%	1,9%	0,6%	0,5%	-
TOTAL	1,5%	0,4%	2,6%	0,8%	10,2%	8,8%	30,7%	5,1%	9,1%	162,3%

*Data for 2009 on PreSAC and SAC population were estimated over population at risk by PAHO.

Between 2005 and 2009 countries that have more information about deworming activities were Belize, Panama and Honduras (Table 10). In 2009 this group of countries reported 115,159 (10.2% coverage) PreSAC and 4,481,359 (162.3% coverage) SAC treated (Tables 10 and 12). Between 2008 and 2009 there is an increase due to the change in the estimation of number of PreSAC and SAC; for 2009 the estimation made for this report is based on population at risk (i.e., the population without access to improved sanitation). The greatest effort for deworming has been made SAC (see fig. 9 and 10).

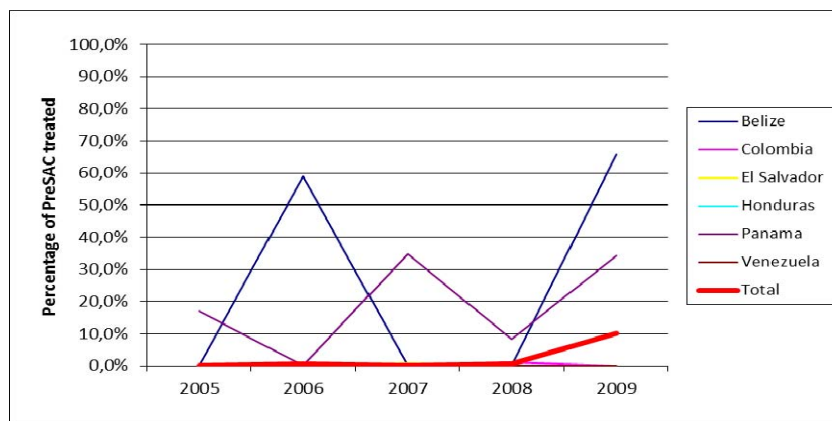


Fig. 9. PreSAC deworming in Belize, Colombia, El Salvador, Honduras, Panama and Venezuela, 2005-2009

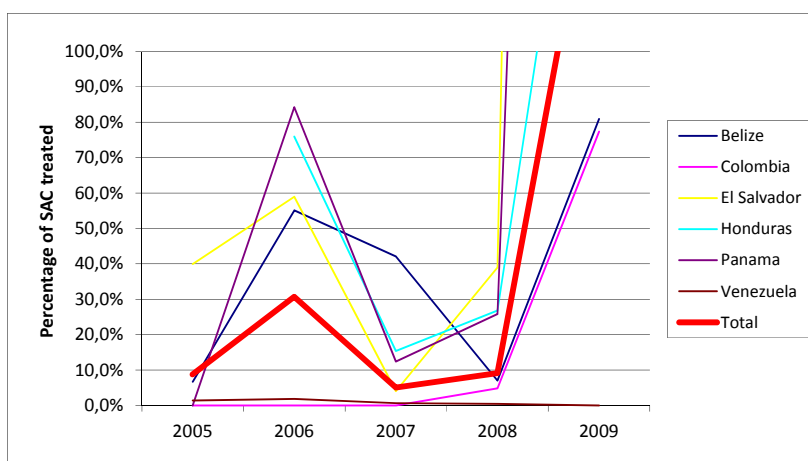


Fig. 10. SAC dewormed in Belize, Colombia, El Salvador, Honduras, Panama and Venezuela, 2005-2009

For five countries there is information from NGOs, FBOs and other collaborators on deworming activities (Table 11). The deworming report from NGOs and FBOs in this group of countries has been increasing since 2005. The figures are larger in El Salvador and Honduras than in the other countries of the group. In 2008 and 2009 the proportion of reports by NGOs or FBOs is greater (78 and 59% respectively) due to the report of Colombia. In this case the Colombian Ministry of Social Protection does not have an information system for deworming but does deworming activities; however the only report is from one international NGO. In this group of countries 115,159 preschool age and 4,481,359 school age children were dewormed in 2009 (Table 12).

Table 11. Collaborators on deworming activities in Group 2 countries.

Country	Collaborators on deworming activities
1 Belize	Vitamin Angels, Wow NOW and Ministry of Health
2 Colombia	Operation Blessing International/Global Humanitaria/Metrosalud/World Food Program
3 El Salvador	MoH/Healthy School Program, Vitamin Angels, Operation Blessing International, Fundación salvadoreña, Direct Relief International, FUEDEM
4 Honduras	World Vision, World Food Program, Vitamin Angels, Wow NOW, MoH/Healthy School Program, Operation Blessing International, Save The Children, Proyecto Aldea Global, Direct Relief International
5 Panama	Wow Now, Foundation Pro Niños del Darién receive/distribute their treatments from MOH

Two countries in group 2 have reported prevalence studies of STH at national level. Latest data available are: Colombia in 1980, 37.5% and Venezuela in 2007, 18.84%. Neither El Salvador nor Panama has reports of STH prevalence at any level of disaggregation; however the Ministry of Health in Panama has reported data about intestinal parasitism from health system information disaggregated by sex and age group. These data come from databases made for PAHO's Epidemiological Profiles of Neglected Diseases and Other Infections Related to Poverty in LAC, published in 2009. Prevalence data at first and second sub national level can be reviewed in Annex 1. Reviewing inter-programmatic actions in countries of this group, Honduras and Belize give Vitamin A jointly with immunization campaigns.

Table 12. Total number of PreSAC and SAC treated, 2005-2009 and proportion treated reported by NGOs, FBOs or agencies, Group 2 countries.

COUNTRY	2005			2006			2007			2008			2009		
	PreSAC treated	SAC treated	Reported by NGOs, FBOs or agencies	PreSAC treated	SAC treated	Reported by NGOs, FBOs or agencies	PreSAC treated	SAC treated	Reported by NGOs, FBOs or agencies	PreSAC treated	SAC treated	Reported by NGOs, FBOs or agencies	PreSAC treated	SAC treated	Reported by NGOs, FBOs or agencies
Belize	-	4,737	4,737	17,057	39,109	-	-	30,000	-	-	5,000	5,000	19,085	57,949	5,000
Colombia	-	-	-	-	-	-	-	-	-	37,741	425,466	306,207	-	1,500,000	1,500,000
El Salvador	-	596,125	-	-	870,163	308,255	4,000	58,255	62,255	-	552,000	552,000	-	1,223,000	1,223,000
Honduras	-	-	-	-	1,374,758	1,100,000	-	279,920	5,300	-	488,594	488,594	-	1,336,334	7,750
Panama	46,731	-	-	-	534,337	-	96,716	80,685	1,000	23,226	169,800	0	96,074	364,076	0
Venezuela	-	74,654	-	-	102,131	-	-	35,344	-	-	25,250	-	-	-	-
Total	46,731	675,516	4,737	17,057	2,920,498	1,408,255	100,716	484,204	68,555	60,697	1,666,110	1,351,801	115,159	4,481,359	2,735,750
Proportion reported by NGOs, FBOs or agencies	0.66%			47.94%			11.72%			78.27%			59.52%		

Schistosomiasis, trachoma and onchocerciasis in Group 2 countries

In this group of countries, Colombia has a focus of onchocerciasis which is in its third year of post-treatment surveillance, and in 2006 its prevalence was 0% (Afro-Colombian population in Lopez de Micay municipality). Venezuela has three foci: Southern focus (24.4% prevalence in 2001), Northeastern focus (4% prevalence in 2006) and North central focus (1.7% prevalence on 2005) (see fig. 5); Venezuela has reported treatment coverage above 85% since 2003 (Table 13). On November 2010 was verified the interruption of onchocerciasis transmission in the North central focus in Venezuela, hence treatment with Mectizan® will be suspended since 2011. Efforts to eliminate onchocerciasis are being led by the respective MoH with OEPA.

Venezuela also has schistosomiasis foci in the states of Vargas, Aragua and Carabobo (13.5% prevalence between 1998 and 2000) (Table 13 and see fig. 4); there is no information available about treatment coverage, but PAHO has supplied praziquantel to the MoH at its request.

In Colombia a study was recently published informing about the presence of trachoma in indigenous communities in the Vaupes department (border with Brazil) in 2007. This study describes clinical evidence of trachoma in 18.4% of examined people (114 total examined). This is the first report of trachoma in Colombia. However more information, including the microbiological confirmation and surveillance in this area are necessary²¹.

²¹ **Miller H, Gallego G, Rodríguez G.** Evidencia clínica de tracoma en indígenas colombianos del departamento de Vaupés. *Biomédica.* 2010;30(3).

Table 13. Prevalence and treatment coverage data for schistosomiasis, onchocerciasis, lymphatic filariasis and trachoma in Group 2 countries.

COUNTRY	PREVALENCE DATA AND MDA COVERAGE			
	SCHISTOSOMIASIS	ONCHOCERCIASIS	LYMPHATIC FILARIASIS	TRACHOMA
Belize	NA	NA	NA	NA
Colombia	NA	Prevalence: Prevalence dropped from 39% in 1995 to 0% in 2006. The only focus is in one community with Afro-Colombian population people (López de Micay in Cauca department), which is currently in its third and last year of post treatment surveillance	NA	Prevalence: Clinical evidence in indigenous people of Vaupes department in 2006 (published by October 2010) Treatment coverage: No data available
El Salvador	NA	NA	NA	NA
Honduras	NA	NA	NA	NA
Panama	NA	NA	NA	NA
Venezuela	Prevalence: 13.5% in the states of Vargas, Aragua and Carabobo (1998-2000). Treatment coverage: No information about treatment coverage	Prevalence: 24.4% prevalence in the southern focus (2001), 4% prevalence in North Eastern focus (2006), 1.7% prevalence in the North Central focus (2005). Treatment coverage: Since 2003 coverage treatment is above 85%	NA	NA

Table 14. Needs and opportunities for integrated actions to control and eliminate NIDs in Group 2 countries: Colombia, El Salvador, Honduras, Belize, Panama, Venezuela.

Country	Needs	Opportunities of integrated action
Belize	<p>Mapping: 1) STH re-mapping at national and sub-national level;</p> <p>Integrated actions: 1) To define a national strategy for integrated control of soil-transmitted helminths (advocacy with MoH);</p> <p>Coordination: 1) To strengthen MoH capacity to coordinate actions with NGOs and FBOs.</p>	<p>1) To integrate deworming with immunization or nutrition/micronutrient campaigns in children aged 1 year or older; 2) Planning and implementation of integrated actions with other sectors and health programs; 3) link STH surveillance with Chagas disease vector surveillance</p>
Colombia	<p>Mapping: 1) STH mapping at national and sub-national level</p> <p>Integrated actions: 1) To define a national strategy for integrated control of soil-transmitted helminths (advocacy with MoH)</p> <p>Information system: 1) To improve information systems to capture deworming data</p> <p>Coordination: 1) To strengthen MoH capacity to coordinate actions with NGOs and FBOs;</p> <p>Monitoring and surveillance system: 1) To investigate the focus of trachoma reported in indigenous people in Vaupes department and define integrated actions</p>	<p>1) To promote a survey for prevalence and intensity of infection in school-age children as a demonstration project of STH mapping; 2) To integrate actions within the CIDA project on indigenous populations to introduce deworming and integrated vector management, 3) To include NID actions in the Country Cooperation Strategy, 4) To support the integration of actions between IMCI, “Faces, voices and places” and immunization program as a window of opportunity to implement a national strategy for integrated control of soil-transmitted helminths with focus on population at risk; 5) Planning and implementation of integrated actions with other sectors and health programs; 6) To integrate actions with other NIDs as Chagas Disease, malaria, leishmaniasis and STH in risk areas.</p>
El Salvador	<p>Mapping: 1) STH mapping at national and sub-national level</p> <p>Integrated actions: 1) To define a national strategy for integrated control of soil-transmitted helminths (advocacy with MoH) 2) To improve deworming in</p>	<p>1) To support the integration of actions between IMCI, “Faces, voices and places”, nutrition, healthy schools and immunization program as a window of opportunity to implement a focused strategy for integrated control of soil-transmitted helminths on population at risk; 2) Planning and implementation of</p>

Country	Needs	Opportunities of integrated action
	<p>PreSAC population; Information system: 1) To improve the information system to capture deworming data; Coordination: 1) To strengthen MoH capacity to coordinate actions with NGOs and FBOs.</p>	<p>integrated actions with other sectors and health programs.</p>
<p>Honduras</p>	<p>Mapping: 1) STH remapping at national and sub-national level; Integrated actions: 1) To define a national strategy for integrated control of soil-transmitted helminths (advocacy with MoH); 2) To improve deworming in PreSAC population; Information system: 1) To improve information systems to capture deworming data; Coordination: 1) To strengthen MoH capacity to coordinate actions with NGOs and FBOs.</p>	<p>1) To support a national plan to combat NIDs (dengue, malaria, Chagas disease, leishmaniasis and STH); 2) To support the integration of actions between IMCI, healthy schools and nutrition as a window of opportunity to implement a focused strategy for integrated control of soil-transmitted helminths on population at risk; 3) To include NID actions in Country Cooperation Strategy; 4) To support the incorporation of deworming activities into the general health service functions of Ministry of Health; 5) Planning and implementation of integrated actions with other sectors and health programs.</p>
<p>Panama</p>	<p>Mapping: 1) STH mapping at national and sub-national level; Integrated actions: 1) To define a national strategy for integrated control of soil-transmitted helminths (advocacy with MoH); Information system: 1) To improve information system to have deworming data; Coordination: 1) To strengthen MoH capacity to coordinate actions with NGOs and FBOs.</p>	<p>1) To integrate actions with nutrition program and integrated vector management strategy, 2) Planning and implementation of integrated actions with other sectors and health programs (e.g. Chagas and leishmaniasis surveillance).</p>
<p>Venezuela</p>	<p>Mapping: 1) STH and SCH mapping at national and sub-national level; Integrated actions: 1) To design an Integrated Plan to Combat NIDs (elimination of SCH and control of</p>	<p>1) Advocacy to Ministry of Health to promote integration between actions for SCH and STH; 2) Planning and implementation of integrated actions with other sectors and health programs; 3) Introduce STH control into post-treatment</p>

Country	Needs	Opportunities of integrated action
	STH); 2) To support elimination of onchocerciasis in all 3 foci, 3) To improve deworming in PreSAC population; Information system: 1) To improve information system to capture deworming data;	surveillance program of onchocerciasis.

3.2.3. Group 3 Countries: Countries that need technical cooperation to focus activities for NIDs at local level and rural areas

Group 3 is comprised by three countries: Nicaragua, Argentina and Paraguay. Nicaragua has a big gap in access to improved sanitation in both urban and rural areas (Table 15). Nicaragua has an important experience of deworming PreSAC and SAC jointly with immunization campaigns, and there is a big opportunity to share their experience with other countries to encourage inter-programmatic actions.

Argentina and Paraguay share a common border in The Chaco area where epidemiological, eco-biological and socio-economic conditions are a major challenge for the control, prevention and treatment for NIDs (Bolivia, although included in Group 1, also has a border with The Chaco area). Paraguay has a big gap in access to improved sanitation in rural areas (Table 15).

Table 15. Sanitation coverage and population at risk in Group 3 countries.

Country	Population with access to improved sanitation facilities (2006) Percentage*			Population at risk 2009 (population without access to improved sanitation) Number of people**	
	Total	Urban	Rural	PreSAC	SAC
Argentina	91%	92%	83%	241.719	606.642
Nicaragua	48%	57%	34%	279.339	695.632
Paraguay	70%	89%	42%	176.837	425.667
TOTAL				697,895	1,727,941

*Pan American Health Organization, Health Information and Analysis Project. Health Situation in the Americas: Basic indicators 2009. Washington, DC., United States of America, 2009.

**UN data population 2008 Rev., were used to estimate population at risk.

This group has 5.4% of both PreSAC and SAC populations at risk for STH infections in the Latin American and Caribbean countries.

Soil-transmitted Helminthiases (STH)

Only Nicaragua has been reporting deworming activities regularly, both in PreSAC and SAC populations since 2005. Argentina just reported deworming activities in SAC in 2007 and Paraguay has not reported any deworming (Table 16).

Table 16. Deworming coverage in PreSAC and SAC population, 2005-2009 in Group 3 countries.

Country	SOIL TRANSMITTED HELMINTHIASES									
	Deworming coverage* Pre SAC					Deworming coverage* SAC				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Nicaragua	98,9%	100,9%	82,8%	95,5%	44,8%	64,9%	148,0%	91,3%	82,9%	290,5%
Argentina	0%	-	0%	-	-	8%	-	19,4%	-	-
Paraguay	-	-	-	-	-	-	-	-	-	-

*Data for 2009 on PreSAC and SAC population were estimated over population at risk.

Double counting of deworming activities from NGOs, FBOs and agencies may be reflected in 2009 data where the coverage was estimated in the population at risk and figures for Nicaragua are above 100% (Table 16).

Argentina and Nicaragua have deworming reports from NGOs, FBOs and other collaborators (Table 17). In Nicaragua the contribution from NGOs and FBOs is important: in 2008 it was 92.5% and in 2009 it was 33.9%. However, the Ministry of Health coordinates the work of the NGOs and FBOs. In 2009 Nicaragua reported 125,000 PreSAC treated and 2,020,757 SAC treated (Table 18).

Table 17. Collaborators on deworming activities in Group 3 countries.

Country	Collaborators on deworming activities
1 Nicaragua	MoH/World Vision, MEDPHARM, World Concern, Vitamin Angels, Wow Now, Food for the Hungry, Save The Children, MoH with Children Without Worms, American Nicaraguan Foundation, Direct Relief International, Operation Blessing International
2 Argentina	Fundacion Mundo Sano (NGO) and Ministry of Health

None of the three countries have reported fully nation-wide studies of STH prevalence. Argentina has STH prevalence for 9 regions in 2005 (6% - 31% prevalence range) and Nicaragua has STH prevalence for 4 regions in 2005 (23.46% - 92% prevalence range) (Annex 1). These data are from databases of PAHO's 2009 Epidemiological Profiles of Neglected Diseases and Other Infections Related to Poverty in Latin America and the Caribbean, published in 2009.

Nicaragua has been conducting national campaigns for deworming of children and has given mebendazole in joint campaigns with the immunization program. This collaborative approach needs impact evaluation.

Table 18. Total number of PreSAC and SAC treated, 2005-2009 and proportion of treated reported by NGOs, FBOs or agencies, Group 3 countries.

COUNTRY	2005			2006			2007			2008			2009		
	PreSAC treated	SAC treated	Reported by NGOs, FBOs or agencies	PreSAC treated	SAC treated	Reported by NGOs, FBOs or agencies	PreSAC treated	SAC treated	Reported by NGOs, FBOs or agencies	PreSAC treated	SAC treated	Reported by NGOs, FBOs or agencies	PreSAC treated	SAC treated	Reported by NGOs, FBOs or agencies
Argentina	-	554,545	-	-	-	-	-	1,320,000	-	-	-	-	-	-	-
Nicaragua	529,727	902,347	-	538,002	2,043,348	350,000	441,000	1,248,821	444,500	510,579	1,120,445	1,509,400	125,000	2,020,757	726,900
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	529,727	1,456,892	0	538,002	2,043,348	350,000	441,000	2,568,821	444,500	510,579	1,120,445	1,509,400	125,000	2,020,757	726,900

Table 19. Needs and opportunities of integrated actions to control and eliminate NIDs in Group 3 countries: Nicaragua, Argentina and Paraguay.

Country	Needs	Opportunities of integrated action
Argentina	<p>Mapping: 1) STH re mapping at national and sub-national level.</p> <p>Integrated actions: 1) To improve deworming coverage, with focus on rural population.</p> <p>Information system: 1) To improve information system to include deworming data.</p>	<p>1) To integrate actions with strategies such as IMCI, "Faces, voices and places" and Nutrition to combat the NIDs; 2) To integrate actions within El Chaco, with Bolivia and Paraguay; 3) Planning and implementation of integrated actions with other sectors, health programs or initiative as e.g. Mundo Sano project that is targeting STH and <i>Strongyloides</i> in Oran, Salta (Argentina).</p>
Nicaragua	<p>Mapping: 1) STH mapping at national and sub-national level in order to evaluate the impact of deworming activities;</p> <p>Integrated actions: 1) To design an Integrated National Plan for NIDs; 2) To focus activities on rural areas to control STH;</p>	<p>1) Cooperation from Nicaragua to other countries in Central and South America to share and expand the experience in deworming through immunization program; 2) Coordination with IADB in areas with water and sanitation projects in Nicaragua to do impact evaluation of deworming in Nicaragua; 3) Planning and implementation of integrated actions with other sectors and</p>

Country	Needs	Opportunities of integrated action
	<p>Monitoring and surveillance system: 1) To evaluate the impact of the multi-year national deworming program.</p>	<p>health programs.</p>
<p>Paraguay</p>	<p>Mapping: 1) STH mapping at national and sub-national level; Integrated actions: 1) To design an Integrated Plan to Combat NIDs, 2) To define a national strategy for integrated control of soil-transmitted helminths (advocacy with MoH); Information system: 1) To improve information systems to capture deworming data;</p>	<p>1) To support the integration of actions between the “Faces, voices and Places strategy”, IMCI, Integrated Vector Management with focus on indigenous people; 2) To integrate actions within El Chaco, with Bolivia and Argentina; 3) Planning and implementation of integrated actions with other sectors and health programs.</p>

3.2.4. Group 4 Countries: Countries that require technical cooperation on monitoring and evaluation

Group 4, comprises 13 countries: Antigua and Barbuda, Bahamas, Barbados, Chile, Costa Rica, Cuba, Dominica, Grenada, Jamaica, Saint Kitts and Nevis, Saint Vincent and Grenadines, Trinidad and Tobago and Uruguay.

Table 20. Sanitation coverage and population at risk, Group 4 countries.

Country	Population with access to improved sanitation facilities (2006) Percentage*			Population at risk 2009 (population without access to improved sanitation) Number of people**	
	Total	Urban	Rural	PreSAC	SAC
Antigua and Barbuda	95%	98%	94%	312	787
Bahamas	100%	100%	100%	0	0
Barbados	99%	99%	100%	113	301
Chile	94%	97%	74%	59,191	156,485
Costa Rica	96%	96%	95%	12,043	32,481
Cuba	98%	99%	95%	9,669	27,757
Dominica	-	-	-	4,747	11,969
Grenada	97%	96%	97%	227	577
Jamaica	83%	82%	84%	34,131	92,904
Saint Kitts and Nevis	96%	96%	96%	147	372
Saint Vincent and Grenadines	-	-	96%	295	802
Trinidad & Tobago	92%	92%	92%	6,002	14,567
Uruguay	98%	93%	98%	3,967	10,339
TOTAL				130,844	349,341

*Pan American Health Organization, Health Information and Analysis Project. Health Situation in the Americas: Basic indicators 2009. Washington, DC., United States of America, 2009.

**UN data population 2008 Rev., were used to estimate population at risk.

(-) For these countries was not available data published about percentage of access to improved sanitation facilities (2006). It was assumed 100% PreSAC and SAC population at risk.

In general these countries have high levels of access to improved sanitation though there are some gaps in rural areas in Jamaica, Dominica and Chile (Table 20).

This Group has 1.03% and 1.1% of PreSAC and SAC population at risk, in Latin America and the Caribbean.

Soil-transmitted Helminthiases (STH)

The reports of deworming activities in these countries are few or absent (Table 21).

Table 21. Deworming coverage in PreSAC and SAC population, 2005-2009, Group 4 countries.

Country	SOIL TRANSMITTED HELMINTHIASES									
	Deworming coverage* Pre SAC					Deworming coverage* SAC				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Antigua and Barbuda	-	-	-	-	-	-	-	-	-	-
Bahamas	-	-	-	-	-	-	-	-	-	-
Barbados	-	-	-	-	-	-	-	-	-	-
Chile	-	-	-	-	-	-	-	-	-	-
Costa Rica	0.0%	0.0%	-	-	-	17.8%	13.3%	-	-	-
Cuba	-	-	-	-	-	-	-	-	-	-
Dominica	-	-	-	-	-	-	-	-	-	-
Grenada	-	-	-	-	-	-	-	-	-	-
Jamaica	-	-	-	0.0%	1.6%	-	-	-	0.2%	0.4%
Saint Kitts and Nevis	-	-	-	-	-	-	-	-	-	-
Saint Vincent and Grenadines	-	-	-	-	-	-	-	-	-	-
Trinidad & Tobago	0.0%	-	-	-	-	0.1%	-	-	-	-
Uruguay	-	-	-	-	-	-	-	-	-	-

*Coverage data for 2009 on PreSAC and SAC population were estimated over population at risk.

In Jamaica for 2008 and 2009 there were deworming reports from two NGOs: Wow Now and Vitamin Angels. For 2009 Jamaica reported only 556 PreSAC treated and 350 SAC treated.

In this group only Costa Rica has reports of STH prevalence at the national level: 4.63% (1-6 year old children in 1996), 8.21% (7-12 year old children in 1996), 3.88% (15-44 year old women in 1996) and 5.08% (national prevalence on 1996). Cuba has reports at the sub-national level of STH prevalence. These data are from databases of PAHO's 2009 "Epidemiological Profiles of Neglected Diseases and Other Infections Related to Poverty in Latin America and the Caribbean. Prevalence data at first and second sub national level can be reviewed in Annex 1.

There are opportunities for inter-programmatic work in Antigua and Barbuda and Dominica where health activities in schools are being done during immunization campaigns.

Table 22. Needs and opportunities of integrated actions to control and eliminate NIDs in Group 4 countries: Antigua and Barbuda, Bahamas, Barbados, Chile, Costa Rica, Cuba, Dominica, Granada, Jamaica, Saint Kitts and Nevis, Saint Vincent and Grenadines.

Country	Needs	Opportunities of integrated action
Antigua and Barbuda	Integrated actions for STH: 1) To improve information system to capture deworming data; 2) Due to the low number of at risk population, it is not cost effective to carry out massive deworming but instead conduct individual treatment for STH. Therefore, data on deworming should be captured at health facilities.	1) To integrate deworming with immunization campaigns focusing on risk areas for STH in children aged 1 year or older old; 2) Planning and implementation of integrated actions with other sectors and health programs.
Bahamas	Integrated actions for STH: 1) To improve databases on deworming; 2) Due to the low number of at risk population, it is not cost effective to carry out massive deworming but instead conduct individual treatment for STH. Therefore, data on deworming should be captured at health facilities.	1) Planning and implementation of integrated actions with other sectors and health programs.
Barbados	Integrated actions for STH: 1) To improve databases on deworming, 2) Due to the low number of at risk population, it is not cost effective to carry out massive deworming but instead conduct individual treatment for STH. Therefore, data on deworming should be captured at health facilities.	1) Planning and implementation of integrated actions with other sectors and health programs.
Chile	Monitoring and surveillance system: To identify population at risk (rural areas) to focus on: 1) STH mapping and treat population at risk, 2) Fasciola and Echinococcus mapping (animals and humans) to analyze overlapping and make decisions based on evidence. If overlapping with STH is present include deworming in risk areas. 3) Capture data on deworming at health facilities.	1) To support the integration of actions between IMCI, "Faces, voices and places" as a window of opportunity to implement a national strategy for integrated control of soil-transmitted helminths with a focus on at-risk population, 2) Planning and implementation of integrated actions with other sectors and health programs.

Country	Needs	Opportunities of integrated action
Costa Rica	<p>Monitoring and surveillance system: 1) To identify population at risk (rural areas) to focus on STH mapping and treat population at risk; 2) To improve databases on deworming; 3) To support the certification of lymphatic filariasis elimination in Puerto Limón.</p>	<p>1) To include NIDs actions in the Country Cooperation Strategy, 2) To support the integration of actions between IMCI, "Faces, voices and places" and immunization program as a window of opportunity to implement a national strategy for integrated control of soil-transmitted helminths with focus on population at risk, 3) Planning and implementation of integrated actions with other sectors and health programs.</p>
Cuba	<p>Monitoring and surveillance system: 1) To identify population at risk to focus on STH and Fasciola mapping and treat population; 2) To improve databases on deworming; 3) To capture data on deworming at health facilities.</p>	<p>1) To support the integration of actions between IMCI, "Faces, voices and places" and immunization program as a window of opportunity to implement a focused strategy for integrated control of soil-transmitted helminths on population at risk, 2) Planning and implementation of integrated actions with other sectors and health programs.</p>
Dominica	<p>Monitoring and surveillance system: 1) To identify population at risk (rural areas) to focus on STH mapping and treat population at risk; 2) To improve databases on deworming; 3) To capture data on deworming at health facilities.</p>	<p>1) To support the integration of actions between IMCI, "Faces, voices and places" and immunization program as a window of opportunity to implement a focused strategy for integrated control of soil-transmitted helminths on population at risk, 2) Planning and implementation of integrated actions with other sectors and health programs.</p>
Grenada	<p>Monitoring and surveillance system: 1) To improve databases on deworming, 2) Due to the low number of population at risk, it is not cost-effective to carry out massive deworming but instead conduct individual treatment for STH. Therefore, data on deworming should be captured at health facilities.</p>	<p>1) Planning and implementation of integrated actions with other sectors and health programs; 2) St. George's University/WINDREF undertaking a national STH survey.</p>

Country	Needs	Opportunities of integrated action
Jamaica	<p>Mapping: 1) STH mapping at national and sub-national level;</p> <p>Integrated actions: 1) To define a national strategy for integrated control of soil-transmitted helminths (advocacy with MoH);</p> <p>Information system: 1) To improve information systems to have deworming data; 2) To capture data on deworming and Ascaris intestinal blockage from health care facilities.</p> <p>Coordination: 1) To strengthen MoH capacity to coordinate actions with NGOs and FBOs;</p>	<p>1) To support the integration of actions between the “Faces, voices and Places” strategy and nutrition as a window of opportunity to implement a focused strategy for integrated control of soil-transmitted helminths on population at risk, 2) Planning and implementation of integrated actions with other sectors and health programs.</p>
Saint Kitts and Nevis	<p>Monitoring and surveillance system: 1) To capture deworming data from health care facilities; 2) Due to the low at risk population, it is not cost effective to carry out massive deworming but instead conduct individual treatment for STH.</p>	<p>1) Planning and implementation of integrated actions with other sectors and health programs.</p>
Saint Vincent and the Grenadines	<p>Monitoring and surveillance system: 1) To improve information system to have deworming data; 2) Due to the low number of population at risk, it is not cost effective to carry out massive deworming but instead conduct individual treatment for STH</p>	<p>1) Planning and implementation of integrated actions with other sectors and health programs.</p>
Trinidad & Tobago	<p>Monitoring and surveillance system: 1) Due to the low number of population at risk, it is not cost effective to carry out massive deworming but instead conduct individual treatment for STH. Therefore, data on deworming should be captured at health facilities; 2) To support the certification of LF elimination.</p>	<p>1) Planning and implementation of integrated actions with other sectors and health programs.</p>
Uruguay	<p>Monitoring and surveillance system: 1) To identify population at risk (suburban areas) to focus on STH, 2) To</p>	<p>1) Planning and implementation of integrated actions with other sectors and health programs.</p>

Country	Needs	Opportunities of integrated action
	<p>know the importance of fascioliasis transmission to humans by metacercariae; 3) To capture deworming data from health care facilities.</p>	

3.3. Actions supported by PAHO in LAC for control and elimination of NIDs, 2009-2010

There are five action lines in which PAHO has focused country support in order to reach the public health goals in the framework of Resolution CD49.R19:

1. Advocacy, social and resource mobilization: including operational research
2. Technical cooperation to countries to develop integrated national and sub-national action plans for NIDs
3. Mapping including new baseline or follow-up parasitological/disease burden studies
4. Operative support at national and sub-national levels to promote development of integrated activities
5. Strengthening epidemiological surveillance and information systems

Main activities developed and ongoing in 2009-2010 are included in Table 23, following page.

Table 23. Main activities developed and ongoing by PAHO 2009-2010 towards the control and elimination of NIDs in LAC.

Action line	Countries and activities	Partners, stakeholders and collaborators
<p>Advocacy, social and resource mobilization</p>	<p><u>Disease Elimination.</u> PAHO Resolution CD49.R19 passed to renew the commitment to the elimination or reduction of neglected diseases and other infectious diseases (NIDs) to certain levels where these diseases are no longer considered public health problems in 2015 (October 2009).</p>	<ul style="list-style-type: none"> ▪ Ministries of Health in LAC, North America ▪ PAHO/WHO
	<p><u>Haiti.</u> PAHO hosted Multi-Partner dialogue to maintain the focus on the NTD control and elimination program during the reconstruction phase after the earthquake, to ensure the continuity, progress and scaling up of MDA for LF and STH (February 2010)</p>	<ul style="list-style-type: none"> ▪ Haitian Ministry of Health and Population (MSPP) ▪ Haitian Ministry of Education (MENFP) ▪ Hospital Saint Croix (HSC) ▪ US Centers for Disease Control and Prevention (CDC) ▪ The University of Notre Dame (UND) ▪ IMA World Health (IMA) ▪ USAID/RTI ▪ Congregation of Holy Cross (CSC) ▪ Global Network for Neglected Tropical Diseases ▪ Pan American Health Organization (PAHO), Regional Office of WHO
	<p><u>Trachoma.</u> Multi-Partner dialogue meeting to focus on trachoma elimination in Mexico, Brazil and Guatemala (March 2010)</p>	<ul style="list-style-type: none"> ▪ USAID ▪ 4th Sector Health/Abt Associates ▪ Rotary International; Lions International

Action line	Countries and activities	Partners, stakeholders and collaborators
		<ul style="list-style-type: none"> ▪ IDB ▪ Global Network for Neglected Tropical Diseases ▪ Lions Clubs International Foundation ▪ PAHO Regional Program NIDs and countries offices
	Strategy Development:	<ul style="list-style-type: none"> ▪ PAHO Regional Program NIDs and PAHO country offices; other Areas of PAHO
	NID Elimination Plan. Analysis of progress and priority lines of action for the control and elimination of neglected infectious diseases in Latin America and the Caribbean countries (Working paper). This document will be a tool for advocacy and resource mobilization (June 2010).	
	NID Trust Fund. Partnership with the Global Network and IDB to develop the TF and related activities. Working groups on structure & governance, advocacy and resource mobilization, M&E, and demonstration projects (Ongoing).	<ul style="list-style-type: none"> ▪ Global Network for Neglected Tropical Diseases ▪ IDB ▪ USAID Global Health ▪ WHO NTD Control Dept.
	Mebendazole Advisory Committee. Evaluation of global 5-year Strategic Plan 2010-2015 of Children Without Worms and collaboration in development of shared database for deworming coverage conducted by NGOs and FBOs in LAC. (Ongoing)	<ul style="list-style-type: none"> ▪ Children Without Worms ▪ IDB ▪ J&J Inc. ▪ Task Force for Global Health ▪ Global Network for Neglected Tropical Diseases
	Onchocerciasis. Evaluation of progress in elimination of onchocerciasis (MDA and post-	<ul style="list-style-type: none"> ▪ OEPA/Carter Center ▪ US CDC

Action line	Countries and activities	Partners, stakeholders and collaborators
	treatment surveillance) in the Americas with OEPA/Carter Center, semi-annual program review. (June 2010)	<ul style="list-style-type: none"> ▪ Merck Inc.
	NIH Dashboard on NTDs. Development of concept and lines of content for the NTD dashboard at NIH. (May 2010)	<ul style="list-style-type: none"> ▪ Lions International SightFirst ▪ PAHO Area of HSS ▪ NIH Office of Technology Transfer
	NTD Forum. Development of agenda for ISID and PAHO sponsored Forum on NIDs, Boston 2011. (Ongoing)	<ul style="list-style-type: none"> ▪ Office of the Director, PAHO ▪ ISID, International Society for Infectious Diseases
	Early Childhood Development program (ECD). Development of lines of collaboration with Columbia Earth Institute, ECD. Indicator development. (Ongoing)	<ul style="list-style-type: none"> ▪ PAHO Area of FCH, Family and Child Health ▪ Columbia Earth Institute, Early Childhood Development program ▪ Global Network for Neglected Tropical Diseases
	Guidelines. To develop integrated plans for control and elimination of NIDs in LAC (Ongoing and first draft 2 nd semester 2010)	<ul style="list-style-type: none"> ▪ Global Network for Neglected Tropical Diseases ▪ PAHO Regional Program NIDs and Country office ▪ USAID/RTI
		Systematic reviews: Onchocerciasis, schistosomiasis, lymphatic filariasis, congenital Chagas, rabies transmitted by dogs, treatment of NIDs in areas with overlapping, research priorities on NIDs (leprosy, schistosomiasis, STH and leishmaniasis)

Action line	Countries and activities	Partners, stakeholders and collaborators
<p>Mapping including new baseline or follow-up Parasitological/disease burden studies</p>	<p><u>Bolivia, Brazil and Colombia</u>: Mapping and modeling for Neglected Diseases in Latin America and the Caribbean (Ongoing, with model completed in 2nd semester 2010). Application of model to other LAC countries.</p>	<ul style="list-style-type: none"> ▪ Swiss Tropical Institute, School of Veterinary Medicine at Louisiana State University, the Federal University of Bahia and the DBL-Centre for Health Research and Development at the University of Copenhagen in Denmark ▪ Ministries of Health and National Health Institutes in Brazil, Bolivia and Colombia ▪ PAHO regional program NIDs and countries offices ▪ Global Network for Neglected Tropical Diseases
	<p><u>Suriname</u>: National baseline epidemiological and malacological survey to update and complete the mapping of schistosomiasis and soil-transmitted helminthiases. (Ongoing with results of survey due in 2nd semester 2010).</p>	<ul style="list-style-type: none"> ▪ Ministry of Health & Bureau of Public Health
	<p>Grant proposal submitted with NASA for funding a geospatial model to forecast distribution of schistosomiasis cases (May 2010).</p>	<ul style="list-style-type: none"> ▪ PAHO Regional Program NIDs and Country office ▪ US CDC ▪ SCORE project (Gates) ▪ NASA (USA) ▪ Global Network for Neglected Tropical Diseases
	<p><u>Guyana</u>: Design of protocol for mapping and remapping of lymphatic filariasis and Soil-</p>	<ul style="list-style-type: none"> ▪ Ministry of Health ▪ IDB and Global Network for Neglected

Action line	Countries and activities	Partners, stakeholders and collaborators
	transmitted helminths (Ongoing).	<ul style="list-style-type: none"> Tropical Diseases ▪ PAHO Regional Program NIDs and Country office
	<u>El Salvador</u> : Design of protocol for study of prevalence and parasite load of infection by STH in school-age children (Ongoing).	<ul style="list-style-type: none"> ▪ Ministry of Health ▪ Global Network for Neglected Tropical Diseases ▪ PAHO Regional Program NIDs and Country office
	<u>Colombia</u> : Design of protocol for study of prevalence and parasite load of infection by STH in school-age children in Antioquia (Ongoing and Protocol designed by the 2 nd semester 2010). Preparation for department-wide deworming.	<ul style="list-style-type: none"> ▪ Antioquia Governor ▪ Universidad de Antioquia ▪ Global Network for Neglected Tropical Diseases ▪ PAHO Regional Program NIDs and Country office
	<u>Guatemala</u> : Design of protocol for study of prevalence of trachoma in four municipalities (ongoing, with protocol designed by 2 nd semester 2010).	<ul style="list-style-type: none"> ▪ National Committee Vision 2020 - Guatemala ▪ PAHO Regional Program NIDs, Regional Program Visual Health, and Country office ▪ John Hopkins University ▪ IDB, Global Network for Neglected Tropical Diseases
	<u>Saint Lucia</u> : Design of protocol for baseline study of prevalence and parasite load of schistosomiasis and STH infection (Ongoing and Protocol designed 2 nd semester 2010)	<ul style="list-style-type: none"> ▪ Windward Islands Research and Education Foundation (WINDREF) / St. George's University of Grenada ▪ PAHO Regional Program NIDs and Country office

Action line	Countries and activities	Partners, stakeholders and collaborators
	<p><u>Mexico</u>: Identify the Social Determinants of Neglected and Other Poverty-Related Diseases and effective interventions, in two communities in Yucatán (Ongoing, with study ending on the 2nd semester of 2010).</p> <p>Analysis of status of mapping for Neglected Tropical Disease, by disease in LAC (33 countries, 4 groups of countries) (30 July 2010), in order to improve knowledge of needs in the Region. Annex 2.</p>	<ul style="list-style-type: none"> ▪ Global Network for Neglected Tropical Diseases ▪ Governor Yucatan and state health authorities ▪ Universidad Autónoma de Yucatán ▪ PAHO Regional Program NIDs and Country office ▪ Global Network for Neglected Tropical Diseases ▪ PAHO Regional Program NIDs and Country office ▪ Global Network for Neglected Tropical Diseases
<p>Technical cooperation to Countries to develop integrated national and sub-national action plans for NIDs</p>	<p><u>Guyana</u>: evaluation of the social mobilization component (COMBI) of the new LF/STH program and integration with other NIDs (Evaluation on July 2010).</p>	<ul style="list-style-type: none"> ▪ Ministry of Health ▪ IDB, Global Network for Neglected Tropical Diseases ▪ PAHO Regional Program NIDs and Country office
	<p><u>Honduras</u>:</p> <ul style="list-style-type: none"> ▪ Direct technical cooperation to promote and develop a national integrated plan, surveillance of STH and evaluation of deworming program (March 2010). 	<ul style="list-style-type: none"> ▪ Ministry of Health ▪ Global Network for Neglected Tropical Diseases ▪ George Washington University ▪ Fundación María ▪ World Food Programme ▪ Office of the First Lady (Primera Dama)

Action line	Countries and activities	Partners, stakeholders and collaborators
	<ul style="list-style-type: none"> Technical local support to develop a national integrated plan for control of NIDs (Start in 2nd semester 2010). 	<ul style="list-style-type: none"> PAHO Regional Program NIDs and Country office
	<p><u>Suriname:</u></p> <ul style="list-style-type: none"> Direct technical cooperation to promote and develop a national integrated plan, surveillance of STH/SCH 	<ul style="list-style-type: none"> The Bureau of Public Health (BOG) PAHO Regional Program NIDs and Country office Global Network for Neglected Tropical Diseases
	<p><u>Dominican Republic:</u> Direct technical cooperation to review the status of the Neglected Diseases Control Program (Lymphatic Filariasis, soil-transmitted helminths, schistosomiasis, fascioliasis), collaboration in mapping fascioliasis and STH, and start work to develop an integrated plan for control and elimination of NIDs (December 2009 and October 2010).</p>	<ul style="list-style-type: none"> Ministry of Health/CENCET Global Network for Neglected Tropical Diseases PAHO Regional Program NIDs and Country office Universidad de Valencia, Spain
	<p><u>Bolivia:</u> Technical cooperation to strengthen the Technical Country Cooperation between Bolivia, Peru and Brazil to survey fascioliasis and simultaneously the STH, and to improve fascioliasis control in the three countries (TCC formulated 2nd semester 2010)</p>	<ul style="list-style-type: none"> Ministry of Health Global Network for Neglected Tropical Diseases PAHO Regional Program NIDs and Country office; WHO NTD Dept.
	<p><u>Mexico:</u> Technical cooperation provided to Mexico's Federal Secretary of Health and to the Secretary of Health of the Chiapas state for implementation of the Integrated Plan to control or eliminate Neglected Diseases in the state of Chiapas</p>	<ul style="list-style-type: none"> Mexico's Federal Secretary of Health Secretary of Health Chiapas PAHO Regional Program NIDs and Country office IDB

Action line	Countries and activities	Partners, stakeholders and collaborators
	(Trachoma, leishmaniasis, Chagas Disease, rabies, STH, leprosy, onchocerciasis) and a <i>Demonstration Project</i> (Integrated plan for 6 diseases formulated in 1 st semester 2010 and to start implementation in 2 nd semester 2010)	<ul style="list-style-type: none"> ▪ Global Network for Neglected Tropical Diseases
	<p><u>Brazil:</u> Technical cooperation provided to health authorities of three municipalities (Recife, Olinda and Jaboatao das Guararapes) for the formulation of an Integrated Plan to control or eliminate 4 Neglected Diseases (Leprosy, lymphatic filariasis, schistosomiasis, STH) and development of a <i>Demonstration Project</i> (Integrated plan formulated in 1st semester 2010, and to start implementation in 2nd semester 2010)</p>	<ul style="list-style-type: none"> ▪ Health authorities of Recife, Olinda and Jaboatao das Guararapes; IMIP ▪ PAHO Regional Program NIDs and Country office ▪ IDB ▪ Global Network for Neglected Tropical Diseases
	<p>Analysis of status of Integrated NTD Action Plans by Country (33 countries, 4 groups of countries) (30 July 2010), to evaluate progress in LAC toward integration plans at national and sub-national levels, including results/tasks/projects expected until 2015. Annex 3.</p>	<ul style="list-style-type: none"> ▪ PAHO Regional Program NIDs and Country office ▪ Global Network for Neglected Tropical Diseases
Operative support at national and sub-national levels to promote development of integrated activities	<p><u>Guyana:</u></p>	<ul style="list-style-type: none"> ▪ Ministry of Health
	<ul style="list-style-type: none"> • Support National Program of LF and Neglected communicable diseases to integrate operative actions between LF and STH (Operative support June-December 2010). 	<ul style="list-style-type: none"> ▪ Global Network for Neglected Tropical Diseases
	<ul style="list-style-type: none"> • Technical training on entomology and integrated vector management, IVM (Training done in May 2010). 	<ul style="list-style-type: none"> ▪ PAHO Regional Program NIDs and Country office ▪ University of West Indies

Action line	Countries and activities	Partners, stakeholders and collaborators
	<p><u>El Salvador:</u> Training of 30 health workers in STH parasite diagnosis by quantitative Kato-Katz technique (Training done in June 2010)</p>	<ul style="list-style-type: none"> ▪ Ministry of Health of El Salvador and Honduras ▪ Global Network for Neglected Tropical Diseases ▪ PAHO Regional Program NIDs and Country office
	<p><u>Guatemala:</u> Direct technical cooperation to design and formulate a first draft of survey protocol for trachoma (May 2010).</p>	<ul style="list-style-type: none"> ▪ National Committee Vision 2020 - Guatemala ▪ PAHO Regional Program NIDs and for Visual Health, and Country office ▪ John Hopkins University ▪ Global Network for Neglected Tropical Diseases
<p>Strengthening epidemiological surveillance and information systems</p>	<p>PAHO and WHO databases updated on LF, schistosomiasis, STH for prevalence and treatment coverage (2009 completed, 2010 in progress).</p>	<ul style="list-style-type: none"> ▪ Ministries of Health ▪ PAHO Regional Program NIDs and Countries offices ▪ Sabin Vaccine Institute/GNNTD
	<p>Suriname: direct technical cooperation to define actions on surveillance system for low transmission areas for STH and SCH</p>	<ul style="list-style-type: none"> ▪ The Bureau of Public Health (BOG) ▪ PAHO Regional Program NIDs and Country office ▪ Global Network for Neglected Tropical Diseases
	<p><u>Guatemala:</u> supported monitoring and evaluation of post-treatment surveillance on the onchocerciasis foci, together with OEPA (June 2010).</p>	<ul style="list-style-type: none"> ▪ Ministry of Health with OEPA ▪ Global Network for Neglected Tropical Diseases

Action line	Countries and activities	Partners, stakeholders and collaborators
		<ul style="list-style-type: none"> ▪ PAHO Regional Program NIDs and Country office
	<p><u>Mexico</u>: supported monitoring and evaluation of post-treatment surveillance on the Chiapas South focus and monitoring of MDA in Chiapas North focus (May 2010).</p>	<ul style="list-style-type: none"> ▪ Mexico's Federal Secretary of Health with OEPA
		<ul style="list-style-type: none"> ▪ Secretary of Health Chiapas
		<ul style="list-style-type: none"> ▪ PAHO Regional Program NIDs and Country office
		<ul style="list-style-type: none"> ▪ IDB and Global Network for Neglected Tropical Diseases
	<p><u>Dominican Republic</u>: supported surveillance of lymphatic filariasis after stopping MDA in South-West focus (Monitoring and evaluation in 2nd semester 2010)</p>	<ul style="list-style-type: none"> ▪ Ministry of Health/CENCET with LF Support Centre at the Task Force of Global Health
	<ul style="list-style-type: none"> ▪ Global Network for Neglected Tropical Diseases 	
	<ul style="list-style-type: none"> ▪ PAHO Regional Program NID and Country office 	

4. Strategic actions 2010-2015 for PAHO's support to Member States to control and/or eliminate NIDs in LAC

Within the framework of the main challenges in LAC to reach the goals for control and elimination of NIDs it is necessary:

- To advance Integrated Plans for elimination and control of NIDs (including social mobilization and community participation)
- To advance mapping and re-mapping at first and second national level: technical and financial resources
- To monitor and evaluate progress toward regional goals (including knowledge generation and share evidence on lessons learned)
- To integrate inter-programmatic and inter-sectoral actions: IMCI, EPI, water and sanitation, housing programs, healthy schools
- To advocate with Ministries of Health and other Ministries to focus on social determinants of health
- To maintain and strengthen partnerships: Trust Fund, regional and country initiatives
- To identify financial resources for LAC vs. bigger burden disease in African Region

The strategic actions 2010-2015 in which it is necessary to focus advocacy and mobilization, included timetable and approximately costs, are described below.

Financial resources

The implementation of the PAHO operational Regional Plan to eliminate Neglected Tropical Diseases at the regional level for five years (2010 – 2015) was estimated at US\$ 7.5 million. These include resources needed for technical cooperation as well as seed resources to support Member States for starting and/or strengthening their efforts to implement their own baseline survey and action plans to eliminate NIDs and to monitor the progress in the context of the Resolution CD49.R19 (2009).

Approximately 53.2% of these resources are to be spent to support the development of the integrated national and sub-national actions plans. The rest will be distributed on advocacy and mobilization of resources and strengthening epidemiological surveillance and information systems as shown in table 24.

Table 24. Resource requirements estimated for the NID plan.

Action line		Expected Results	US\$ (Millions)	
1	Advocacy and resource mobilization	Control and/or elimination of NID included in the national and sub-national Agenda	1,445	(19.1%)
2	Integrated national and sub-national action plans	Integrated plans developed and implemented	4,022	(53.2%)
3	Mapping and re-mapping (including new baseline or follow-up parasitological/disease burden studies)	Strengthen surveillance and information systems	2,090	(27.6%)
4	Strengthening epidemiological surveillance and system information			

Considering the needs for resources through the 2010-2015 five-year period, it is estimated that the need for each of the first three years will be approximately US \$1.7 million per year and after it will decrease to under US \$ 1.2 million per year.

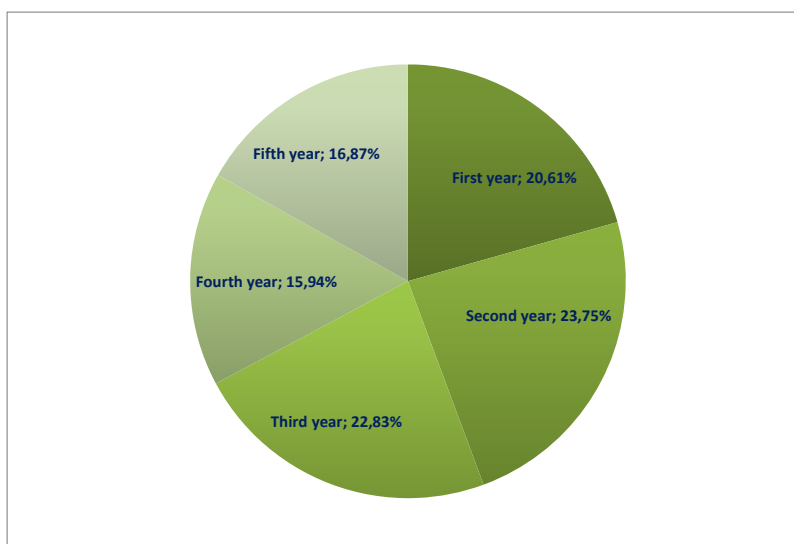


Fig. 11. Percentage of financial resources needed by year for Strategic Plan NIDs, PAHO 2010-2015

Table 25. NTD STRATEGIC PLAN: Costs to promote the achievement of goals, 2010-2015

Action line		First year	Second year	Third year	Fourth year	Fifth year	Total per line
1	Advocacy and resource mobilization	\$315.000	\$225.000	\$315.000	\$255.000	\$375.000	\$1.445.000
2	Integrated national and sub-national action plans	\$875.500	\$925.000	\$875.000	\$655.000	\$715.000	\$4.022.500
3	Mapping and re-mapping (including new baseline or follow-up parasitological/disease burden studies)	\$335.000	\$345.000	\$375.000	\$175.000	\$25.000	\$1.255.000
4	Strengthening epidemiological surveillance and information systems	\$50.000	\$300.000	\$160.000	\$160.000	\$165.000	\$835.000
TOTAL		\$1.557.500	\$1.795.000	\$1.725.000	\$1.205.000	\$1.275.000	\$7.557.500

Table 26. NTD STRATEGIC PLAN: Costs to promote the achievement of goals, 2010-2015.

ACTION LINE	ACTIVITY DESCRIPTION	COUNTRIES	TOTAL PER LINE
1. Advocacy and resources mobilization	Regional meeting NTD (One each two years)	Belize, Brazil, Bolivia, Mexico, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Panama, Peru, Saint Lucia, Suriname and Venezuela	\$1,445,000
	LF annual meeting	Guyana, Suriname, Haiti, Dominican Republic, Brazil, Trinidad & Tobago, Partners	
	SCH and STH annual meeting	Brazil, Venezuela, Suriname and Saint Lucia, Partners	
	STH inter-programmatic work + Nutrition and EPI (Mesoamerican Initiative): annual meeting participation	Mexico, Colombia, Dominican Republic, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Belize, Panama	
	Trachoma annual meeting	Brazil, Guatemala and Mexico, Partners	
	Participation in international meetings (OEPA, ISID, etc)		
	Global forum (each 3 years) Sub-regional forums: Andean region, cono sur, central America, Caribbean		
2. Integrated national and sub-national action plans	Development and validation of Regional Guidelines for integrated action plans to control and elimination of NIDs (design guidelines and meeting to discuss and validate guidelines)	Brazil, Mexico, Dominican Republic, Haiti, Guyana, Suriname, Honduras, El Salvador, Nicaragua, Colombia, Ecuador	\$4,022,500
	Diffusion and training on guidelines for integrated plans (one meeting)	Bolivia, Brazil, Dominican Republic, Ecuador, Guatemala, Guyana, Haiti, Mexico, Peru, Saint Lucia and Suriname, Colombia, El Salvador, Honduras, Belize, Panama, Venezuela	
		Monitoring on advance in application of guideline (missions to 3 countries each year)	
	Regional technical cooperation (Regional NID program Headquarter): Parasitologist, Epidemiologist, Plan management, cooperation support, geographer		

ACTION LINE	ACTIVITY DESCRIPTION	COUNTRIES	TOTAL PER LINE
	Technical cooperation: missions to countries to support actions for control and elimination of NIDs	Dominican Republic, Haiti, Guatemala, Guyana, Suriname, Honduras, El Salvador, Mexico and Brazil (first year)	
		Dominican Republic, Haiti, Guatemala, Guyana, Suriname, Honduras, El Salvador, Mexico, Brazil, Bolivia, Ecuador, Colombia, Belize (second year).	
		Temporary advisor to support technical cooperation from the 2nd year (visits to 5 countries)	
		Dominican Republic, Haiti, Guatemala, Guyana, Suriname, Honduras, El Salvador, Mexico, Brazil, Bolivia, Ecuador, Colombia, Belize, Peru, Panama and Venezuela (third year)	
		Temporal adviser to support technical assistance on third year (visits to 5 countries)	
		Missions to maintain work in countries that need support (8 countries)	
	Support national and sub-national level to develop integrated action plan for control or elimination of NIDs (formulate, concert, training and promote national/sub-national jurisdiction ownership)	Five countries by year (support with a national professional in each country)	
	Identify best practices to combat NIDs in LAC and convene or participate in international NID	Conduct a systematic review on best practices in LAC to combat NIDs (including distribution)	
Identify knowledge gaps in the evidence base for control and elimination of NIDs and conducts operational research as needed	Three systematic reviews done, Final consensus reports published and disseminated		
Meetings to share best practices and analyze advances and lessons learned in LAC (One meeting every two years)			
3. Mapping and re-mapping (including new baseline or	Complete country NIDs profiles: Design of protocols	Dominican Republic, Haiti, Honduras, El Salvador, Bolivia, El Chaco (Argentina, Paraguay, Bolivia, Colombia for trachoma) (first year)	\$1,255,000

ACTION LINE	ACTIVITY DESCRIPTION	COUNTRIES	TOTAL PER LINE
follow-up parasitological/disease burden studies)	for mapping at national and sub-national level	Ecuador, Peru, Belize, Panama, Venezuela, , Nicaragua, Uruguay (Second year)	
	Development of surveys	Guyana (LF and STH), El Salvador (STH), Colombia (STH and TRA), Guatemala (TRA), Saint Lucia (STH/SCH) (First year)	
		Dominican Republic (LF and STH), Haiti (LF and STH), Honduras (STH), Bolivia (STH, SCH and Fasciola), El Chaco (STH, SCH)	
		Ecuador, Peru, Belize, Panama, Venezuela, Nicaragua, Uruguay (Third year)	
	Training on laboratory and field tools to develop quantitative baseline surveys	Guyana, El Salvador, Colombia, Guatemala, Saint Lucia (First year)	
		Dominican Republic, Haiti, Honduras, Bolivia, El Chaco (Second year)	
		Ecuador, Peru, Belize, Panama, Venezuela, Nicaragua, Uruguay (Third year)	
Re-training and maintain capacity			
4. Strengthening epidemiological surveillance and information systems	Protocol to develop or strengthen the integrated surveillance systems to control or elimination of NIDs	Protocol developed for internal data quality assurance for country's surveillance systems.	\$835,000
		Proposal developed for the integration of NID surveillance into the existing health surveillance systems.	
		Report available on the feasibility of the application of the surveillance proposal in the countries	
		Distribution and training on guideline for surveillance of NIDs	
		Monitoring on advance in application of surveillance protocol (missions to 3 countries each year)	
	Monitoring and evaluation on progress for the certification/validation of elimination process at national and sub-national levels (missions to countries)	LF (Costa Rica, Trinidad and Tobago, Dominican Republic, Haiti, Brazil, Guyana, Suriname), Onchocerciasis (Colombia, Mexico, Guatemala, Ecuador, Brasil, Venezuela), Trachoma (Guatemala, Mexico, Brazil)	
TOTAL		\$7,557,500	

ANNEX 1. Strategic planning for strengthening the integrated control and elimination of NIDs in Latin America and the Caribbean: Groups 1, 2, 3 and 4 (These tables are in a MS Excel file, which can be provided separately upon request.)

ANNEX 2. Status of mapping for Neglected Tropical Disease, by disease (33 countries, 4 groups), 30 July 2010

Country	STH*	SCH*	LF	ONCHO**	TRA	NOTES
Group 1						
Bolivia	Planned survey for Fasciola and STH 2010-2011					Univ. Valencia has Fasciola data
Brazil	In process by SVS	In process by MoH/SVS, planned for 2010-11 in IDB project for Manaus and Belem	+ PELF, Planned in Demonstration project in Recife	+	+	Get 2nd level trachoma data from SVS
Dominican Republic	MoH-CENCET has 2009 draft STH Survey Plan		+ PELF, Mapping underway in Barahona to determine whether to stop MDA; planned elsewhere for suspect extinct foci; mapping needed for possible new foci post-earthquake			Univ. Valencia doing Fasciola survey 2010-11
Ecuador				+		
Guatemala	Planned in IDB WS&S loan			+	+, Planned for 2011	

Country	STH*	SCH*	LF	ONCHO**	TRA	NOTES
Guyana	Planned in IDB WS&S loan (District 4)		+ PELF, Planned by MoH, Planned with IDB WS&S loan (District 4)			
Haiti	+; Planned in IDB WS&S loan		+ PELF, Underway in Barahona to determine whether to stop MDA, planned elsewhere for suspect extinct foci, mapping of possible new foci post- earthquake; Planned with IDB on STH and LF survey P. au P. W&S loan			Current LF MDA data held by NDU & IMA World Health; STH monitoring planned in IDB/WAS's rural W&S project as part of the W&S for intermediate cities loan
Mexico	May occur in Demonstration Project (Chiapas) 2010-11			+	+, Planned in Demonstration Project (Chiapas) 2010-11	
Peru	Planned survey for Fasciola and STH 2010-2011					Univ. Valencia has Fasciola data
Saint Lucia	+; Planned 2010-11	Planned 2010-11				Protocol STH/SCH drafted, under review

Country	STH*	SCH*	LF	ONCHO**	TRA	NOTES
Suriname	Ended by October 2010	Ended by October 2010	+ PELF ; Planned Nickerie			Additional surveys could be included in IDB WS&S loan package
Group 2						
Belize	+, carried out in 2 districts					In the poorest districts
Colombia	Planned for Antioquia, Colombia, 2010-11			+	May be needed	
El Salvador	Planned for 2010-11					
Honduras	+; Planning remapping of STH in SAC in 2010-11; IDB is negotiating WS&S loan					IDB had planned mapping for W&S project but the loan is now on hold
Panama	Possible, interest expressed by MOH to Sabin (confirm)					
Venezuela	Needed but see Notes	Needed, but see notes		+		Political situation inhibiting

Country	STH*	SCH*	LF	ONCHO**	TRA	NOTES
Group 3						
Argentina	+ in Northern Argentina					Strongyloides in Salta will be mapped?
Nicaragua	+ in 4 districts					
Paraguay						May have interest in STH survey esp. Chaco
Group 4						
Antigua and Barbuda						
Bahamas						
Barbados						
Chile						Could obtain antihelmintic use data from health system
Costa Rica			+ PELF (Puerto Limon)			
Cuba	Under discussion in IPK					Fasciola too
Dominica						

Country	STH*	SCH*	LF	ONCHO**	TRA	NOTES
Grenada	Planned for 2010-2011 by St. Georges University					
Jamaica						Childrens Hospital data on Ascaris internment, surgery
Saint Kitts and Nevis						
Saint Vincent and Grenadines						
Trinidad & Tobago			+ PELF			
Uruguay	Possible interest or piggyback on Fasciola survey					Univ. Valencia may do Fasciola survey
‡: Completed in last 5-10 years						
*: New surveys can also cover Fasciola and some cestodes						
**: Data held by the Onchocerciasis Elimination Program in the Americas (OEPA)						

Annex 3. Status of Integrated NTD Action Plans by Country 33 countries, 4 groups

Country	pre-2010	2010	2011	2012	2013	Notes
Group 1						
Bolivia	Draft STH MDA plan (with Children Without Worms, 2007)		Possible			See note for ARG
Brazil	MoH/SVS Enteroparasites Plan 2003, PELF Plan, Oncho MDA action plan with OEPA, Recife Integrated NTD Action Plan 2009	Recife Integrated NTD Action Plan & NTD Demonstration Project (revised)				
Dominican Republic	PELF Plan	LF Remapping of known foci and mapping of possible new foci post earthquake	Expected			IDB WS&S loan in process
Ecuador	Oncho MDA action plan with OEPA					National deworming program
Guatemala	STH 2008, Oncho action plan with OEPA		Possible			IDB WS&S loan in process, planning trachoma control

Country	pre-2010	2010	2011	2012	2013	Notes
Guyana	PELF Plan	Integrated NTD Plan in process of development				IDB WS&S loan in process
Haiti	PELF Plan		Expected			IDB WS&S loan in process
Mexico	Chiapas Demonstration Project and Integrated Plan for control or Elimination of 6 NTDs, Oncho MDA action plan with OEPA	Chiapas Integrated NTD Action Plan and NTD Demonstration project (revised)				
Peru			Possible			
Saint Lucia			Possible			Had SCH control project in early 1970s
Suriname	Once had PELF action plan, transmission stopped	Targeted for 12 2010				IDB WS&S loan in process
Group 2						
Belize	STH MDA Plan (2 districts)					NTD project proposal prepared 2005-06, unfunded
Colombia	Oncho MDA action plan with OEPA		Possible			

Country	pre-2010	2010	2011	2012	2013	Notes
El Salvador			Possible			
Honduras			Expected			NTD project proposal prepared 2005-06, unfunded
Panama			Possible			
Venezuela	Oncho MDA action plan with OEPA					Conducting oncho elimination
Group 3						
Argentina	STH Plan, Northern Argentina					NTD project proposal prepared 2005-06 for Chaco, unfunded
Nicaragua	STH MDA plan (with Children Without Worms, 2007)					MDA began 2008 with CWW
Paraguay						See note for ARG
Group 4						
Antigua and Barbuda						
Bahamas						
Barbados						
Chile						

Country	pre-2010	2010	2011	2012	2013	Notes
Costa Rica	Once had PELF action plan (Puerto Limon), transmission stopped					
Cuba				Possible		
Dominica						
Grenada			Possible			
Jamaica						
Saint Kitts and Nevis						
Saint Vincent and Grenadines						
Trinidad & Tobago	Once had PELF action plan; transmission stopped					
Uruguay						
NOTES	In the LAC Region, NTD mapping projects may need to include other NTDs like Chagas disease, leprosy/Hansens.	2010: A separate mapping project for Leishmaniasis is underway in several countries in the LAC Region, supported by PAHO/WHO and AECID.				