Preliminary

Context

The following document is part of the REACH Acting at Scale set of materials
- The documents’ aim is to provide highly condensed information and lessons learned for scaling up REACH-promoted interventions to support field practitioners and other interested parties
- They are intended to become a living set of materials, updated periodically by the REACH Global Interagency Team
- These materials are a first step towards a larger REACH Knowledge Sharing service, which will be developed over time

The full set of Acting at Scale materials includes
- An Intervention Summary
  - An overview document containing key facts for all of the 11 promoted interventions
- Intervention Guides for each of the interventions
  - Containing rationale, lessons learned, costs and further resource lists
- Implementation Case Studies for each of the interventions
  - Initial set of details and lessons learned from programs implemented at scale
- Resource Lists
  - Lists of key documents, organizations and programs at scale
  - Included at the back of each Intervention Guide and in Excel spreadsheets available from the REACH Global Interagency Team

These materials represent a preliminary version, to be validated and refined via additional consultations
- Prepared in Summer 2008 by the REACH Global Interagency Team, based on inputs from 56 practitioners and experts, as well as extensive desk research
- A revised Version 2 of these documents will be released in late 2008 or early 2009, incorporating feedback from initial recipients

If you have questions or feedback on these materials, please
- Contact the REACH Interagency Team at HQ.REACH@wfp.org or visit our website at www.reach-partnership.org

1. Breastfeeding and complementary feeding have been combined into a single document due to strong linkage in delivery
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Key messages

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Where to go for further information
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  • Organizations
  • Experts (under construction)
  • Scaled-up programs

Appendix: experts consulted
Key messages

Worms affect 2 billion people worldwide, generating 4.6M DALYs each year
• 386M <5 children are at risk of morbidity as of 2007, with only 10.7% covered
• Worms deprive children of iron, vitamin A and other nutrients, creating under- and malnutrition that results in growth faltering, reduced learning capability and anemia

Deworming tablets offer a relatively simple solution to this large-scale health problem
• Highly effective, easy-to-distribute and inexpensive technology
• Low technology and limited adverse events risk enables delivery via staff that require only minimal training

Deworming is relatively simple to integrate into existing delivery channels, often with additive value to existing programs
• Given immediate, visible impact on children, deworming generates demand for other nutrition services
• Can be added to vitamin A, immunization, child health or other mass campaigns, or integrated management of childhood illness (IMCI) public health programs
• Programs for <5s and P&L women can be added as an extension to school feeding programs
  – Schools are the most common delivery channel, given the high exposure rates of school-aged children

Given safety of drugs and high probably of individual infection where prevalence rates are high, all children and P&L women should be treated
  – No testing is required

Sustainability of program is essential, given that treatment does not prevent reinfection
• Requires ongoing treatment programs, with associated funding and local capacity
• Results are more sustainable when prevention education supplements treatment
  – Simple and fun-to-use education materials create awareness and induce behavior change
• In long-term, programs that improve hygiene and sanitation reduce infection rates

M&E is relatively simple, as proven drug impact allows programs to focus mainly on coverage tracking via simple, easy-to-use tools

Source: WHO worm control databank; expert interviews; literature review; REACH analysis
Why implement
Several types of worms threaten human health

300 species of worms that infect humans

<table>
<thead>
<tr>
<th>Classification of worms</th>
<th>Type of worm</th>
<th>Burden</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil-transmitted helminths</td>
<td>Hookworms</td>
<td>2 B people infected</td>
</tr>
<tr>
<td>Intestinal</td>
<td>Roundworms</td>
<td>in almost all developing countries</td>
</tr>
<tr>
<td></td>
<td>Whipworms</td>
<td>135K deaths / year</td>
</tr>
<tr>
<td>Schistosomes</td>
<td>S. mansoni</td>
<td>200 M people infected</td>
</tr>
<tr>
<td>Intestinal</td>
<td>S. intercalatum</td>
<td>85% of burden is in Africa</td>
</tr>
<tr>
<td>Intestinal</td>
<td>S. japonicum</td>
<td>200K deaths / year</td>
</tr>
<tr>
<td>Urinary</td>
<td>S. mekongi</td>
<td></td>
</tr>
<tr>
<td>Urinary</td>
<td>S. haematobium</td>
<td></td>
</tr>
</tbody>
</table>

While more people are infected with soil-transmitted helminths, more deaths are attributed to schistosomiasis

Worms found in unhygienic and tropical environments cause multiple nutrition-related impacts

<table>
<thead>
<tr>
<th>Sources of risk</th>
<th>Transmission routes</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Soil-transmitted</strong></td>
<td><strong>Hookworm</strong></td>
<td><strong>Children</strong></td>
</tr>
<tr>
<td><strong>helminths</strong></td>
<td>- Eggs in human feces</td>
<td>- Malnutrition¹</td>
</tr>
<tr>
<td><strong>Tropical climate</strong></td>
<td>- Contraction via skin when walking barefoot</td>
<td></td>
</tr>
<tr>
<td><strong>Schistosomones</strong></td>
<td><strong>Roundworm &amp; whipworm</strong></td>
<td>- Growth faltering</td>
</tr>
<tr>
<td><strong>Fresh, still water</strong></td>
<td>- Ingestion of eggs from unwashed hands or food</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Schistosomes</strong></td>
<td>- Reduced learning capability</td>
</tr>
<tr>
<td></td>
<td>- Contamination via larvae in fresh water</td>
<td>- Anaemia</td>
</tr>
</tbody>
</table>

1. Worms cause poor nutrient absorption
Two complementary means of addressing worms
Deworming offers short-route treatment; hygiene education can supplement when cost-effective

**REACH focus**

**Short route**
- **Deworming tablets**
  - E.g., delivered via mass campaign, public health service or school

**Objective**
- Treatment
  - Reduce morbidity
  - Reduce individual worm burden

**Long route**
- **Improved sanitation and waste management**
  - E.g., improving community sanitation facilities

- **Improved hygiene education and awareness**
  - E.g., delivered via public health system, community or schools

- **Prevention**
  - Control transmission
  - Reduce reinfection

Although REACH focuses on short route interventions, long route actions also are required

Helminth treatment is considered one of the most cost-effective interventions available.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Cost-effectiveness (US$ per DALY averted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albendazole treatment:</td>
<td>$2-9/DALY averted</td>
</tr>
<tr>
<td>Combined albendazole/ praziquantel</td>
<td>$8-19/ DALY averted</td>
</tr>
</tbody>
</table>

Treatment is cost-effective... relative to other low- and middle-income disease interventions:

- HIV/AIDS: Treatment of Kaposi's sarcoma
- Tuberculosis: Isoniazid treatment
- Diarrheal disease: Oral rehydration therapy
- Diarrheal disease: Breast feeding promotion
- HIV/AIDS: Antiretroviral therapy
- HIV/AIDS: Home care
- Tuberculosis (endemic): Management of drug resistance
- Tuberculosis (endemic): Short-course chemotherapy
- Childhood clusters: Pentavalent vaccine
- Tuberculosis (epidemic): Management of drug resistance
- Tuberculosis (epidemic): Isoniazid treatment
- HIV/AIDS: Mother-to-child transmission prevention
- Under- & malnutrition: Child health & nutrition package
- Diarrheal disease: Hand pump, standpost, or house connection
- HIV/AIDS: Opportunistic infection treatment
- Diarrheal disease: Construction of basic sanitation
- HIV/AIDS: Co-infection prevention & treatment
- Tuberculosis (epidemic): Short-course chemotherapy
- HIV/AIDS: Blood and needle safety
- HIV/AIDS: Condom promotion and distribution
- Tuberculosis: BCG vaccine
- HIV/AIDS: ST-infections diagnosis with treatment
- Zinc deficiency: Supplements with oral rehydration salts
- HIV/AIDS: Voluntary counseling and testing
- Diarrheal disease: Water sector regulation
- Underweight child: Child survival program with nutrition
- HIV/AIDS: Peer and education programs
- Malaria: IPT in pregnancy with sulfadoxine
- Malaria: Residual household spraying
- Malaria: Insecticide-treated bed nets
- Tuberculosis measles: Traditional EPI
- Malaria: IPT in pregnancy w/drugs other than sulfadoxine
- Diarrheal disease: Hygiene promotion
- Soil-transmitted helminths: Albendazole

How to implement at scale
Key lessons learned about implementing deworming programs at scale

Define strategy
- Ensure government commitment and coordination to enable scale-up and sustainability
  - E.g. in Cambodia government infrastructure was used, education/reporting materials developed by MoH
- Leverage as many partners possible to increase coverage and build local capacity
  - E.g. in Uganda, multiple NGOs deliver tablets in certain areas

Design
- Integrate deworming into existing programs
  - Immediate impact of deworming makes it popular with beneficiaries, and increases uptake of other interventions
  - Enables low-cost delivery, as the cost of tablets is low relative to delivery costs
- Design programs to enable ongoing treatment, as reinfections are common

Implement
- Don’t invest in screening or targeting individuals, as prevalence typically is high and drug risks are low
- Identify and negotiate with suppliers to produce product in bulk to realize economies of scale
- Train those delivering tablets to make sure delivery is suited to <2 children, e.g. in DRC, tablets are crushed with a spoon
- Establish train-the-trainer models to enhance cost-effectiveness, e.g. in Cambodia school cluster directors were trained centrally and trained teachers
- Where education is a component of the program, develop customized and fun-to-learn education materials, e.g. in the Philippines a package of songs, drawings, games were developed
- Leverage community to increase coverage, e.g. in Philippines students train peers

Monitor, evaluate, refine
- Centrally develop simple registration forms to track regular deworming of individuals and total coverage
  - E.g. in Cambodia the MoH developed standardized forms and managed distribution and recollection
- A basic M&E system measuring coverage and number of drugs distributed is essential
  - Since efficacy deworming is clear, impact metrics are less relevant than operational metrics to ensure effective delivery
Program strategy influenced by the age of the target beneficiaries

1. Soil transmitted helminths
2. Schistosomiasis
3. WHO recommendation
4. Especially for large-scale programs where tablets have to be delivered to many beneficiaries and the added complexity of serving 1-2 year olds slows the delivery and therefore reduces capacity.
5. Half a tablet instead of a full tablet is given.

Deworming is a relatively simple product to distribute
But sustainable solutions a challenge

Simple and cheap to use...

Low risk
• Very low skills required to provide pill to children >5
  – Some skill required to provide pills to children <5
• Limited risk of side effects or adverse events reduce risk of treating uninfected children and pregnant women

Simple distribution requirements
• Shelf life of up to four years
• Pills are heat-stable and require no cold chain
• Low space requirements

Low cost
• Cost of $0.02 per soil-transmitted helminth treatment
• Cost of $0.20 per schistosomiasis treatment

...yet difficult to sustain

Reinfection is common, especially if
• Treatment is not consistent
• Root causes are not addressed (e.g., lack of sanitation)

Multi-year funding is necessary, but difficult
• International funding often limited to a few years
• Despite low tablet costs, long-term deworming programs can overwhelm modest MoH budgets

Schistosomiasis tablets generally are imported
• Rarely produced domestically
• Limited global supply
• Logistics are complex, requiring a long order lead time
• Mark-up of 15% for sea transportation and 25% for air shipment

Source: “Action against worms,” WHO, several issues from 2003-2006.; REACH analysis
Deworming drug selection based on local worm prevalence and drug characteristics

Determine drug type

Options
- Drugs against soil-transmitted helminths (STH)
- Drugs against schistosomiasis (SS)

Decision criteria
- Prevalence of worm burden in the particular area
  - Schistosomiasis mainly present in Africa
  - Soil-transmitted helminths prevalent throughout the developing world

Determine drug/formulation
- For STH¹:
  - Albendazole²
  - Mebendazole²
  - Levamisole³
  - Pyrantel³
- For SS¹
  - Praziquantel

Options
- Drugs against soil-transmitted helminths (STH)
- Drugs against schistosomiasis (SS)


For STH albendazole and mebendazole are mainly used because of their easy dosage requirements. For SS only praziquantel is used

¹. WHO recommended drugs  ². Both typically used as dosage is very simple; No major difference in terms of quality and cost between albendazole and mebendazole  ³. Levamisole and pyrantel less often used as their dosage requirement is more complicated  ⁴. Local production only for STH tablets, not for schistosomiasis

## Dosage and treatment frequency are straightforward, easing complexity of delivery

<table>
<thead>
<tr>
<th>Category</th>
<th>Prevalence among school children</th>
<th>Action to be taken</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Soil-transmitted helminth</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-risk community</td>
<td>≥50%</td>
<td>Treat all school-age children (enrolled and not enrolled) twice each year</td>
</tr>
<tr>
<td>Low-risk community</td>
<td>≥20% and &lt;50%</td>
<td>Treat all school-age children (enrolled and not enrolled once each year)</td>
</tr>
</tbody>
</table>

| Schistosomiasis               |                                  |                                                                                   |
| High-risk community           | ≥50% by parasitological methods (intestinal and urinary schistosomiasis) Or ≥30% by questionnaire for visible haematuria (urinary schistosomiasis) | Treat all school-age children (enrolled and not enrolled once a year) Also treat: •Preschool children; •Women of childbearing age including pregnant women in the 2<sup>nd</sup> and 3<sup>rd</sup> trimesters and lactating women; •Adults at high risk in certain occupations (e.g. tea-pickers and miners) |
| Moderate-risk community       | ≥10% but <50% by parasitological methods (intestinal and urinary schistosomiasis) or <30% by questionnaire for visible haematuria (urinary schistosomiasis) | Treat all school-age children (enrolled and not enrolled once every 2 years) Also treat adults considered to be at risk (from special groups to entire communities living in endemic areas) |
| Low-risk community            | <10% by parasitological methods (intestinal and urinary schistosomiasis) | Treat all school-age children (enrolled and not enrolled) twice during their primary schooling age (e.g. once on entry and once on exit) Also treat adults considered to be at risk. Praziquantel should be available in dispensaries and clinics for treatment of suspected cases |

ªprevalence of any STH infection is less than 20%, large-scale preventive chemotherapy interventions are not recommended. Affected individuals should be dealt with on a case-by-case basis. If resources are available, a third drug distribution intervention might be added. In this case the appropriate frequency of treatment would be every 4 months. Source: “Preventative chemotherapy in human helminthiasis.” WHO, 2006.
Typical flow of deworming tablets to the child

<table>
<thead>
<tr>
<th>Sourcing</th>
<th>Implementer</th>
<th>Delivery channel</th>
<th>Frequency of usage</th>
<th>Beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global pharma</td>
<td>Government</td>
<td>Public health system</td>
<td></td>
<td>Usually administered directly to mothers and children</td>
</tr>
<tr>
<td>companies</td>
<td>UN</td>
<td>Existing mass campaign</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NGOs¹</td>
<td>UN facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Schools</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>including teenage mothers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Typically in support of mass campaigns to extend reach to more remote communities.
2. Only partly relevant for REACH

Source: "Action against worms." WHO, several issues from 2003-2006.; expert interviews; REACH analysis
## Deworming is often piggy-backed onto existing programs

Opportunities to leverage/expand existing programs

<table>
<thead>
<tr>
<th>Typical channels</th>
<th>Strengths</th>
<th>Challenges</th>
</tr>
</thead>
</table>
| **Schools**      | • Scalable<sup>2</sup>  
  • Very cost-effective  
  • Good outreach  
  • Effective education component  
  • Sustainable as capacity is built | • Only reaches school-age children  
  • Training teachers in delivering to children <5 is difficult due to high number of teachers |
| **Public health system** | • Scalable  
  • Low incremental cost  
  • Reaches all target beneficiaries  
  • Sustainable as capacity is built | • Often lack capacity  
  • Often limited outreach and coverage |
| **Existing mass campaign** | • Scalable  
  • Low incremental cost  
  • Often high outreach  
  • Reaches all target beneficiaries | • Limited educational component  
  • Technical and programmatic fit with other interventions |
| **UN facilities** | • Scalable  
  • Low incremental cost  
  • Reaches all target beneficiaries | • Sustainable only while UN funding  
  • Does not build ongoing local capacity |

### Potentially standalone programs<sup>1</sup>

- **Schools**
  - Provision to school children including teenage mothers

### Typically integrated programs

- **Public health system**
  - As part of IMCI

- **Existing mass campaign**
  - E.g., vitamin A supplementation, vaccination

- **UN facilities**
  - E.g. in supplementary feeding centers

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1. Sometimes integrated into school feeding programs
2. One teacher can treat about 50-100 children per day

Source: “Action against worms.” WHO, several issues from 2003-2006; expert interviews; REACH analysis

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As the delivery requirements are low, many channels are suitable to deliver deworming tablets
Deworming also can increase uptake of programs
Strong logic to integrate into existing delivery channels

Ongoing programs, e.g.

- Vitamin A supplementation
- Immunization programs – Measles – Polio
- Child health weeks
- Mass public insecticide-treated bednets distribution

Screening criteria

Programmatic similarities
- Planning
- Funding flows
- M&E consistency
- Management, staff capacity
- Similar advocacy objectives

Technical similarities
- Target beneficiaries
- Frequency of contact
- Technical capacity

Demand for program generated due to highly visible impact
- Dead worms are expelled and visible in the faces few hours after treatment
- Children feel better, are more active, and have more appetite after a few days

Success of integrated programs also require joint planning, funding, logistics, M&E and advocacy

REACH_Actoring at Scale_Guide_Deworming_v2.ppt
Simple training guidelines, tailored for local norms, enable training of non-medical tablet providers

Sample provider training materials:

<table>
<thead>
<tr>
<th>Guide for field staff from Congo</th>
<th>Guide for district level managers from Kenya</th>
<th>Training video from Uganda</th>
<th>Book for teachers from Mauritania</th>
</tr>
</thead>
</table>

- **Focus on essentials to make it usable in the field**
- **Detailed instructions as district managers further disseminate knowledge (multiplier)**
- **Visualisation to make training more understandable and memorable**
- **Detailed guidelines to structure a lesson**

For children, prevention education is most effective when employing multiple tools that are fun to use.

Sample educational materials:

- Comic for children from Tanzania
- Poster from Ecuador
- Card game from Laos
- Teaching puppets from India
- Radio spot from South Africa
- Calendar pages from various countries
- Exercise book from Congo

Source: www.who.int/wormcontrol/education_materials/en/ (PPC website)
Simple registration forms enable low-cost tracking of overall coverage and individual continuous treatment

Control booklet from Ecuador

Medical forms from Ecuador

Registration forms from Cambodia

- Upper part used by health workers to track continuous treatment of individual child
- Lower part can be kept by child/mother to "visualize" treatment progress and success

- Standardized form to report overall coverage of children according to district and age group
- Allows easy aggregation of data on a national level

Treatment monitoring can be integrated into child health cards to minimize the number of forms that are in use

Source: www.who.int/wormcontrol/education_materials/en/ (PPC website)
REACH_Acting at Scale_Guide_Deworming_v2.ppt
What it costs
Deworming tablets are relatively minor element of cost structure

Tablet costs

Price per treatment per child in $

<table>
<thead>
<tr>
<th>Drug</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albendazole, mebendazole</td>
<td>0.02</td>
<td>0.06</td>
</tr>
<tr>
<td>Praziquantel</td>
<td>0.20</td>
<td></td>
</tr>
</tbody>
</table>

Price per year per child in $

<table>
<thead>
<tr>
<th>Drug</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albendazole, mebendazole</td>
<td>0.02</td>
<td>0.06</td>
</tr>
<tr>
<td>Praziquantel</td>
<td>0.20</td>
<td>0.10</td>
</tr>
</tbody>
</table>

# treatments per year

- Albendazole, mebendazole: 1 – 3
- Praziquantel: 0.5 – 1

Typical program cost structure

Averages of 2 deworming rounds in Cambodian schools

<table>
<thead>
<tr>
<th>Cost</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drugs</td>
<td>31%</td>
</tr>
<tr>
<td>Training</td>
<td>15%</td>
</tr>
<tr>
<td>Education</td>
<td>51%</td>
</tr>
<tr>
<td>Delivery</td>
<td>0%</td>
</tr>
<tr>
<td>Monitoring</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

Usage of existing infrastructure: 71%

Low cost of drugs makes deworming strong candidate to link with other programs

1. A mark-up of 15% for sea or 25% for air transportation and a 5–10% buffer for loss and theft should be factored in.

Centralized bulk purchasing reduces drug costs significantly
Especially important for high price praziquantel — less relevant for STH drugs

High SS drug prices ...

- Complex synthesis process of the drug
- Polluting production process that incurs additional costs
- High transportation costs as 8 out of 10 manufacturers\(^1\) are located in Asia
- Lack of capacity as the profit margin for manufacturers is low
- Low number of manufacturers

Purchase

- Absence of long-term funding impedes multi-year orders
- Relatively small quantities ordered for each program round

... create need for central purchasing ...

Available via WHO Web Buy or Schistosomiasis Control Initiative (SCI), which provide

- Quality assurance:
  - Prequalification of suppliers according to Good Manufacturing Practice (GMP)
  - Testing of batches
- Lower prices through
  - Bundling of volumes and bulk purchasing
  - Multi-year contracts with manufacturers
  - Consolidated demand forecasts provided to manufacturers
- Monitoring of delivery timing
- Higher price transparency

... which has multiple benefits

1. Lower cost per drug
   Unit cost for praziquantel in US$ (example from SCI program)

2. Assured drug quality

3. National program managers not burdened with complex procurement

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1. Only applies to praziquantel 2. Manufacturers that conform with international standards
Source: "Action against worms. Issue7." WHO, 2006; REACH analysis
Where to go for further information
Key reference materials: Deworming

- "Prevention and control of schistosomiasis and soil-trans-mitted helminths." WHO, 2002

In addition, the quarterly newsletter "Action against worms" by the Partners for Parasite Control (WHO) is a good source for practical tips.
## Organizations: Deworming (I)

<table>
<thead>
<tr>
<th>Organization</th>
<th>Description</th>
<th>Key activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHO - Partners for Parasite Control</td>
<td>Joint initiative of UN agencies (hosted at WHO), academia and NGOs to fight schistosomiasis and STHs launched after the WHA in 2001</td>
<td>Advocacy&lt;br&gt;Global monitoring&lt;br&gt;Knowledge exchange</td>
</tr>
<tr>
<td>UNICEF</td>
<td>UN Nations Childrens’ Fund</td>
<td>Implement&lt;br&gt;– Mainly for children &lt;5</td>
</tr>
<tr>
<td>WFP</td>
<td>Emergency food aid organization of the UN</td>
<td>Implement&lt;br&gt;– Within school feeding</td>
</tr>
<tr>
<td>UNHCR</td>
<td>UN refugee agency</td>
<td>Implement&lt;br&gt;– In refugee camps</td>
</tr>
<tr>
<td>World Bank</td>
<td>International development bank</td>
<td>Funding Implement&lt;br&gt;– In FRESH school health programs</td>
</tr>
</tbody>
</table>
## Organizations: Deworming (II)

<table>
<thead>
<tr>
<th>Organization</th>
<th>Description</th>
<th>Key activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schistosomiasis Control Initiative</td>
<td>Established at Imperial College London in 2002 through Gates funding</td>
<td>• Country assistance in implementation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Focus on Sub-Saharan Africa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Secondary funding</td>
</tr>
<tr>
<td>CARE</td>
<td>Humanitarian organization fighting global poverty</td>
<td>• Implement</td>
</tr>
<tr>
<td>Partnership for Child Development</td>
<td>NGO aimed at improving education, health and nutrition of school-age children in LICs</td>
<td>– In multiple countries</td>
</tr>
<tr>
<td>Government of Japan</td>
<td>Government invests and actively supports deworming through Hashimoto Initiative</td>
<td>• Research</td>
</tr>
<tr>
<td>CIDA</td>
<td>Development aid agency of Canada</td>
<td>• Knowledge sharing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Assistance in multiple country programs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Funding</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Operates three regional training centres</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Runs technical training courses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Funding for WFP deworming programs within school feeding</td>
</tr>
</tbody>
</table>
## Organizations: Deworming (III)

<table>
<thead>
<tr>
<th>Organization</th>
<th>Description</th>
<th>Key activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bill and Melinda Gates Foundation</td>
<td>• Active in global health</td>
<td>• Funding of PPC, SCI and the Sabin Institute for their deworming work</td>
</tr>
<tr>
<td>• <a href="http://www.gatesfoundation.org">www.gatesfoundation.org</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Danish Bilharzia Laboratory</td>
<td>• Research institution specialized on bilharzia</td>
<td>• Research</td>
</tr>
<tr>
<td>• <a href="http://www.dblnet.dk">www.dblnet.dk</a></td>
<td></td>
<td>• Provision of training, Implementation advice</td>
</tr>
<tr>
<td>Johns Hopkins</td>
<td>• University, School of public health</td>
<td>• Research on drugs</td>
</tr>
<tr>
<td>• <a href="http://www.jhu.edu">www.jhu.edu</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>London School of Hygiene and Tropical Medicine</td>
<td>• University specialized in international public health and tropical medicine</td>
<td>• Research on drugs</td>
</tr>
<tr>
<td>• <a href="http://www.lshtm.ac.uk">www.lshtm.ac.uk</a></td>
<td></td>
<td>• Training</td>
</tr>
</tbody>
</table>

**Foundation**

**Research**

**Description**

**Key activities**
# Scaled-up programs: Deworming

<table>
<thead>
<tr>
<th>Name/country</th>
<th>Implementing partners</th>
<th>Other information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burkina Faso National Schistosomiasis and Soil-Transmitted Helminth Control Program (PNLSc)</td>
<td>Ministry of Health, Schistosomiasis Control Initiative</td>
<td>• Over 1 M children had been treated</td>
</tr>
<tr>
<td>Cambodia school deworming program&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Ministry of Health with support from WHO and UNICEF</td>
<td>• Distribution through existing MoH and education system infrastructure and staff</td>
</tr>
<tr>
<td>Deworming integrated into Democratic Republic of Congo’s national vitamin A campaign</td>
<td>Ministry of Health</td>
<td>• Deworming fully integrated into mass campaign</td>
</tr>
<tr>
<td>National Control Program Guinea</td>
<td>Ministry of Health</td>
<td>• &gt;1M school children treated (coverage 50%)</td>
</tr>
<tr>
<td>Nepal integration of deworming into national vitamin A campaign</td>
<td>Ministry of Health, UNICEF</td>
<td>• Presence of schistosomes detected by urine and blood tests on children dropped by 70%</td>
</tr>
<tr>
<td>Nepal school deworming program&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Ministry of Health and ministry of Education and WF</td>
<td>• Deworming integrated into school feeding program</td>
</tr>
<tr>
<td>Vietnam school deworming program</td>
<td>Ministry of Health and ministry of Education</td>
<td>• Existing infrastructure and staff used for delivery</td>
</tr>
</tbody>
</table>

1. Initial case study provided

REACH_Acting at Scale_Guide_Deworming_v2.ppt
Appendix: experts consulted
Experts consulted during preparation of this document

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization and title</th>
<th>Area of expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pramila Ghimire</td>
<td>WFP coordinator, Nepal</td>
<td>Implementation</td>
</tr>
<tr>
<td>Antonio Montresor</td>
<td>WHO, Focal point for helminth control in WPRO</td>
<td>Implementation, research</td>
</tr>
</tbody>
</table>