Version 1

# REACH

Ending Child Hunger and Undernutrition

## Acting at Scale: Implementation Case Studies

Deworming

February 2009

# 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[1]
  - Containing rationale, lessons learned, costs and further resource lists
- *Implementation Case Studies* for each of the interventions[1]
  - 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 your local REACH facilitator in Lao or Mauritania, or
- Contact the REACH Interagency Team Coordinator, Denise Costa-Coitinho, at Denise.CostaCoitinho@wfp.org

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

# Case study: Deworming (I)

## Cambodia's national school deworming program

| | | | | | |
|---|---|---|---|---|---|
| **Intervention:** | Deworming | | | | |
| **Program name:** | Cambodia's national school deworming program | | **Type:** | Physical component; Education | |
| **Location:** | Cambodia, whole country | | **Setting:** | X Rural | x Urban |
| **Start year:** | 2002/2003 | **Duration:** Ongoing | **Ongoing?** | X Yes | No |
| **Target group:** | • All school age children, approx. 2,880 K<br>• First round reached 945K children, second round reached 2,775K children<br>• Coverage ratio of 96% in second round | | | | |
| **Total costs:** | $119K in 2003; $159K in 2004; 6c per child in second phase | **Other resources used:** | MoH lorries; teachers for distribution; MoH storage facilities | | |
| **Metrics:** | • Prevalence of soil-transmitted helminthes (parasitological survey conducted in several villages) | | | | |
| **Lead & partner organizations:** | • Lead: Ministry of Health (Created "National Policy for Helminth Control", Developed national guidelines, school kit with education materials and standardized reporting forms, Implemented through health system infrastructure and schools, Set up and managed M&E system<br>• Ministry of Education<br>• Support from WHO and UNICEF<br>• Funding from the Japanese Government and the Sasakawa Memorial Health Foundation | | | | |
| **Description of specific country situation & social context:** | • Cambodia ranked 130th out of 175 countries in the UNDP Human Development Report<br>• Prevalence of hookworms ranged from 45%-86% in 1997 in several villages surveyed<br>• High net enrolment rate of school children in Cambodia: 88%<br>• Number of registered primary schools: 5850; schools are grouped into school clusters | | | | |

Source: Expert interviews; REACH analysis

# Case study: Deworming (II)

## Cambodia's national school deworming program

**Details on delivered intervention incl. delivery channel/ method:**

- Delivery of drugs (mebendazole 500mg) and materials
  - Drugs and education materials delivered to each peripheral health unit through regular MoH lorries
  - Picked up at health unit by school cluster directors and distributed to schools
- Administration of drugs by teachers during school working hours
  - No monetary allowance for teachers in addition to regular salary
  - Receive tablets to treat self and family
- Training provided to distribution personnel
  - Training of school cluster directors and health center chiefs in one-day workshops at provincial level with retraining every 3 years
  - Teacher training conducted by school cluster directors during regular weekly meetings
- Education materials
  - Distribution of a school kit including deworming pills, health education posters and pamphlets for teachers, games and attractive pictures for children giving simple messages on how to prevent infection.

**Description of monitoring & evaluation:**

- Standardized forms
  - Filled out by teachers during regular working time
  - Returned to school cluster directors and subsequently to MoH
- Coverage confirmation surveys (costs of about $5000)
  - Random sample of 36 schools in the first phase to validate coverage data

**Lessons learned (intervention & overarching processes):**

- Schools provide useful entry point because of high outreach and continuous delivery possibility
- Leveraging existing government infrastructure and personnel reduces delivery costs, e.g. drug delivery through MoH lorries and facilities, drug administration through teachers
- Drug costs only make up 20-40% of total costs
- Economies of scale arise during scale-up: $0.04 p. child for future rounds as educ. materials and training do not have to be redone each year
- Train-the-trainer reduces costs and helps reach scale
- Government commitment critical for scale-up success
- Easy-to-use, customized tools increased uptake and acceptance among children, parents and teachers

**Contacts:**

- Antonio Montresor, WHO, Focal point for helminth control WPRO, MontresorA@wpro.who.int
- Reiko Tsuyuoka, WHO office Lao PDR (previously in Cambodia), Tsuyuokar@wpro.who.int

**Key documents:**

- "Financial costs of deworming children in all primary schools in Cambodia." Sinuon et. al., 2004.
- "Control of schistosoma mekongi in Cambodia: results of eight years of control activities in two endemic provinces." Sinuon et. al., 2006.

Source: Expert interview; REACH analysis

# Schools provide cost-effective entry point for delivery

## Case study: Cambodia's national school deworming program

### Program overview

**Program initiated by MoH and MoE with support from WHO, UNICEF and funding from Japan (government and foundation)**

**Government played a lead role in the project**

- Created "National Policy for Helminth Control"
- Developed national guidelines, school kit with education materials and standardized reporting forms
- Implemented through health system infrastructure and schools
- Set up and managed M&E system

**After a first phase reaching 1 M school children, the program was scaled-up nationally, covering 2.8 M school children with mebendazole treatment 2x/year**

- Also extended to pre-school children

**As a result, Cambodia reached the WHO target to treat 75% of school-age children**

- First country that reached target
- Six years ahead of schedule

### Lessons learned

**Use schools as an entry point to the <5 target group**

- Create foundation for broader rollout in the community
- High outreach and continuous delivery possible

**Leverage existing government infrastructure and personnel to reduce delivery costs**

- Drug delivery through MoH lorries and facilities
- Administration through teachers
- Drug costs only make up 20-40% of total costs
- $0.12/$0.06 per child treated in first/second round

**Aim for economies of scale by scaling up**

- $0.04 p. child for future rounds as education materials and training do not have to be redone every year

**Employ a train-the-trainer model to reduce costs support scale-up**

**Design and deploy easy-to-use, customized tools to increase uptake and acceptance among children, parents and teachers**

- Cambodia's kit includes pills, health education posters, games and pamphlets for teachers

Source: "Report of the third global meeting of the partners for parasite control." WHO, 2004.; "Financial costs of deworming children in all primary schools in Cambodia." Sinuon et. al., 2004; REACH analysis

# Leveraging existing government infrastructure and personnel keeps costs low

**Existing mechanisms leveraged:**

### Delivery of drugs and materials

- Drugs and education materials delivered to each peripheral health unit through regular MoH trucks
- Picked up at health unit by school cluster directors and distributed to schools

### Administration of drugs

- Administration by teachers during school working hours
- No monetary allowance for teachers in addition to regular salary
  - Receive tablets to treat self and family

### M&E

- Standardized forms are filled out by teachers
- Forms are returned to school cluster directors and subsequently to MoH

### Teacher training

- Conducted by school cluster directors during regular weekly meetings

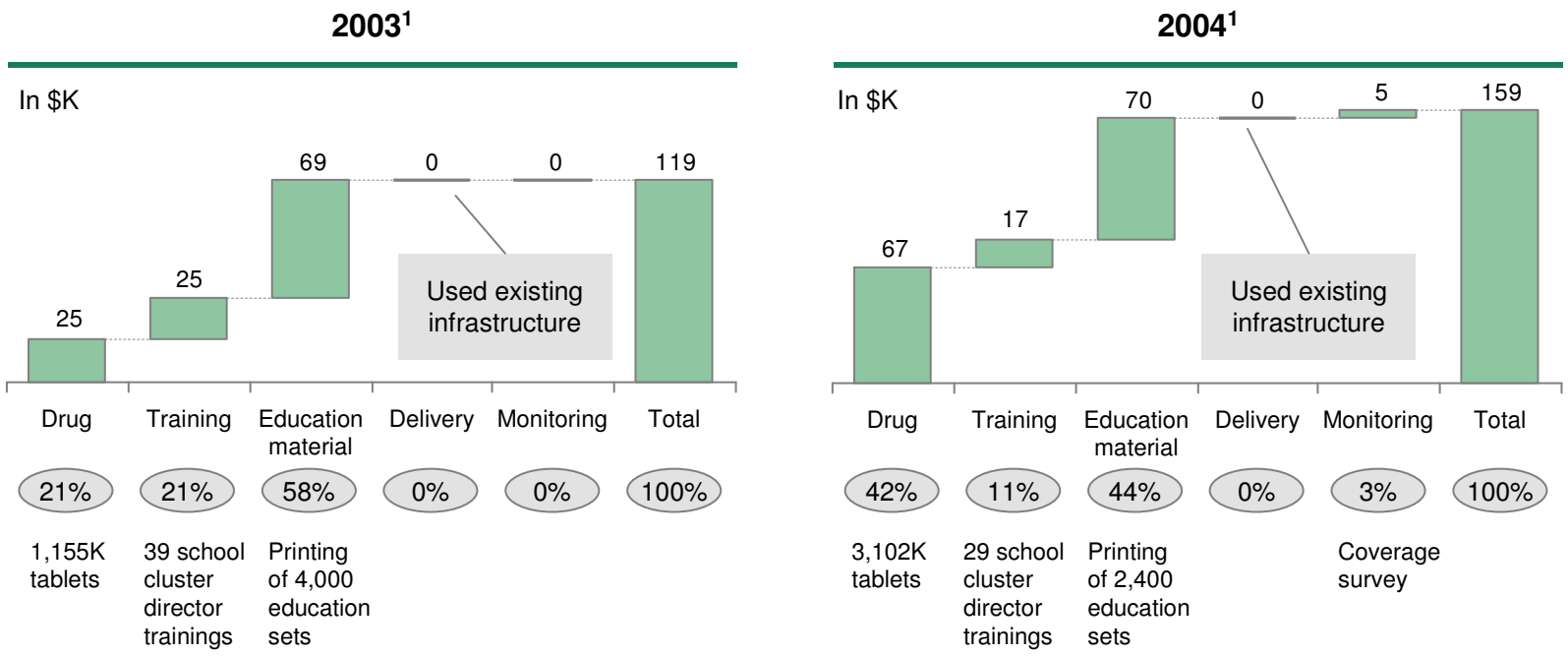
**The deworming program was able to avoid bearing these costs**

Source: "Financial costs of deworming children in all primary schools in Cambodia." Sinuon et. al., 2004.

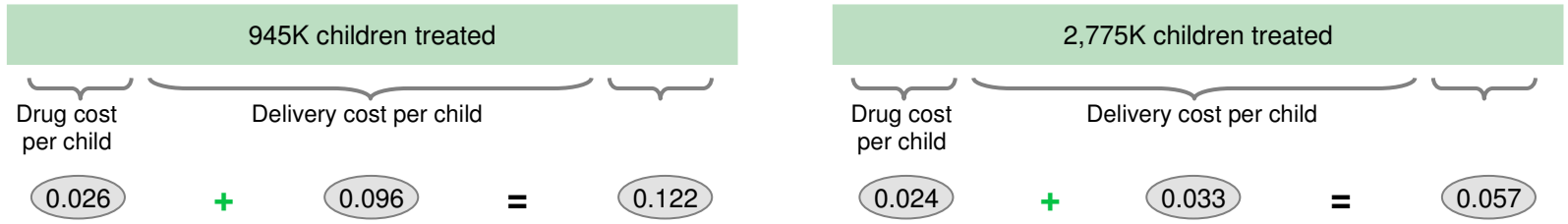
# Drug cost comprise 20–40% of overall program costs

## Economies of scale realized

**Cost structure**




**Cost per child**




**For future treatments the costs are expected at $0.04 per child as education materials and training do not have to be redone every year**

1. No costs allocated for teacher training, delivery of drugs and education materials, distribution by teachers and filling out of monitoring forms
Source: "Financial costs of deworming children in all primary schools in Cambodia." Sinuon et. al., 2004.

# Cambodia achieved scale by working through existing delivery channels and applying a train-the-trainer approach

## Delivery of drugs and materials

**MoH**

**Delivery of drugs and materials through MoH lorries used for regularly scheduled deliveries**

**1,135 health centers**

**Pick up by school cluster director and distribution of appropriate number of tablets and materials to schools**

**5,850 schools**

## Training

**MoH**

**Training of school cluster directors and health center chiefs**

- One-day workshops
- At provincial level
- Retraining every 3 years

**1,231 school clusters**

**Training of teachers by school cluster directors**

- Within regular weekly meetings
- Retraining every 3 years

**5,850 schools**

**Drug delivery and training has to be adapted to the already in-place infrastructure**

Source: "Financial costs of deworming children in all primary schools in Cambodia." Sinuon et. al., 2004; REACH analysis

# Case study: Deworming (I)

## Nepal school feeding and national vitamin A program

| | | | | | |
|---|---|---|---|---|---|
| **Intervention:** | Deworming | | | | |
| **Program name:** | Nepal school feeding program & National Vitamin A program | | **Type:** | Physical component; Education | |
| **Location:** | Nepal, whole country | | **Setting:** | X Rural | x Urban |
| **Start year:** | 1998 | **Duration:** Ongoing | **Ongoing?** | X Yes | No |
| **Target group:** | • School program: school age children, approx. 512 K tablets distributed, coverage ratio around 91% (first round 2007)<br>• Vitamin A program: Children 2-5 and P&L mothers; coverage ratio between 90% and 100% | | | | |
| **Total costs:** | $23K (drugs + transportation to district HQ); annual cost per beneficiary: $ 0.045 | | **Other resources used:** | MoH/MoE infrastructure and personnel; teachers/health staff for distribution | |
| **Metrics:** | • Used for each distribution round: Number of tablets distributed and coverage ratio<br>• Used in parasitological survey every few years: Worm prevalence, % of heavily infected children, hookworm prevalence, % of heavily infected children with hookworm | | | | |
| **Lead & partner organizations:** | • School program: Ministry of Education (lead and implementation), WFP (funding and implementation), MoH, WHO (training, quality control, epidemiological surveys), CIDA (inital funding)<br>• Vitamin A program: Ministry of Health (lead, main funding and implementation), UNICEF (support) | | | | |
| **Description of specific country situation & social context:** | • Before deworming started worms were a major burden in Nepal according to a baseline survey conducted in 1996<br>– Worm prevalence of 74%<br>– Heavy worm infection 9.3%<br>– Hookworm prevalence 64%<br>• No schistosomiasis present in Nepal<br>• Overall very successful program as worm prevalence fell to 51% in 2000, heavy worm infections to 1.9% and hookworm prevalence to 34%<br>• Aneamia rates were successfully reduced as well | | | | |

Source: Expert interviews; REACH analysis

# Case study: Deworming (II)

## Nepal school feeding and national vitamin A program

**Details on delivered intervention incl. delivery channel/ method:**

- Deworming within the school feeding program
  - Distribution of deworming tablets (albendazole) through the MoE infrastructure already in place for school feeding program
  - Administration of tablets by teachers every 6 months on-the-spot after receiving initial training from WHO and WFP; Later deworming trainings integrated into other trainings, e.g. food supplementation or general health and hygiene trainings
  - Education component was included into the program: Class materials and brochures were used
  - Procurement of deworming tablets by WFP from a local supplier due to cost advantage with quality assurance through WHO
- Deworming within the Vitamin A campaign
  - Distribution through health posts and sub health posts (permanent public health facilities) as well as mobile outreach clinics
  - Female community health volunteers (FCHV) are used to mobilize the community in each ward
    - FCHVs go door-to-door and mobilize women to come to the health posts and outreach clinics
    - FCHVs organized, trained and motivated by the National Technical Assistance Group (NTAG), a local NGO
    - FCHV are not paid, they only receive a small allowance when attending the bi-yearly trainings organized by NTAG
- No specific cooperation between both programs as target groups and delivery channel are different, also purchasing is not linked

**Description of monitoring & evaluation:**

- M&E system tracks number of children that received tablets in both programs; Individual children coverage is not tracked
- School program: After each round schools report to district education office and then to MoE which passes the information on to WFP and WHO
- Vitamin A program: Reporting integrated into regular health management information system

**Lessons learned (intervention & overarching processes):**

- Deworming shall be opportunistically piggybacked onto existing programs that have access to the target population: here the Vitamin A campaign with high outreach was used for <5 and the successful school feeding program with efficient logistics was used for school children
- Community mobilization efforts can increase uptake of programs tremendously: Local NGO training female community health volunteers used to mobilize mothers to come to health outposts
- In the long-term government deworming should be mainstreamed into government programs: Nepal government will take over school deworming program from WFP
- Deworming in combination with providing FBF including iron is very effective in reducing aneamia
- Intra-government coordination is required if multiple ministries are involved: Coordination between MoH and MoE was not very good
- Coordination with other organization which provide specific expertise is crucial, e.g. WHO provided training & quality control of local supplier

**Contacts:**

- Pramila Ghimire, WFP Nepal, Deworming program implementation offficer, Pramila.Ghimire@wfp.org

**Key documents:**

- "Deworming epidemiological survey Nepal." WHO, 1996.
- "Deworming epidemiological survey Nepal." WHO, 2000.
- "Deworming Report. First semester of 2007." WFP, 2007.

Source: Expert interview

# Piggybacking of deworming can ensure high coverage

## Case study: Integration of deworming in school feeding and vitamin A supplementation in Nepal

### Program overview

**In 1996 a baseline survey of the worm burden in Nepal reported a high burden of disease**

- Worm prevalence among children was 74%
- 9.3% of children were heavily affected by worms

**In cooperation with the Ministry of Education, Ministry of Health and with the technical support of WHO, WFP added deworming tablets to its existing school feeding program to target school-age children**

- Albendazole is distributed through the existing MoE infrastructure and administered by teachers every 6 months after receiving initial training
- Class materials and brochures were developed to educate children how to prevent worms

**UNICEF integrated deworming tablet distribution into its semiannual vitamin A mass campaign to target <5s**

- Distribution through health posts and sub health posts as well as mobile outreach clinics
- Female community health volunteers used to mobilize the community through door-to-door outreach

**Both programs achieved high coverage**

- Coverage of about 91% of school children
- Coverage of 90% - 100% of <5s

### Lessons learned

**Aim to integrate deworming into existing programs that have access to the target population**

- Vitamin A campaign with high outreach to <5s
- School feeding program with high coverage of school-age children

**Mobilize communities via local NGOs to increase uptake and coverage**

- Female community health volunteers used to mobilize mothers to come to health outposts
- Volunteers are unpaid but highly motivated through the good organization and training provided by the National Technical Assistance Group, a local NGO

**Actively coordinate partners to ensure integration succeeds**

- Intra-government coordination between MoH and MoE had to be enabled through international organizations as their initial coordination was bad
- Involvement of organizations providing specific expertise is crucial, e.g. WHO provided training & quality control of the local supplier

Source: Expert interview

# Integrating deworming in other programs can increase uptake

## Case study: Democratic Republic of Congo's national vitamin A campaign

### Program overview

**In May 2005 the MoH decided to integrate deworming into a 4-year-old national vitamin A campaign**

- In response to 82% childhood infection rate
- Selected to reach the 70% of population lacking access to health services
- Selected given the similar target group: children 12-59 months

**Selected mebendazole for ease of use**

- As the same dosage can be administered to all children > 12 months
- Sweet taste and easily chewed by children

**Due to the already high outreach of the vitamin A campaign deworming quickly reached high coverage**

- 1st round: 7.8 M children dewormed
- 2nd round: 10 M children dewormed which represent about 90% of the target group

**As the existing vitamin A campaign was used for delivery the incremental cost/child/year were low**

- US$ 0.04 for 2 treatments

### Lessons learned

**Leverage deworming's popularity with beneficiaries to increase uptake of associated programming**

- Deworming improved coverage of vitamin A campaign by 14%
- Parents asked for deworming of older children as well

**Create simple delivery tools for low-skilled workers to support scale-up**

- Integrated deworming and vitamin A field guide enabled low-skill workers to give right dosages and key messages to parents
- Color-coded vitamin A capsules ensured differentiation between children who receive deworming tablet (children aged >12 months) and those who don't (children aged 6-12 months)

**Be realistic in budgeting**

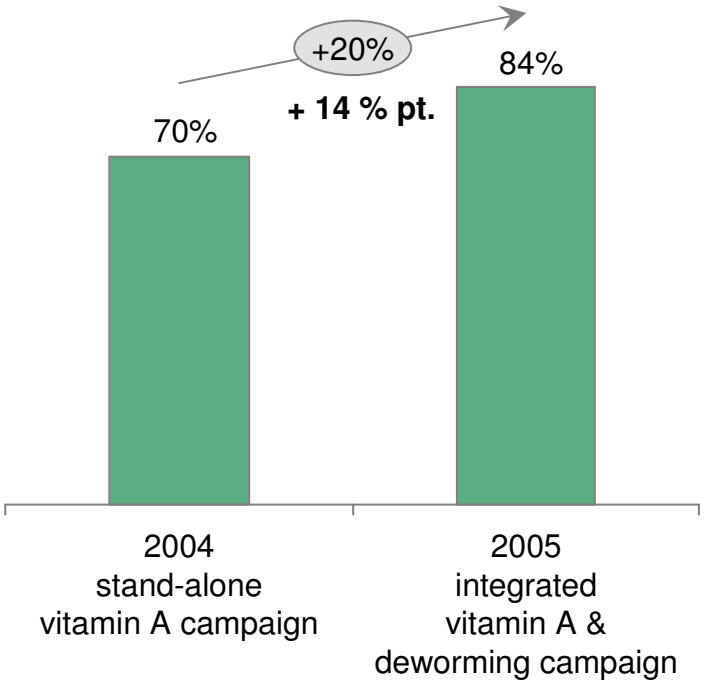
- Joint programs require longer preparation time due to procurement timing and efforts, as well as need to design joint M&E
- Need to anticipate additional costs arising from importing drugs and loss/theft
  - A mark-up of +15%/ +25% for sea/air shipment has to be added to cost of a pack of 100 tablets (US$ 1.61)
  - 5-10% surplus factor was added for lost tablets

Source: "Action against worms. Issue 6" WHO, 2006

# Adding deworming to the vitamin A campaign increased coverage by 20% in the DRC program

## Increased coverage

Coverage of children aged 6-59 months




## Increased effectiveness

**Deworming and vitamin A supplementation were later added to the polio campaign**

- 1st round vaccination including provision of deworming tablet
- 2nd round vaccination one month later including provision of vitamin A tablet

**Additional benefit of improved vitamin A absorption after deworming treatment**

Source: "Action against worms. Issue 6" WHO, 2006

# Educational elements can increase deworming success

## Case study: Uganda's national bilharzia and intestinal worm control program

### Program overview

**Due to the lakes and rivers in Uganda schisto-somiasis is widespread, with 4M infected people**

**The program was initiated by the government with the aid of international organizations**

- WHO and Danish Bilharziosis Laboratory (DBL) advised on strategy and trained district health teams
- SCI chose Uganda as first recipient of Gates grant

**The target is to treat 75% of school children and provide mass treatment where prevalence is > 50%**

**Existing infrastructure was used for tablets delivery**

- Health system
- Schools: integrated with WFP school feeding

**A phased approach was used with scaling up by district starting with the most affected districts first**

- 300K treated in first phase in early 2003
- 800K treated in second phase in late 2003
- 1.8M treated in third phase in 2004

**The model's success led to its replication in 10 other sub-Saharan African countries**

### Lessons learned

**Include education to reduce risk of reinfection**

- Education by teachers, community health workers, district health staff and development officers

**Tailor prevention messages to local environments**

- Posters, pamphlets, O&A booklets specially designed for Uganda
- Directly addressed local belief that worms are "caused by witchcraft"

**Leverage as many existing partners as possible to increase coverage and build local capacity**

- SCF and an Italian NGO are delivery partners in certain districts
- WFP school feeding program resources
- Training by DBL
- Research by LSHTM and other universities

**Be patient, as establishing a national program takes time**

- Several years from government decision, through funding, pilot launch to scale-up

Source: "Action against worms. Issue 3" WHO, 2003; REACH analysis

# Community awareness and engagement is key to success

## Learnings from other programs

| Country | Lessons learned |
|---|---|
| **Haiti** | Invest in community engagement prior to launching a program<br>• Distributed flyers and held community meetings<br><br>Need to create buy-in, particularly around children's complaints about short-term side effects<br>• Group discussions, information material that drugs are safe and that side effects are not harmful and last briefly |
| **Malawi** | Rumors and misinformation must be actively addressed<br>• Initially low coverage rates as rumors that tablets are a form of contraception were widespread<br>• Focus group discussions and showing of successful cases to address concerns<br><br>Use peer learning and 'buddy system' so that school children disseminate the awareness of deworming<br>• Teachers give notes to children for take home so that parents are aware and bring all children<br><br>Use other media outside of school to reach non-enrolled children<br>• Radio spots advertising day and venue of treatment<br>• Traveling drama groups<br>• Community meetings |
| **Philippines** | Inform communities on importance of sanitation and hygiene to prevent worms<br>• "Spot" maps showing the correlation between bad sanitation facilities and deworming prevalence helped to mobilize community to keep sanitation clean and therefore avoid reinfection<br><br>Embed health education in school curriculum and make learning fun<br>• Songs, drawings, games, contests, puzzles, story telling<br><br>Create peer learning amongst children to build awareness<br>• Girls and boys from grade 4–6 trained as junior health partners (JHP) to give health education and to remind fellow students to submit stool specimen |

Source: "Action against worms. Issue 5." WHO, 2004; REACH analysis

# Experts consulted

- **Pramila Ghimire**, WFP Nepal
- **Antonio Montresor**, WHO focal point for helminth control, WPRO