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Challenges in the Elimination of Schistosomiasis in the Philippines

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Outline of Presentation

- I. Schistosomiasis in the Philippines
- II. Situation in Endemic Areas
- III. Current Prevention and Control Program
- IV. Enhancing Control Efforts in Endemic Areas
- V. Challenges to Elimination
- VI. Way Forward



Geographic Distribution

Animal Definitive Hosts

Intermediate Hosts

Eggs

S. japonicum

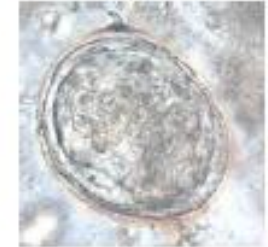
Indonesia, the Philippines,
P. R. China

46 known mammalian hosts
including water buffalo and
cattle, dogs, pigs, and rodents

Oncomelania spp.



70–100 × 55–64 μm



S. mekongi

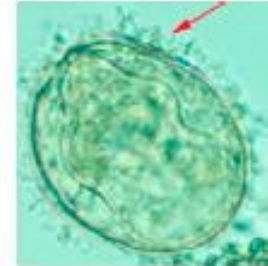
Cambodia, Lao PDR,
Thailand

Dogs and pigs

Neotricula spp.



50–80 × 40–65 μm



S. malayensis

Malaysia

Rodents

Robertsiella spp.

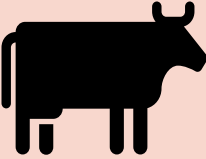



53–90 × 33–62 μm



Schistosomiasis (in Asia)



Country	Species	Snail host	Suitable living conditions	Animal reservoirs
Japan	<i>S. japonicum</i>	<i>O. hupensis nosophora</i>	Amphibious but mostly found on land (irrigation ditches, uncultivated rice beds, marshes)	Bovine 
China		<i>O. hupensis hupensis</i>	Amphibious and partially aquatic (big rivers and irrigation ditches, uncultivated river beds, marshes)	
Philippines		<i>O. hupensis quadrasi</i>	Amphibious but mostly aquatic (wet soil surfaces, wet swamps, wet rice fields, ponds)	
Indonesia		<i>O. hupensis lindoensis</i>	Amphibious and partially aquatic (abandoned rice fields, uncultivated grazing areas for livestock, roadside ditches)	
Cambodia /Lao PDR	<i>S. mekongi</i>	<i>N. aperta</i>	Aquatic (shallow areas of river and tributaries with a moderate current)	Negligible 



Distribution of Schistosomiasis

- ✧ focal coverage
- ✧ most of 28 endemic provinces with no definite dry season
- ✧ 10 provinces still classified as high prevalence
- ✧ 6 provinces moderate prevalence
- ✧ 12 provinces with very low prevalence and nearing elimination level



Figure 1: Map of *Schistosoma japonicum* endemic provinces in the Philippines



Burden of Disease

- An assessment of the program that covers the period of 2011-2017 showed that **12 regions, 28 provinces, 190 municipalities, 20 cities and 1,609 barangays** are endemic to schistosomiasis.
- Focal survey showed a prevalence of **4%**
- **with 302 barangays with zero prevalence**
- **222 barangays with low prevalence**
- **435 barangays with moderate prevalence**
- **479 barangays with high prevalence.**



Where are we now?

	High Endemic Areas (12)	Moderate (6)	Low and Elimination Level (12)
Target Areas	Surigao Norte Agusan Sur Agusan Norte Maguindanao North Cotabato Compostela Valley North Leyte North Samar Eastern Samar West Samar	Bukidnon Lanao norte Zambo Sur Davao Norte Sultan Kudarat Lanao Sur	Davao del Sur Bohol Zamboanga de Sibugay Zamboaga del Norte Davao Oriental Davao City South Cotabato Cagayan Sorsogon Mindoro Oriental Misamis Occidental Surigao del Sur

Source: DOH, 2020



Endemic Areas



Regions	Provinces	Number of Cities	Number of Municipalities	Number of Barangays
Region II	Cagayan		1	3
Region IV-B	Oriental Mindoro		4	33
Region V	Sorsogon		2	8
Region VI	Negros Occidental		1	2
Region VII	Bohol		2	8
Region VIII	Northern Samar		16	168
	Eastern Samar	1	10	218
	Western Samar	2	8	141
	Northern Leyte	1	24	240
Region IX	Zamboanga del Sur		6	
	Zamboanga Sibugay		4	
	Zamboanga del Norte		4	9
Region X	Lanao del Norte		4	41
	Misamis Occidental	2	1	18
	Bukidnon	2	9	48

Source: DOH, 2020



The Situation in Endemic Areas in the Philippines

Habits that facilitate transmission



Open defecation



LAUNDERING IN SCHISTO ENDEMIC AREAS



DOMESTIC USE



TRADITIONAL METHOD OF FARMING



Water Supply in the Endemic Areas



Types of Toilets in Endemic Areas





Situation in Endemic Areas





Current Control and Prevention Programs



Steps towards elimination of schistosomiasis

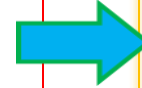
GROUP	1. Countries eligible for control of morbidity	2. Countries eligible for elimination as a public health problem	3. Countries eligible for elimination (interruption of transmission)	V E R I F I C A T I O N	4. Countries that have achieved elimination
Goal	Control of morbidity	Elimination as a public health problem	Elimination (interruption of transmission)		Post-elimination surveillance
Recommended intervention	Preventive chemotherapy Complementary public health interventions, where possible	Adjusted preventive chemotherapy Complementary public health interventions strongly recommended	Intensified preventive chemotherapy in residual areas of transmission Complementary public health interventions essential		Surveillance to detect and respond to resurgence of transmission and to prevent reintroduction (schistosomiasis should be made notifiable)
Target	100% geographical coverage and at least 75% national coverage Prevalence of heavy-intensity infection <5% across sentinel sites*	Prevalence of heavy-intensity infection <1% in all sentinel sites	Reduction of incidence of infection to zero		Incidence of infection remains zero (no autochthonous cases)
Group progression (1 to 4)	Up to 5-10 years from joining the group	Up to 3-6 years from joining the group	Up to 5 years from joining the group		Until all countries have interrupted transmission

Source: WHO, 2012



WHERE DO WE WANT TO BE?

High to Moderate areas- the goal is to eliminate morbidity through mass chemotherapy of the exposed population.



DISEASE IS NO
LONGER PUBLIC
HEALTH THREAT

Low to Elimination level areas- sustain the gains with the following: strengthened active surveillance of human and snail vectors, infection control, transmission control (sanitation and hygiene by way of health infrastructure, safe water supply, water sealed toilets, ordinances to control animal host), mass treatment (School Children) and quality control of laboratory and laboratory staff.



DISEASE
FREE
AREAS/COM
MUNITIES/
SCHOOLS



Partnership- touted to be the key

INTEGRATED APPROACH



- DOH
- DepEd
- DA (BAI, NIA, BFAR)
- DOST
- DILG/ LGU
- PIA, KBP
- PMA
- DPWH
- DENR
- NIH, UP-CPH
- DOT
- DSWD/CWS



Enhancing Control Efforts in Endemic Areas



EcoHealth Approach in Gonzaga, Cagayan Valley





Schistosomiasis Control and Elimination Program in Gonzaga

1. MDA
2. Animal treatment with praziquantel
3. Snail control by environmental modification
4. Health education
5. Construction of barriers
6. Environmental sanitation and provision of water



Possible fencing off of snail sites and prohibiting carabaos from wallowing in the stream; construction of foot bridges





Fence off or clear grass and convert into orchard



Footbridge

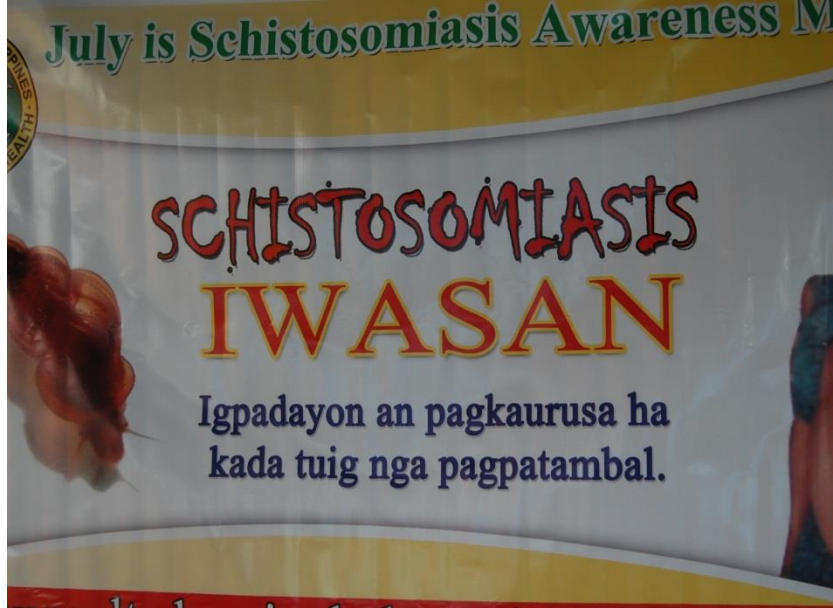


Construction of toilets





Good Practices in Other Endemic Areas





Intersectoral Participation



Meeting and Informing the Village



Involving the Department of Education to reach school children



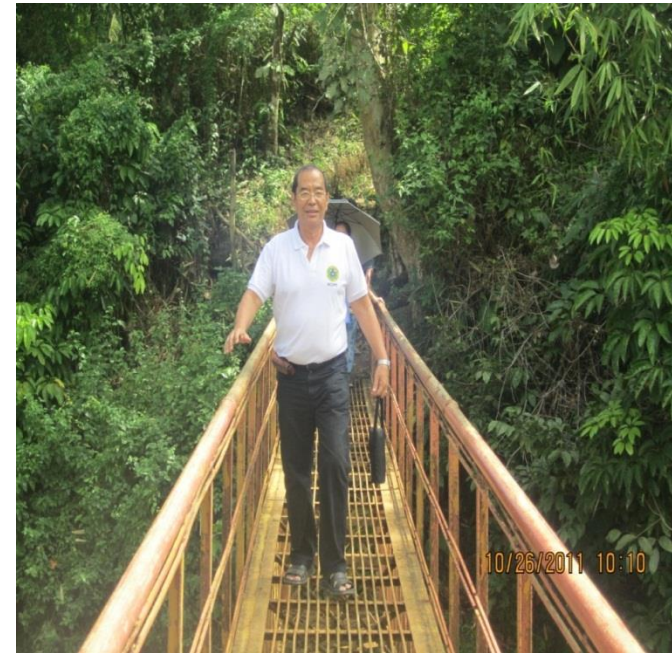
Support from local government for supportive drugs, food and transportation



Signages and cementing of irrigation canals by village leaders



House-to-house distribution of praziquantel



Mopping up operations led by municipal health officer



Regular orientation of personnel involved and evaluation of activities conducted



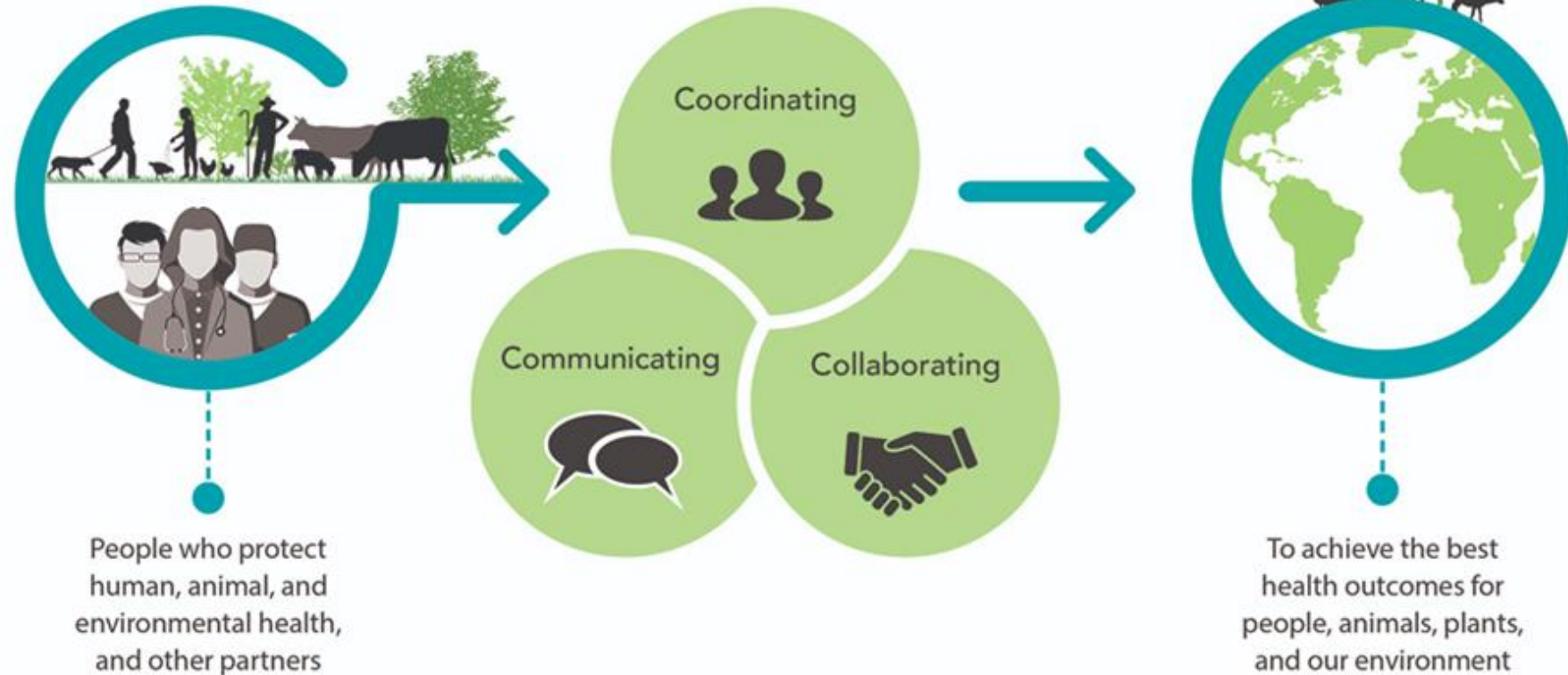
Local government support for snail surveys and construction of foot bridges



Cooperation among rural health units to facilitate Mass Drug Administration



One Health



- An approach to designing and implementing programs, policies, legislation, and research in which multiple sectors communicate and work together to achieve better health outcomes (WHO, 2017)
 - Recognizes that the health of people is connected to health of animals and the environment (CDC, 2018)
- Dr. Winston Palasi, SCEP Presentation 2020



Challenges to Elimination

- 1. Development of surveillance system to monitor human, snail and animal transmission**
- 2. Development of sensitive diagnostic techniques**
- 3. Sustainability of program**
- 4. Environmental factors: dams, floods, deforestation, global warming influence the snail habitats and schistosomiasis transmission patterns.**



Challenges

- Improvement in socio-economic conditions, improved water supplies and sanitation facilities are going to be needed in addition to MDA (Bockarie et al., 2013)
- Multi-sectoral commitment (Roadmap)
- Diagnosis
- Community awareness



Impact of COVID -19 on NTD programs (Including SCH)

- Cancellation of NTD plans, programs and projects implementation
- Mobilization of technical staff and repurposing of office line function for COVID -19 response.
- Realignment of programmed NTD funds and resources to support response to COVID -19 operations.
- Delay in the implementation of ongoing plans and activities of NTD programs.

From presentation of Dr. Winston
Palasi at the SCEP Sept. 2020



Direct Impact of the Pandemic on NTD Programmes

- 1. Suspension of mass treatment, interventions, active case-finding and other community-based activities
- 2. Delays in diagnosis, treatment, morbidity management, disability-prevention and other health facility services
- 3. Disruption of monitoring and evaluation activities (routine surveillance and population-based surveys)
- 4. Delays in manufacture, shipment, transport and delivery of NTD medicines and consummables to target countries and their distribution within countries



Way Forward



PHILIPPINE MULTI-DISEASE ELIMINATION PLAN 2024-2030

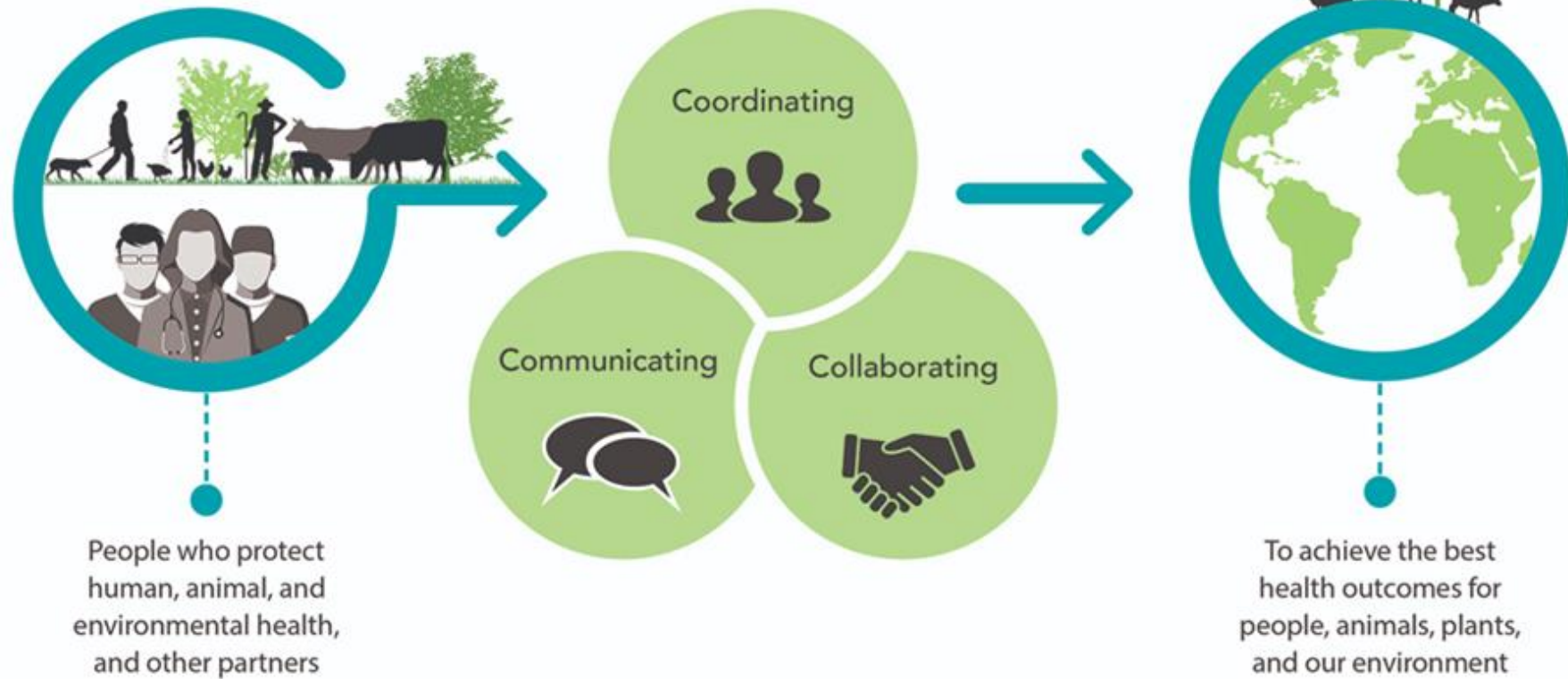


Republic of the Philippines
Department of Health





One Health



- An approach to designing and implementing programs, policies, legislation, and research in which multiple sectors communicate and work together to achieve better health outcomes (WHO, 2017)
- Recognizes that the health of people is connected to health of animals and the environment (CDC, 2018)



- **Development of better technologies for diagnosis, for surveillance and monitoring.**
- **Collaboration with more development partners investing in WASH and even in PHC**



Thank you for your attention.