SMART VILLAGES
New thinking for off-grid communities worldwide

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The energy and water nexus for off-grid communities in the Philippines and Southeast Asia

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Introduction

The Smart Villages Initiative together with the Philippines Center for Water and Sanitation (PCWS) held a workshop in Burgos, Ilocos Norte in the Philippines to discuss issues relating to the nexus of energy, water, and food in rural off-grid communities in Southeast Asia on 1-3 June 2016. Expert participants were brought together from the water, sanitation and hygiene, renewable energy, and agriculture communities working in the non-profit, government, and business sectors.

Over 120 million people in Southeast Asia still live without access to electricity, with the majority of these people living in rural communities. At the same time, the number of people that lack access to improved drinking water sources in Southeast Asia is 61 million, with 8 out of 10 of these people living in rural areas. 176 million people in the region do not have proper sanitation.

There are significant overlaps between projects that are focused on energy access and those that are focused on water, sanitation and hygiene (WASH). The workshop highlighted these overlaps and potential synergies arising from taking a more integrated approach. Attention was given to the practical lessons from the experiences of the WASH community in the Philippines and how these can be transferred to the energy access agenda.

Key findings and recommendations of the workshop are summarised in the following 10 points:

1. **Improve water, sanitation, and hygiene.** Improved WASH practices can contribute to environmental conservation, community resilience, and enhanced livelihood opportunities, all of which can help alleviate poverty.

2. **Combine energy and WASH in rural development initia-**

tives. Combining energy and WASH is an important aspect of development that needs to be further encouraged in Southeast Asia. Concrete examples of infrastructure can be a means of encouraging the energy and water communities to work together—such as biogas digesters running on human and animal waste, and electric water pumps powered by renewable energy sources. This could also help raise the profile of rural WASH activities that need to get more attention to secure funding.

3. **Combine initiatives and collaborate between different government departments on issues of energy and water.** In the Philippines, there are many fragmented initiatives from government with many different departments working on overlapping remits in energy and water. Efforts should be made to combine, and communicate between, these different initiatives.

4. **Undertake more research using nexus thinking and methodologies.** Systems of water, energy, and food should be researched with multiple methods of nexus thinking. Policy decisions and interventions should be informed about—and should address—trade-offs and complementarities between the different systems.

5. **Establish demonstration projects to promote more widespread adoption of integrated approaches.** Support and finance efforts for more pilot testing and up-scaling of practical technologies useful to low-income communities with limited resources. Projects that deal with both energy and water in rural villages are needed to promote more widespread adoption of good practices in development and holistic development outcomes.

6. **Promote low-cost technologies.** There should be more support for low-cost technologies and solutions, perhaps by encouraging universities and NGOs to work together. The best solutions should be upscaled, and awareness about innovative, affordable technologies should be raised.

7. **Emphasise the role of local government for energy, water, and food project implementation.** In the Philippines, emphasis should be on local governments to administer the provision of energy and water. Social infrastructures should be integrated and local policies established that enable the implementation of projects pertaining to the water-energy-food nexus. The barangays should be used as coordinating places for rural development, which would allow projects across different energy and WASH communities to work together.

8. **Increase the participation of women and children.** Encourage innovative community-based research, ideas and analyses that would benefit the poorest. In providing and maintaining WASH and energy services, it is very important to involve women and children in the community project process. Efforts should be made to increase women's participation in community level decision-making and labour related to rural infrastructure.

9. **Carefully consider the revenue streams for maintenance of WASH.** Activities must be calibrated to individual contexts. Ideally, revenues should be raised from villagers to cover at least the maintenance costs of a water supply system. If water is given for free due to villagers' inability to pay, there must be some means other than tariffs to control villagers' water management behaviour.

10. **Increase water quality monitoring to achieve better health outcomes.** There needs to be an increased effort in fostering much more frequent water quality monitoring in rural areas through new low-cost measurement technologies, government support, and public awareness raising.

As evidenced by the above 10 points and discussions throughout the workshop, key themes revolve around the ability of local government bodies to coordinate and administer development projects combining rural energy, food, and water aspects. A nexus approach to rural development (for both implementation and research) highlights that energy is required for pumping, moving, and distributing water, while energy and water are both critical for food production, processing and transport.

To meet some of the pressing challenges facing communities without access to modern energy, development solutions are required that maximise synergies and manage trade-offs between energy provision and access to water and food.

Notes

The Smart Villages Initiative

We aim to provide policymakers, donors, and development agencies concerned with rural energy access with new insights on the real barriers to energy access in villages in developing countries—technological, financial and political—and how they can be overcome. We have chosen to focus on remote off-grid villages, where local solutions (home- or institution-based systems and mini-grids) are both more realistic and cheaper than national grid extension. Our concern is to ensure that energy access results in development and the creation of 'smart villages' in which many of the benefits of life in modern societies are available to rural communities.

PCWS

PCWS used to be known as International Training Network (ITN) when it started in 1990 as a project of the Netherlands-based International Institute of Infrastructure, Hydraulics and Environmental Engineering (IHE). From 1990 to 1998 ITN was funded by the Dutch Government. In 1998, the remaining personnel decided to register as a nongovernment organization (NGO) with the Securities and Exchange Commission as Philippine Center for Water and Sanitation – The ITN Foundation. Since 1998, PCWS has been supporting itself through its professional fees obtained through training, technical support, research and consultancy services provided to local governments, NGOs, national government agencies, corporations, and communities.

PCWS promotes sustainable water and sanitation programs through capacity building approaches that are gender sensitive, culturally acceptable, socially relevant and cost effective. PCWS works to improve the water supply, sanitation and hygiene (WASH) situation of the poorest communities in the Philippines. PCWS works with communities in developing low cost water supply and sanitation technology options, thereby enhancing local initiatives leading to benefits in health and livelihood. PCWS' mission is promoting the human right to water and sanitation through strategies, approaches and technologies that are respectful of ecosystems and empowering to people, especially the marginalized.

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