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Country Water Action: Turning Local Wisdom Into Hydropower Solutions

While world leaders debated on the best solutions to stop global warming at the UN Climate Change conference in Nusa Dua, Bali last December, young farmers in nearby Tenganan town have come up with their own.



When they harvest their terraced paddy fields during the next harvest season, farmers of the tiny town of Tenganan on the gently sloping hills of Bali, Indonesia will reinforce a tradition that celebrates harmony between people and the environment. Beyond that, they will also do their bit to slow down climate change.

Credit, carbon or otherwise, must go to the young men in this community of some 200 families, whose history goes back centuries. These young farmers took the lead in building a micro-hydropower generator that produces electricity using run-of-the-river water to power a small mill that husks and polishes locally grown rice.

"This generator can produce 12 to 15 kilowatts of power", says Putu Wiadnyana, 25, the architect of the single-room micro-hydropower generator, set near the terraced fields along the eastern border of Tenganan. "The mill should be ready by early next year in time for the next rice harvest".

Planning to construct this micro-hydropower system began in 2004, when the village council realized that the prevailing practice of sending locally grown rice to be husked at another mill in another town was depriving their community of a steady chunk of income. The village was losing an estimated 300 million rupiah (US\$33,000) from two rice harvests every year.

People and nature balance

But this financial savings was not the only driver that had motivated the youth members of the village council. They were drawn to an environment-friendly alternative to the diesel-powered mill outside Tenganan.

"We learned from the time we were children about the need for balance between people and nature. This is also observed in the local laws we follow about the need to respect the environment", says Komang Lonto, 28, who is the local coordinator of the Villages Ecotourism Network, which promotes green-friendly tourism on the resort island of Bali.

"This respect for nature is celebrated in our annual festivals, including the rice festival", Komang adds. Such respect for nature is rooted in the Hinduism that this community follows, as do the majority of the Balinese people. As a result, four types of fruits, including durian, cannot be plucked until they ripen and fall; nor can trees in the forest that cover the hills to the north of Tenganan be felled.

"This relationship with nature is part of the three harmonies in our Hindu faith that the people of this village abide by in their daily life", says Imangku Widia, a 52-year-old temple keeper who plays a central role in some of the religious ceremonies. "We have been protecting our environment like our ancestors did to ensure that a balance is always maintained. Destroying our surroundings will mean the end of our culture and belief".

The micro-hydropower project is very much in line with these beliefs. "This project is about our potential to manage our own resources without destroying the environment. It is a way of restoring balance and satisfying our needs", Imangku adds.

Paying carbon credits

The ease with which such views are accepted in Tenganan gains significance in the wake of the international conference on the United Nations Framework Convention on Climate Change (UNFCCC) that was held some 85 kilometers away, in the tourist resort of Nusa Dua, in December 2007. At that major event, some 11,000 participants, including ministers and government officials from nearly 190 countries, discussed and negotiated on solutions to slow down a rapidly warming planet.

Among the solutions in the spotlight was for industrialized countries with a historical record of polluting the atmosphere with greenhouse gases (GhGs) to earn carbon credits to offset their GhG emissions. Companies and governments in the industrialized world were called upon to invest in atmosphere-friendly initiatives in the developing world, such as hydropower projects.

And how many people from Tenganan attended that conference? None, said Putu with a wry smile. "I don't know what they talked about there, but, maybe, we can say that we have been doing the things they are planning to do in the future because it is not something strange to us, living without harming nature".

Ancient wisdom, local solution

"Tenganan's local culture is very inspiring in these times", says Imade Suarnatha, executive director of the Wisnu Foundation, an environmental group based in Bali. "It shows the importance of turning to local wisdom and local solutions that communities are familiar with to protect the environment".

The Wisnu Foundation is promoting similar thinking also prevalent in other communities on this deeply spiritual island to save it from an emerging crisis due to the heavy demand for natural resources to satisfy the thriving tourist trade. "Bali's environmental problems are growing rapidly due to the demand for water and land use", says Imade.

The prospect of a water shortage, because of impending climate change, does haunt the villagers of Tenganan, too. "The micro-hydropower system needs a steady flow of water from the river at a high level to function efficiently", says Putu. "We will have a problem if our river runs dry".

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