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## Low cost methods, scaling up, and multi-stakeholder approaches: Experience and advice on marine ecosystem restoration from Indonesia

Following the [October 2018 article on marine ecosystem restoration](#), MEAM also had the opportunity to interview Rohani Ambo-Rappe, a lecturer at Hasanuddin University in Makassar, South Sulawesi, Indonesia. She shared her experiences and advice from her work on seagrass restoration in the region. She can be contacted at [rohani.amborappe@gmail.com](mailto:rohani.amborappe@gmail.com) for further information.

### **MEAM: Can you briefly tell us about a few marine ecosystem restoration projects that you have worked on?**

**Ambo-Rappe:** I am involved in a seagrass restoration project in the Spermonde Archipelago in South Sulawesi, Indonesia. This research-based project has been running since 2011 and has received funding from a number of sources including the Ministry of Higher Education of Indonesia, Hasanuddin University, and USAID. The goal of this project is to develop several methods of restoring seagrass that are simple and low-cost and can be scaled up for mass restoration efforts. As with many other seagrass restoration projects all over the world, we are still facing difficulties in controlling some environmental conditions, leading to low survival rates for the seagrass transplants, and ultimately the failure of some restoration projects. Another important problem is that in Indonesia, ecosystems, unlike coral reef and mangrove ecosystems, are overlooked and not yet a conservation priority.

In addition to my project in the Spermonde Archipelago, my colleague Wawan Kiswara from the Indonesian Institute of Sciences (LIPI) did a long-term seagrass restoration project around Pari Island in Jakarta, Indonesia. The project was quite successful in terms of seagrass survival and coverage. It was also a research-scale project, however, and there are no plans to scale it up.

### **MEAM: How would you characterize the field of marine ecosystem restoration right now?**

**Ambo-Rappe:** Unfortunately, in Indonesia, marine ecosystem restoration is generally only an important issue for certain organizations such as NGOs and the Ministry of Marine Affairs and Fisheries. A multi-stakeholder approach for this important issue is urgently needed but is not yet there.

### **MEAM: How do you suggest marine ecosystem restoration projects set baseline targets to aim for, especially in the face of climate change?**

**Ambo-Rappe:** To measure the status and success of a marine ecosystem restoration project, a baseline of measurable parameters (e.g., seagrass coverage, rhizome extension, community structure of associated organisms) is needed. I have not been able to find any national or international standards for these baselines, so I am comparing parameters from my seagrass restoration project to those of the surrounding natural seagrass.

### **MEAM: If a degraded ecosystem has protected status, is there any way to figure out if the ecosystem will recover on its own or needs help?**

**Ambo-Rappe:** In my experience, direct human activities such as aquaculture, housing, and coastal development directly affect seagrass restoration sites. In addition, natural factors such as waves, substrate movement, and herbivores are also important factors. Therefore, even if a degraded ecosystem has protected status to alleviate the direct human pressures, it may still need help to recover and/or to accelerate the process of recovery.

### **MEAM: What advice do you have for conservation/management groups that are considering putting resources into marine ecosystem restoration? In particular, do you have any rules of thumb for deciding if restoration of an ecosystem is feasible and practical?**

**Ambo-Rappe:** Marine ecosystem restoration should be done with a multi-stakeholder approach – it cannot be done successfully by just by one or two agencies. What is needed are strict agreements that clearly state the responsibility of each agency in a program, including specific marine ecosystem conservation actions.

Restoring an ecosystem is feasible and practical if simple, low-cost, sustainable methods are used and communities are involved. Unfortunately, a lot of marine ecosystem restoration work is project-based and therefore not sustained. When the project ends, the restoration site is not maintained.

**Do you also work in marine ecosystem restoration? Add your voice to the conversation by contacting MEAM editor Sarah Carr at [meam@openchannels.org](mailto:meam@openchannels.org).**

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