



A fisher carrying his catch from a fishing ground to a collection center, Paung township, Mon State

BRIEFING PAPER 5: ADAPTING TO CLIMATE CHANGE “SLOW” VERSUS “SUDDEN” ONSET DISASTERS

As outlined in Briefing Paper 3, the coastal communities of the Gulf of Mottama are already aware that climate change is impacting their lives – in part, no doubt, due to awareness-raising provided by the project, but also as experienced by themselves. Meteorological data shows that temperatures are rising and are likely to continue to do so; in addition, rainfall patterns are less predictable. Sea levels are also slowly rising. Whilst linked to sudden onset disasters such as heat waves, cyclones, floods, and tidal surges, these more gradual “slow onset” changes can also have highly significant impacts. This Briefing Paper outlines how the project is supporting communities to adapt to slow onset changes, especially with regard to farming.

SUSTAINABLE RICE PRODUCTION (SRP)

Helvetas is a member of the [Sustainable Rice Platform](#) and has considerable experience in working with small holder farmers to implement this standard. It was therefore an obvious choice to introduce SRP Standard to the coastal farmers of the Gulf of Mottama, especially as for part of the project period, experiences could be exchanged and synergies built with another Helvetas-managed project funded through Norwegian Assistance, the Climate Smart Rice Project. The SRP standard has 41 requirements organized under eight themes; these include pre-planting (under which requirements include seed quality and biodiversity), water use, nutrient management (with a preference for organic fertilizer), and integrated pest management. Rice produced under SRP-Standard is considered to be climate smart, not only in being better adapted (especially through the more judicious

use of water), but also contributing to mitigation through reducing methane emissions. The latter is achieved by alternate wetting and drying, which inhibits the proliferation of methane-producing bacteria.

Throughout phase I and II, coastal paddy farmers were supported by the project in practising the SRP Standard through farmer field schools and exchange visits. In both, the emphasis is on learning by seeing and doing, in discussion with peers. A condition of participation, however, is being the owner of a minimum 5 acres paddy; this is necessary to create one SRP and one non-SRP plot for comparison. Most participating farmers have 5–10 acres, which in Bago is quite common. In Mon, farmers owning over 5 acres tend to be amongst the wealthier (and older) members of the community, although in the current economic circumstances farming is not as profitable as in the past, especially given increases in input costs and the shortage of labor. Overall, although the SRP farmers do not include the poorest households, they are not amongst the wealthiest either.

Project monitoring data shows that farmers practicing the SRP Standard are not only being “climate smart” – they are also getting better yields, on average 19% above regular farmers. In addition, they note that grain quality is better – as a result of which SRP rice is highly demanded. Farmer advisory work is now conducted by agronomists employed through the Coastal Farmers Development Association, CFDA – with the aim of continuing advisory services after the project end (see Briefing Paper 2). The SRP Standard seems to be well anchored and likely to continue, especially as in the current economic climate, agro-chemicals are extremely expensive. Thus, organic fertilizer and Integrated Pest Management (IPM) make particular sense.

Seed banks

Unreliable rainfall is a major problem for farmers during the paddy sowing season. If sowing is conducted, but then rains fail, the seedlings die. Similarly, if there is very heavy rain and flooding during the sowing season, the seedbed is washed away. In both cases, the seed is lost, and it may be very difficult to find replacement seed on the market – especially if many farmers are experiencing the same problem. A local seedbank, established by farmers with their own seed, is a sound response in this situation. The creation of seed-banks – including subsidies for the construction of a suitable rodent and flood-proof seed storage building – was supported through the project. By 2024, 32 villages had functioning seed banks. To maintain quality control, the seed is certified according to a seed production protocol and government criteria. The latter is legally necessary for the seed to be sold to other farmers and requires certification by Department of Agriculture officers. This is organized through the CFDA.

More climate resilient varieties

What comprises a “climate resilient” variety rice depends of course on the specific risks faced; for coastal paddy, one aspect is saline tolerance, given the prevalence of saltwater intrusion and tidal surges. Another crucial characteristic is the length of the growing period (duration), as this is linked to water availability. Short duration varieties are generally more climate resilient as in times of low water availability, their planting can be timed to maximize what water is available; similarly, in the event of floods, they can be planted later in the season and still give a yield. In collaboration with HAFL (School of Agriculture, Forest and Food Sciences, Bern University of Applied Sciences), the project supported field trials of rice varieties with different growing periods (ranging from 90 to 145 days), straw length (for flooding response), eating quality, and market demand. The overall findings were that farmers tend to grow the favored local variety of rice, “Paw San” for their own consumption, reserving it for their best land – which equates to land that is least at risk. On other land, they are happy to grow the more climate-resilient varieties for sale - whilst noting that the eating qualities tend to be less appreciated and thus the market price is lower.

New pests and diseases

“The golden snails came in the floods and are a huge problem! They multiply in the heat and just eat up all the paddy shoots. We are told to collect the eggs, but this is impossible - they have spread everywhere. And we cannot find labor to help.” Woman aged about 50, Pha Yar Lay village, Thanapin township.

A key issue of concern amongst farmers is the spread of the golden snail – or golden apple snail, of which there are two species: *Pomacea canaliculata* and *Pomacea maculata*,



Taking seed out from the seed store for distribution, Bilin township, Mon State

ta, Originating from South America and introduced to Asia as a potential food source in the 1980s, this snail has spread widely and become a major pest in paddy, completely destroying young plants. Whether its proliferation is directly linked to climate change is debatable, although farmers clearly make a connection. New diseases are also reported.

The CFDA is well aware of farmer concerns and offers training on limiting the spread of golden snail through manual harvesting and placing a mesh over irrigation inlets. Unfortunately, however, these measures have limited success.



Different rice varieties (short grain Pawsan and long grain 90 Days), Bilin Township, Mon State

IRRIGATION AND DRAINAGE CHANNELS

The SRP Standard places emphasis on efficiency in water use – especially well-managed irrigation systems at community level, and good drainage. In some of the project villages in which farming is the main livelihood strategy, the renovation of irrigation and/or drainage channels was identified as an important activity in their CBDRM plan (see Briefing Paper 3). This is especially amongst villages in Bago that were badly affected by unseasonal floods, and which are needed to repair and desilt drainage channels. Some of this type of work has been funded through the project as Cash for Work.

Domestic water supplies in many villages have also been improved through the project, as explained in Briefing Paper 6.

GOOD AGRICULTURAL PRACTICES (GAP)

Apart from SRP, the project also supported GAP, as promoted by the Department of Agriculture. As this collaboration terminated with the military takeover, GAP activities were subsequently coordinated through the CFDA. GAP also entails “climate-smart” practices, especially regarding the very limited use of chemical pesticides and fertilizer. This is especially practiced on green gram, which is grown as a dry season crop where water resources allow, especially in Bago Region.

HOME GARDENS

Although not a major project activity, some support has been given to poorer households in establishing home gardens to grow vegetables and improve their nutrition. This may be considered, in some ways, a climate change adaptation measure, as compost application, cover cropping, and reduced tillage improve soil health, mitigate greenhouse gas emissions, and promote biodiversity con-



A view of mangrove nursery from home garden Bilin Township Mon State

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FISHERIES

Project interventions in fisheries focused mainly on halting the use of narrow-meshed nets (which have severely depleted fish stocks) and on supporting fishers in pursuing their livelihoods in a sustainable manner. Whilst various fish and aquaculture studies were conducted, these mainly aimed at better understanding existing patterns rather than how climate change is affecting populations. Nevertheless, it is very likely that both marine and freshwater species are being impacted, especially by heatwaves. The fisheries data collected through the project (see Briefing Paper 7) serves as an important resource on which to base further research.



Dried fish production, Chaungzone township, Mon State

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A fisher casting fishing net, Thanatpin township, Mon State

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Highlights of experience

- Whilst it is important to introduce climate resilient crop varieties to farmers, ultimately the choice of which variety they grow must depend on them and their criteria, including factors such as taste.
- Local seed banks are an important intervention in “climate proofing” agriculture, and one greatly valued by farmers.
- Rice production according to the SRP Standard is not only “climate smart”; it also proven to result in better yields. The main limitation now in the Gulf of Mottama is the availability of adequate volumes of certified seed.

This paper was compiled by Jane Carter, Senior Adviser Natural Resource Governance, and Rakesh Munankami, Chief Technical Advisor, Gulf of Mottama Project, both of Helvetas. It draws on the contributions of project consortium partners IUCN and NAG and many project stakeholders, too numerous to name, whose insights are gratefully acknowledged.

ENDNOTES

[iucn_marine_heatwaves_issues_brief_october21.pdf](#)

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A farmer with her rice harvest, Bilin township, Mon State