SeedChange



2019

PROGRAM HIGHLIGHT

4

Community seed banking and farmer-led agrobiodiversity management in Timor-Leste

Local, or informal, seed systems in Timor-Leste are meeting 90 per cent of farmers' seed needs by saving, growing and exchanging seeds within communities. However, this crucial seed system is in danger of breaking down, preventing farmers from accessing quality seeds. Community Seed Banks (CSBs) in villages in Timor-Leste serve to conserve local genetic resources and enhance access to diverse local crops and by extension support stronger food security.

FOOD INSECURITY AND SEEDS

Through CSBs, farming communities participate in the documentation and assessment of local crop varieties; produce quality local seeds; and conserve local varieties. Uncultivated, wild plants are also important to the CSB processes. Uncultivated wild plants hold great nutritive and economic value which can improve health and income conditions at the community level.

The successes of these CSBs are being documented and shared for the scaling out of the strategy to other communities in Timor-Leste.

Timor-Leste is a small, tropical nation where over 75 per cent of the population is engaged in crop production. Timor-Leste became independent in 1999, but is still experiencing the effects of the decades-long struggle to achieve independence. Most farming households in Timor-Leste do not support a diversity of food crops and livestock and fisheries. Agriculturally, this mountainous country primarily grows staple crops including maize and rice, tubers and root crops (sweet potato, taro, arrowroot and cassava).

Many crops are grown in small plots using swidden or "slash and burn" practices including shifting cultivation practices on common or open forest land. This practice relies on the recycling of crop residues or natural vegetation and weeds with no chemical inputs.

Food insecurity is prevalent due to insufficient harvests of maize and rice that do not last 12 months. For example, the maize deficit period can range from

one to five months per year. To address this, households must either purchase maize or rice or forage for wild foods.

The climate in Timor-Leste is a typical monsoon climate with a wet season extending from around December to March and a dry season from around May to October, but with local geographic variations. The annual rainfall ranges between 500 and 1,500 mm in the relatively dry north and to over 2,000 mm in the relatively wet south. Climate change will likely result in an increase in temperature of around 1.5 C and an increase in rainfall of around up to 10 per cent, with greater rainfall increases in higher altitudes where precipitation is higher. An intensification of storm events and heat waves is also expected.

Despite their importance for household food security and nutrition, the use of local seeds for food crops has received limited support from the government in Timor-Leste. Farmers' Seed Systems include the conservation, production, seed supply system and saving of local seeds provides more than 90 per cent of the seed needs of farmers. However, the quality of seeds available is deteriorating due to problems with storage and seed saving techniques. Farming communities lack the organizational capacity to ensure conservation, production and exchange of quality seeds of local crops and varieties. In addition to training and research support to help farmers' seed systems remain vibrant, documentation of the status and progress of this seed system would also be beneficial. This support would help determine how to protect local landraces maintained by farmers and how to implement strategies including on-farm conservation and community seed banks (CSBs).

COMMUNITY SEED BANKS ADDRESS UNCERTAINTY

Community seed banks are an important way to protect/conserve and support local seeds. They are also a key adaptation strategy in the face of climate chaos since crop failures may become more common and weather becomes more uncertain. The Timor-Leste - National Seed Policy (2013) and a Ministry of Agriculture and Fisheries (MAF-TL) commissioned study in 2014, recommended establishing and supporting community seed banking systems to enhance the seed and food security of farming communities in Timor-Leste.

CSBs under the RAEBIA program with financial and technical assistance from SeedChange have developed a process of systematic documentation and assessment of local cultivated crops and uncultivated foods. The CSBs are contributing to on-farm seed conservation and sustainable use of agro-biodiversity resources: field crops, vegetables and wild-forest collected foods. In the long-term, it is hoped that a network of community level CSBs would contribute to establishing



Rosita da Costa and maize samples in the Community Seed Bank in Fadabloko, Aileu District.

Photo: Miranda Beaton

WHO WE ARE

SeedChange, formerly USC Canada, is a nonprofit founded in 1945 by Dr. Lotta Hitschmanova, rooted in the notions of human dignity and equality. Today, we are part of a global movement fighting for justice, health and sustainability by shifting the way our food is grown. We work with farmers around the world, including in Canada, to strengthen their ability to grow food sustainably, using locally adapted seeds. By harnessing the power of good seeds, farmers' leadership and global solidarity, we help communities thrive.

SeedChange began its work in Timor-Leste providing emergency funds for food and shelter in 1997. Since then, the program has shifted focus to sustainable agriculture, concentrating on farmer livelihoods and biodiversity-based agriculture, work that is supported by our local partner, RAEBIA ("Resilient Agriculture and Economy through Biodiversity in Action"). Learn more about our partner at **raebia.org**.



Mateus Maia, Deputy Director, RAEBIA, facilitating a seed security assessment session.

Photo: Pratap Shrestha/SeedChange

a national seed system in Timor-Leste that integrates the informal farmer seed system into the formal system leading to enhanced seed security of smallholder farmers supported by a community seed banking system designed from the bottom up and based on community needs.

RAEBIA, at this time is concentrating on strengthening capacity of communities, NGOs, MAF-TL extension workers and technical staff on agrobiodiversity conservation and enhancement.

In order to determine the status of on-farm seed conservation and seed security needs of smallholder farmers, RAEBIA looked at the crop diversity in two communities. They surveyed farmers through community workshops and developed participatory strategies for enhancing seed security.

ASSESSING SEED SECURITY

They also conducted Seed Security Assessments (SSAs) in the two communities to identify the crops that were vulnerable due to lack of availability, timely accessibility, quality, choice, and adaptation qualities.

These Assessments also identified problems and challenges (technical, socioeconomic, cultural and political) affecting the seed security of smallholder farmers in the two communities.

This program also established physical community seed banks, by making use of local buildings, in each community. This included collecting, documenting, and maintaining local seeds in each of the two communities. Diversity plots for maize, beans, chili, and mustard greens were established to help maintain and renew quality seeds for these crops.

Training for women and men farmers on production, harvest and post-harvest technology and management, food processing, storage, exchange and use of quality seeds at household and community levels was also an important component of establishing CSBs. The training content was designed based on the findings from the SSAs and first year of operation of the CSBs. The training helped with the practical learning and also enabled more women farmers to participate as it was community based and drew out the knowledge that women have about seed quality and availability.

Species and varietal diversity of food crops cultivated in Batara. Seed Security Assessment 2016

Name of plant	Name of Variety	Area Coverage (%)‡	HHs growing Crop (%)‡	Major/priority crop†
1. Maize	1. White (Noi Mutin)	75	100	1
	2. Yellow maize (sele)	75	100	
	3. Flower maize (brown)	25	50	
	4. Faster maize	25	100	
	5. Maize waih	0	0	
	6. Black rope maize	0	0	
	7. Yellow maize (local)	75	100	
	8. White palm maize (local)	75	100	
	9. Maize Asu ikun	0	0	
	10. maize botuk	0	0	
2. Sweet potato	1. Red	25	50	2
	2. White	25	50	
	3. Yellow sweet potato / Mautema	15	30	
	4. Sweet potato klan	0	0	
	5. Sweet potato bekan	0	0	
3. Cassava	1. Butter	20	50	3
	2. Ermera	40	70	
	3. Kambatik	10	20	
	4. Buraisa	20	100	
	5. Mau katar	20	30	
	6. Laku deka	10	30	
	7. Ermera matan	20	50	

†Major or priority staple crop is based on the contribution of these crops to the food security of the community.
‡ Value with 0 indicates that these varieties are lost from the communities.

CHARACTERISTICS OF A WELL-FUNCTIONING COMMUNITY SEED BANK

1. Operated by a legally registered farmers' organization
2. Conducts regular training and capacity building
3. Undertakes identification, documentation and conservation of local varieties
4. Physical infrastructure includes seed storage and equipment
5. Uses innovative seed storage technologies
6. Collaborates with local government bodies, extension services, agricultural research bodies, and NGOs
7. Annual seed production plans and business plans are developed and implemented
8. Seed transaction permission and seed certification are obtained, where required, from the relevant government authorities
9. Carries out safety duplication seeds of local varieties
10. Engaged in the development of mechanisms to ensure sustainability.

(Above: extract from LI-BIRD presentation at November 2017 Divesrsifood conference in Kigali, Rwanda. Community Seed Banks: Sharing Experiences for North and South)



Wild foods, kumbili and uhi documented in a seed security assessment process.

Photo: L. da Ruz



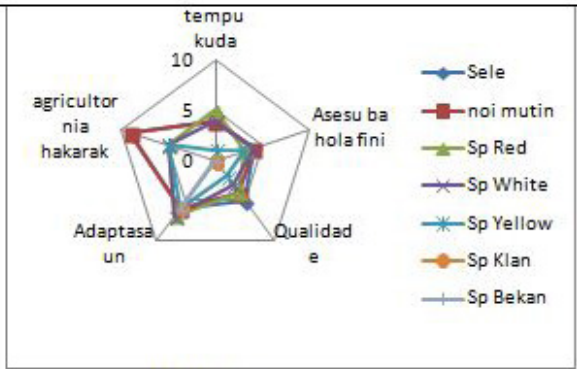


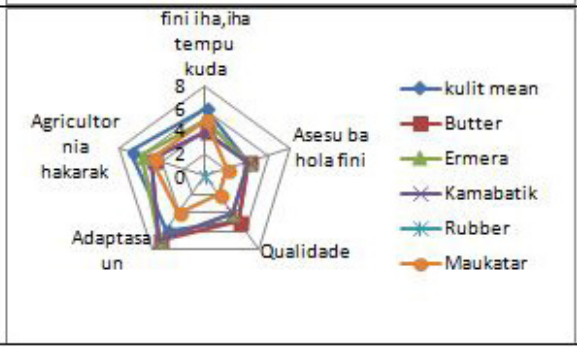
Young farmers from Battara, Manatutu District participating in the Seed Security Assessment for thier community.

Photo: Pratap Shrestha/SeedChange

Seed security situation of major staple food crops (Sweet potato, and Cassava)- an excerpt from 15 pages of data covering many crops

Name of plants	1 Seeds available	2 Access to buy seeds	3 Quality	4 Adapta-tion	5 Farmers want	
1.Sweet potato red	5	3	4	7	5	
2.Sweet potato white	4	4	3	7	5	
3.Yellow	1	3	2	6	4	
4.Klan	0	0	0	6	0	
5.Bekan	0	0	0	6	0	
Cassava						
1.Butter	4	4	5	7	5	
2.Ermera	5	4	4	7	6	
3.Kambatik	5	4	5	8	4	
4.Rubber	4	4	4	7	5	
5.Maukatar	5	2	2	4	5	
6.Laku deka	4	2	1	2	4	
7.Ermera matan	5	3	1	2	4	





NEXT STEPS

Finally, results and outcomes were shared to help scale up CSBs through other NGOs and interrelated government institution. It is hoped that this will contribute to a national seed policy that recognizes both the formal and informal seed system. The documentation of good practices of community seed banking systems will continue to be done on a regular basis by local project staff, and will be shared widely by producing communication materials.



A farmer discussing the information collected at the Seed Security Assessment in Holorua, Manufahi District 2016.

Photo: Pratap Shrestha/SeedChange

LEARN MORE

Community Seed Banks: Sharing Experiences from North and South
http://www.diversifood.eu/wp-content/uploads/2018/03/report_community_seed_banks_BAT_web.pdf

Vernooy, R. (2015). Community Seed Banks: Origins, Evolution, and Prospects. Issues in Agricultural Biodiversity. Earthscan from Routledge.

Vernooy, R., Sthapit, B., Otieno, G., Shrestha, P., & Gupta, A. (2017). The roles of community seed banks in climate change adaptation. Development in Practice, 27(3), 316. 10.1080/09614524.2017.1294653

Training Manuals, Handbook and Field Guides for Community Seed Banks
https://www.bioversityinternational.org/e-library/publications/detail/community-seed-banks-concept-and-practice/



SeedChange's partner

RAEBIA TIMOR LESTE

PROGRAM UNDERTAKEN WITH THE FINANCIAL SUPPORT OF THE GOVERNMENT OF CANADA PROVIDED THROUGH GLOBAL AFFAIRS CANADA.

Canada

Sustainable Development Goals

SeedChange's work in ecological agriculture helps meet 15 of the 17 SDGs. For instance, here's how agroforestry contributes to the following SDGs:





By supporting community seed banks in Timor-Leste, RAEBIA and SeedChange are building the resilience of the poor and reducing their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.



Community seeds banks are part of a sustainable food production system that increases productivity and production, maintains ecosystems, strengthens the capacity for adaptation to climate change and other disasters, and that improves land and soil quality.