

A brief report on
**“Toward more Sustainable and Regenerative Agricultural
Commercialization in Ethiopia”**

A cross-country learning visit to India

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**Fentahun Mengistu
Melese Liyhe
(SAA Ethiopia)**

Background

It is to be noted that on March 5, 2022, an Action Coalition for Sustainable and Regenerative Agricultural Commercialization Clusters in Ethiopia was formed, led by the World Resources Institute's Food and Land Use Coalition (FOLU) project. Accordingly, a one-week cross-country learning visit (March 26-April 2, 2023) to Telangana State of India in the Hyderabad area was organized and sponsored by the WRI/FOLU Ethiopia. Fentahun Mengistu (CD) and Melese Liyhe (TC-RA) from Sasakawa Africa Association (SAA) joined a team of 11 people from the Ethiopian Sustainable and Regenerative Agriculture Action Coalition member organizations: the Ministry of Agriculture (MoA), the Agricultural Transformation Institute (ATI), the Ethiopian Institute of Agriculture (EIAR), SAA, and the WRI's FOLU project of Ethiopia.

The purpose of the visit was to learn from Indian experiences in sustainable and regenerative agriculture that can be applied in Ethiopia, particularly in agricultural commercialization clusters (ACCs) and farmer production clusters (FPCS).

The learning event was divided into three parts: a two-day field trip, a one-day workshop, and a one-day wrap-up meeting. The field visits took place in the districts of Vikarabad and Sanga Reddy, while the workshop was held in Hyderabad City.

1. Field visit to Doulthabad mandal in Vikarabad district

Bio-input technology- The team went to a Bio-input technology hosted by a framer, where cow urine and dung are used as a plant growth promoter and biofertilizer. This is accomplished by channeling manure and urine into a drainage pond via a drainage canal. The manure and urine are mixed with a jaggery, pulse powder, and chemical-free soil, and water is added twice a day, and the concoction is stirred one direction (either

clockwise or anticlockwise) in a 500-liter water tank powered by a solar panel. The farmer retrieves the concoction from the tanker and applies it as a foliar spray to crops as a growth promoter and biofertilizer, while also selling it to nearby farmers. This bio-input



utilization activity falls under the category of natural farming.

Figure 1. A visit to a Bio-input preparation at farmer's barn

The lessons learned here are that livestock can be effectively integrated into regenerative agriculture as a source of natural fertilizer, growth promoter, and pest regulator while avoiding pollution from manure and urine. Since the majority of African farmers, particularly in the highlands, are mixed farmers, livestock is an important part of almost every household's crop farming. As a result, livestock can be integrated into crop agriculture and help to advance the country's regenerative agriculture by safely disposing of and using animal manure and urine for productive purposes. Most Ethiopian farmers, particularly in the highlands, are mixed farmers, with livestock being an important part of almost every household's crop farming. Providing farmers with modest assistance and encouraging them to be more creative could result in new uses for animal waste and products.

Paddy monoculture (conventional farming) - The team was able to visit a Green Revolution monoculture rice model, where a chemical-intensive high-yielding rice crop is grown under irrigation. Farmers prioritize and grow rice after rice in the paddy fields. This is driven by the government's minimum support program for rice crop.

We learned that the type of crop grown, the inputs used, and the level of crop diversity grown by farmers are all influenced by government subsidies- setting minimum price for produce and purchasing the unsold surplus. This suggests that farmers are very likely to shift to regenerative agricultural production systems and practices if regenerative agriculture practices are similarly incentivized, such as through the government's minimum support program. Thus, initiatives promoting regenerative farming in Africa may require a direct or indirect incentive system in order for farmers to gain confidence and effectively and widely adopt regenerative farming. It would be especially important to guarantee farmers fair prices for regeneratively produced products.

Natural farming and indigenous seed conservation field- The team went to a rice field that was grown using a natural farming method. The farmer grows indigenous paddy rice varieties to cater to a niche market and has a Biodiversity block with 45 different varieties.

He uses a System of Rice Intensification (SRI) in which he line plants, manually weeds, and uses botanical pest control such as neem, green manuring, etc. He teaches the surrounding farmers on the importance of increasing agrobiodiversity in order to reap medicinal and other health benefits, and approximately 20% are following suit and



growing rice in a natural way for consumption. However, the yield is reportedly low compared to conventional farming, and there is lack of market for the products because there is no minimum support for natural farming. This suggests that the government's support is required for natural farming.

Figure 2. Natural farming of rice field and in-situ genetic conservation of landrace rice varieties

What we realized is that farmers are willing to increase agrobiodiversity on their farms and in their landscapes if they are compensated for potential yield losses due to lower yield in the early years. Of course, as long as they have adequate market access, follow proper agronomic practices, and reduce external input, the yield reduction may not be significant. Our suggestion is that promoting the use of indigenous crops and varieties in regenerative farming in Africa could aid in combating malnutrition, improving health, increasing total productivity, and assisting in climate change adaptation and mitigation. As a result, regenerative agriculture initiatives should include indigenous varieties and other diversification mechanisms, as well as market access.

Farmer cooperative society (MACCS Society) and Custom Hiring Center (CHC)- The team also paid a visit to the Farmer Cooperative Society (MACCS Society) and its Custom Hiring Center (CHC). The cooperative is involved in activities such as the input-output market, securing funding, collecting members' share fees, paying dividends to members, and providing loans. It also has an agro-dealer shop where they sell seeds and trapuline sheets, as well as reportedly providing botanical product spray services, agro-weather advisory services, and renting out light farm equipment such as mechanical weeders and levellers. We noticed that giving farmers access to sustainable and regenerative farming inputs and services in their immediate vicinity is likely to help with farm reorientation towards regenerative agriculture-based farming.



Figure 3. A visit to a Farmer Cooperative Society (MACCS Society) and its Custom Hiring Center (CHC).

2. Field visit to Zaheerabad, Sanga Reddy district

Farm tour at Aranya Permaculture Academy- On the third day, the team spent the entire day visiting permaculture practices. The Academy is a family farm that was established three decades ago and works with small scale farmers, particularly women, to promote permaculture farming practices on degraded fallow land in order to create ecological, sustainable, and regenerative livelihoods. The academy trains, and demonstrates permaculture through planting mainly diverse perennial multipurpose trees, fruits and shrubs and production of drought tolerant and nutritious landrace varieties of cereals (finger millets, pearl millets, fox tail) and pulses (beans- cow pea, green/red gram, etc) combined with diverse water conservation practices (rain water harvesting tankers, biologically stabilized bunds, soil covers, etc).



Figure 4. Landscape management Practices at Aranya Permaculture Academy

It has also a gene bank at the Academy where, seeds of various crops are stored, distributed to farmers on a need-basis, and periodically regenerated.



Figure 5. A seed bank of land races and training on their cropping pattern

We have noticed that, while SAA promotes permagardening primarily through the entry of annual crops (vegetables), the academy focuses primarily on perennial crops while also including vegetable and other crop associations. The permaculture academy taught us that even though the soil is poor, the temperature is high, and the area is very dry and harsh, several climate-resilient perennial crops and varieties are grown alongside annuals in different seasons. This was accomplished by employing natural farming techniques such as water conservation (grass bunds, mulching, and so on) and the selection of climate resilient perennial crops and varieties, including indigenous crops, as well as farm diversification.



Fig 6. Soil bund stabilized with perennial trees, shrubs and herbaceous plants

For example, mango crops receive life-saving water for the first two years before becoming self-supportive. Furthermore, germplasm conservation is critical for preserving indigenous/local varieties and saving farmers' seed in the event of a disaster. What we propose is that it is worthwhile to test the introduction of perennials before growing annual crops especially in marginal environments in order to revitalize the soil.

3. Cross-country learning workshop on Indian agriculture scenario

The various organizations that work with FOLU India, as well as other senior experts, made presentations at the workshop. Crop diversification, natural farming focusing on soil microbial enhancement through liquid bio-stimulant, the Green Revolution and Its Consequences, and the development of food and agriculture policies in Independent India are among the papers presented.

From the workshop we have learned the following:

- Government commitment is essential for change to occur, as seen in India's green and white revolutions
- Agriculture policies in India protect and assist both producers and consumers. Minimum price support programs must be accompanied by purchasing and distribution to consumers via food assistance programs if they are to be effective.
- Agriculture, both rainfed and irrigated, must be developed in a balanced way in the country. In this regard, rather than focusing on large-scale irrigation, the country should prioritize small-scale irrigation, including rainwater harvesting.
- It is more important to improve farmers' welfare, such as access to health care and education, than to simply increase their income
- The levers that can help natural (regenerative) farming to thrive are government support, knowledge sharing, and farmer-to-farmer extension
- Natural farming would take 8-10 years to become realized
- According to the natural farming principle, if a favorable environment for microbial life is created, water can be extracted from dew and plants can grow with little water. Bio-stimulants such as manure, urine, and jaggery concoctions can help with creating favorable soil conditions



Figure 7. Group photo of workshop participants

- For regenerative/natural farming to thrive, a paradigm shift in mindset is required, as well as the development of new value chains and markets
- In order to mitigate the impact of agrochemicals, a mechanism for reporting input sales by agro-dealers is required. It is also critical to select a franchise model that rewards service rather than sales volume, as the latter encourages the use of more pesticides
- Crop diversification necessitates a farm-to-fork approach, with tapering incentives and agriculture interventions such as custom hiring

Recommendation

- SAA may need to test out natural farming principles and products such as permaculture, and use of cattle manure/urine-based bio-stimulants. Further learning from India may be required for this, particularly from the Revitalizing Rain-fed Agriculture Network in the state of Odisha, which the team did not have the opportunity to visit
- SAA should provide due focus for perennial crops in permaculturing/ permagardening activities
- The Odisha state diversification initiative is reported to be successful, with a focus on millet (finger millet, little millet, sorghum, pearl millet, foxtail, and kodo millet) in a value-chain approach that SAA may consider such climate resilient crops
- In order to encourage farmers to transition to regenerative farming, SAA may need to consider incentive mechanisms, as well as guaranteeing farmers fair prices for regeneratively produced products
- SAA may need to reconsider measuring its success in regenerative agriculture on the basis of regeneratively farmed land, farm and landscape diversification, farmer reach and adoption rather than primarily on demonstration plots and host farmer plots
- Overall, known by various names such as natural farming and permaculture, the regenerative agriculture pathway is being tested in India, fueled by the effects of the green revolution. The Indian government, which already has a National Mission for Sustainable Farming, is reportedly establishing a National Mission for Natural Farming, as well as developing local natural farming certification mechanisms. On the other hand, the government is reorienting farmers to its needs by subsidizing seeds and fertilizers for a select of number of crops, which is at odds with natural/regenerative/sustainable farming. We noted a rivalry between achieving environmental goals and ensuring food security. In general, it is possible to conclude that, as in other places, regenerative farming is still in its infancy and yet focused on pilot projects than on large-scale farming transitions in India
- If resources allow, we recommend that SAA organize learning visits for its staff members to see different perspectives on regenerative agriculture and learn from them.

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