

Rural Economic Development Project (IRED)

Indonesia





About this report

This brief summarises the results from a formal evaluation of World Vision's Indonesia Rural Economic Development (IRED) project, completed by independent consultant CREDOS Institute, between April and June 2020.

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Context

Despite its thriving national economy, Indonesia struggles to leave systemic poverty behind, especially in areas located far from capital Jakarta and the island of Java. The poverty rate in remote East Nusa Tenggara province is the highest in Indonesia, with more than half of its population falling below the poverty line¹.

Part of the challenge relates to productivity in an altered environment. In the remote region of Haharu, less than 10% of original forest remains, and rainfall is decreasing in this already relatively dry area. Limited access to markets restricts financial opportunity and growth for industries based in agriculture, forestry and fishery. Beyond subsistence, farmers' income depends on small livestock such as chickens, goats and pigs, and seasonal food crops such as corn and peanuts. The land itself has become seriously degraded over time. The residents of Haharu face poor and eroded soils, insufficient water for irrigation and widespread deforestation, as well as challenges associated with their remote location: low rates of school completion, isolation from market decision making, and cultural pressures around marriages and funerals that can push families into debt. All of this continues the cycle of poverty and environmental degradation over generations.

World Vision Indonesia's Rural Economic Development Project (IRED), supported by the Australian government through ANCP, has been responding to these issues by combining environmental action with market inclusion, readying farmers and their families to drive the economic development of East Nusa Tenggara steadily and sustainably over the long term.

Project overview

IRED worked in seven villages in Haharu, East Sumba, to increase sustainable economic development of Sumba Island more broadly. It trialed, then expanded, Farmer Managed Natural Regeneration (FMNR) alongside other relevant agroforestry systems to help farmers regenerate degraded farmlands, increase crop yields, improve product quality, enhance market access and boost household income.

The program commenced as a one year pilot in 2015-16, before launching a five year scaled up plan to enhance market supply and demand: firstly, regenerating land for sustainable agricultural income; secondly, improving market access for profitable crops short-term (annual), medium-term (perennials) and long-term (timber). Nearly 5,000 hectares of land were restored or reforested, using FMNR pruning (locally, *palotang*) demonstration plots where communities learned about FMNR, tree plantations and other low-cost, sustainable farming and agroforestry techniques. The project also designed better water-harvesting and infiltration to increase soil moisture, monitored by local water committees. Market Facilitation helped farmers with collective marketing and selling for stronger bargaining power. Inclusion of women farmers is enhancing women's participation and leadership.

The project supported government-community consultation on local land use regulations, essential for *palotang* expansion. As well, aiming for generational environmental change, teachers in the seven villages incorporated environmental perspectives into classes. As this area is predominantly Christian, religious and traditional leaders were encouraged to take up environmental stewardship as a theme for church and community discussions.

INDONESIA IRED GOAL: Increase sustainable economic development for 6,565 community members in economically deprived and land-degraded areas of Sumba Island

Expected Outcomes:

- 1: Rehabilitation of landscape and natural resources
- 2: Increased community's sustainable income
- 3: Increased capacity of community (including children) to conduct environmental engagement
- 4: Strengthened good governance to endorse land management practice and policy

Achieved through

- Farmer Managed Natural Regeneration (FMNR)
- Improved agriculture, water, irrigation and crop diversification (Good Agricultural Practices)
- Local Value Chain Development (LVCD), emphasising economic opportunities for women and other vulnerable groups
- Building partnerships between communities and local policy makers for environmental action planning and accountability

¹ East Nusa Tenggara, 54% under PPP line; East Sumba, 53% under PPP line, PPP US\$3.1, 2015 figures cited by SMERU Research Institute (2018)



Improved water storage and management helped to withstand dry seasons and plant crops year round.

What is Savings for Transformation?

Farmer Managed Natural Regeneration is both a community mobilisation approach for landscape restoration and a specific technique to regenerate trees. Living tree stumps and self-sown seeds are re-grown into usable trees by pruning and protecting them. The regeneration of trees (which is generally faster and less expensive than planting trees) restores and builds natural assets and makes agricultural activities more productive, increasing income, as well as food and water availability. FMNR can be considered in any agricultural, livelihood or development project where tree regeneration will contribute to long-term well-being and where the physical conditions for FMNR exist.

FMNR is also an empowering form of social forestry or agroforestry, giving individuals and communities the responsibility to nurture trees and reap the rewards from the sustainable harvesting of wood and non-timber forest products. Even before environmental commitments and policies grow, it is clear that regenerating trees provide fodder, shade, and soil nutrients. As a natural resource management intervention, FMNR is a rapid, low cost and easily replicated community-led approach to restoring and improving agricultural, forested and pasture lands.

What is Local Value Chain Development (LVCD)?

World Vision's Local Value Chain Development project model helps existing producers increase their incomes by working together in groups to better understand and connect to markets. Both productivity and profitability increase under joint marketing and decision making. It starts with participatory market analysis to identify products with good potential for locally managed, sustained growth. Farmers' groups or producer groups work collectively to purchase equipment, process in bulk and market for a fair price.

World Vision links these groups to technical and business coaching, usually within the private sector itself, so that buyers are investing in the capacity of local producers to meet market demand for quantity and quality. Groups are also supported to link to service providers such as savings and finance facilities, business services and government extension services, ensuring long-term mutual benefits. LVCD can be well suited to goals for economic empowerment of women and other vulnerable groups, as the participatory market assessment explores practical and profitable pathways to engage in rewarding roles within the value chain.

Evaluation methodology

Scope of consultation, final evaluation

Baseline survey: 310 households
Endline survey: 305 households
Direct comparability (panel): 277 households

Key informant interviews:

- Farmers
- Traditional leaders;
- Church leaders;
- Village government;
- Sub-district government;
- District Office of Education;
- District Office of Environmental Agencies;
- IRED project managers, technical advisors and community facilitators.

Focus group discussions:

- Mixed gender groups in five villages;
- Women-only groups in one village

Observation:

- Land management practices
- Farmer perspectives of improved ecology and agricultural results

As the project drew to a close in 2020, World Vision commissioned a final evaluation, using comparison of baseline/endline survey results across the range of intended resilience outcomes, as well as extensive qualitative discussions (focus groups, key informant interviews) for insights into changes, successes and setbacks or barriers. For best comparability, the baseline survey (2017) sampled randomly, then endline (2020) revisited wherever possible the same households, creating a robust panel study. The survey asked questions on multidimensional poverty status, land management practices, crop selection and sales, decision making, child well-being and household demographics including gender and disability.

Findings

Outcome I: Rehabilitation of landscape and natural resources

Environmental action indicators

| | 2017 Baseline | 2020 Evaluation |
|--|---------------|-----------------|
| Increased long-term value (established trees) | n/a | 72.5% |
| Households practising FMNR / <i>palotang</i> overall | 78% | 95% |
| Households practising FMNR / <i>palotang</i> on their own land | 78% | 92% |
| Households practising communal FMNR | 58% | 53% |
| Farmers reporting quality of grazing land has improved | n/a | 64% |

Sustainable land management has been a highlight outcome for the IRED project given its relatively short duration. Under IRED field facilitator guidance, local committees and authorities successfully created a buffer zone between forest and crops (412.5 hectares), sustainable grazing land (2881.6 hectares) and farmland managed with good agricultural practices (GAP, 1637.4 hectares). In total, 4,931.5 hectares of land is now managed sustainably, with 10% being communal FMNR land and the rest privately owned. The focus on privately owned plots has limited full results of land rehabilitation but has positive implications for sustainability, as farmers control their own land and can see the results. Additionally, on communal land, there is no certainty of harvest rights for group members who are not family of the landowner, which reduces the work motivation of the non-family members.

Targets for the adoption of *palotang* (95% of respondents) and water storage and management (50%) were met. However, the proportion of people adopting the full range of land rehabilitation practices² reached only 25% against a target of 50%. The evaluation also measured a decrease in proportion of households propagating or planting trees compared to baseline activity: by 17 percentage points and 13 percentage points respectively.

2 These practices are: composting/organic fertiliser, chemical fertilising, crop diversification, water trapping, and correct spacing of crops.

Outcome 2: Increase community's sustainable income

| Food security indicators | | |
|--|---------------|-----------------|
| | 2017 Baseline | 2020 Evaluation |
| Proportion of households reporting fewer months with food scarcity | n/a | 71.4% |
| Increase in corn production | n/a | 173% |
| Increase in peanut production | n/a | 152% |
| <i>Note: final harvest figures for 2020 were not yet available at the time of measurement; the evaluation estimates higher growth is likely.</i> | | |
| Economic development indicators | | |
| Proportion of households reporting increased sales from Good Agricultural Practices (gross) | n/a | 50.5% |
| Proportion of households reporting increased income from FMNR / LVCD (net) | n/a | 64.8% |
| Average increase (self-reported) per month | n/a | AU\$4 |

By increasing farm productivity, the IRED project has contributed to the improvement of food security in Haharu. With better yields in 2019, survey respondents reported they could stock food for longer, while households with better water management were planting and harvesting year round. **Household data did not report significant increases to cash income overall**, though stories such as farmer Kana's, boxed text, demonstrate the potential for cash profitability and increased dietary diversity as a result. Cash-based agroforestry is still in its early stages of planning and experimentation, requiring farmers to lead by example and sometimes take risks. However, overall support for the principles of managing crops, non-timber forestry products and timber plantation together is clear. Collective selling through LVCD is expected to increase bargaining power as crop yield also increases and farmers are more willing to set aside a proportion of their harvest for sale. Given that many farmers previously never sold their corn harvest agreement to sell relatively small amounts can be seen as a stepping stone for bigger changes in the future.

There is no indication yet that the households have sold the timber from *palotang* and agroforestry plots. Some households have harvested their timber for personal use, using timber sustainably to build houses; one farmer estimated using his own wood for building had saved him IDR36 million (around AU\$3,000).

Before and after: one farmer's journey to sustainable income

Kana, a 47 year old male farmer, could not produce enough from his own land to sell for cash, so worked as a paid labourer at the sugarcane plantation. The wages were insufficient to meet his family's needs. Through the IRED project, he decided to try farming again, using the FMNR guidance for a balance of short term (annual), medium term (perennial) and long-term (tree-based) crops. Last year he earned at least IDR23.8 million (around AU\$2130), and believes he made the right decision. For now, peanuts are his primary cash crop but he thinks areca nuts will provide more income, for less work, in the future.

He says: "I cultivate corn, peanuts, areca trees and some livestock. My corn harvest doubled after applying the correct planting technique and fertiliser. I don't feel right selling corn because we grow it for ourselves and share with our neighbours. But I do sell peanuts directly during the harvest season at IDR16,000 (around AU\$1.50) per kilogram. Also, I sell sliced areca nut for IDR5,000 (around AU\$.45) per small bag if I need to buy rice. I have 115 areca trees planted in my Palotang field in 2016, near the riverbank. I can harvest throughout the year. If I can stay focused on farming, my income is much higher than the plantation workers."



The project worked with many different groups in the community, including churches, schools and government, and the local existing farmer groups or BUMdes.

Outcome 3: Increase the capacity of community and children to conduct environmental management

| Community reach | Number |
|--|--------------|
| Adults with increased awareness / skills in environmental management | 1,313 |
| Children with increased awareness / skills in environmental management | 738 |
| Government parties engaged in environmental management | 12 |
| Community members joining environmental training / events | 1,955 |

The project achieved good results in mobilising different groups within village communities. Highlights included:

- Bylaws from nine village government bodies on policy around water management, fire and separation of pasture and farming areas.
- Children’s reference books (primary-level) introduced to participating schools, which place environmental management messages within easily followed local context; based on their success, the District Education office now plans to use the book as a reference for all teachers in East Sumba district.
- The ‘Sumba Green Camp’ for school children to learn about the environment and make plans for their school to become a ‘Green School’.

I love camping because I learn about planting trees. I want to plant a tree near the school so the air in the school is cool.
 – Tri, 11 years, female student

I like being able to teach students about greening at school. School in Haharu is still not green. Still very hot and arid. So we learned about Green Schools and want our schools to be green schools too.
 – Matius, 45 years, teacher, male

Outcome 4: Strengthened good governance to endorse FMNR and LVCD

Project partnerships were intended to build community collaboration around FMNR and LVCD for best possible likelihood of sustainability and social inclusion. Measures of this included:

- Community bylaws to manage water, fire, and livestock in place in all participating locations
- 11 groups specifically for women (6 producer / processing groups, 5 farmer groups)
- 80% of all groups with gender-equal management committees
- 29 local partners supported on capacity for sustained agroforestry involvement

Partnerships were strongest at the local level, demonstrating the community value of local land management discussions. IRED field facilitators were living in sub-district or village, reducing the time required to visit local partners and increasing the effectiveness of these interactions. Institutions such as village government and local churches were deeply involved in endorsing both FMNR and LVCD for the benefit of their communities, whereas partners further away from the land itself were necessarily less 'hands-on'. An ongoing need has been building capacity of the local BUMDES management on LVCD networks, as these are new concepts for the groups, and the anticipated connections with private sector and markets were only partially successful.

Successful land management policy



Core to success of this FMNR-managed agroforestry enterprise was eliminating detrimental land management practices, such as burning pastures after harvest or grazing cattle in timber plots. Fencing, fire breaks and buffer zones for pasture have been a focus for sustainable results. At endline, 64% of households had noted better pastures for their livestock, due to land zoning, fencing and enforcement of environmental bylaws. As shown in the picture, cattle or goats can damage and even kill young trees by stripping the bark before it reaches the point of sustainable harvest. Using village funds in 2019, the village government of Mbatapuhu built seven kilometres of barbed wire fencing. This significant investment is an incentive for the government to uphold the zoning and enforce fines for people who disobey it, and the land is now fully protected from livestock.



Corn, traditionally a consumption-only crop, is now yielding sufficiently in East Sumba to transition to a cash crop. Farmers groups work cooperatively to market their produce in bulk.

Gender and disability considerations

Gender in this setting has complex implications when it comes to sharing household responsibilities. Traditional meetings and ceremonies are considered essential for men, who often travel away from home to perform these duties. Women stay at home and continue to manage both farm and household, especially seasonal crops, multitasking alongside childcare. Local traditional leadership is elected and women are encouraged to take part. Women's participation in farming and civil society was therefore already relatively high at the start of the project. Women leaders in community or in the farmer groups attended agricultural training to set an example for others, and some women would attend on behalf of their spouses. By the end of the project, women made up a greater share of economically active primary producers, and the evaluation measured a slight shift towards equal share of decision making, at home and in production. In homes where this shift was noted, a trend towards improved household income was also measured. The evaluation noted that women were more likely to try new ideas and take risks, particularly young women.

| Gender empowerment measures | | |
|---|-----------------------|-------------------|
| | Average answer 2020 | Change since 2017 |
| Who in your household decides what to do with family income? | Men and women equally | Positive shift |
| Who in your household participates in agricultural training? | Men and women equally | Positive shift |
| Who in your household decides what to plant, when and where (food crops)? | Only or mostly men | No change |
| Who in your household decides what to plant, when and where (cash crops)? | Men and women equally | No change |
| Who in your household decides on agricultural investments? | Men and women equally | No change |
| Who in your household prepares food? | Only or mostly women | No change |
| Who in your household cares for children? | Only or mostly women | No change |

It should be noted that this project mainstreamed gender considerations in their activities. Specific analysis and interactions to address gender stereotypes and inequities, for instance of workload, was not part of the programming framework. While empowering outcomes for women at home and in the community are evident, a deeper and more deliberate gender action plan could have done even more. This important reflection applies also to involving people with disability in the project and its benefits. The evaluation found community members with sight and hearing impairments were not engaged at all in project activities, while people with mobility impairments were supported to attend IRED activities but felt excluded from full participation in livelihoods and land management. These people, and their families, did not feel that participation in farming was safe for them. For both gender and disability, therefore, lack of specific, consultative planning appeared as a programming gap.

Sustainability

At this stage, though improvements to agricultural productivity and to land quality under community management are clear, the project has not delivered sustainable results around economic participation and growth. Cash crops are not yet grown at a quantity that allows a competitive market to emerge, and 90% of farmers who do not sell cash crops cite low harvest quantity as their reason. This proportion has not changed over the project's duration, implying that farmers' agricultural expectations, behaviours and cycles have also not significantly altered in the last four years. As was always the case, peanuts remain the predominant cash crop, though production has more than doubled as a result of good agricultural practices and more effective irrigation. The project has also supported an emergent processing industry for corn, peanuts and chili run solely by women. However, some challenges to sustainability of these groups were noted around capital investment. Under a micro-finance approach, profits were returned to members rather than reinvested into business growth.



The project set clear objectives for working with children on environmental care through schools and clubs.

Lessons and reflections

Why were cash income increases less than anticipated?

Although crop production and food security increased as a result of better land management, LVCD market connections took longer than expected. For instance, though livestock can now be grazed and fed more sustainably, the market for animal-based products has not been connected to buyers through LVCD. Culturally, though farmers are growing significantly more corn, they choose to consume rather than sell this crop. Industry and market for non-timber forest products were also not built over this time, an element that could have supplemented sustainable agroforestry while trees matured.

Why did tree planting reduce over time?

IREC started with a boost of inputs from agroforestry partner ICRAF who led seedling propagation and distribution across the participating communities. From mid 2017 onwards, this service ended. From the farmers' perspective, expansion of land management, both agricultural and timber-based, needed to happen at a speed that matched economic opportunity. Focus groups discussions revealed that maintaining existing seedlings was prioritised over planting more, so demand decreased accordingly. Labour shortages also limited the amount that farmers could plant and care for, as detailed further below.

What was the barrier to greater communal land management?

The transition to cooperative marketing and increased production had labour implications for many households. Until cash crops began to deliver, many farmers were essentially working twice, balancing the tending of their own crops with necessary casual labour on the large sugar cane plantations. Labour shortages were common because young people were moving away from their home villages. This situation has potential to change in the future, as year round cropping expands both market opportunity and leisure time. If the standard of positive environmental leadership from church, school and government continues, it is likely that community members will find more time to work in communal landcare initiatives.

We work in sugar cane plantation as day labourers. Not every day because it is exhausting and there are other responsibilities such as planting, raising animals, trawling fish, and social affairs. If a husband and wife alternate days at a sugar cane plantation, they can get Rp.4 million per month.

– Kana Milla Iha, male, 47 years

I usually work alone in the family Palotang garden. Sometimes my wife helps me. I used to hire two young men. But because they migrated to Bali to work, I have to work alone in the garden.

– H B Matolang, 55 years, male, farmer



Production of corn increased by 173%, but this increase has labour implications for local families trying to tend and harvest crops on a grander scale.

Conclusions and recommendations

Overall, the IRED project achieved its goal of improving community livelihood opportunities through sustainable agroforestry managed under FMNR. Results should still be considered interim. Non-cash resource from increased productivity has caused a substantial reduction in food insecurity in the region. The value of treed land has increased for 72.5% of households, and some are saving money by using their own trees and timber sustainably. At this stage, cash income has not increased to the point where households are consistently living above the poverty line.

The final harvest for annual and perennial crops was not complete at the time of project evaluation so, though better productivity and profitability was anticipated, it was not formally measured. Towards social change, inclusion and empowerment, the project provides evidence that increased economic participation for women supports more equitable share of voice and decisions; however, a more deliberate approach to reducing inequities in gender roles and responsibilities may have strengthened this outcome further.

The following recommendations were provided to World Vision Indonesia based on the evidence from IRED. They are also relevant for broader consideration from partners working in environmentally sensitive food security and market expansion.

1. Expand and contextualise FMNR in this dryland forest landscape

- Invest in local (household) water harvesting capacity to build soil fertility for sustainable food and cash crops
- Include livestock management, as cattle are important in this context; more training and advocacy to decrease damage from grazing and create sustainable fodder supply
- Plant wisely, with trees chosen and placed according to their water needs, and also for strong current market demand

2. Sustain market progress with additional inputs

- Encourage local government investment in agricultural inputs such as seeds, fertilisers and machinery
- Connect emerging groups and businesses with reliable micro-finance or banking services, potentially through local producer groups (BUMDES) stepping into the LVCD broker role
- As livestock remains the primary source of cash income for most households, cover comprehensive livestock technology (breeding, disease prevention, feeding) and LVCD including calves on credit

3. Share successes in community engagement

- The Green School program and curriculum is just beginning to show benefits; continue to promote and use books and messages through schools and churches (Sunday schools).
- Continue to build management and planning capacity, for local government partners, church leaders and BUMDES groups, for sustainable and profitable forest-based industry.



The IRED project significantly increased food security in participating villages through better water management and year round cropping, a result that supports the health and wellbeing of the whole family.

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