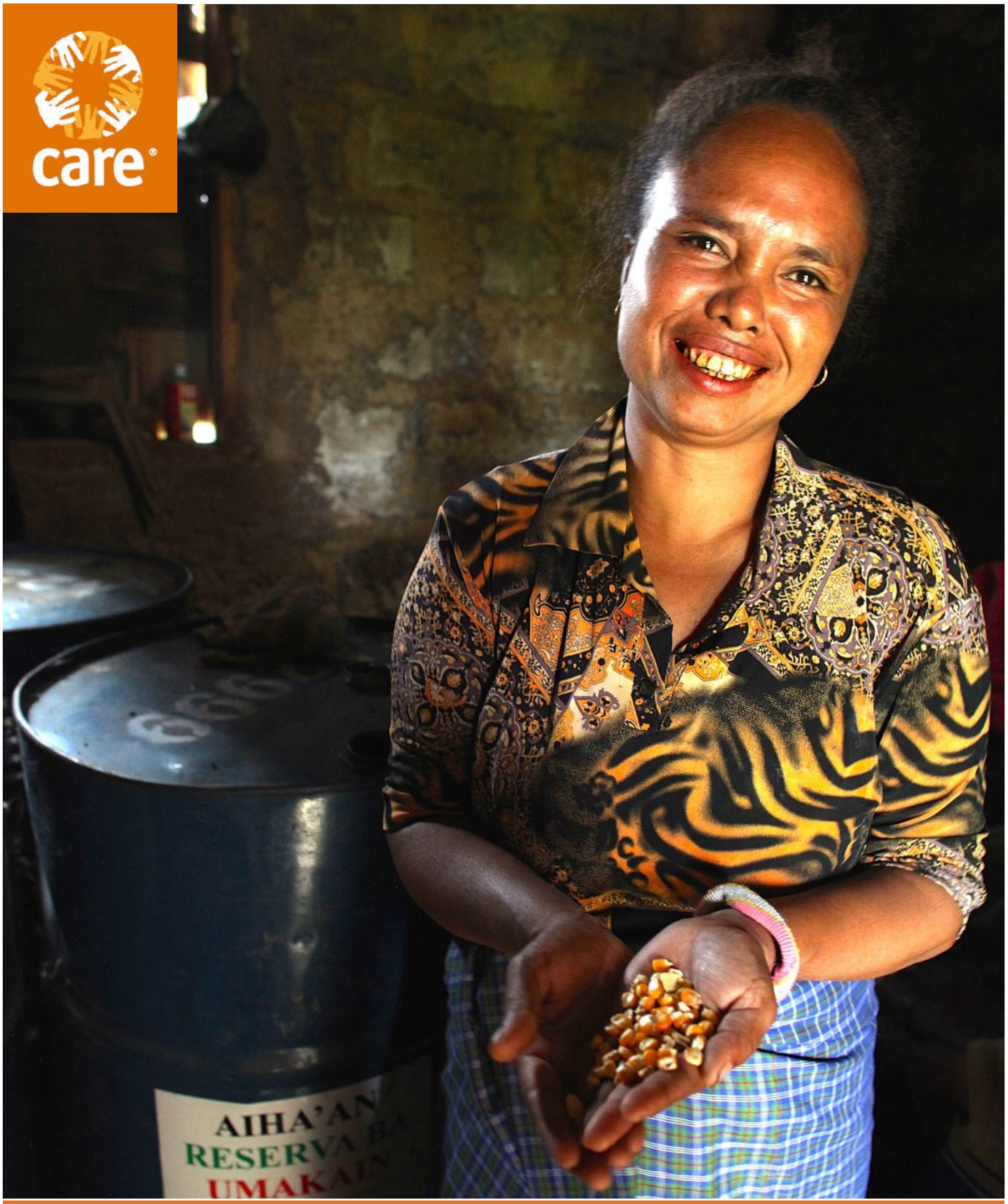


Food, water, rain, risk: the uphill struggle to adapt

Final evaluation of the MAKA'AS project on community-based adaptation in Timor-Leste

Abbreviations

AEZ	Agro-Ecological Zone
ARAP	Aldeia Resilience Action Plan
CBA	Community-based adaptation
CBCCAG	Community-based Climate Change Action Grants Program CCA Climate Change Adaptation
CCWG	Climate Change Working Group
CDEP	Centro do Desenvolvimento da Economia Popular
CLTS	Community-led total sanitation
CVCA	Climate Vulnerability and Capacity Assessment
DAA	District Water Supply and Sanitation Services
DAF	Department for Agriculture and Fisheries
DFAT	Department of Foreign Affairs and Trade
DNSAS	National Directorate for Water and Sanitation Services
DRR	Disaster risk reduction
ENSO	El Nino Souther Oscillation
GMF	Water Management Committee
HAN	Improving Agriculture and Nutrition Program
LIFT	Local Initiatives for Food Security Transformation
MAF	Ministry for Agriculture and Fisheries
MAKA'AS	Mudansa Klimatica iha Ambiente Seguru
MTR	Mid-term review
NAPA	National Adaptation Program of Action
NGO	Non-governmental organization
NRM	Natural resources management
NTF	Naroman Timor Foun
NWCQD	National Water Control and Quality Department
ODF	Open defecation-free
OECD	Organisation for Economic Cooperation and Development
PACCSAP	Pacific-Australia Climate Change Science Adaptation Planning
PDD	Programa de Desenvolvimento Descentralizado
PNDS	Programa Nacional de Desenvolvimento do Suco
PPS	Probability Proportional to Size
TLSDP	Timor-Leste Socioeconomic Development Plan
WASH	Water, Sanitation and Hygiene
WBD	Water-borne diseases

Food, water, rain, risk: the uphill struggle to adapt.
Final evaluation of the MAKA'AS project on community-based adaptation in Timor-Leste.

This report shows the results of an evaluation of the project "Climate Change in a Secure Environment/ Mudansa Klimatika iha Ambiente Seguru (MAKA'AS)." In partnership with WaterAid and other partners, CARE implemented this project between July 2012 and March 2015 with funding from the Australian Department of Foreign Affairs and Trade (DFAT) under its Community-based Climate Change Action Grants (CBCCAG) program. The evaluation was carried out by Banyaneer and included visits to eight villages in Liquica district.

MAKA'AS key implementing partners:

Evaluation team

Dennis Eucker	Team leader and co-author, Banyaneer
Patrick Bolte	Co-author, Banyaneer
Boris Orlowsky	Survey analyst, Banyaneer

Acknowledgements

The authors expresses their gratitude to everyone who helped to make this evaluation study possible. Special gratitude is expressed to Josie Huxtable, Mirko Gamez, Jyoti Bhushan, Peter Raynes, Alex Grumbley, Angelina dos Santos, Saad Karim and Nivio Mendes for the overall guidance during the evaluation and review process, and to Mr. Isolino for the excellent and helpful translation support at any time. Most of all, gratitude is expressed to our team of workshop facilitators and enumerators, and the villagers who gave up some of their time for survey interviews or community workshops.

© CARE 2015

Executive summary

Food, water, rain, risk: these four aspects are at the heart of MAKA'AS project that CARE and WaterAid implemented with funding from the Australian Department of Foreign Affairs and Trade (DFAT). Launched in July 2012, the project set out to facilitate community-based adaptation to climate change amongst 33 villages in Timor-Leste's Liquica district. This included ***promoting*** of climate-resilient livelihoods (e.g. through crop diversification and conservation farming), ***enhancing*** the access to safe drinking water and improved sanitation, ***reducing*** the risk from erosion and landslides, and ***enabling*** broader village plans for climate change adaptation.

This evaluation finds that the project led to increased agricultural production and higher incomes amongst farmer group members. It also generated significant improvements in water and sanitation, bringing down the prevalence of water-borne diseases as a result. Furthermore, it raised climate change awareness amongst villagers and government partners, and reinforced community capacity - important aspects to stimulate adaptive action. Yet, the extent to which they have transcended into adaptive local planning and increased climate resilience was limited by multiple factors. These include a) insufficient funding for national-level policies and plans in adaptation, b) the treatment of farmer and water management as target groups rather than vehicles for broader reach and adaptive planning, and c) climatic conditions that have been favourable for agricultural production over the past two years, which in local eyes rendered adaptive planning as a low priority. To make community-based adaptation even more effective, the report concludes that future programming will need to be more holistic, broad and layered, as well as innovative in addressing deeper capacity constraints amongst local government partners.

The report begins with an overview of the project and the evaluation methodology ***(section A)***. Research was carried out in February 2015 and included visits to eight of the 33 target villages in Liquica district. The study is based on a mixed-methods approach, featuring a survey amongst 292 households, community workshops, and key informant interviews.

Section B presents its findings with regard to (a) relevance, (b) efficiency, (c) effectiveness, (d) impact, and (e) sustainability. ***Section C*** draws conclusions and supports evidence-based learning. Key findings are summarized below.

Relevance

- At the ***national level***, the project was aligned with two main aspects of the recently developed NAPA strategy for Timor-Leste, i.e. food and water security. The appointment of key governmental institutions and relevant donor organizations and NGOs to a project steering committee, and the organization of the first conference on climate change in the country raised awareness and understanding of climate change, and resulted in an established working group on climate change adaptation.

- Despite the awareness raised through these mechanisms, actual climate change adaptation action remained considerably low in practice. In the Timor-Leste context, vulnerability to a changing climate is the result of specific climatic changes but also of broader unmet development needs. Thus the MAKA'AS community-based adaptation project was relevant in contributing to successful adaptation through interventions that have an explicit adaptation benefit such as check dams in response to flooding, but also interventions that address more general development needs such as food security, livelihoods and governance. Such measures serve as prerequisites for building the resources and capabilities that enable people to anticipate future needs, respond with flexibility to change, and quickly recover from shocks.

- At the ***district level***, interviewees from government institutions said that the project had been highly relevant to them and to local residents. For the Department of Agriculture and Fisheries, the support of farmer groups turned out to be a highly welcome initiative in line with its own activities. For the District Water and Sanitation Services, the project was perceived as a helpful "extended arm", supporting the department in achieving its goals.

- At the ***village level***, the majority of households have experienced unpredictable seasons and increasing hazard events over the past ten years. The project conducted initial analyses (CVCAs, baseline; gender and power analysis) to refine the relevance of its activities.

Efficiency

- The MAKA'AS project successfully built on existing expertise, networks and structures established by CARE and WaterAid through earlier projects in Liquica district. This enabled a rather swift roll-out across the 33 target villages.

- The implementation of activities related to water, sanitation and hygiene (WASH - outcome 1) as well as those related to food security (outcome 2) is found to be highly efficient. Through the creation of a project steering committee with participation of partner organizations and government institutions, and proper planning on the district and local level, it ensured that all relevant stakeholders were involved at all stages. Furthermore, the group-based implementation approach facilitated close working relationships between project staff and the immediate target group.

- Collaboration between the two main partners of the consortium was an efficient and effective pooling of expertise, and collaboration was strong.

- The maintenance of two separate structures however is found to have brought several drawbacks, the most severe of which stems from the fact that each partner had different target groups (WaterAid with water management committees (GMF) for outcome 1 and CARE with farmer groups for outcome 2). With these groups being treated as target groups in practice, little was done to reach the wider village population. Not only did this omission represent a missed opportunity for wider leverage (and thus greater efficiency), it also failed to create the basis for wider village-level planning, as anticipated for the Aldeia Resilience Action Plans (ARAP).

Effectiveness

- The project directly benefitted around 9,500 villagers across 1,700 households in 33 aldeias. Around one-third of households counted themselves as either member of a GMF (33.3%) or of a farmer group (31.2%). These group members were effectively supported and frequently visited by project staff. However, support extended very little beyond group members.

- Regarding **outcome 1**, all assessable project indicators were either achieved or showed a strong positive trend. Across the twenty barrios (sub-villages) that were supported, water access, management practices and sanitation improved substantially. The applied approach of community-led total sanitation was found to be particularly effective, resulting in many barrios being declared as open-defecation-free.

- Regarding **outcome 2**, all assessed project indicators were either achieved or showed a strong positive trend. The project distributed new varieties of seeds, introduced and promoted conservation farming techniques. As a result, farmer group members had better yields and reduced post-harvest losses. They also diversified crops (the average number of planted crops over one cycle increased from 5.66 to 6.61) and adopted conservation farming practices (in particular the uptake of integrated pest management, contour farming and crop covering). Overall, the share of those with access to climate information more than doubled to 34.9%. Amongst farmer group members, 66.7% had such access, and most used this information to plan activities.

- Concerning **outcome 3**, results were mixed. While the level of understanding of climate change impact and options for adaptation increased substantially, and while most villagers feel better prepared (89% of farmer group members, 76% of GMF members), this increased awareness has yet to translate into broader adaptation planning as envisaged in the ARAP concept.

Impact

- The MAKA'AS project generated positive impacts in terms of livelihoods, water, sanitation and health, and community capacity. Combined with raised awareness of climate change risks and knowledge of climate-resilient practices, these results led to an overall increase of adaptive capacity, particularly amongst members of farmer groups and GMF.

- In terms of ***livelihoods***, the evaluation found that the more than two-thirds of villagers see themselves better off overall (68.8%) as well as better adapted and prepared for climate risks (69.2%). Respective shares amongst group members are even higher, with most attributing these improvements to the MAKA'AS project.

- Regarding ***water supply and health***, it is found that water access has considerably improved (81.7% of GMF members saw improvements); in combination with improved sanitary infrastructure and practices, this led to better health outcomes: 82.6% of GMF members noticed a reduced prevalence of water-borne diseases, with almost all of them attributing this change to project activities.

- Concerning ***community capacity***, the evaluation observed that the project led to enhanced collective action and better links to the government. In terms of gender, decision-making patterns were not changed despite objectives towards more gender-equitable patterns.

Sustainability

- Most project outcomes are seen as sustainable, given the willingness and capacity of villagers to continue pursuing underpinning activities. Amongst those respondents who have learned new techniques through the project, a clear majority found their continued application worthwhile (81.6%). A similar share (84.6%) said they would be able to sustain these practices.

- In terms of water and sanitation outcomes, the critical mass has been attained (in supported barrios) that tends to perpetuate improved practices. The water supply system is sustainably managed; if required, back-up can be provided if from the government and the GMF association.

- The sustainability of farmer groups is more limited, in particular due to the lack of extension officers that could provide support. While the project provided training, the deeper constraint of personnel limitations was not adequately addressed.

Figure 1 | **Overview of recommendations**

No.	Recommendation	Reasoning
A	**Climate change affects people in different ways and to varying degrees.**	
A.1	When planning CBA projects, it is important to first consider the extent to which different people are sensitive and exposed to climate risks.	The MAKA'AS project identified climate risk by reviewing external studies and assessing local sensitivity and exposure. With greater irregularity of rainfall and strong dependence on rain-fed agriculture, sensitivity and exposure is rather uniformly high for villagers in Liquica district. Yet, the associated present and future risks may not be fully recognized. As done by the project, awareness-raising must therefore accompany all other activities to ensure that the reasons for adaptation are understood.
A.2	As these risks may not be fully recognized and understood, awareness-raising needs to accompany other activities throughout implementation.	
B	**The capacity to adapt to stressors varies amongst individuals, households, communities**	
B.1	Without careful analysis of individuals' and groups' adaptive capacities, and thoughtful planning to address disparities, CBA projects run the risk of replicating or even reinforcing these disparities - thereby leaving the most vulnerable behind.	While all villagers are likely to be affected by climate change, the extent to which they are able to adapt varies considerably. In order to ensure that those with less capacity are not being left behind, disparities must be carefully assessed and then addressed. This should also inform the way implementation structures are set up. Instead of replicating (and possibly reinforcing) existing power balances, these structures need to facilitate greater power equity. More equitable access to resources and decision-making not only bears many inherent benefits. In the context of climate change adaptation, it is particularly important that those with the least ability to adapt are supported the most. While the MAKA'AS project assessed such disparities, more could have been done to address them. Consider the formation of specific groups based on disparities, rather than functions.
B.2	Efforts to transform power structures need to be continuous and systemic in order to generate equitable outcomes. In terms of gender, this could include separate groups for men and women.	
C	**Villagers have needs and concerns that may or may not be related to climate change**	
C.1	Adaptation to climate change as such is an abstract concept - it is promoted most effectively when it addresses current concerns, demonstrates rapid results, and reduces long-term vulnerability to climatic stressors.	When promoting proactive adaptation to climate change, it is important address both current concerns and long-term risk: interventions need to bring tangible benefits to be seen as relevant - only then can they generate sustainable outcomes. The MAKA'AS project combined short-term gains with long-term benefits in a commendable way - improving income and food variety, water access and health, while also reducing sensitivity to long-term climate risks. Interventions in natural resources management (bio-engineering, reforestation, live check dams) that address interplays between locally induced degradation and climate change effects are another effective entry to adaptation: where such adverse effects combine, the risk is more easily understood. Villagers have greater direct opportunity to mitigate such risk.
C.2	Sustainable natural resources management (NRM) can be an effective entry to adaptation: where climate change interacts with poor local practices, the combined effects (e.g. landslides, erosion) are often more evident, and there is more immediate and greater leverage towards mitigation of risk.	
D	**Local partners (government and NGOs) need to have capacity and willingness to support**	
D.1	The sustainability of all interventions must be assessed and addressed during the design phase - 'exit strategies' devised towards the end of a project a no panacea. In the context of community-based adaptation (which strives for long-term adaptive capacity), sustainability planning is particularly crucial.	Although most of the outcomes of the MAKA'AS project are seen as sustainable, there is a gap that existed since inception: the low number of government extension officers. In the project logic, they were to assist in adaptation planning and to lend support beyond the project conclusion. But while they were engaged and trained, the lack in numbers was not addressed. Innovations and advocacy are needed to address such deeper constraints from the design phase and throughout implementation.
E	**To effectively reinforce community resilience and adaptive capacity, layered and multi-sectoral interventions are required that bring tangible benefits to the broader community**	
E.1	The pooling of expertise through a consortium is commendable in the context of community-based adaptation - however, this pooling needs to facilitate an integrated approach rather than an amalgamation of two parallel interventions	Implemented by a consortium, the MAKA'AS pooled the strong expertise of various partners. While such pooling is commendable in the context of community-based adaptation projects, expertise must be used in an integrated and holistic approach to be effective. In the case of the MAKA'AS project, there was coordination and amalgamation, but not enough integration. More conceptual and practical advances are required to reinforce community resilience more effectively. This should also include layered designs (rather than an exclusive focus on 'the most vulnerable'): in the context of climate change, all villagers may lack the know-how to adapt - thus, advice should be given to all. The extent to which additional support is provided should be layered based on households' socio-economic capacities.
E.2	Given the strong exposure and sensitivity to climatic stressors of all villagers, and varying degrees of adaptive capacity, a layered design is commendable that benefits all - to varying degrees.	
F	**Long-term adaptation planning needs to be holistic and involve the broader community**	
F.1	Long-term adaptive planning requires local leadership, sufficient time and capacity, commitment of local stakeholders, and a broad community basis to be effective and sustainable.	Multiple factors inhibited opportunities for more long-term adaptive planning as envisaged in the Aldeia Resilience Action Plans (ARAP). With the project treating farmer groups and GMF as targets groups, rather than vehicles for broader engagement and dissemination, the basis for aldeia-level was inevitably restricted. For several reasons, community-based adaptation needs the broad community rather than groups. Furthermore, adaptive planning also needs to be understood as a continuum (starting with the Climate Vulnerability and Capacity Assessment (CVCA)) rather than as an activity for the end of the project.
F.2	As outlined in the CBA framework, such planning needs to be understood and practiced as a continuous process that sees the CVCA at its starting point.	

Table of contents

Introduction

Timor-Leste is highly vulnerable to a broad range of climate change impacts. Climatic hazards such as droughts, flooding and heavy rains can affect community livelihoods - particularly those dependent on agriculture and natural resources. Climate change is likely to exacerbate these challenges.

Over 80% of Timor-Leste's rural population depends on agriculture and natural resources for their livelihoods. More than 90% of the agriculture systems in rural areas are rain-fed. Given these figures, Timor-Leste's rural population is highly susceptible to environmental change. As climate change impacts intensify, food security will be harder to achieve and sustain.

While weather conditions have been favourable over the past two years, the country already experiences damaging droughts and floods. These are likely to lead to lower agricultural outputs and damage to infrastructure. The most serious implications of climate change for Timor-Leste are likely to be related to changing rainfall patterns, higher temperatures and more frequent extreme weather events.

The project "Climate Change in a Secure Environment" ***(Mudansa Klimatika iha Ambiente Seguru, MAKA'AS)*** started in 2012. With the overall aim of increasing the resilience of vulnerable communities to the unavoidable impacts of climate change, the project consortium between CARE in Timor-Leste, WaterAid, and local NGOs ***Centro do Desenvolvimento da Economia Popular*** (CDEP) and ***Naroman Timor Foun*** (NTF), set out on the relatively new path of climate change adaptation.

Liquiçá, the district west to the capital Dili in which the MAKA'AS project was implemented, is one of the most food-insecure areas in the country, with inhabitants often farming un-irrigated marginal slope areas. The MAKA'AS project targeted six (out of 23) sucos and 33 (out of 134) aldeias[1] in two highly degraded watersheds. Heavily reliant on rain-fed agriculture, the villagers here are exposed to the increased climate variability brought about by climate change.

While they have some capacity to adapt to these changes, villagers' coping strategies are reliant on climate-sensitive natural resources, as they have limited access to alternative livelihoods. Traditional gender roles exacerbate the risks for women in a changing climate, while minimal access to weather and climate forecasting hinders adaptive actions.

To what extent has the MAKA'AS project made a difference, and what can be learned from this experience? These are the two key questions that guided the present evaluation. Research was carried out in February 2015 and included data collection and analysis in Dili and Liquica town, and field visits and a household survey in eight villages. Findings are based on a mixed-method approach that included a survey amongst 291 households and a range of qualitative tools such as trend analysis, seasonal calendar, focus group discussions and key informant interviews.

This report is arranged in three sections: ***Section A*** (Background) reviews the background of the project and of this evaluation. ***Section B*** (Findings) includes the key findings regarding relevance, efficiency, effectiveness, impact and sustainability. ***Section C*** (Learning) presents the lessons that can be drawn from the project experience for future implementation.

The appendix provides additional information, including the comprehensive survey results, the trend analysis summary, and the survey questionnaire.

1. Throughout this report, the official names are used for administrative levels below the district level. These include:
   - Suco (sub-district)
   - Aldeia (village)
   - Barrio (hamlet/sub-village)

SECTION A | BACKGROUND

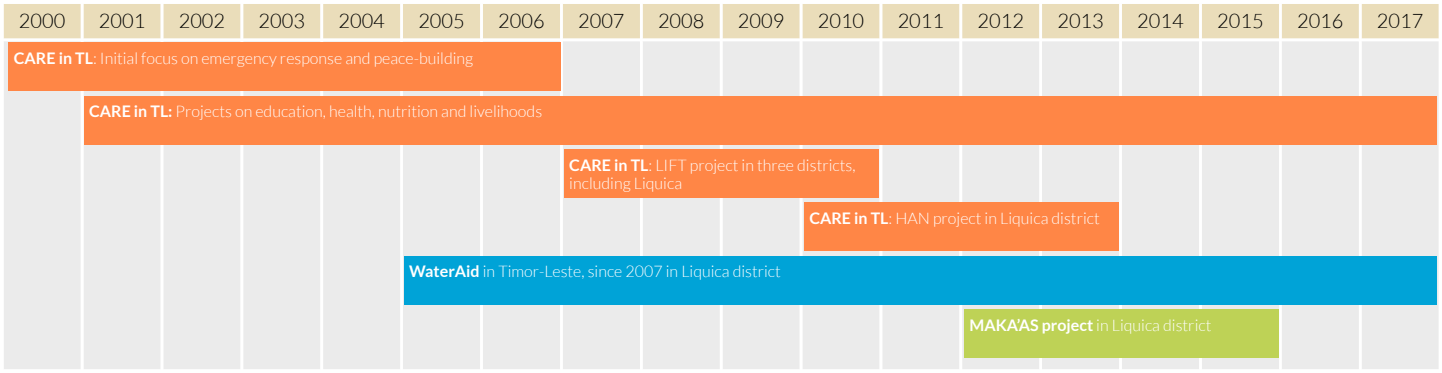
1. Project overview

Having operated in what is now Timor-Leste for more than 20 years, CARE initially focussed on emergency response and peace-building following the violence around Timor-Leste's path to independence. Over time, CARE shifted to supporting the broader development needs of the young and largely poor nation. It has been engaged in numerous long-term development projects, aiming to enhance health, education and livelihoods across the country. Gender equality as well as disaster risk reduction have been central concerns in these efforts.

Prior to the MAKA'AS project, CARE had been engaged in two livelihood/food security projects - LIFT *(Local Initiatives for Food Security Transformation)* from 2007 to 2010, and HAN *(Hadia Agrikultura no Nutrisiaun)* from 2010 to 2013 *(see figure 1 overleaf)*. With national figures indicating that over one-third of the population regularly experienced food shortages during the rainy season's "hunger months", the aim was to enhance food security - in the case of the HAN project, in Liquica as well as two other districts. The evaluation of the HAN project found that 95% of supported farmers attained higher yields from improved seed varieties.

Given the growing concern about climate change and its forecasted devastating impacts on Timor-Leste, CARE Australia submitted a proposal for a multi-country climate change adaptation program that included Timor-Leste. Under the Community-Based Climate Change Action Grants (CBCCAG), the Australian Department of Foreign Affairs and Trade (DFAT) awarded funding for this program that includes MAKA'AS, as well as projects in Vietnam, Papua New Guinea and Vanuatu.

Figure 1 | **Timeline: CARE and WaterAid engagement in Timor-Leste**



The MAKA'AS project successfully built on previous experience: in line with a recommendation by the Ministry of Agriculture and Fishing (MAF), Liquica district was selected - an area in which both CARE and its new consortium partner WaterAid were already working. Furthermore, many of the staff members recruited for the HAN project were retained, and partnerships with local NGOs such as ***Centro do Desenvolvimento da Economia Popular*** (CDEP) and ***Naroman Timor Foun*** (NTF), and development cooperation initiatives financed by the Government of Australia, such as Seeds of Life and BESIK, extended.

MAKA'AS project goal and objectives

Geared to raise the adaptive capacity of women and men in vulnerable households, the project's overall objective reads "increased resilience to the unavoidable impacts of climate change in Timor-Leste." As a project that was to test and demonstrate tools for community-based adaptation (CBA), it features specific objectives related to direct outcomes for the target population (specific objective 1) as well the development of an evidence base for CBA (specific objectives 2a and 2b).

Targeting Liquica district - specifically, 33 aldeias in six sucos (with a total of 3,180 households) based in the two adjacent, highly degraded watersheds of the Laklo and Gularloa rivers, the MAKA'AS project interventions were arranged to achieve three main outcomes *(see figure 2)*.

Figure 2 | **MAKA'AS project overview**

Overall objective: Increased resilience of vulnerable communities to the unavoidable impacts of climate change

Specific objective 1
Vulnerable communities within six communities across two adjacent, degraded watersheds in Liquica District have increased resilience to the impacts of climate change

Specific objective 2a
The evidence base on successful approaches to gender-transformative community-based adaptation grows and is disseminated at community, national and international levels

Specific objective 2b
Evidence base used to inform gender-sensitive planning and policy at the local and national levels

Outcome 1
Vulnerable households are implementing water management and water resource protection strategies that support livelihood, domestic consumption and DRR

Outcome 2
Vulnerable households are implementing integrated climate-resilient land management practices which support sustainable livelihoods and equitable food security

Outcome 3
Communities, partners and local government have enhanced understanding of and capacity in gender-transformative climate change adaptation that informs local planning processes

The *first outcome* focused on water management: through improved water access and water management, target aldeias would have a stronger basis to grow and sustain agricultural livelihoods, enhance sanitation, and reduce disaster risks. The *second outcome* concerned agricultural adaptation: through more climate-resilient crops and practices as well as diversification, the overall livelihood situation and equitable food security would be enhanced. The *third outcome* targeted the capacity of communities, local partners and government agencies to adopt gender-sensitive local-level planning that would integrate adaption to climate change.

Activities

Implementation started with Climate Vulnerability and Capacity Assessments (CVCAs) that served planning purposes for the livelihood- and water-related activities and also helped raise awareness towards sustainable agricultural techniques and water use.

With regard to *outcome 1* on water and sanitation, activities included:

- the construction of 20 water distribution and sanitation systems on the barrio (sub-village) level,
- the formation of Water Management Committees (GMF) to facilitate maintenance of these systems, and
- hygiene and sanitation training.

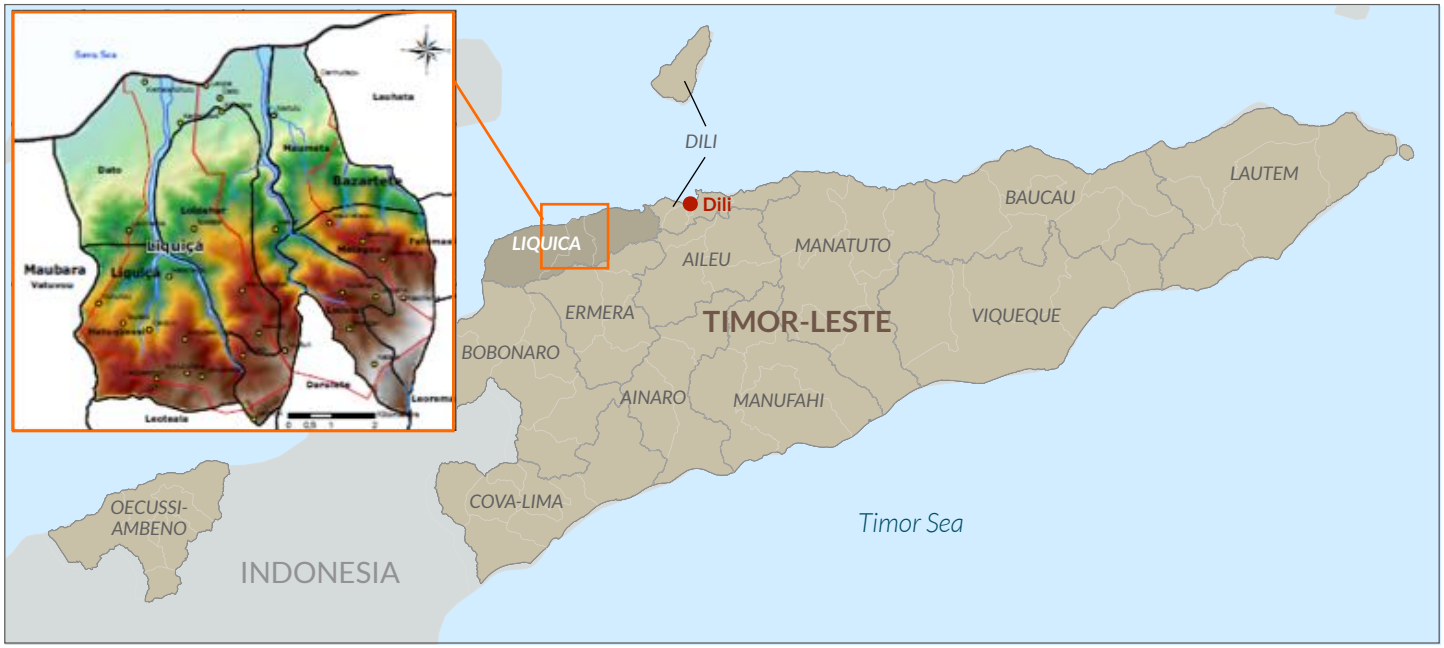
Working with 91 (31 new and 60 already existing) farmer groups over the course of the project, main activities in support of *outcome 2* comprised:

- the distribution of new varieties of seeds,
- trainings in sustainable agricultural techniques and home gardening,
- the construction of water ponds for irrigation,
- the distribution of air-tight drums to reduce post-harvest losses,
- the distribution of tree seedlings and construction of nurseries,
- selective risk mitigation projects to reduce risk of erosion and land slides, and
- distribution of efficient cooking stoves to reduce firewood usage.

In support of the *outcome 3*, activities comprised:

- capacity-building on gender equality and planning for climate change adaptation on the local level,
- awareness-raising and training about climate change and adaptation on the local and the district levels, and
- workshops and conferences on climate change adaptation on the district and national levels.

Map | **MAKA'AS project area**



2.Evaluation objectives and approach

It is worth recalling the general two-fold purpose of an evaluation: to deliver accountability to donors by assessing project achievements, and to identify lessons learnt. This identification enables the replication of what went well and the modification of what did not. This chapter discusses the '*what*' and the '*how*' of the present evaluation: it first looks at the concrete evaluation objectives and then proceeds with a brief look at the applied approach.

2.1 Objectives

The evaluation of the MAKA'AS project is part of a multi-country evaluation process to collate and synthesize experiences in community-based adaptation across the Asia-Pacific region. With a focus on both ***accountability*** and ***learning***, CARE Australia commissioned the evaluation of three projects it has been implementing since 2012 with funding from the Australian Government's Community-Based Climate Change Action Grants (CBCCAG). Through these three projects[2], CARE and its partners have been aiming to a) promote climate-resilient livelihoods, b) reduce disaster risk, c) strengthen the capacity of communities as well as local civil society and governments, and d) address the underlying causes of vulnerability.[3] A fourth project in Vanuatu shares these objectives and has been evaluated separately.[4]

The purpose of the evaluation consists of two aspects: ***first***, it was to provide **accountability** by assessing the projects in terms of their relevance, effectiveness, efficiency, impact, and sustainability (see terms of reference, ToR).[5] This was to include the provision of evidence of project outcomes and impact (intended or not) within the lives of women and men in target communities. Aside from the key criteria, the evaluation would need to assess the role of the project towards a) gender equality and women's empowerment, and b) analyze the monitoring and evaluation system used.[6]

Second, the evaluation was to facilitate **evidence-based learning**. Based on the synthesis of project-level findings, the evaluation was to identify and map good practices and success factors as well as obstacles and challenges, and make recommendations as to how effective and sustainable adaptation strategies for increased resilience can be further enhanced. In this context, the terms of reference provide a set of key research questions for each of the four CBA framework themes.

Thus tasked to provide a project-specific review as well as to generate insights for the synthesis report and future learning, the evaluation of the MAKA'AS project was planned in two steps: ***first***, an overall inception report was prepared that integrated the ToR's key evaluation questions into a meta-evaluation framework. To facilitate consistent approaches, generic research tools were also devised (see inception report). In a ***second step***, a more specific evaluation plan for the MAKA'AS project was prepared and research tools adapted to take the project-specific factors into account. In particular, the meta-evaluation framework was transformed into project-specific frameworks for accountability and evidence-based learning (see evaluation plan Timor-Leste).

2.2 Approach

Aside from having been guided by the overall evaluation objectives and the project-specific context, the MAKA'AS evaluation plan also aimed to enable a longitudinal comparison with the baseline and mid-term review. A mixed-method approach was devised, with a

2. The three projects are:
   - **Papua New Guinea:** "Community-based adaptation to climate change in Nissan district",
   - **Timor-Leste:** "Climate change in a secure environment" (MAKA'AS),
   - **Vietnam**: "Integrated community-based adaptation in the Mekong (ICAM).

3. These objectives are in line with the four key elements (CBA framework themes) for successful adaptation recognized in CARE International's manual for Participatory Monitoring, Evaluation, Reflection and Learning for Community-Based Adaptation (PMERL).

4. Oxfam, lead organization behind the project in Vanuatu, commissioned this evaluation separately. The results will be integrated into the synthesis report that is envisaged as the final product of this consultancy.

5. Aside from these criteria, the ToR also stipulate that the evaluation should assess the role of the projects towards gender equality and women's empowerment, and analyze the monitoring and evaluation system used.

6. Note that in the evaluation framework, these two aspects are integrated in the analysis of effectiveness as well as, in the case of gender equality, impact.

Figure 3 | **Overview of sampled aldeias**

Aldeia	Barrio	Watershed	# HH	# Activities	Activities per HH	WaterAid projects	Baseline sample	MTR sample	Sample size	Work-shop
Strata A (Aldeias with a high concentration of activities (>0.25 per HH)										
Tau Talo	Hatuquesi	Laklo	211	68	0.32	0	**Yes**		40	
Metiluli	Metagou	Gularloa	134	48	0.36	**2**			40	**Yes**
Lebuana	Lukulai	Gularloa	36	14	0.39	0	**Yes**	**Yes**	30	
Laklohema	Dato	Laklo	246	94	0.38	**2**		**Yes**	40	**Yes**
Strata B (Aldeias with a low concentration of activities (<0.25 per HH)										
Kai To Letehou	Hatuquesi	Laklo	56	13	0.23	**1**			50	**Yes**
Kaileulema	Metagou	Gularloa	119	25	0.21	**1**	**Yes**		50	**Yes**
Kamalehohuru	Dato	Laklo	225	28	0.12	0			50	
Nartutu	Maumeta	Gularloa	348	18	0.05	0			50	**Yes**

household survey representing the quantitative part, and with community workshops, focus group discussions, key informant interviews and a management workshop forming the qualitative component.

Eight of the thirty-three target aldeias were selected for visits by the evaluation team. A stratified sampling approach was chosen: aldeias with a high concentration of project activities formed **strata A** and those with a low concentration **strata B** *(see figure 3 above)*. This approach was based on the notion of dose-response analysis - the idea that a higher level of support and engagement (dose) correlates with a stronger outcome (response). Once villages had been assigned to either strata, selection was made randomly. However, checks were run to ensure that the sample reflected a) both watersheds and b) all three agro-ecological zones (AEZ), and that the sample included villages c) where both CARE and WaterAid were jointly implementing, and d) that had been part of the baseline and MTR samples.

For the household survey, sampling was based on the Probability-Proportional-to Size (PPS) technique, taking the two strata as separate sampling frames. The sample size was calculated on the basis of a confidence level of 95% and a margin of error of 5% for both strata. However, as the planned sample could not be fully attained during field research (291 of the planned 350 households were interviewed), the actual margin of error stands at 5.5%. The survey questionnaire covered all three MAKA'AS outcomes and included questions on perceived change and attribution of that change to the project.

Data collection was carried out between February 16th and 27th in Dili, Liquica town and the eight sampled aldeias. Aldeia visits incorporated two parallel streams: *first*, a team of enumerators conducted the household survey, collecting responses electronically with hand-held devices. *Second*, the evaluation core team (consultant, facilitators, translator) carried out community workshops, focus group discussions, site visits and most significant change interviews. Community workshops included:

- Trend analysis - to identify changes in living conditions and underlying factors
- External support analysis - to help assess external support and project impact
- Livelihood analysis - to gather data on diversification
- Seasonal calendar - to assess food security and 'hunger months'
- Hazard losses and coping strategy analysis - to assess risk and coping mechanisms

All tools are described in the inception report as well as in the community workshop overview. Focus group discussions and interviews with villagers followed specific guides.

Aside from visiting the eight sampled aldeias, the evaluator also conducted a workshop with MAKA'AS project staff and stakeholders, and conducted interviews with key partners at the national and district levels *(see figure 4 overleaf)*.

Figure 4 | **List of interviews and background talks**

CARE:
- Country Director
- Assistant Country Director
- MAKA'AS Project Manager
- District Project Manager
- Bioengineering Coordinator
- Community Development Officer

WaterAid:
- Country Representative
- Program Manager
- MAKA'AS Project Assistant

Ministry of Public Works,
National Directorate for Water and Quality Control
- Head of Department of Water Quality
- BESIK Advisor

CDEP project staff

DAA:
- DAA Manager
- District Sanitation Officer
- Community Water Supply Development Officer

District MAF
- Head of Department Extension Services

Village level:
- Village Chief of Kai To Letehou
- Village Chief of Laklolema
- Head of Farmer Group of Laklolema
- Village Chief of Nartutu
- Village Chief of Kaileulema

2.3 Limitations

Due to sound preparation and excellent support by CARE and WaterAid, the evaluation experienced no major challenges. The only issue was the difficult access to the remote villages, which reduced the time that could be effectively spent on site and thus caused the number of survey respondents to be lower than planned (135 out of 150 respondents for strata A and 156 out of 200 for strata B). Aside from a slightly higher margin of error, this however bears no impact on the validity of findings.

Furthermore, it needs to be pointed out that with its small sample size, the baseline survey provided limited ability for a longitudinal comparison. Unless there are major differences in results between baseline and endline survey (which exceeds the overall margin of error), baseline survey results were therefore not taken into account.

In order to address this challenge, the questionnaire included retrograde assessments (how were conditions before the project, how are they now?), thus allowing for identification of change and indeed of impact (through questions on attribution; see the questionnaire attached as appendix D).

An analytical challenge was posed by the fact that while most project outcomes targeted either the GMF and WaterAid-supported barrios or farmer groups, workshop participants and survey respondents were sampled amongst the entirety of aldeia residents. In terms of the survey, this challenge was overcome by meticulously cross-tabulating results with respective group memberships. In terms of workshop results however, such differentiation was not always possible.

SECTION B | FINDINGS

3. Relevance

To what extent has the MAKA'AS project been relevant? This chapter answers this question by looking at the national policy context (3.1), the planning at the district context (3.2) and the relevance to the beneficiaries in target communities (3.3).

Relevance:
"The extent to which the objectives of a development intervention are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donors' policies."

OECD 2010:32

3.1 The national context

During the conceptualization of the MAKA'AS project, CARE took several studies on climate change impact in the Asia Pacific region (such as those by the DFAT-funded 'Pacific-Australia Climate Change Science Adaptation Planning' (PACCSAP) program) and in Timor-Leste (particularly those studies related to the National Adaptation Programme of Action, NAPA) in to account. Providing information on climate trends and existing levels of exposure and vulnerability, these studies represented a good starting point. Furthermore, CARE's and WaterAid's experience from previous projects contributed a sound understanding of the target area in Liquica district.

The project focussed on food and water security and was thereby deliberately aligned with two key aspects of the NAPA, which the government had published in 2012. NAPA's overarching vision is to make the Timorese people more resilient to climate change, recognizing their high vulnerability in an economy dominated by subsistence agriculture.

NAPA states that "adaptation measures will be focused on reducing the adverse effects of climate change and will promote sustainable development. These measures will build on existing strategies and plans across all sectors within Timor-Leste, including the National Priorities process, while initiating six dynamic Sector Working Groups on food security, water, health, disasters, biodiversity and infrastructure." While the government of Timor-Leste thus recognized the importance of responding to climate change in the NAPA, its capacity to plan and implement suitable adaptation activities was limited, in particular on sub-national levels.

With its general alignment to NAPA and its aim to enhance planning capacity (outcome 3), it is found that the MAKA'AS project was thus highly relevant to national policy. This is even more so the case as it also addressed other government concerns. Aside from supporting the country's progress towards the Millennium Development Goals (MDGs) and Timor-Leste's Vision 2020 (TLSDP), one principal orientation of MAKA'AS was to support the local government in achieving a higher support coverage of vulnerable households.

To this end, Liquica district was selected at the advice of the Ministry of Agriculture and Fisheries (MAF). Furthermore, the two watershed areas and the sucos and aldeias therein were selected through consultations with the district government. Selection criteria included the existence of networks and working relations from earlier projects, as well as identified limitations in capacity in terms of public funds and human resources.

Over the course of the project, the appointment of key governmental institutions and relevant donor organizations and NGOs to a project steering committee, and the organization of the first national climate change adaptation workshop in Timor-Leste raised awareness of climate change, and resulted in the establishment of the Climate Change Working Group (CCWG). Throughout the preparatory process of the conference as well as in the CCWG, the national government took a lead role, with CARE and WaterAid being acknowledged as key partners.

In summary, the evaluation finds that MAKA'AS project was well-aligned to national priorities and highly relevant to the national policy context.

3.2 The district level

The implementation of the MAKA'AS project on the district level primarily depended on establishing and maintaining good working relationships with key partners from the district government.

In Liquica, the district's Department for Agriculture and Fisheries (DAF) and the District Services for Water Supply and Sanitation (DAA) were key partners for the MAKA'AS project. During interviews with department heads and technical staff, interviewees expressed the view that the project had been very relevant to them as well as to needs of the vulnerable local population. Both institutions perceived the project to be highly relevant in assisting in - and advising them on - achieving their sectoral goals defined by the national government (75% household coverage with water supply until 2020 for DAA and providing extension services to farmer groups for DAF). A DAA staff member said that he viewed the project as a helpful "extended arm": with WaterAid's eight officers supporting, DAA was able to reach more residents than it would have on its own - it having just six staff for the entire district.

Infrastructure in Liquica had been badly damaged during the war for independence, and although basic water supply services have been improved considerably since, many households are still left without such essentials as safe water or toilets. Country-wide, three in ten people still lack safe water, and over half the population lack a toilet. In Liquica, the mountainous terrain and poor road network makes service delivery and upgrades difficult; remote communities are particularly hard to reach during the rainy

season. The continued lack of safe water and basic toilets means that water-borne diseases are common. Prior to the project, water was mainly collected from unsafe sources.

Focussing on water management committees (GMF) is in line with government regulations and seen as the most suitable approach to ensure that water supply and sanitation systems improve the lives of local residents over the long term. The interviewed DAA officer supported the idea of putting women in leadership roles of GMFs - ***first***, because women would benefit more directly from water supply systems (as it is mainly women who fetch the water for household needs) and ***second***, because it is usually the women who contribute to village funds - it thus made sense that they would also be the GMF treasurers.

Of particular concern to the district government was the availability of groundwater. Although Liquica district sees considerable rainfall of around 1,500 mm per year, the water is not retained and quickly runs off. As a result, the Laklo and Gularloa rivers are dry for most of the year. Interview partners from DAA and DAF emphasized that an integrated approach for better storm water management was needed that included the water, agriculture and forestry sectors. In order to better retain water, actions had to include structural measures (small dams), forest conservation and tree planting, and the promotion of more appropriate agricultural practices.

While the extent of interventions differed between the villages, their mix is found to be fully consistent with the priorities of key governmental actors. The MAKA'AS project analyzed water flows in partnership with the National Directorate for Water Quality Control (DNCQA) before planning interventions, a process that was highly appreciated by district authorities.

In order to improve nutrition and food security, the DAF focuses on strategies that can enhance agricultural yields. Yet, with a serious shortage of staff - the department has a mere 23 extension workers (one per suco) - as well as lack of transport to the remote villages, the DAF's ability to advise farmers on more appropriate farming techniques and crops is limited: in fact, some of the project villages had never seen an extension officer prior to MAKA'AS. The project approach to providing support to farmer groups and to assist them in the application of new farming techniques was therefore perceived as highly relevant.

In terms of planning, the interviewed DAF officer stated that he had not been involved in any project preparation on the community level, and that he had not heard of Climate Vulnerability and Capacity Assessments (CVCA) or Aldeia Resilience Action Plans (ARAP). However, the particular interviewee confirmed that the project was highly relevant for the target area and emphasized that his department was always supportive of project activities. In particular, he highlighted the importance of reducing post-harvest losses.

Perceived relevance of project activities and objectives is a precursor to government partners taking ownership. While this should be a general concern of development projects, this is even more important in the 'new' and sometimes complex area of climate change adaptation. This requires local government partners being involved and having the capacity to follow 'what is happening' in the project. In the MAKA'AS project - particularly with regard to WASH-related activities, district actors were continuously involved. Regarding food security-related activities, involvement of district-level actors however could have been stronger.

3.3 The village level

With agricultural activities contributing more than two-thirds to livelihoods across the MAKA'AS target area,[7] villagers are highly sensitive to the combined effects of climate change and local environmental degradation. With 69% of survey respondents saying that

7. Survey results show that in 2014, 68.4% of respondents' livelihood - defined as food production and income - was based on 'on-farm activities'. This figure is almost identical to the respective share in 2011, which stood at 68.5% (retrograde assessment through the household survey).

they have observed changes in weather patterns over the past ten years, interventions geared for adaptation must generally be seen as relevant - in particular as small field sizes, poor soil fertility, water shortages and unsustainable farming techniques render the food security of the growing population precarious over the long term. The degradation of upland forests - to a considerable resulting from firewood collection - has led to reduced water and nutrient retention in the soil, greater erosion, and more frequent landslides ***(see figure 5)***.

To ensure that interventions would be appropriate, the MAKA'AS project deployed several tools for analysis and planning (such as those contained in the Climate Vulnerability and Capacity Analysis - CVCA kit). These involved mainly members of farmer groups and GMF ***(see figure 6)***. While planning was based on these groups, the broader population found the actual interventions in risk mitigation, agricultural adaptation and water management relevant.

At the same time, 81% of survey respondents noted however that project interventions had benefited a minority rather than all households in their community - namely farmer group and GMF members. This is in line with the project's indicators, especially those related to outcome 2, in which farmer group members are defined as the target group.[8] With more time through an initially anticipated second project phase, it is likely that benefits would have reached a wider share of the villagers.

Considering the broader issue of climate change, the evaluation found that while awareness has increased, the understanding of underlying factors remains limited. Even though village and group leaders have begun to discuss climate change as a result of the MAKA'AS project, the fact that weather conditions have been favourable over the past two years did not add any sense of urgency: the finding that more than two-thirds of survey respondents see themselves as better off than in 2012 - where 69.5% of respondents quote 'any changes in the weather' as one of the contributing factors – supports this observation.

Given this context, it is perhaps little surprising that while villagers saw project interventions as very relevant, in the community workshops they did not identify food security as a particular concern. The seasonal calendar exercise showed that 'hunger months' did not exist in either 2011 or in 2014 - in fact, food supply was perceived to exceed food demand in every single month. Interventions supporting more appropriate farming techniques and diversification were therefore seen mainly as a way to raise income and food variety rather than increasing food security.

The implication of this perception is that broader development plans for adaptation were not seen as an issue of great concern. None of the participants of focus group discussions and community workshop mentioned these plans known as ARAP (Aldeia Resilience Action

8. At the same time, it should be noted that the overall objective lists 'communities' as the target group.

Figure 5 | **List of recent landslides in sampled aldeias**

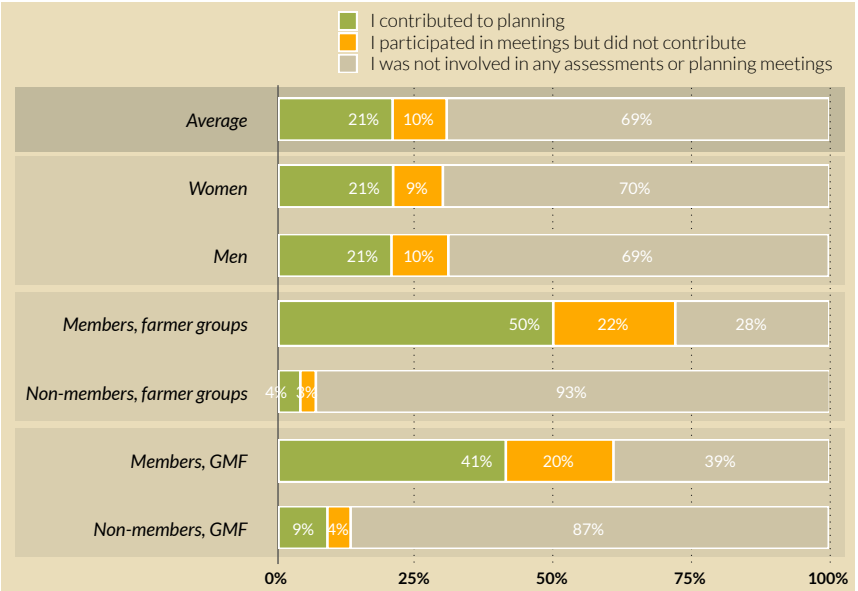
Year	Aldeia	% of HH affected	Casualties	Infrastructure damaged/ destroyed	Households affected by crop damage	Coping strategy	Recovery (months)
2015	Kaileulema	4.5%	none	6 houses	6	Mutual support	1
2014	Kaileulema	6.7%	none	7 houses	9	Mutual support	1
2013	Metiluli	7.5%	none	/	10	Individual strategies	n.a.
2013	Kaileulema	6.0%	none	7 houses	9	Mutual support	1
2012	Kaileulema	6.0%	none	6 houses	8	Mutual support	1
2012	Laklolema	4.5%	none	/	6	Mutual support	3
2011	Kai To Letehou	n/a	none	1 main road	10	Mutual support	3

Plan) - a finding that was particularly interesting in the village of Metiluli, which had completed its ARAP just a few months prior to the evaluation visit. Asked why he had not mentioned the plan in the workshop, one villager pointed out that "so far, this plan has not had a relevance for my family."

In summary, the evaluation finds that the MAKA'AS project was developed in line with the priorities of the national and district-level stakeholders. At the village level however, interventions were planned with input largely restricted to farmer groups and water management committees (GMF).

While generally being seen as relevant, interventions are viewed as increasing the income of group members rather than benefitting the wider communities. Planning for adaptation is thus far seen as an area of low priority.

Figure 6 | **Involvement of villagers in assessments and project**



The responses to survey question B.6 show that more than two-thirds were not involved in project-related assessments and planning, and that involvement was chiefly based on farmers groups and GMF.

4. Efficiency

Grounded on the experience of previous projects such as LIFT and HAN, the MAKA'AS project involved a large number of stakeholders from authorities and local civil society, in part to maximize its potential leverage for capacity-building and awareness-raising. Despite the plethora of stakeholders, it is found that collaboration was efficient - the formation of and practices in the Climate Change Working Group (CCWG) being a case in point.

Efficiency:
"A measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results."

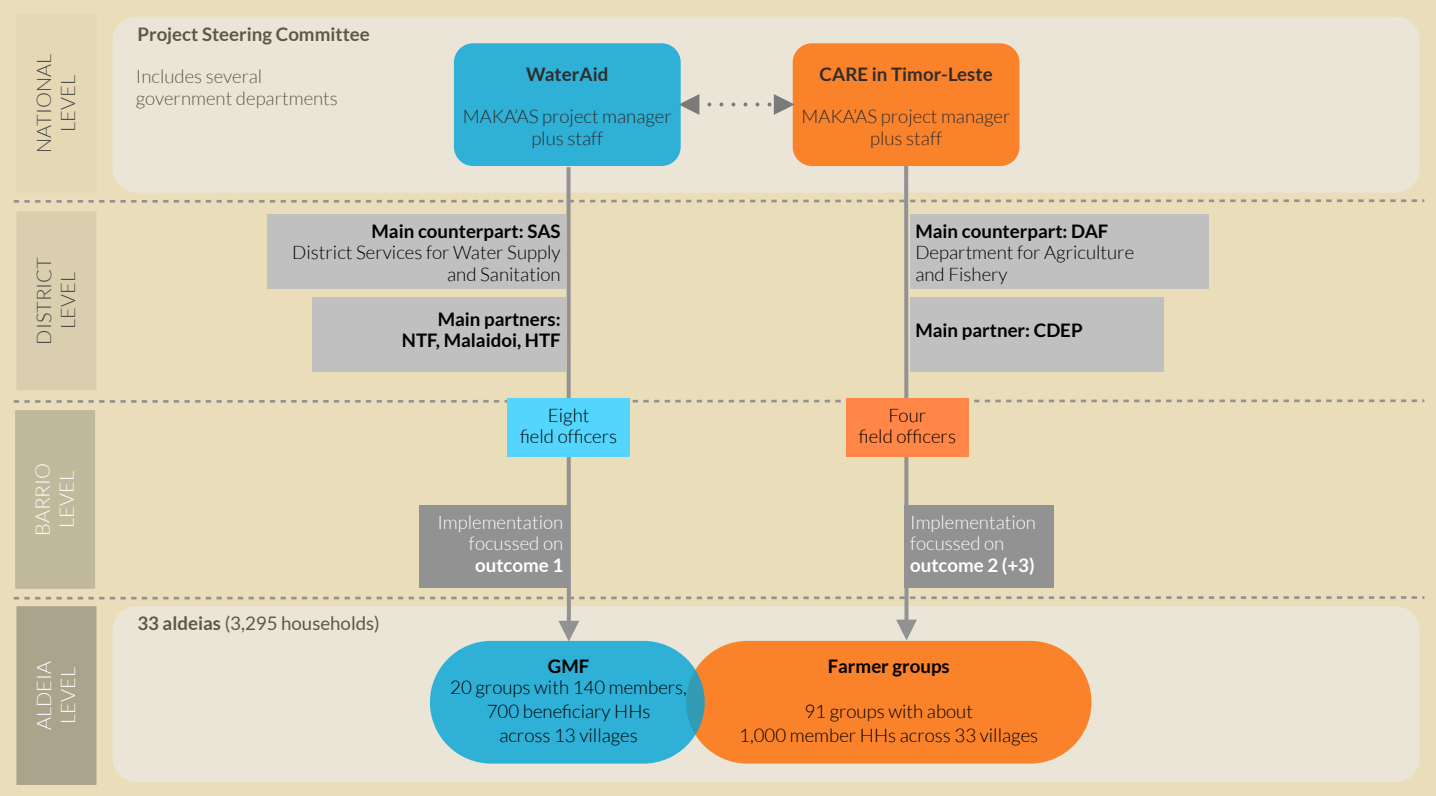
OECD 2010:21

Concerning field implementation, the project incorporated the networks and experience that CARE and WaterAid had nurtured and gained through previous projects. This included the retention of staff, the selection of Liquica district (where both partners had been engaged), and the collaboration with local departments and NGOs. Given its relative proximity to the capital Dili, Liquica also proved a good choice for a demonstration project on climate change adaptation.

Thus fortunate to already have a robust foundation in experienced staff, partners and office structures, the project took off swiftly: following the awarding of DFAT funds, it began with a two-month inception phase in July 2012 and soon started the broader roll-out of activities across its 33 target aldeias.

Yet the retention of existing structures was not without drawbacks: although project staff unanimously described the collaboration between CARE and WaterAid, and their respective local implementation partners, as good, the existing structures led the implementation to evolve in two separate systems (*see figure 7*). The *first* system consisted of WaterAid and staff, partners and GMF members and beneficiaries as its target group, and was chiefly dedicated to the implementation of activities towards outcome 1. The *second* system, working chiefly towards attaining outcome 2, consisted of CARE, its set of partners, and farmer groups as its target group.

Figure 7 | **The MAKA'AS project and its two implementation streams**



CARE and WaterAid cooperated well, and financial and monitoring were mostly collated into single documents. However, the duality of systems is seen as having created or compounded three key challenges.

The *first* challenge concerns the definition of the project's target group: with WaterAid focussing on GMF and CARE on farmer groups, there were two parallel target groups (partially overlapping in thirteen aldeias supported by both partners). Even when added together, the two target groups made up only about half of the target aldeias' population. There is also inconsistent language in MAKA'AS documents: while the overall objective simply lists 'communities' as the target group, outcome indicators refer to individuals, households, or farmer groups and water management committees. Conceptually, CARE based implementation on a broader notion of the 'aldeia'. However, CARE staff and local implementation partners perceived the project's target group to just comprise farmer group members. As we will see in the following sections, this inconsistency often led to misperceptions on the aldeia level, where residents understood that they all were to benefit from the project - at least to some extent.

A compounding *second* challenge is the absence of an aldeia-wide approach: with each partner having its own target group and separate sets of field officers and implementation partners, the broader aldeia as such found itself as the partnership's 'stepchild'. With the aldeia and its envisaged role for adaptation planning thus marginalised, the ARAP process lacked the necessary foundation. This weakness is seen as one amongst several factors that contributed to the rather poor results in overall adaptation planning.

Finally, consortium partners – while having been known in the target area from previous projects – were not acknowledged by the target population as being united under the flag of the MAKA'AS project, but rather seen as working as separate organizations in different sectors, i.e. agriculture and WASH. Some 59% of the interviewed households said they had never heard about the MAKA'AS project as such.

Seen in isolation, implementation of activities related to both outcome 1 and outcome 2 was both efficient and effective, given that three key factors of leadership, structures, and stakeholder commitment were present.

Meanwhile, none of these factors existed in relation to the third outcome: while the CARE project manager signed responsible for outcome 3 activities, the workload related to outcome 2 did not allow for the drive that may have been required. In effectively treating the farmer and water management groups as the target group, outcome 3 lacked the underpinning structure for adaptation planning.

Furthermore, project staff pointed to three main challenges in implementing activities under outcome 3: the lack of time, knowledge and human resources; delays in the development of district and community development plans on behalf of the government, and low to moderate interest in developing resilience action plans at the aldeia-level.

Whilst it is recognized that more progress towards outcome 3 could have been achieved during an anticipated second MAKA'AS phase, parallel implementation of outcome 1 and 2 is seen as a key reason behind the lack of results towards outcome 3. A joint implementation structure with the aldeia as its main anchor would have been more suitable.

5. Effectiveness

Having presented the findings related to relevance and efficiency, it is time to turn to the project's effectiveness: to what extent was the MAKA'AS project effective? In particular, to what extent were its targets achieved? The chapter begins with general observations and then analyses the level of target achievement for each of the three outcomes.

Effectiveness:
"The extent to which the development intervention's objectives were achieved, or are expected to be achieved, taking into account their relative importance."

OECD 2010:20

Overall, the MAKA'AS project design is found to be effective and based on a principally sound theory of change ***(see appendix E)***. However, several shortcomings were identified in practice: ***First***, while the combination of livelihood/food security and water management activities makes sense (as both support resilience and adaptive capacity), it is noted that in practice, these measures were implemented in parallel streams rather than through an integrated approach. In practice, the residents of the 33 aldeias were either supported in water management ***or*** in food security (or not at all, ***see figure 8 overleaf***). The potential of the ***'and'*** was not fully explored, as there was little overlap between the two streams. In other words, MAKA'AS was more an amalgamation of two single-sector interventions than an integrated project in itself. In the area of community resilience and climate change adaptation, this observation is a common pattern requiring more conceptual and practical work - we will return to this aspect in chapter eight.

Second, the set of indicators leaves considerable room for improvement. As will be shown in the concrete assessment of the various indicators, many of them are unspecific or ambiguous. Some lack concrete targets or reference bases (e.g. is an indicator referring to household, barrio, group or aldeia?). Several indicators refer to "percentage of groups" rather than percentage of group members, leaving too much room for interpretation. Where positive trends are observed in relation to unspecific indicators, the associated 'status' rating is thus listed as 'positive trend' rather than 'achieved'.

A ***third*** shortcoming concerns cross-cutting issues: the 'either-or' pattern - the respective foci on livelihood/food security and water management/sanitation let overarching

Figure 8 | **The spread of the MAKA'AS project**

Fig. 8a | **Frequency of staff visits**

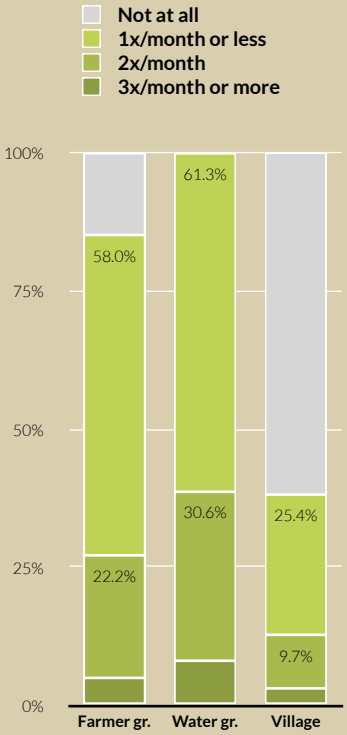


Fig. 8b | **Support coverage I**

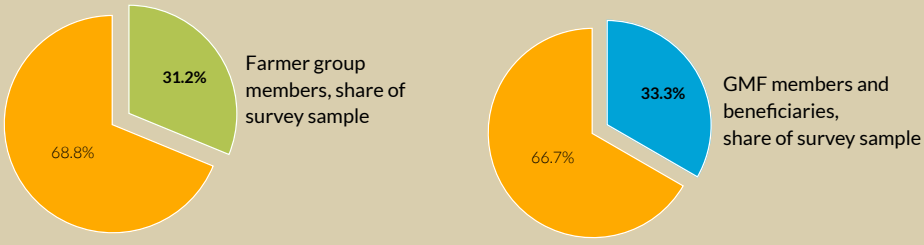


Fig. 8c | **Support coverage II**

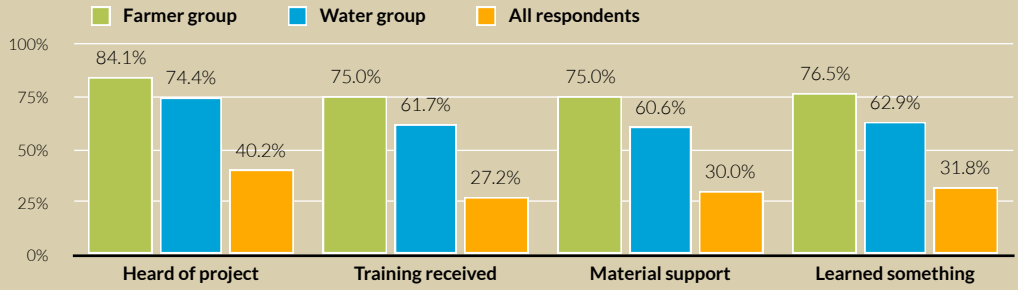


Figure 8 illustrates the extent to which the project focussed on farmer and water management groups. Note that 'village' in charts 8a and 8c refers to the average amongst the entire aldeia(village) sample. The charts are based on survey questions B.7 (chart 8a), B.2 and B.3 (chart 8b), and on questions B.1, B.4, B.5 and G.2 (chart 8c).

concerns, such as the long-term resilience planning for the wider aldeias, and the work towards more gender-equitable relationships in households and communities fall behind. While the project commissioned a detailed gender power analysis, provided gender trainings, and introduced women quotas for GMF, it did not proceed further towards advancing more gender-equitable decision-making patterns. This issue will be further explored in section 6.3.

5.1 Outcome 1: level of achievement

Outcome 1:
Vulnerable households are implementing water management and water resource protection strategies that support livelihood, domestic consumption and DRR

Regarding the project's first outcome, it is found that the project has been highly effective in establishing GMF that are linked to government counterparts and to each other in the form of a GMF association. The groups were instrumental in developing improving water infrastructure and in promoting the construction of toilets and hand-washing facilities. Attaining open defecation free status (in some barrios), and reducing the prevalence of water-borne diseases is arguably the most significant achievement in this regard. This aspect is discussed in more detail in part 6.2.

The triggering of enhanced sanitary practices and eventual creation of critical mass and peer pressure, as envisaged by the underlying CLTS approach, is credited in particular for this success.

Indicator 1.1	**Percentage of reduction in water-borne diseases**	STATUS **POSITIVE TREND**

Survey results show that the prevalence of water-borne diseases has been significantly reduced, and a large share of respondents attribute this reduction to project outputs. In terms of this indicator, there is neither a concrete target nor a reference base (reduction amongst supported barrios or overall aldeias?). Thus, while a positive trend is evident, the level of achievement in terms of this indicator cannot be quantified.

Indicator 1.2	**75% of households have improved access to water supply, sanitation and hand-washing facilities in twenty barrios**	STATUS **ACHIEVED**

In all twenty supported barrios, the construction of gravity-fed water supply systems was completed, providing water access to most households in these barrios. Furthermore, the project supported the set-up of hand-washing facilities. Through CLTS triggering, it also promoted the construction of toilets.

This in turn reduced the practice of open defecation - to the extent that many barrios have been officially declared as 'open defecation free'. These results are impressive, especially when considering the technical and logistical challenges associated with the remote locations. Assessing the indicator in quantitative terms however is hampered by the fact that it is based on barrios rather than the larger aldeias. In WaterAid-supported aldeias (that is, villages in which some hamlets were supported), 64.7% of survey respondents saw water access improved. Sanitary conditions were seen as having improved by 42.8%, hand-washing facilities by 88.8%. The respective shares in supported barrios are likely to be much higher - the indicator target is therefore considered as having been achieved.

Indicator 1.3	**Twenty functioning water management groups include at least 30% women**	STATUS **ACHIEVED**

All twenty GMF have at least seven members, and members include 43% women or more - the indicator target has thus been achieved.

Indicator 1.4	**50% of GMF have women in leadership roles**	STATUS **ACHIEVED**

Based on project management data, GMF have indeed 50% women in leadership positions (chairperson, secretary, treasurer) - the indicator target has thus been achieved.

Indicator 1.5	**50% of households are implementing effective water resource management strategies**	STATUS **POSITIVE TREND**

Through the MAKA'AS project, water supply and storage has been increased significantly. Aside from the gravity-fed systems (with intakes, reservoir tanks and community taps), this included the construction of water harvesting ponds and small cement storage tanks - measures to extend the ability to produce vegetable in home gardens throughout the dry season.

By November 2014, 27 water storage ponds had been completed. Due to the insufficient specification of this indicator (unclear basis: barrios or aldeias; missing definition of water resource management strategies), the level of achievement could not be quantified. Yet, it is recognized that the project facilitated a strong positive trend in water resource management (e.g. spring protection).

Indicator 1.6	**75% of water management groups are implementing effective water resource management strategies**	STATUS **NOT ASSESSABLE**

Again, the lacking definition of water resource management strategies hinders adequate assessment of the achievement. If it includes basic management of water resources, the fact that water supply systems are managed effectively means that the indicator is seen as achieved. If it is to include water saving measures, this is less likely: such measures were meant to be included in the ARAP process. With only three ARAPs completed, it is highly unlikely that the target has been achieved.

5.2 Outcome 2: level of achievement

Outcome 2:
Vulnerable households are implementing integrated climate-resilient land management practices which support sustainable livelihoods and equitable household food security

Implemented through 91 farmer groups, activities supporting outcome 2 included the promotion of climate-resilient crops and practices, of sustainable water and land management practices, and of risk mitigation. The group-based approach was generally found to be effective, as it provided a forum for mutual exchange and support in adopting new practices. Furthermore, the farmer groups enabled collective action - together, farmers worked to stabilize landslide-prone slopes, contributed to the reforestation along the hillsides (over the long term, these trees will not only help stabilize soil, but also contribute to water retention and rehabilitation of watersheds), managed community nurseries, and learned about climate change and future climate risks. The construction of live check dams - a measure geared to reduce water velocity and prevent erosion - was seen as an effective low-cost option that villagers felt confident in maintaining and even replicating.

While proving an effective vehicle for awareness-raising and collective action, it was also found that the farmer groups appeared to replicate existing power structures. Not only did men play the dominant roles in decision-making, some of the groups also appeared to be centered around their leaders, who often owned the land on which they group members were farming, and thus had most say in decision-making (e.g. in the allocation of home-gardens).

Indicator 2.1	**At least 75% of farmer groups working with the project are growing crops that are resilient to climate hazards affecting the local area**	STATUS **ACHIEVED**

The way this indicator and most others supporting outcome two are formulated is both cumbersome and unspecific. This is for two reasons - first, because monitoring and evaluation tools are based on individuals (as survey respondents, interviewees or workshop participants) rather than groups, and second, because it is unclear what would make a group count as growing resilient crops. To give an extreme example, would 68 groups (that is 75% of the 91 farmer groups) imply that the indicator has been achieved if just one farmer in each group grew resilient crops? A more precise indicator would be based on the percentage of farmer group members, not groups, who plant resilient crops.

Taking this as the benchmark, the indicator target has been achieved, with 85.0% of farmer group members (and 76.3% of the overall sample) having planted improved-type maize in 2014. Furthermore, it is noted that the project provided seeds of drought-resilient crops to a large number of groups - in particular improved-type maize (to 87 groups), cassava (to 32 groups) and sweet potato (to 35 groups).

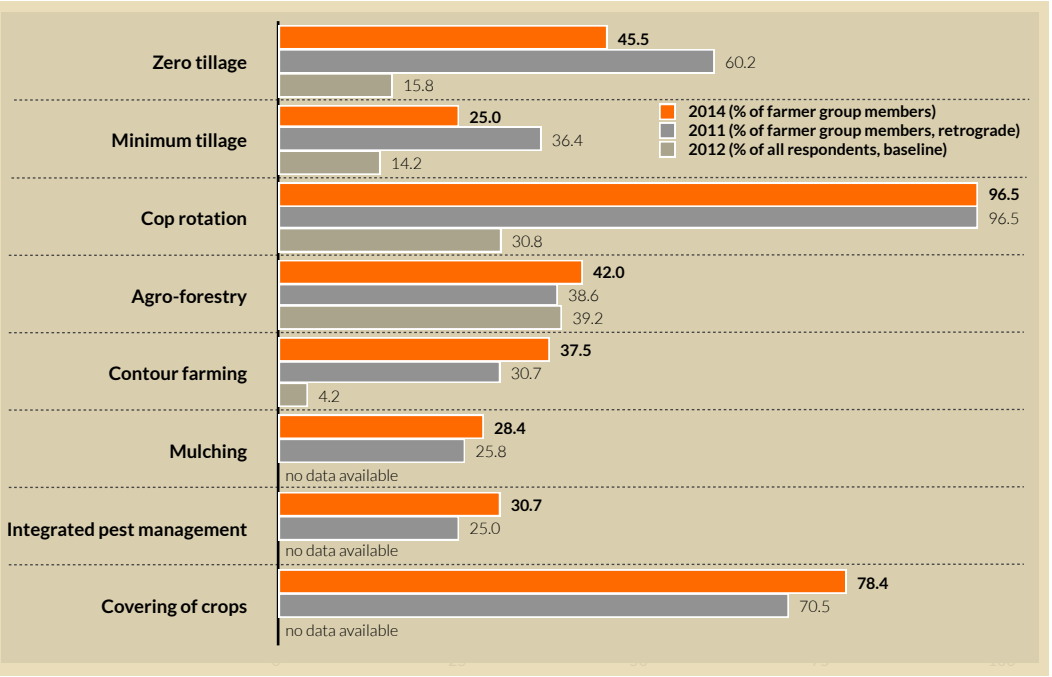
Indicator 2.2	**At least 75% of farmer groups working with the project are producing at least seven crops over an annual cycle**	STATUS **ACHIEVED**

For the reasons outlined above, this indicator cannot be assessed directly - however, when taking farmer group ***members*** as a basis, the target is likely to have been achieved: amongst the overall survey sample, the average number of crops grown over an annual cycle has increased from 5.66 in 2011 to 6.61 in 2014. The increase is twice as high amongst strata A (5.85 to 7.11 (+1.36)) than amongst strata B (5.49 to 6.18 (+0.69)). With farmer groups just representing around one-third of the sample, it is safe to assume that the threshold of seven crops has been achieved for 75% of farmer group members.

Indicator 2.3	**At least 75% of farmer groups working with the the project have adopted and are practicing conservation farming techniques**	STATUS **POSITIVE TREND**

In addition to the types of imprecision mentioned above, this indicator is not set against baseline values; it neither provides a target for an increase, nor does it specify what counts as 'applying conservation farming practices. Technically, the target is seen as attained

Figure 9 | **Application of conservation farming practices, % of farmer group members**



simply because 96.5% of farmer group members apply crop rotation (although they already did so in 2011). A more meaningful assessment though is based on the overall trend amongst farmer group members in applying a diverse range of practices.

Looking from this perspective, ***figure 9*** demonstrates that there has been a slight increase in conservation farming (but a negative trend in zero and minimum tillage). Taking the 2012 baseline as a starting point (which was based on a rather small sample of 124 respondents), the increase is more pronounced.

Indicator 2.4	**At least 75% of farmer groups receiving air-tight drums report reductions in post-harvest losses of maize**	STATUS **POSITIVE TREND**

The MAKA'AS project distributed 239 air-tight drums to 78 of the 91 farmer groups. The drums were described as having a positive effect (reducing post-harvest losses, which the baseline survey had identified as making up for 3.1% of all crops in 2012). However, the number of respondents answering the respective survey question is too small to further support this conclusion. A 2013 monitoring report found that out of farmers who had received drums, 59% reported reduced post-harvest losses.

Indicator 2.5	**60% of farmer groups storing water/fodder for livestock**	STATUS **ACHIEVED**

Amongst farmer group members, 71.6% store water and 83.0% fodder for livestock - the target threshold has thus been exceeded. Intriguingly, most of these farmers applying the practice say that they introduced it over the past three years (73.0 and 80.8% respectively) - thus indicating a very strong effect of the project.

Indicator 2.6	**30% increase in household access and use of climate information [...] to plan their livelihood and water management strategies**	STATUS **ACHIEVED**

Amongst all survey respondents, 34.9% say they have access to climate information - up from 14.2% in the baseline (an proportional increase of 245%). Around three-quarters of those with access (75.3%) use this information to plan their livelihood activities. Amongst farmer group members, the share with access to climate information is much higher and stands at 66.7%.

Indicator 2.7	**At least 75% of households participating in project activities report higher yields for key crops, compared to baseline and district average**	STATUS **ACHIEVED**

Amongst ***farmer group members***, 85.2% say that they are better off than they were in 2011 (in terms of income and food security). For ***water management group members,*** this figure stands at 74.7%. Both figures are higher than the overall average (68.8%), indicating an effect of the project. This is further supported by the fact that amongst the overall sample, 69.6% see positive role of new agricultural techniques, 82.6% of better water management, and 47.4% of other project-related factors.

Indicator 2.8	**Number of households with non-agricultural or non-climate-sensitive income sources**	STATUS **NOT ASSESSABLE**

This indicator lacks a specific target and therefore cannot be assessed. Furthermore, over the course of project implementation, it was decided that promotion of non-agricultural livelihoods would no longer be pursued - the indicator has thus become redundant. Having that said, it is found that the only three non-agricultural income sources in the area are skilled labour, employment in the public sector, and remittances. Around one third (36.3%) receives income from either of these sources. Survey results show that non-agricultural activities contributed 30.7% to livelihoods (29.9% in 2011), while the livelihood analysis indicated an even smaller share of overall income at 17.4%.

Indicator 2.13	**Reduction in the number of hunger months**	STATUS **ACHIEVED**

While the baseline survey had found that the supported aldeias in Liquica district suffered food shortages for an average time of 2.65 months in 2012 (the survey was conducted at the end of a prolonged drought), there were no signs of such shortages at all in 2014 (see chapter 6.1 for further analysis). The indicator target has thus been achieved.

5.3 Outcome 3: level of achievement

Outcome 3:
Communities, partners and local government have enhanced understanding of and capacity in (gender-transformative) climate change adaptation that inform local planning processes

The most significant achievement concerning outcome 3 relates to the extent to which members of farmer and water management groups say that they are now better prepared for and adapted to climate change: more than three out of four members (89% and 76% respectively) see themselves better adapted, figures that stand substantially higher than amongst non-members (39% and 44% respectively). This positive trend is encouraging, as well as the extent to which community leaders and extension officers have gained awareness and experience.

These achievements are yet to transcend to more action and coherent planning at the aldeia, suco and district levels. With a missing village-level structure for ARAPs, a comparatively low sense of urgency amongst villagers and many officials on the need for climate change adaptation, as well as time and resource constraints, it may not be surprising that the envisaged achievements related to aldeia- and suco-level planning remain elusive. Nonetheless, the experience of the MAKA'AS project contributed to the evidence base for climate change adaptation and produced valuable lessons for future implementation - lessons that are provided throughout section C of this report.

Indicator 3.3	**The priorities in the Aldeia Resilience Action Plans [ARAP] are reflected in the Community Development Plan**	STATUS **NOT APPLICABLE**

Although only three villages developed ARAPs - leaving little opportunity to inform the higher-level Community Development Plans. Meanwhile, it is found that throughout the project, the links between aldeais and sucos have significantly improved. See part 6.3 for further analysis.

Indicator 3.4	**Percentage of the target population who understands the impacts of climate change and adaptation options appropriate to their context**	STATUS **POSITIVE TREND**

While this indicator was not directly assessed, it is found that villagers - and members of farmer groups and GMF in particular, overwhelmingly feel better-adapted and more prepared for climate risks than they had been prior top the MAKA'AS project. See part 6.1 for further analysis.

Indicator 3.5	**Twenty villages [aldeias] have developed Resilience Action Plans [ARAP] that address women's and men's priorities**	STATUS **NOT ACHIEVED**

Merely three of the thirty-three aldeias developed ARAPs. With neither local leaders nor the wider population showing sufficient interest, and the project approach lacking the underpinning structure that would have been required to encapsulate the broader aldeia (see chapter 4), the broader adaptation and development planning envisaged by ARAPs failed to take off.

Indicator 3.6	**At least five of the six [suco] representatives have the capacity to recognize the impacts of climate change and to address them in planning processes**	STATUS **POSITIVE TREND**

All six suco leaders were sensitized in terms of climate change and adaptation; those interviewed expressed confidence in being able to integrate climate change adaptation into planning processes. Furthermore, they were engaged in project implementation in the field as well as in planning and coordination activities (as members of the organizational committee). Yet, with interest in adaptation being low across administrative levels, it remains unclear whether their capacity will suffice to adjust planning accordingly.

Indicator 3.7	**Inclusion of climate change adaptation and watershed management in the district development plan**	STATUS **NOT APPLICABLE**

By the end of the project, an updated district development plan for Liquica did not exist - with this framework thus missing, this indicator is seen as not applicable.

Indicator 3.8	**Number of extension workers and sub-district facilitators promoting climate change adaptation and gender equity in their work**	STATUS **UNCLEAR**

Extension workers participated in project planning and in inception workshops; to varying degrees, they were also involved in project implementation. Yet, the extent to which they will be able to integrate adaptation and gender equity into their work is difficult to predict and quantify.

It is noted though that at the district level there is neither a regulation nor guideline that would stipulate and assist in the promotion of adaptation and gender equity. Extension workers were not part of gender training.

Case study: More vegetables, more food

Manuel, father of five children, lives in the farming village of Kaileulema, in the upstream area of Gularloa river. With more than 100 households, the villagers face serious challenges in access to water - including for the irrigation of their fields. The lower-lying parts of the village (that Manuel moved to with his wife twenty years ago) are particularly affected. With his family's livelihood based on subsistence farming, Manuel realized over the years that water was becoming increasingly scarce, and that the longer dry seasons brought more hardship..

When the news came in 2012 that the MAKA'AS project would support activities around livelihood improvement through advanced farming techniques, Manuel volunteered to participate as Head of a newly created local farmer group. He and six other farmers worked with the project from the very beginning and made their voices heard in the planning and preparation of activities.

Supported by MAKA'AS project staff, they received new varieties of seeds such as improved maize. Manuel and his wife were also advised on the expansion of home gardening activities through applying advanced production techniques. Out of the seven farmers of his group, three were supported in the construction of multiple-use water ponds, including Manuel.

With the support from MAKA'AS, Manuel and his wife were able to increase their maize harvest. At the same time, their livelihood focus shifted from farming to home gardening: with the training received from the project and the construction of the new water pond, he proudly realized that his produce of vegetables had tripled since 2011.

Representatives from the local government and other NGOs had visited him several times since, in order to learn how to he and his wife had been able to improve production in their garden so drastically.

6. Impact

Impact:
"Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended."

OECD 2010:24

The MAKA'AS project generated impacts on the livelihoods and on the health of its target population, as well as on the capacity of supported communities. In this chapter, we will look at these three aspects in detail before analyzing how these changes relate to overall adaptive capacity.

6.1 Impact on livelihoods

Over the past three years, the overall situation of villagers has improved. As ***figure 10a*** illustrates, more than two-thirds of survey respondents find that they are better off than they had been in back in 2012. What has caused this change? To find out, respondents were asked what role various factors played. Amongst project-related factors, three aspects played a very strong positive role - 'changes in water management' (82.6% attribute a positive effect), 'changes in cultivation techniques' (69.6%), and 'any other factors related to the project' (47.4%). Meanwhile, other contributing factors ***not*** related to the project included changes in weather, market conditions, and 'any other factors not related to the project'.

The results presented in ***figure 10a*** help to put the overall project impact into perspective. However, they neither provide weighting (e.g. did changes in the weather play a greater role than changed cultivation techniques?), nor do they give more specific information about the impact on members of farmer groups and GMF.

The results presented in ***figure 10b*** offer a closer look. Based on survey question C.16, which elicited the extent to which perceived adaptation to and preparation for climate risks had changed, the charts show that two-thirds (69.2%) find themselves better adapted. Amongst members of farmer groups and GMF, this share is significantly higher, standing at 90.6% and 80.7% respectively. Crucially, most of those who see themselves better adapted attribute the improvement to the MAKA'AS project.

Further evidence for a positive project impact is provided by trend analysis results (***see figure 10c***). As part of the community workshops, villagers were asked to rate aspects of overall living conditions for each year between 2011 and 2014 (with ratings ranging from 'very good' to 'very bad'). Results show that the general trend in terms of livelihoods and food security is positive. Not only did workshop participants list interventions of the MAKA'AS project amongst the reasons for this improvement. The comparison between aldeias with a high concentration of project activities (strata A) and those with a lower activity concentration (strata B) also shows that improvements amongst strata A were greater than for strata B - thus implying a correlation between intervention dose and the level of improvement. While this observation on its own would not allow causal inferences, the overall picture as presented by the various findings indeed makes a solid case for attribution to the MAKA'AS project.

In terms of food security, the supported aldeais in Liquica district have seen considerable improvements. While Timor-Leste remains at a precarious state in terms of food security, the support provided under the previous HAN project as well as the MAKA'AS project, as well as favourable weather conditions, have rendered supported aldeias food-secure. The baseline survey, conducted at a time (December 2012) when the area had just begun recovering from a prolonged drought, still found that on average, households experienced food shortages over an average of 2.65 months. For 2014, the picture looks entirely different: although the baseline assessment tool was not replicated, the seasonal calendar exercise - conducted in five villages and geared to show the relation between food production and

Figure 10 | Project impact towards adapted livelihoods

Fig. 10a | Changes in livelihoods, attribution

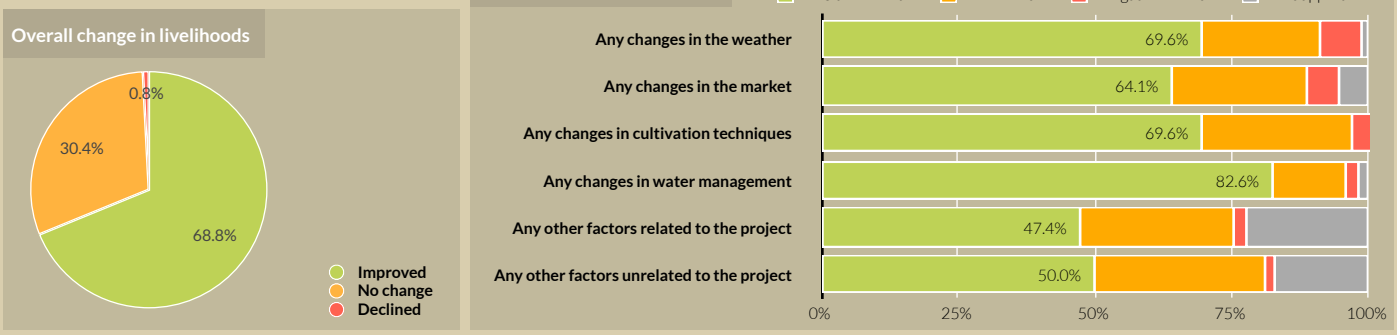


Fig. 10b | Impact on climate change adaptation

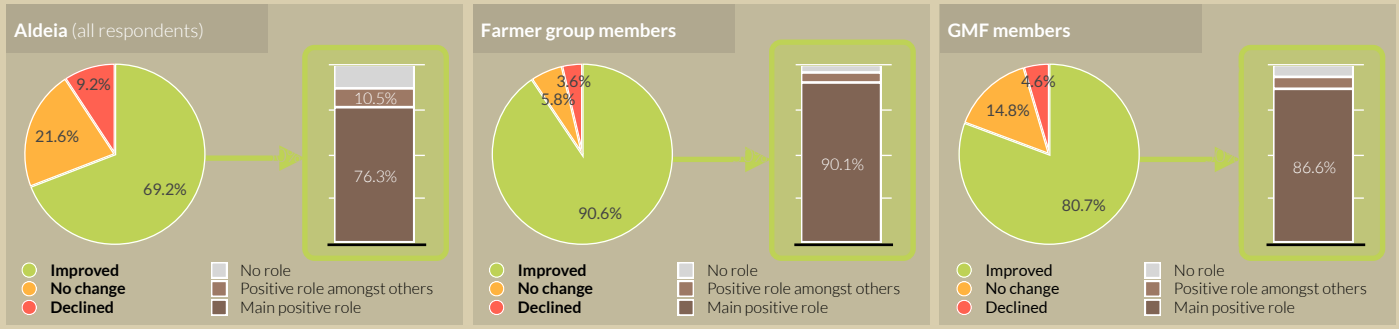
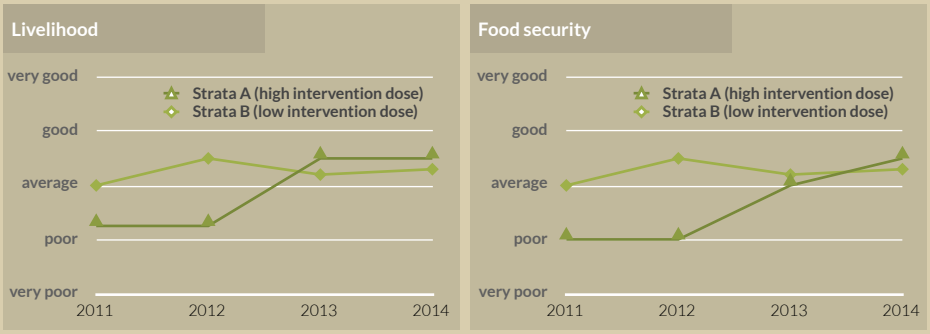


Fig. 10c | Trend analysis



The charts illustrate the extent to which the MAKA'AS project impacted on livelihoods.

Figure 10a illustrates the overall changes in livelihoods (based on all responses to question C.17). It furthermore shows the roles various factors have behind these changes. The results show that while the project played a strong positive role (changes in water management, changes in cultivation techniques, other project-related factors), other factors contributed to the overall improvement - weather and market conditions in particular.

Figure 10b shows the responses to survey question C.16, which concerns the perceived change in the extent to which villagers feel adapted to climate risks (percentages are provided for teh entire aldeia as well as for farmer group and GMF members. Out of those who feel better adapted to climate risks, the majority attributes this improvement to the MAKA'AS project.

Figure 10c illustrates the changes in agriculture and livelihoods as perceived by workshop participants. They were asked to rate conditions (here: livelihood and food security) for the years 2011-2014 on a scale between very good to very poor, and then describe underlying factors. The results are disaggregated between strata A (high intervention dose) and strata B (low intervention dose).

food demands, illustrates that supply exceeded demand for every single month of 2014 *(see figure 11a overleaf)*. Asked about 'hunger months', many workshop participants appeared confused, and pointed to the practice of selling livestock and making a living with other small-scale activities during the pre-harvest period - thus ensuring that they had enough to eat throughout the year.

The project contributed to greater supply of food, and led to greater diversification of produced crops and vegetables. Not only did this increased diversity (overall, the number of crops and vegetables planted over an annual cycle increased from 5.66 in 2011 to 6.61 in 2014) lead to greater diversity in food intake. With improved yields, the share of income from agricultural sources also increased - pointing to a clear surplus in terms of food production, and contributing to genrally higher incomes *(see figure 11b)*.

Figure 11 | **Food security and more sales as a result of higher yields**

Fig. 11a | **Food security throughout the seasons**

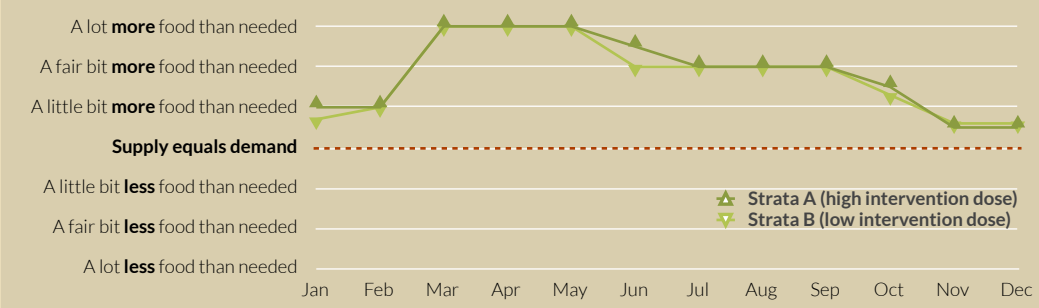


Fig. 11b | **Mix of food and income sources**

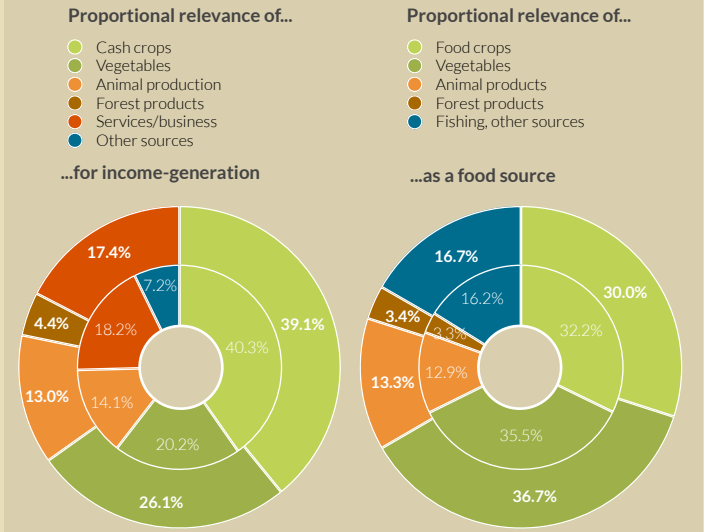


Figure 11a above shows the aggregated results of the seasonal calendar exercise that was conducted in five aldeias. It illustrates that in 2014, food production exceeded consumption - thus, more food could be sold.

Figure 11b meanwhile illustrates the results from the livelihood exercise conducted in five aldeais. The charts above compare the mix of livelihood activities between 2011 (inner circle) and 2014 (outer circle), both in terms of income generation (left) and as a food source (right).

They indicate little change - with one exception: Vegetable cultivation has gained importance for income-generation, thus reflecting the increased ability to sell produce at local markets.

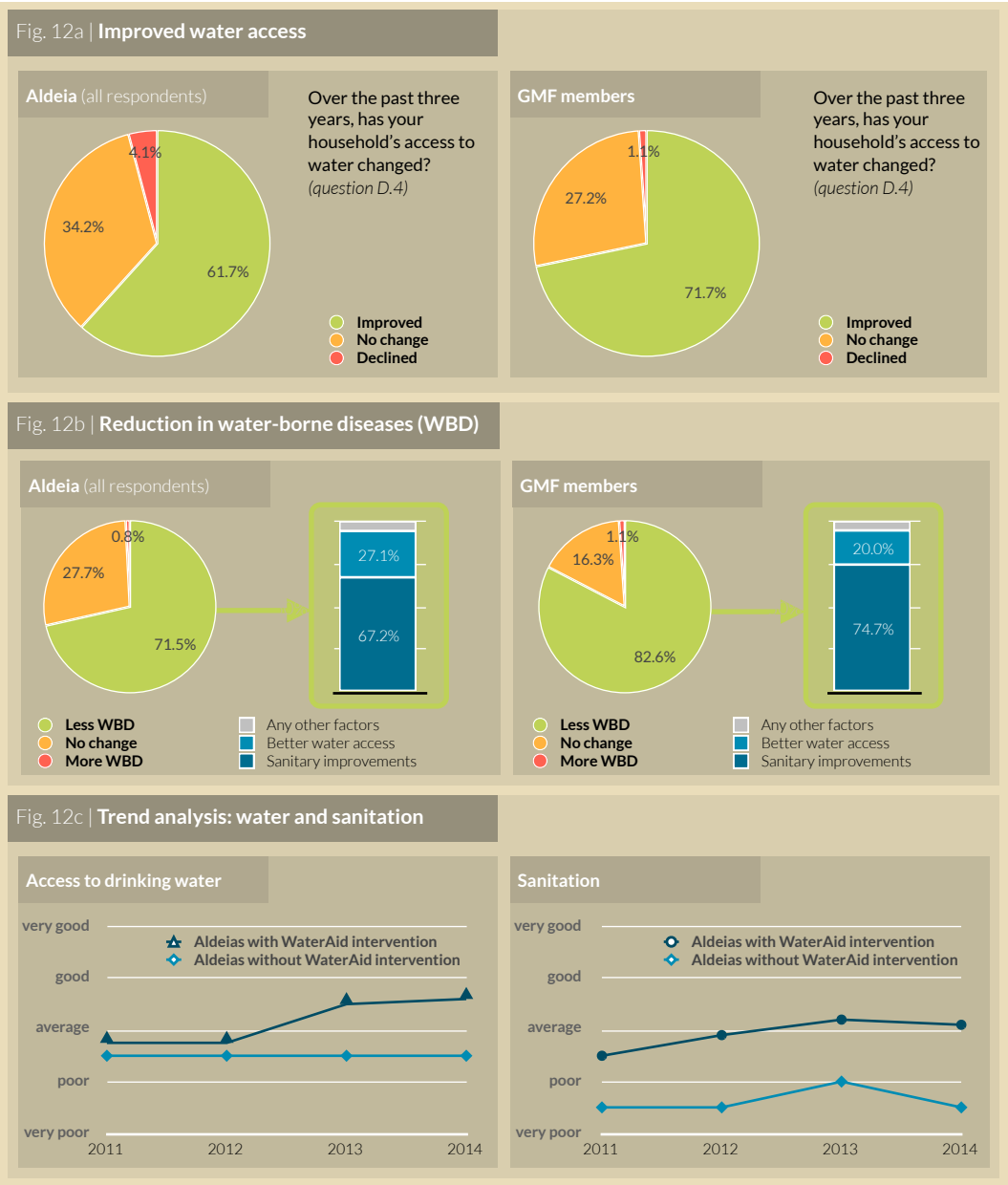
6.2 Impact on water, sanitation and health

In line with its theory of change, the second aspect on which the MAKA'AS project generated a positive impact concerns sanitation and water-borne diseases. While the underlying WaterAid interventions were confined to 20 barrios (sub-villages) out of the 33 aldeias, the investments in water supply as well as the 'triggering' of better sanitary practices through the CLTS process were so effective that their impact extends beyond the supported barrios.

In terms of water supply, almost three-quarters (71.7%) of GMF members recognize improvements ***(see figure 12a)***. Looking at the entire sample from all aldeias, the respective share is still a remarkable 61.7% - more than the share of GMF members amongst the overall sample would suggest (which is 33.3%). A closer look shows that even amongst those who are not members of GMF, some 56.2% recognize an improvement. Although only a small share attributes the improvement to the MAKA'AS project (30.1%), the absence of other works enhancing water supply - and thus, of a possible alternative explanation - suggests that many did not associate the set-up of water gravity systems with the MAKA'AS project. Therefore, they did not attribute the improved water supply to the project.

Regarding the prevalence of water-borne diseases, the attribution of an observed reduction to the project is less trouble-free due to a different way of questioning. Overall, 71.5% of survey respondents see the prevalence of water-borne-diseases reduced - a figure that unsurprisingly stands higher amongst GMF members (82.6%, ***see figure 12b***). In this case, the question of attribution was not directed at the project itself, but at its outputs. More than

Figure 12 | **Project impact towards improved sanitation and health**



nine out of ten respondents who see WBD reduced attribute this improvement to better sanitary practices and improved water supply. An additional perspective to assess the project's impact is the trend analysis. As *figure 12c* shows, trends were perceived to be more positive in aldeias that were supported with water systems and CLTS. Unsurprisingly, workshop participants attributed this improvement to project-related interventions. It should be noted that the exercises were conducted with a mix of GMF members and other villagers - it is likely that trends would have been even more positive if they had been exclusively confined to GMF members.

6.3 Impact on community capacity and gender equity

The third key impact of the MAKA'AS project concerns community capacity, in particular in terms of collective action. While there are no comparable data from either baseline or mid-term review, the survey results presented in *figures 13a and 13b* (overleaf) demonstrate a strong project impact. First, the extent to which villagers are seen as contributing to the common good is substantially higher in the eyes of the direct beneficiaries - the members of GMF and farmer groups. Even more poignantly, the share who sees collective

Figure 13 | **Project impact towards improved community capacity**

Fig. 13a | **Perceived strength of collective action**

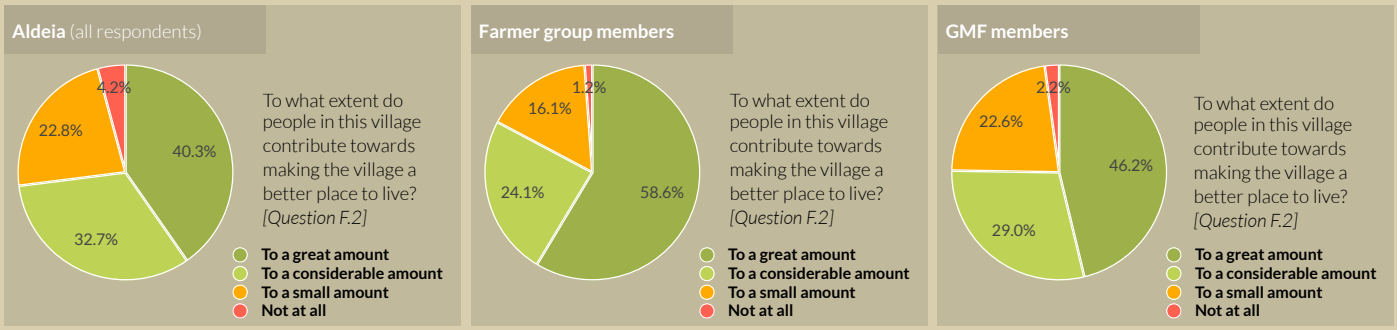


Fig. 13b | **Perceived change in collective action**

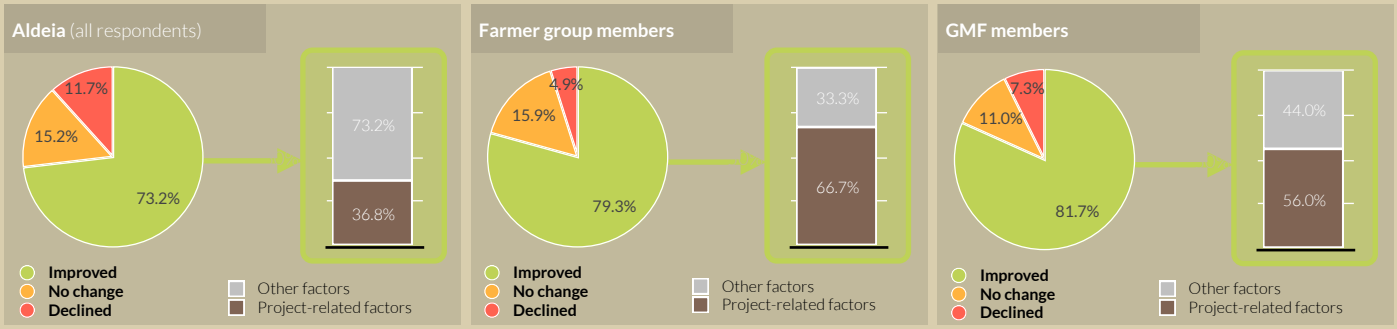
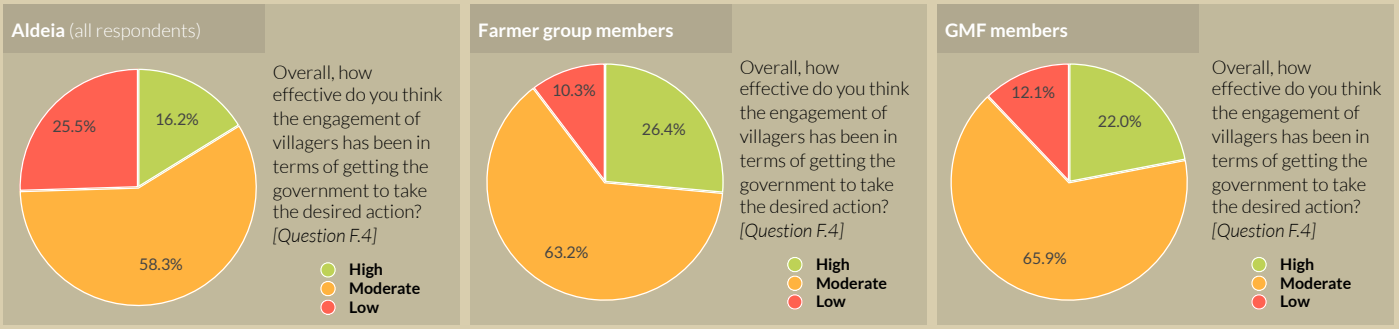


Fig. 13c | **Perceived effectiveness of links to the government**

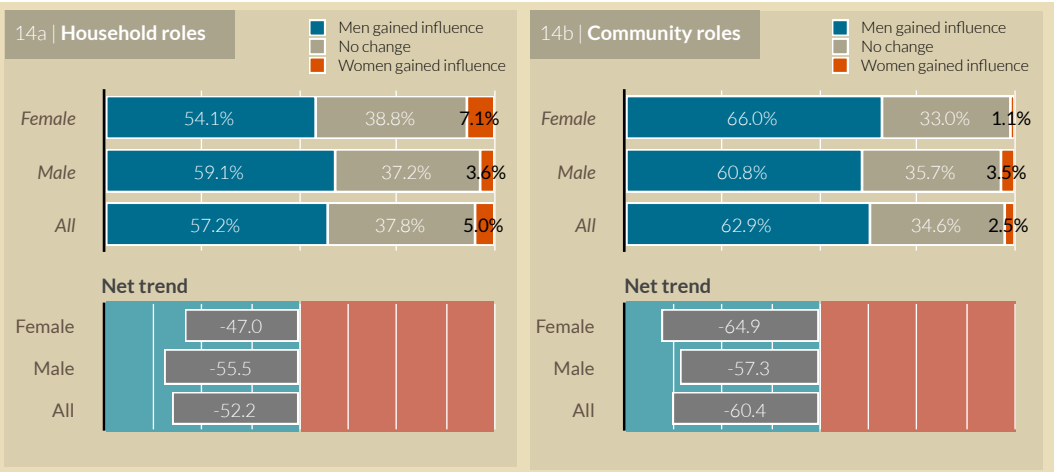


The charts above illustrate the evidence in relation to the project's impact on community capacity. **Figure 13a** shows that the share of respondents who see collective action as 'great' or 'considerable' is higher amongst GMF and particularly amongst farmer group members than amongst the overall aldeia population. **Figure 13b** adds causality to this correlation - with a majority amongst group members attributing enhanced collective action to the MAKA'AS project. Furthermore, **figure 13c** also shows that group members perceive the effectiveness of their efforts to take the government a desired course of action higher - with roughly nine-tenths of group members (compared to three-quarters amongst the wider population) rating them as either 'high' or 'moderate'.

engagement improved is significantly higher amongst these members. Amongst group members, a clear majority attributes this improvement to the MAKA'AS project (farmer groups: 66.7%. GMF: 56.0% - *see figure 13b*). Members of farmer groups and GMF also have a more positive view of the relations to the government - amongst them, roughly nine-tenths view the effectiveness of efforts to getting the government take particular actions (responsiveness) as moderate or high, compared to just three-quarters amongst the wider aldeia population. As will be discussed shortly, this greater propensity to and experience of collective engagement is a necessary element of adaptive capacity.

But first, let us turn to the question of gender equity behind this collective action. It is found that despite gender training and other efforts of the project (such as quota for women in GMF and farmer groups), the project did not lead to more gender-equitable decision-making. In fact, as *figure 14* illustrates, the balance of power has shifted significantly in favour of men. Although the extent to which the project may have

Figure 14 | **Perceived changes in gender roles**



Survey results show that decision-making power has further shifted in favour of men - both at the household (**fig. 14a**) and at the community levels (**fig.14b**). While the share of respondents who attribute these changes to the MAKA'AS project is rather small (28.4% for the household and 27.0% for the community level), it appears that the project did not contribute to more gender-equitable decision-making patterns. For further gender analysis, see appendix C on pages 45-46.

reinforced existing power structures appears limited (only a quarter of respondents attribute the power shift to the project), it is evident that the project failed to achieve progress in terms of more gender-equitable or even gender-transformative relations.[9] Given this surprising survey finding, the trend could not be fully explored - further research may be required to unearth the factors at play, and to obtain insights as to how these could be addressed better in future programming.

6.4 Impact on adaptive capacity

How do the observed advances in livelihoods, water access and health, and community capacity relate to adaptive capacity, the increase of which was one of the key goals of the MAKA'AS project? First of all, awareness of current and expected future climate risks has been raised, as presented in chapter five. Second, community capacity has been increased - farmer groups and GMF are functioning entities through which collective action has been fostered. Both of these aspects are crucial precursors for communities to adapt to the adverse effects of climate change.

Furthermore, the uptake of climate-resilient practices has contributed to higher yields, which in turn reinforced food security and enabled higher incomes. While higher yields and incomes do not on their own lead to greater resilience (unless that income is saved), it is the knowledge of new techniques and crops that helps build adaptive capacity. With benign weather conditions over the past years, the urge to adapt has been modest so far. This is likely to change as climatic stressors intensify.

The advances in water supply, sanitation and health have helped render supported aldeais more resilient, while the underlying action has reinforced adaptive capacity ('what should we do in light of a stressor?').

In summary, the MAKA'AS project is seen as having advanced adaptive capacity to a considerable extent. While the project did not succeed in devising as many Aldeia Resilience Action Plans as it had anticipated (for reasons outlined earlier), it nonetheless created the basis for further adaptation.

With rain-fed agriculture as the main livelihood pillar, the supported aldeias remain sensitive to climatic stressors. Over the past two years, weather conditions have been favourable. Having expanded their knowledge and skills to adapt, it will be up to villagers to adapt to changing conditions timely and effectively. After all, in the context of Timor-Leste, the main question is not *whether*, but rather *how* and *how well* people will adapt to climate change - and how much hardship is involved (or prevented) in that process.

9. In terms of household roles, the shift towards a greater decision-making role of men is also confirmed by a comparison with the baseline: In terms of expenditure planning, deciding on what to plant where and when, and agricultural investments the share respondents who say that decisions are made jointly has markedly declined between 2012 (baseline) and 2015 (evaluation).

7. Sustainability

Sustainability:
"The continuation of benefits from a development intervention after major development assistance has been completed. The probability of continued long-term benefits. The resilience to risk of the net benefit flows over time."

OECD 2010:36

Arguably, the favourable weather conditions described by villagers render sustainability of project outcomes particularly crucial: only if knowledge, practice, skills and networks are sustained will villagers be able to tap them when they need them most - that is, when the climate turns against them.

The sustainability of an intervention largely depends on a strong sense of local ownership - local actors' *willingness* and *capacity* to continue running or maintaining the intervention's results. Neither willingness nor capacity is a fixed given *(see figure 15)*.

Local actors' **willingness** to continue maintaining outcomes usually is a function of *a) perceived relevance* (did an activity address a community concern?), *b) the perceived benefit-cost ratio* (did an activity generate tangible benefits, how much input is needed to maintain these, and do the benefits justify the inputs?), and *c) process ownership* (did local actors invent, steer, participate, accept or reject the underlying process?).

Similarly, local actors' **capacity** can be broken down to *d) funds and inputs* (do beneficiaries have the time and money to sustain the outcome?), *e) skills and capabilities* (do they have the required technical skills?), *f) structures and routines* (are there solid organizational structures underpinning the outcome?), and *g) organizational resilience* (will beneficiaries be able to adapt after a shock such as the death of a local leader?). In addition to the willingness and capacity, the extent of an **enabling environment** also plays a role.

Having described the key components of sustainability, how is the MAKA'AS project judged against them? Concerning *perceived relevance and benefit-cost ratios,* it is found that beneficiaries see the application of climate-resilient practices, the improved water supply, better sanitation practices and risk reduction measures as very relevant; tangible benefits of these practices are being recognized - for instance, in the form of more food diversity and agricultural income as well as reduced prevalence of water-borne diseases. As *figure 19a* illustrates, more than nine out of ten respondents who have learned new techniques currently apply some or all of them. In terms of *process ownership*, it is recognized that members of farmer groups and GMF drove or at least participated in planning and implementation processes - roughly two-thirds of group members were involved in planning *(see fig. 6 on page 12)*. Considering changes in sanitary practices, the CLTS process created peer pressure and critical mass - important elements of sustainable behavioural change.

Overall, the **willingness** of local actors to sustain outcomes is therefore seen as high. More than eight out of ten respondents who learned new techniques say the will continue applying some or all of these techniques in the future *(see fig. 19b)*.

Figure 15 | **What makes a project outcome sustainable?**

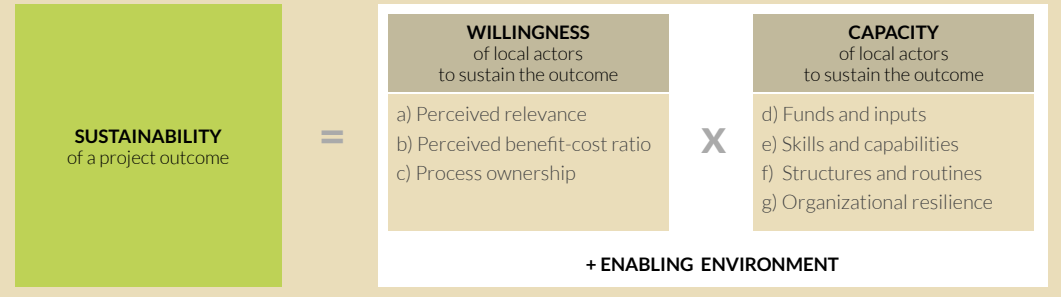
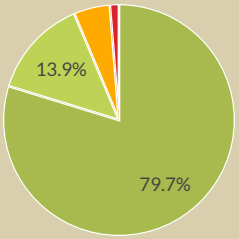


Figure 16 | **Sustainability of new techniques**

16a | **Current application of learned techniques**

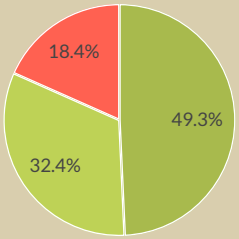
To what extent do you currently apply what you have learned?
[Question G.3]



- I apply everything I have learned
- I apply most of what I have learned
- I do not yet apply [...], but plan to do so in the future
- I do not apply anything I have learned

16b | **Willingness to sustain application**

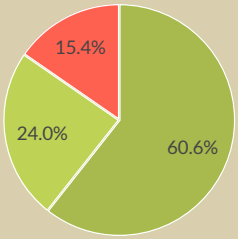
Do you think that the new techniques that you have learned are worth applying into the future?
[Question G.5]



- Yes, all of them
- Yes, some of them
- No

16c | **Capacity to sustain application**

Thinking of the technique that is most important to you, do you think you will be able to apply it in the future?
[Question G.6]



- Yes, on my own
- Yes, with support...
- No

The charts above illustrate a high level of sustainability: ***First***, almost all of the respondents who have learned new agricultural and/or water management techniques currently apply all or most of these techniques **(fig. 16a)**. ***Second***, more than four-fifths of respondents see these techniques worth sustaining (**fig.16b).** ***Third***, roughly the same share says they will be able to sustain those techniques most important to them **(fig. 16c).**

What about their **capacity** to do so? Considering *funds and inputs*, little additional resources are required to sustain agricultural techniques - any such costs are likely to be swiftly recouped by associated gains in income. The main issue regarding funds and inputs is the sustainability of the gravity-fed water systems. With GMFs administering funds fed by financial contributions to maintain systems (less than AUD 1.00 per month and household) however, GMFs will be able to accommodate most repairs. In case major repairs are required, the DAA and - for the next two years, WaterAid - will also be able to assist.

The same holds true for *skills and capabilities*: while most beneficiaries say they have the necessary skills to continue applying the techniques that matter to them most *(see figure 19c)*, DAA, WaterAid, and the association of GMF can provide further support if required. Support for the adoption or continued application of climate-resilient practices meanwhile is likely to be rather limited, given the the expressed claim by many farmer group members that they prefer working independently rather than in a group, as well as the small number of DAF extension officers. When discussing this apparent challenge with a DAF officer, the evaluation team was told that the approach of working with an ever-increasing amount of farmer groups could only be sustained if support from NGOs and development organizations continued for several years.

In terms of *organizational resilience and structure and routines*, it is found that neither farmer groups nor GMF are dependent on individual leaders - the ownership of activities and achievements is based on groups, thus lending to resilience. Amongst farmer groups, the preference of individual over collective action however does not bode well for the continued existence of the groups - a factor that is arguably more troubling than the likely dispersion of community nurseries, which fulfilled their main role supporting implementation, and are unlikely to be sustained (given a lack of associated benefits).

Overall, the **capacity** of local actors to sustain project outcomes is found to be high when considering climate-resilient and sanitary practices as well as water supply systems. Farmer groups and particularly community nurseries however are less likely to be sustained over the long term.

The final aspect of sustainability concerns the **enabling environment**. In terms of water and sanitation, the MAKA'AS outcomes are well-embedded into government structures and aligned with its objectives and regulations. The DAA has played, and is likely to continue playing, a strong enabling role. In terms of climate-resilient practices and overall adaptive planning, the enabling environment is weaker: not only are there too few extension officers that could assist further adaptation. As presented in chapter three, the willingness of government actors to address climate change is rather limited - in spite of the objectives professed in national policy documents. Therefore, further advocacy and support will be required on all levels.

SECTION C | LEARNING

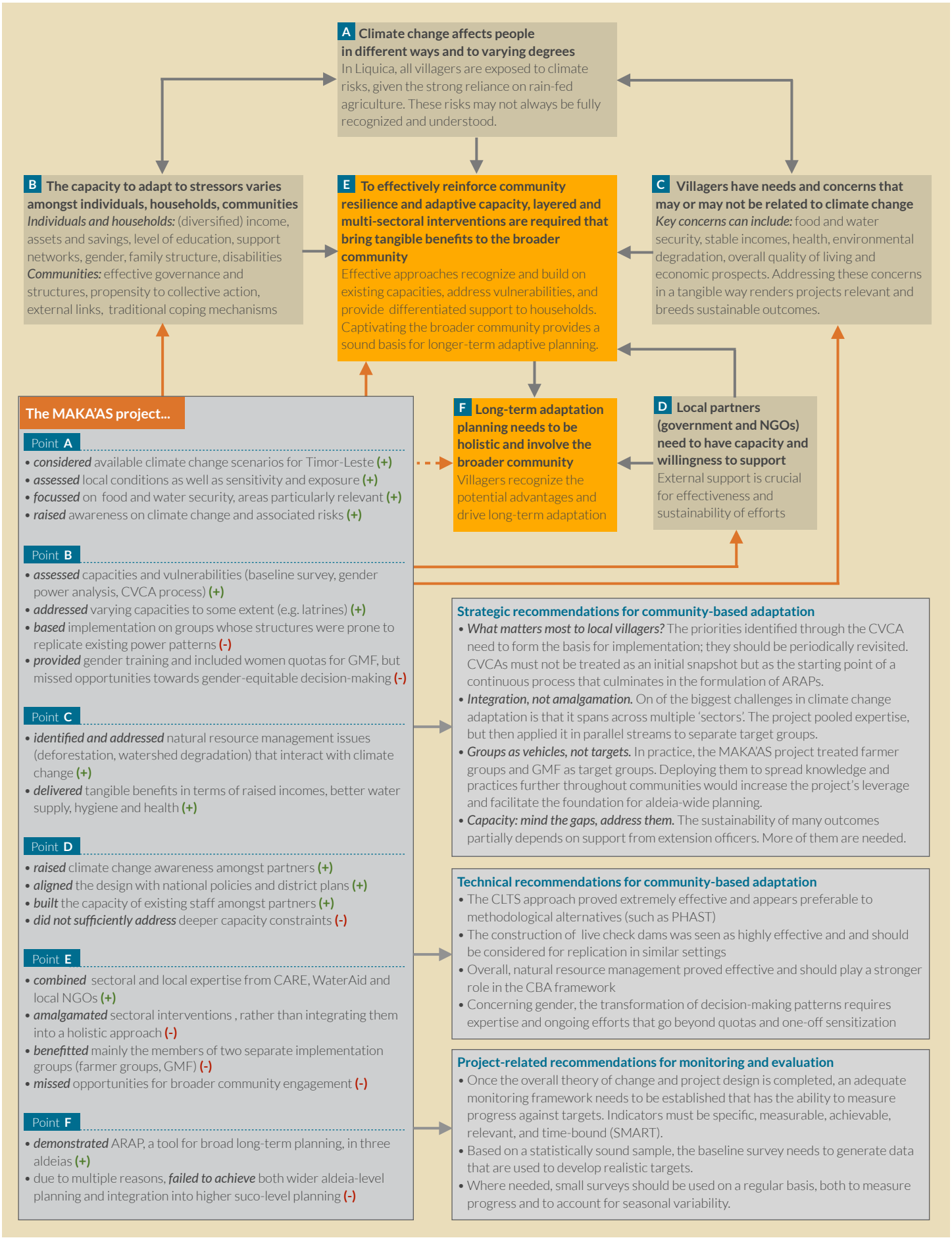
8. Evidence-based learning

What worked, why? What can be replicated? What needs to be improved? Beyond the evaluation's accountability function lies the realm of review and learning. Arguably, it is the hallmark of any professional organization to learn from both failure and from success. Correspondingly, it is the duty of a project's evaluator to highlight aspects that can be 'taken home', learned, and applied in future programming. Encouragingly, both the project design itself and the evaluation's terms of references highlight this aspect of evidence-based learning.

Much of the MAKA'AS project went well, while some aspects need tweaking. As the summary of lessons overleaf illustrates *(see figure 17)*, there is much to be 'taken home'. Rather than sticking to the structure proposed by the terms of reference, lessons are arranged along the lines of key observations (points A-F), each of which is explained and supplemented with further findings from the project. Recommendations on strategic and technical aspects as well as on monitoring and evaluation are provided in relation to these key observations.

Not all of these recommendations are 'new' but are listed nonetheless, as project experience indicated they needed highlighting. The complete list of recommendations is provided in *figure 1 (see page v)* as part of the executive summary.

Figure 17 | **Summary: evidence-based learning**



A. Climate change affects people in different ways and to varying degrees.

Taken on its own, this observation simply states the obvious. It is its implication that is important: the extent to which climate change affects (or is expected to affect) various groups and populations needs to be adequately understood when planning adaptation. The MAKA'AS project reviewed existing assessments and forecasts, and aligned its focus with existing policies of the Government of Timor-Leste and with expressed priorities of district-level partners. In twenty aldeias, it also facilitated CVCA processes to gain further insights into current and expected impact patterns.

Given the strong dependence on rain-fed agriculture and the increasing variability in rainfall, almost all villagers in Liquica are likely be adversely affected by climate change. The effects of El Nino Southern Oscillation (ENSO) provide a further stimulus to adapt. Yet, these climate risks are not always fully recognized and understood. While the project raised awareness on existing and future climate risks, favourable weather patterns over the past two years meant that villagers felt little sense of urgency to adapt practices. Focussing on food and water security, as well as mitigating erosion and landslide risk, the project nonetheless generated palpable benefits: increased incomes, greater food variety, better water supply and improved health are amongst the immediate impacts on members of farmer groups and GMF.

- *When planning CBA projects, it is important to first consider the extent to which different people are sensitive and exposed to climate risks.*
- *As these risks may not be fully recognized and understood, awareness-raising needs to accompany other activities throughout implementation.*

B. The capacity to adapt to stressors varies amongst individuals, households, communities

While the sensitivity and exposure to climate risks is rather uniform across households in the target villages, the capacity to adapt to stressors (climate-related or not) is much more varied. To some extent, it depends on the human, social, natural, economic and physical capital available. Yet, a rich farmer is not necessarily more resilient than a poor one (there may simply be more to loose) unless he or she uses the capital, and has the knowledge, to proactively adapt. Decision-making power also plays a strong role: as the gender analysis demonstrated, women in Liquica have much less say than men over the use of resources, and by extension, over ways to adapt.

The MAKA'AS project identified the variances in adaptive capacity. It disaggregated baseline survey results by gender, commissioned a thorough gender power analysis, and identified particular capacities and needs of persons with disabilities. To some extent, it addressed these disparities - for instance, by ensuring that persons with disabilities had accessible toilets, by providing gender training, and by including quota for women in the formation of GMF.

While these efforts are recognized, the evaluation finds that more could have been done to address this variance. GMF and farmer groups appeared to replicate rather than repeal power structures. As shown in part 6.3, this is most obvious in terms of gender.

- *Without careful analysis of individuals' and groups' adaptive capacities, and thoughtful planning to address disparities, CBA projects run the risk of replicating or even reinforcing these disparities - thereby leaving the most vulnerable behind.*
- *Efforts to transform power structures need to be continuous and systemic in order to generate equitable outcomes. In terms of gender, this could include separate groups for men and women.*

C. Villagers have needs and concerns that may or may not be related to climate change

The message of resilience must resonate amongst target villagers. Strengthening the capacity to ***proactively*** adapt (which in turn reinforces resilience) is a crucial element in

sustaining livelihoods, keeping future losses from climate risks at a minimum. Failing such proactive adaptation, people tend to adapt in a ***reactive*** manner - however, such processes are likely to incur greater hardship and loss. Neither the conceptual underpinnings as such, nor the eventual long-term benefits of proactive adaptation, may be fully grasped by many villagers.[10] What matters most to villagers are the concerns they have at present. Particularly if weather patterns are favourable - as they have been in Timor-Leste over the past two years - the promotion of adaptation on its own (with prospects of long-term gains) is problematic. Chances of success are much higher if that adaptation also addresses current concerns and brings tangible benefits over the course of an intervention (facilitating uptake and sustainability).

The MAKA'AS project achieved this mix of short-term and long-term gains. Take conservation farming, the adoption of drought-tolerant crops, water ponds, and the use of air-tight drums: all these measures brought both rapid benefits (higher income, greater food variety) while also reducing sensitivity to long-term risks. The same goes for water systems and sanitation measures (with already reduced prevalence of water-borne diseases and enhanced access to water, as well reduced future sensitivity). Commendably, the project also addressed an interplay between climate change and unsustainable local practices: with bio-engineering, reforestation and live check dams, it covered the locals' present concern of landslides and flash floods, while reducing risk now and in the future (the full impact of reforested areas on water retention will only emerge after several years).

- *Adaptation to climate change as such is an abstract concept - it is promoted most effectively when it addresses current concerns, demonstrates rapid results, and reduces long-term vulnerability to climatic stressors.*
- *Sustainable natural resources management (NRM) can be an effective entry to adaptation: where climate change interacts with poor local practices, the combined effects (e.g. landslides, erosion) are often more evident, and there is more immediate and greater leverage towards mitigation of risk.*

D. Local partners (government and NGOs) need to have capacity and willingness to support

Even the most proactive community will find adaptation challenging without external resources and support. Strong links to local government and non-governmental actors are not just important for day-to-day affairs, but also crucial in times of crises. The MAKA'AS project aligned priorities with local government and built the capacity of DAA and DAF extension officers as well as local NGO partner staff (through training and coaching). The project also helped facilitate the inclusion of GMF in a GMF association. As presented earlier, the fact that members of GMF and farmer groups judged links to the government more effective than non-members indicates project-generated progress.

At the same time, the MAKA'AS project was affected by the local partners' capacity constraints: with too few extension officers available to support groups and aldeias, the ability to assist in long-term planning was inherently limited - irrespective of the officers' individual abilities and their willingness to get engaged in these processes. These deeper constraints were not adequately addressed.

As a result, they inhibited long-term adaptation planning and restrained sustainability (in particular of farmer groups). Especially given that district counterparts had listed resource limitations amongst the criteria for the initial selection of sucos and aldeias, a long-term plan should have been put in place at the outset as to how these limitations would be overcome.[11] The 'busy schedules' and 'lack of time' of extension officers was often referred to in previous reports as well as in interviews for this evaluation - yet, this strategic sustainability gap remained unfilled.

- *The sustainability of all interventions must be assessed and addressed during the design phase - 'exit strategies' devised towards the end of a project a no panacea. In the context of community-based adaptation (which strives for long-term adaptive capacity), sustainability planning is particularly crucial.*

10. Even successful adaptation and preparedness is unlikely to be actually perceived as a 'success'. Given missing counterfactuals (what would things be like if we had not adapted?), the effectiveness of adaptation may be overshadowed by the increasingly strong stressor.

11. For instance, such a plan could have included a requirement for additional staff (and budget) allocations, with or without extended co-funding with gradual phase-out over a consolidation phase.

E. To effectively reinforce community resilience and adaptive capacity, layered and multi-sectoral interventions are required that bring tangible benefits to the broader community

Arguably the biggest challenge to community resilience projects concerns structures: while those projects necessitate a holistic approach that spans over many traditional 'sectors', few organizations possess the breadth and depth of required multi-sectoral expertise. A solution to this dilemma is the formation of consortia. The MAKA'AS project was based on such a consortium that combined technical expertise in various sectors. While the consortium between WaterAid, CARE and several local NGOs proved principally effective, there is also much to be learned from it.

To a considerable extent, the MAKA'AS project is based on the amalgamation of two main interventions (each with its supporting agency, set of partners, outcome and target group) - rather than a more complete integration into a holistic design. In practice, this meant that villagers were either supported by GMF's, by farmer groups, or not at all.[12] The implementation through two parallel streams not only created misconceptions amongst villagers, it also led to practical issues, such as the latent conflict over domestic and productive use of water *(see MTR report: p.47)*.

However, these are minor issues compared to the strategic implication. By treating farmer groups and GMF as target groups, the MAKA'AS project missed the opportunity to create greater leverage, and to develop the basis for aldeia-level planning. Had it established groups as vehicles rather than targets, it would have allowed for a broader spread of benefits amongst the wider aldeia.[13] Without a doubt, full integration of expertise in a consortium is ambitious and challenging. But given the demands for a holistic approach in community-based adaptation (or community resilience) projects, this is the evaluation's most critical lesson: more work is necessary to truly integrate multi-sectoral expertise - both conceptually and in practice.

Such work should also advance a 'layered design': as pointed out earlier, while the sensitivity and exposure to climatic stressors is almost uniformly high in the context of Liquica, the capacity to adapt varies considerably based on individuals' and group characteristics. The implication is that ***all*** villagers will need advice on adaptation - the extent to which they are provided support beyond that advice should however be individually fine-tuned based on capacities.

- *The pooling of expertise through a consortium is commendable in the context of community-based adaptation - however, this pooling needs to facilitate an integrated approach rather than an amalgamation of two parallel interventions*
- *Given the strong exposure and sensitivity to climatic stressors of all villagers, and varying degrees of adaptive capacity, a layered design is commendable that benefits all - to varying degrees.*

F. Long-term adaptation planning needs to be holistic and involve the broader community

The project's objective towards long-term adaptive planning remained elusive, at least considering the initially anticipated scale. Many factors are at fault, including favourable weather that rendered adaptation as a low priority, lack of time amongst project staff (who were busy enough implementing activities in support of outcomes 1 and 2), missing leadership and stakeholder commitment to adaptation planning, and the missing aldeia-wide basis for planning processes. Furthermore, the CVCAs conducted at the start of the MAKA'AS project were more initial snapshots than the starting point of a planning continuum.

All of these points will need to be factored in when planning future CBA projects. But arguably the most important point is the creation of an aldeia-wide planning basis: It is neither effective nor particularly legitimate if a small (unelected) group (or number of small groups) makes plans for the wider community. Adaptation, and the reinforcement of

12. While there was sporadic overlap between GMF and farmer group memberships, this appeared to be rather accidental than planned.

13. CARE applied such an indirect implementation approach in a MAKA'AS' sister project in Papua New Guinea. See the report "The adapting atolls" for further details.

resilience, requires broad consensus. Only with such a broad basis can a planning process ensure that all voices and concerns have been heard, that the reasons for adaptive practices are understood, and that outcomes are sustainable and truly community-based.

- *Long-term adaptive planning requires local leadership, sufficient time and capacity, commitment of local stakeholders, and a broad community basis to be effective and sustainable.*
- *As outlined in the CBA framework, such planning needs to be understood and practiced as a continuous process that sees the CVCA at its starting point.*

9. Conclusion

"Everything changes and nothing stands still." Heraclitus

Everyone adapts all the time. As surrounding conditions change, it is in the human condition to adapt to them - realizing new opportunities or coping with adversity along the way. In the context of current and emerging stressors related to climate change, the question is not so much *whether*, but rather *how* and *how well* people adapt. Available resources and knowledge are key to the proactive and effective adaptation that can spare much of the hardship and loss associated with reactive adaptation.

The MAKA'AS project that CARE and WaterAid launched in 2012 with funding from the Australian Department of Foreign Affairs and Trade set out to stimulate the adaptive process that would see 33 aldeias in Timor-Leste's Liquica district more resilient as a result.

Three years later, this evaluation shows that the members of water management committees and farmer groups have increased their knowledge of climate change, and that many have adopted techniques and crops that are more suitable for present and future climate risks. As a result of the MAKA'AS project, more than two-thirds feel better prepared now than they had been three years ago.

By ensuring that the interventions would bring both short-term gains as well as long-term benefits, the project succeeded in generating interest, engagement, and uptake. The impact includes greater food variety and increased agricultural income, improved water access and hygiene, and a reduction in the prevalence of water-borne diseases. Furthermore, collective action has been reinforced, with many villagers seeing links to the local government strengthened.

With improved knowledge and skills, better links and collective action, the MAKA'AS project led to an increase of adaptive capacity. In the face of more adverse climatic conditions than those experienced over the past two years, the future will tell how that capacity will be sustained, applied, and expanded.

Meanwhile, the experience from the MAKA'AS project provides numerous lessons as to how community-based adaptation programming can be further enhanced. Advancing integration of multi-sectoral expertise into holistic designs, a broader reach into the community, a more nuanced or layered delivery, and exploring ways to tackle the deeper capacity constraints identified are elements that may help reinforce adaptive capacity and community resilience even further.

Final evaluatiuon of the MAKA'AS project in Timor-Leste Descriptive statistics	**Strata A** (high activity concentration)						**Strata B** (low activity concentration)						**Both strata**					
	Male		Female		All		Male		Female		All		Male		Female		All	
	F	%	*F*	%	*F*	%	*F*	%	*F*	%	*F*	%	*F*	%	*F*	%	*F*	%
PART A | BASIC INFORMATION																		
A.2 How many people live in your household?																		
Mean	*6.72*		*6.37*		*6.57*		*7.28*		*7.18*		*7.24*		*7.02*		*6.8*		*6.93*	
Median	*6*		*6*		*6*		*7*		*7*		*7*		*6*		*7*		*6*	
A.3 What is the gender of the head of the household?																		
1) Female	*4*	**5.13**	*7*	**12.28**	*11*	**8.15**	*3*	**3.33**	*8*	**12.12**	*11*	**7.05**	*7*	**4.17**	*15*	**12.20**	*22*	**7.56**
2) Male	*74*	**94.87**	*50*	**87.72**	*124*	**91.85**	*87*	**96.67**	*58*	**87.88**	*145*	**92.95**	*161*	**95.83**	*108*	**87.80**	*269*	**92.44**
PART B | INVOLVEMENT IN THE PROJECT																		
B.1 Have you ever heard of the MAKA'AS (mudansa Klimatika iha Ambiente Seguru) project?																		
1) Yes	*26*	**33.33**	*24*	**42.11**	*50*	**37.04**	*43*	**47.78**	*24*	**36.36**	*67*	**42.95**	*69*	**41.07**	*48*	**39.02**	*117*	**40.21**
2) No	*52*	**66.67**	*33*	**57.89**	*85*	**62.96**	*47*	**52.22**	*42*	**63.64**	*89*	**57.05**	*99*	**58.93**	*75*	**60.98**	*174*	**59.79**
B.2 Are you, or is any member of your household, a member of a farmers' group supported by CARE?																		
1) Yes	*22*	**28.21**	*20*	**35.71**	*42*	**31.34**	*28*	**32.18**	*18*	**29.51**	*46*	**31.08**	*50*	**30.30**	*38*	**32.48**	*88*	**31.21**
2) No	*56*	**71.79**	*36*	**64.29**	*92*	**68.66**	*59*	**67.82**	*43*	**70.49**	*102*	**68.92**	*115*	**69.70**	*79*	**67.52**	*194*	**68.79**
99) I don't know	*0*		*1*		*1*		*3*		*5*		*8*		*3*		*6*		*9*	
B.3 Are you, or is any member of your household, a member of your aldeia's GMF (Grupu Maneja Fasilidade)?																		
1) Yes	*26*	**33.77**	*18*	**32.14**	*44*	**33.08**	*33*	**38.37**	*17*	**26.98**	*50*	**33.56**	*59*	**36.20**	*35*	**29.41**	*94*	**33.33**
2) No	*51*	**66.23**	*38*	**67.86**	*89*	**66.92**	*53*	**61.63**	*46*	**73.02**	*99*	**66.44**	*104*	**63.80**	*84*	**70.59**	*188*	**66.67**
99) I don't know	*1*		*1*		*2*		*4*		*3*		*7*		*5*		*4*		*9*	
B.4 Over the past three years, have you received any training from the MAKA'AS project?																		
1) Yes	*19*	**24.68**	*15*	**27.27**	*34*	**25.76**	*26*	**30.23**	*16*	**26.23**	*42*	**28.57**	*45*	**27.61**	*31*	**26.72**	*76*	**27.24**
2) No	*58*	**75.32**	*40*	**72.73**	*98*	**74.24**	*60*	**69.77**	*45*	**73.77**	*105*	**71.43**	*118*	**72.39**	*85*	**73.28**	*203*	**72.76**
99) I don't know	*1*		*2*		*3*		*4*		*5*		*9*		*5*		*7*		*12*	
B.5Over the past three years, have you received any material support from the MAKA'AS project?																		
1) Yes	*24*	**31.17**	*23*	**42.59**	*47*	**35.88**	*23*	**26.14**	*15*	**23.44**	*38*	**25.00**	*47*	**28.48**	*38*	**32.20**	*85*	**30.04**
2) No	*53*	**68.83**	*31*	**57.41**	*84*	**64.12**	*65*	**73.86**	*49*	**76.56**	*114*	**75.00**	*118*	**71.52**	*80*	**67.80**	*198*	**69.96**
99) I don't know	*1*		*3*		*4*		*2*		*2*		*4*		*3*		*5*		*8*	
B.6 Considering the beginning of the MAKA'AS project, which of the following statements best describes your involvement?																		
1) I have not been involved in any assessments or planning meetings	*39*	**66.10**	*31*	**67.39**	*70*	**66.67**	*54*	**71.05**	*39*	**72.22**	*93*	**71.54**	*93*	**68.89**	*70*	**70.00**	*163*	**69.36**
2) I participated in meetings but did not contribute	*7*	**11.86**	*4*	**8.70**	*11*	**10.48**	*7*	**9.21**	*5*	**9.26**	*12*	**9.23**	*14*	**10.37**	*9*	**9.00**	*23*	**9.79**
3) I participated in meetings and contributed to planning	*13*	**22.03**	*11*	**23.91**	*24*	**22.86**	*15*	**19.74**	*10*	**18.52**	*25*	**19.23**	*28*	**20.74**	*21*	**21.00**	*49*	**20.85**
99) I don't know	*19*		*11*		*30*		*14*		*12*		*26*		*33*		*23*		*56*	
B.7 On average, how often in the past year have you met MAKA'AS project staff?																		
1) Once a month or less often	*16*	**27.12**	*13*	**27.66**	*29*	**27.36**	*18*	**24.66**	*13*	**22.81**	*31*	**23.85**	*34*	**25.76**	*26*	**25.00**	*60*	**25.42**
2) About twice a month	*6*	**10.17**	*6*	**12.77**	*12*	**11.32**	*7*	**9.59**	*4*	**7.02**	*11*	**8.46**	*13*	**9.85**	*10*	**9.62**	*23*	**9.75**
3) Three times a month or more often	*3*	**5.08**	*0*	**0.00**	*3*	**2.83**	*3*	**4.11**	*1*	**1.75**	*4*	**3.08**	*6*	**4.55**	*1*	**0.96**	*7*	**2.97**
4) Not at all	*34*	**57.63**	*28*	**59.57**	*62*	**58.49**	*45*	**61.64**	*39*	**68.42**	*84*	**64.62**	*79*	**59.85**	*67*	**64.42**	*146*	**61.86**
99) I don't know	*19*		*10*		*29*		*17*		*9*		*26*		*36*		*19*		*55*	
PART C | CLIMATE-RESILIENT LIVELIHOODS																		
Q17. 1) Crop production for household consumption																		
C.1 Applied strategy in 2014'																		
Selected	*71*	**91.03**	*51*	**89.47**	*122*	**90.37**	*72*	**80.00**	*55*	**83.33**	*127*	**81.41**	*143*	**85.12**	*106*	**86.18**	*249*	**85.57**
C.2 Applied strategy in 2011'																		
Selected	*61*	**78.21**	*47*	**82.46**	*108*	**80.00**	*66*	**73.33**	*51*	**77.27**	*117*	**75.00**	*127*	**75.60**	*98*	**79.67**	*225*	**77.32**
Q18. 2) Crop production for sales/income-generation																		
C.1 Applied strategy in 2014'																		
Selected	*51*	**65.38**	*28*	**49.12**	*79*	**58.52**	*50*	**55.56**	*32*	**48.48**	*82*	**52.56**	*101*	**60.12**	*60*	**48.78**	*161*	**55.33**
'C.2 Applied strategy in 2011'																		
Selected	*42*	**53.85**	*28*	**49.12**	*70*	**51.85**	*45*	**50.00**	*30*	**45.45**	*75*	**48.08**	*87*	**51.79**	*58*	**47.15**	*145*	**49.83**
Q19. 3) Production of animals and animal products																		
C.1 Applied strategy in 2014'																		
Selected	*70*	**89.74**	*48*	**84.21**	*118*	**87.41**	*64*	**71.11**	*54*	**81.82**	*118*	**75.64**	*134*	**79.76**	*102*	**82.93**	*236*	**81.10**
'C.2 Applied strategy in 2011'																		
Selected	*63*	**80.77**	*48*	**84.21**	*111*	**82.22**	*64*	**71.11**	*54*	**81.82**	*118*	**75.64**	*127*	**75.60**	*102*	**82.93**	*229*	**78.69**
Q20. 4)Agricultural labour																		
C.1 Applied strategy in 2014'																		
Selected	*73*	**93.59**	*54*	**94.74**	*127*	**94.07**	*83*	**92.22**	*53*	**80.30**	*136*	**87.18**	*156*	**92.86**	*107*	**86.99**	*263*	**90.38**
'C.2 Applied strategy in 2011'																		
Selected	*72*	**92.31**	*53*	**92.98**	*125*	**92.59**	*85*	**94.44**	*54*	**81.82**	*139*	**89.10**	*157*	**93.45**	*107*	**86.99**	*264*	**90.72**
Q21. 5) Other on-farm work																		
C.1 Applied strategy in 2014'																		
Selected	*20*	**25.64**	*12*	**21.05**	*32*	**23.70**	*31*	**34.44**	*27*	**40.91**	*58*	**37.18**	*51*	**30.36**	*39*	**31.71**	*90*	**30.93**
'C.2 Applied strategy in 2011'																		
Selected	*34*	**43.59**	*12*	**21.05**	*46*	**34.07**	*37*	**41.11**	*35*	**53.03**	*72*	**46.15**	*71*	**42.26**	*47*	**38.21**	*118*	**40.55**
Q22. 6) Skilled labour (carpentry, metal work etc)																		
C.1 Applied strategy in 2014'																		
Selected	*17*	**21.79**	*10*	**17.54**	*27*	**20.00**	*18*	**20.00**	*8*	**12.12**	*26*	**16.67**	*35*	**20.83**	*18*	**14.63**	*53*	**18.21**
'C.2 Applied strategy in 2011'																		
Selected	*19*	**24.36**	*11*	**19.30**	*30*	**22.22**	*20*	**22.22**	*9*	**13.64**	*29*	**18.59**	*39*	**23.21**	*20*	**16.26**	*59*	**20.27**
Q23. 7)Small business activities (street vending, shop keeping)																		
C.1 Applied strategy in 2014'																		
Selected	*19*	**24.36**	*8*	**14.04**	*27*	**20.00**	*29*	**32.22**	*25*	**37.88**	*54*	**34.62**	*48*	**28.57**	*33*	**26.83**	*81*	**27.84**
'C.2 Applied strategy in 2011'																		
Selected	*17*	**21.79**	*10*	**17.54**	*27*	**20.00**	*20*	**22.22**	*20*	**30.30**	*40*	**25.64**	*37*	**22.02**	*30*	**24.39**	*67*	**23.02**
Q24. 8)Formal employee (government, NGO, private sector)																		
C.1 Applied strategy in 2014'																		
Selected	*6*	**7.69**	*7*	**12.28**	*13*	**9.63**	*14*	**15.56**	*12*	**18.18**	*26*	**16.67**	*20*	**11.90**	*19*	**15.45**	*39*	**13.40**
'C.2 Applied strategy in 2011'																		
Selected	*10*	**12.82**	*8*	**14.04**	*18*	**13.33**	*14*	**15.56**	*10*	**15.15**	*24*	**15.38**	*24*	**14.29**	*18*	**14.63**	*42*	**14.43**
Q25. 9) Handicraft production																		
C.1 Applied strategy in 2014'																		
Selected	*7*	**8.97**	*7*	**12.28**	*14*	**10.37**	*4*	**4.44**	*9*	**13.64**	*13*	**8.33**	*11*	**6.55**	*16*	**13.01**	*27*	**9.28**
'C.2 Applied strategy in 2011'																		
Selected	*7*	**8.97**	*8*	**14.04**	*15*	**11.11**	*4*	**4.44**	*9*	**13.64**	*13*	**8.33**	*11*	**6.55**	*17*	**13.82**	*28*	**9.62**
Q26. 10) Remittances (foreign, domestic)																		
C.1 Applied strategy in 2014'																		
Selected	*2*	**2.56**	*7*	**12.28**	*9*	**6.67**	*11*	**12.22**	*13*	**19.70**	*24*	**15.38**	*13*	**7.74**	*20*	**16.26**	*33*	**11.34**
'C.2 Applied strategy in 2011'																		
Selected	*6*	**7.69**	*5*	**8.77**	*11*	**8.15**	*13*	**14.44**	*9*	**13.64**	*22*	**14.10**	*19*	**11.31**	*14*	**11.38**	*33*	**11.34**
Q27. 11)Wood/charcoal sales																		
C.1 Applied strategy in 2014'																		
Selected	*5*	**6.41**	*1*	**1.75**	*6*	**4.44**	*12*	**13.33**	*4*	**6.06**	*16*	**10.26**	*17*	**10.12**	*5*	**4.07**	*22*	**7.56**
'C.2 Applied strategy in 2011'																		
Selected	*7*	**8.97**	*5*	**8.77**	*12*	**8.89**	*11*	**12.22**	*7*	**10.61**	*18*	**11.54**	*18*	**10.71**	*12*	**9.76**	*30*	**10.31**
Q28. 12) Non-timber forest products																		
C.1 Applied strategy in 2014'																		
Selected	*31*	**39.74**	*16*	**28.07**	*47*	**34.81**	*18*	**20.00**	*10*	**15.15**	*28*	**17.95**	*49*	**29.17**	*26*	**21.14**	*75*	**25.77**
'C.2 Applied strategy in 2011'																		
Selected	*31*	**39.74**	*16*	**28.07**	*47*	**34.81**	*21*	**23.33**	*11*	**16.67**	*32*	**20.51**	*52*	**30.95**	*27*	**21.95**	*79*	**27.15**
Q29. 13) Fishing/hunting																		
C.1 Applied strategy in 2014'																		
Selected	*1*	**1.28**	*0*	**0.00**	*1*	**0.74**	*19*	**21.11**	*16*	**24.24**	*35*	**22.44**	*20*	**11.90**	*16*	**13.01**	*36*	**12.37**
'C.2 Applied strategy in 2011'																		
Selected	*6*	**7.69**	*2*	**3.51**	*8*	**5.93**	*21*	**23.33**	*17*	**25.76**	*38*	**24.36**	*27*	**16.07**	*19*	**15.45**	*46*	**15.81**
Q30. 14) Other off-farm work																		
C.1 Applied strategy in 2014'																		
Selected	*20*	**25.64**	*14*	**24.56**	*34*	**25.19**	*32*	**35.56**	*26*	**39.39**	*58*	**37.18**	*52*	**30.95**	*40*	**32.52**	*92*	**31.62**
'C.2 Applied strategy in 2011'																		
Selected	*31*	**39.74**	*20*	**35.09**	*51*	**37.78**	*29*	**32.22**	*31*	**46.97**	*60*	**38.46**	*60*	**35.71**	*51*	**41.46**	*111*	**38.14**
C.3 In 2014, how much did on-farm and off-farm work contribute to your livelihood (food and income)?																		
Mean	*70.67*		*67.2*		*69.31*		*67.79*		*67.56*		*67.7*		*69.08*		*67.4*		*68.42*	
Median	*73*		*66*		*70*		*70.5*		*69.5*		*70*		*72*		*68*		*70*	

C.3a Back in 2011, was this mix different?																		
1)Yes	*56*	**73.68**	*46*	**82.14**	*102*	**77.27**	*71*	**79.78**	*56*	**84.85**	*127*	**81.94**	*127*	**76.97**	*102*	**83.61**	*229*	**79.79**
2) No	*20*	**26.32**	*10*	**17.86**	*30*	**22.73**	*18*	**20.22**	*10*	**15.15**	*28*	**18.06**	*38*	**23.03**	*20*	**16.39**	*58*	**20.21**
99) I don't know	*2*		*1*		*3*		*1*		*0*		*1*		*3*		*1*		*4*	
C.3b In 2011, how much did on-farm and off-farm work contribute to your livelihood (food and income)?																		
Mean	*74.89*		*66.12*		*70.89*		*68.48*		*64.86*		*66.9*		*71.13*		*65.41*		*68.58*	
Median	*75*		*64*		*70*		*72*		*66*		*69*		*73.5*		*64*		*69*	
C.3c Has the MAKA'AS project played any role behind this change?																		
1) No, it did not play a role	*8*	**25.00**	*9*	**32.14**	*17*	**28.33**	*11*	**26.83**	*12*	**38.71**	*23*	**31.94**	*19*	**26.03**	*21*	**35.59**	*40*	**30.30**
2) Yes, it played a positive role amongst others	*11*	**34.38**	*6*	**21.43**	*17*	**28.33**	*6*	**14.63**	*9*	**29.03**	*15*	**20.83**	*17*	**23.29**	*15*	**25.42**	*32*	**24.24**
3) Yes, it played the main role	*13*	**40.62**	*13*	**46.43**	*26*	**43.33**	*24*	**58.54**	*10*	**32.26**	*34*	**47.22**	*37*	**50.68**	*23*	**38.98**	*60*	**45.45**
99) I don't know	*46*		*29*		*75*		*49*		*35*		*84*		*95*		*64*		*159*	
C.4 Does your household have access to climate information (seasonal/monthly/weekly forecasts)?																		
1) Yes	*20*	**27.78**	*15*	**27.78**	*35*	**27.78**	*36*	**43.90**	*23*	**37.70**	*59*	**41.26**	*56*	**36.36**	*38*	**33.04**	*94*	**34.94**
2) No	*52*	**72.22**	*39*	**72.22**	*91*	**72.22**	*46*	**56.10**	*38*	**62.30**	*84*	**58.74**	*98*	**63.64**	*77*	**66.96**	*175*	**65.06**
99) I don't know	*6*		*3*		*9*		*8*		*5*		*13*		*14*		*8*		*22*	
C.4a Does your household use this climate information?																		
1) Yes	*17*	**85.00**	*9*	**60.00**	*26*	**74.29**	*29*	**82.86**	*15*	**65.22**	*44*	**75.86**	*46*	**83.64**	*24*	**63.16**	*70*	**75.27**
2) No	*3*	**15.00**	*6*	**40.00**	*9*	**25.71**	*6*	**17.14**	*8*	**34.78**	*14*	**24.14**	*9*	**16.36**	*14*	**36.84**	*23*	**24.73**
99) I don't know	*58*		*42*		*100*		*55*		*43*		*98*		*113*		*85*		*198*	
C.5 Over the past ten years, have you experienced any changes in the climate, such as different times of rain, changes in temperature, drought etc)																		
1) Yes	*45*	**60.00**	*32*	**61.54**	*77*	**60.63**	*57*	**75.00**	*51*	**80.95**	*108*	**77.70**	*102*	**67.55**	*83*	**72.17**	*185*	**69.55**
2) No	*30*	**40.00**	*20*	**38.46**	*50*	**39.37**	*19*	**25.00**	*12*	**19.05**	*31*	**22.30**	*49*	**32.45**	*32*	**27.83**	*81*	**30.45**
99) I don't know	*3*		*5*		*8*		*14*		*3*		*17*		*17*		*8*		*25*	
Q39. 1.Crop diversification																		
C.6 Applied strategy in 2014																		
Selected	*67*	**85.90**	*53*	**92.98**	*120*	**88.89**	*72*	**80.00**	*58*	**87.88**	*130*	**83.33**	*139*	**82.74**	*111*	**90.24**	*250*	**85.91**
C.7 Introduced this strategy in the past 3 years																		
Selected	*66*	**84.62**	*50*	**87.72**	*116*	**85.93**	*69*	**76.67**	*53*	**80.30**	*122*	**78.21**	*135*	**80.36**	*103*	**83.74**	*238*	**81.79**
Q40. 2.Adoption of climate-resilient crops																		
'C.6 Applied strategy in 2014																		
Selected	*56*	**71.79**	*39*	**68.42**	*95*	**70.37**	*65*	**72.22**	*50*	**75.76**	*115*	**73.72**	*121*	**72.02**	*89*	**72.36**	*210*	**72.16**
C.7 Introduced this strategy in the past 3 years																		
Selected	*49*	**62.82**	*29*	**50.88**	*78*	**57.78**	*48*	**53.33**	*43*	**65.15**	*91*	**58.33**	*97*	**57.74**	*72*	**58.54**	*169*	**58.08**
Q41. 3. Adjustment of planting times																		
C.6 Applied strategy in 2014																		
Selected	*65*	**83.33**	*49*	**85.96**	*114*	**84.44**	*71*	**78.89**	*53*	**80.30**	*124*	**79.49**	*136*	**80.95**	*102*	**82.93**	*238*	**81.79**
C.7 Introduced this strategy in the past 3 years																		
Selected	*57*	**73.08**	*48*	**84.21**	*105*	**77.78**	*59*	**65.56**	*52*	**78.79**	*111*	**71.15**	*116*	**69.05**	*100*	**81.30**	*216*	**74.23**
Q42. 4. Income diversification																		
C.6 Applied strategy in 2014																		
Selected	*65*	**83.33**	*48*	**84.21**	*113*	**83.70**	*67*	**74.44**	*52*	**78.79**	*119*	**76.28**	*132*	**78.57**	*100*	**81.30**	*232*	**79.73**
C.7 Introduced this strategy in the past 3 years																		
Selected	*50*	**64.10**	*38*	**66.67**	*88*	**65.19**	*53*	**58.89**	*48*	**72.73**	*101*	**64.74**	*103*	**61.31**	*86*	**69.92**	*189*	**64.95**
Q43. 5. Seed saving and storage																		
C.6 Applied strategy in 2014																		
Selected	*70*	**89.74**	*52*	**91.23**	*122*	**90.37**	*77*	**85.56**	*56*	**84.85**	*133*	**85.26**	*147*	**87.50**	*108*	**87.80**	*255*	**87.63**
C.7 Introduced this strategy in the past 3 years																		
Selected	*66*	**84.62**	*50*	**87.72**	*116*	**85.93**	*66*	**73.33**	*54*	**81.82**	*120*	**76.92**	*132*	**78.57**	*104*	**84.55**	*236*	**81.10**
Q44. 6. Casual labour																		
C.6 Applied strategy in 2014																		
Selected	*13*	**16.67**	*8*	**14.04**	*21*	**15.56**	*13*	**14.44**	*8*	**12.12**	*21*	**13.46**	*26*	**15.48**	*16*	**13.01**	*42*	**14.43**
C.7 Introduced this strategy in the past 3 years																		
Selected	*15*	**19.23**	*7*	**12.28**	*22*	**16.30**	*7*	**7.78**	*8*	**12.12**	*15*	**9.62**	*22*	**13.10**	*15*	**12.20**	*37*	**12.71**
Q45. 7. Home-gardening																		
C.6 Applied strategy in 2014																		
Selected	*73*	**93.59**	*53*	**92.98**	*126*	**93.33**	*79*	**87.78**	*61*	**92.42**	*140*	**89.74**	*152*	**90.48**	*114*	**92.68**	*266*	**91.41**
C.7 Introduced this strategy in the past 3 years																		
Selected	*70*	**89.74**	*55*	**96.49**	*125*	**92.59**	*75*	**83.33**	*62*	**93.94**	*137*	**87.82**	*145*	**86.31**	*117*	**95.12**	*262*	**90.03**
Q46. 8. Irrigation																		
C.6 Applied strategy in 2014																		
Selected	*10*	**12.82**	*10*	**17.54**	*20*	**14.81**	*6*	**6.67**	*6*	**9.09**	*12*	**7.69**	*16*	**9.52**	*16*	**13.01**	*32*	**11.00**
C.7 Introduced this strategy in the past 3 years																		
Selected	*11*	**14.10**	*3*	**5.26**	*14*	**10.37**	*6*	**6.67**	*8*	**12.12**	*14*	**8.97**	*17*	**10.12**	*11*	**8.94**	*28*	**9.62**
Q47. 9. New agricultural practices																		
C.6 Applied strategy in 2014																		
Selected	*17*	**21.79**	*18*	**31.58**	*35*	**25.93**	*28*	**31.11**	*22*	**33.33**	*50*	**32.05**	*45*	**26.79**	*40*	**32.52**	*85*	**29.21**
C.7 Introduced this strategy in the past 3 years																		
Selected	*23*	**29.49**	*16*	**28.07**	*39*	**28.89**	*16*	**17.78**	*14*	**21.21**	*30*	**19.23**	*39*	**23.21**	*30*	**24.39**	*69*	**23.71**
Q48. 10. Tree replanting																		
C.6 Applied strategy in 2014																		
Selected	*56*	**71.79**	*42*	**73.68**	*98*	**72.59**	*62*	**68.89**	*41*	**62.12**	*103*	**66.03**	*118*	**70.24**	*83*	**67.48**	*201*	**69.07**
C.7 Introduced this strategy in the past 3 years																		
Selected	*49*	**62.82**	*35*	**61.40**	*84*	**62.22**	*43*	**47.78**	*33*	**50.00**	*76*	**48.72**	*92*	**54.76**	*68*	**55.28**	*160*	**54.98**
Q49. 11.Rainwater harvesting																		
C.6 Applied strategy in 2014																		
Selected	*37*	**47.44**	*27*	**47.37**	*64*	**47.41**	*42*	**46.67**	*27*	**40.91**	*69*	**44.23**	*79*	**47.02**	*54*	**43.90**	*133*	**45.70**
C.7 Introduced this strategy in the past 3 years																		
Selected	*26*	**33.33**	*18*	**31.58**	*44*	**32.59**	*31*	**34.44**	*22*	**33.33**	*53*	**33.97**	*57*	**33.93**	*40*	**32.52**	*97*	**33.33**
Q50. 12. Selling of livestock																		
C.6 Applied strategy in 2014																		
Selected	*63*	**80.77**	*41*	**71.93**	*104*	**77.04**	*58*	**64.44**	*45*	**68.18**	*103*	**66.03**	*121*	**72.02**	*86*	**69.92**	*207*	**71.13**
C.7 Introduced this strategy in the past 3 years																		
Selected	*56*	**71.79**	*39*	**68.42**	*95*	**70.37**	*57*	**63.33**	*47*	**71.21**	*104*	**66.67**	*113*	**67.26**	*86*	**69.92**	*199*	**68.38**
Q51. 13. Storing water for plants																		
C.6 Applied strategy in 2014																		
Selected	*43*	**55.13**	*31*	**54.39**	*74*	**54.81**	*42*	**46.67**	*40*	**60.61**	*82*	**52.56**	*85*	**50.60**	*71*	**57.72**	*156*	**53.61**
C.7 Introduced this strategy in the past 3 years																		
Selected	*38*	**48.72**	*28*	**49.12**	*66*	**48.89**	*32*	**35.56**	*37*	**56.06**	*69*	**44.23**	*70*	**41.67**	*65*	**52.85**	*135*	**46.39**
Q52. 14. Storing water for livestorck																		
C.6 Applied strategy in 2014																		
Selected	*53*	**67.95**	*37*	**64.91**	*90*	**66.67**	*51*	**56.67**	*43*	**65.15**	*94*	**60.26**	*104*	**61.90**	*80*	**65.04**	*184*	**63.23**
C.7 Introduced this strategy in the past 3 years																		
Selected	*46*	**58.97**	*30*	**52.63**	*76*	**56.30**	*39*	**43.33**	*41*	**62.12**	*80*	**51.28**	*85*	**50.60**	*71*	**57.72**	*156*	**53.61**
Q53. 15. Storing fooder for livestock																		
C.6 Applied strategy in 2014																		
Selected	*64*	**82.05**	*47*	**82.46**	*111*	**82.22**	*63*	**70.00**	*51*	**77.27**	*114*	**73.08**	*127*	**75.60**	*98*	**79.67**	*225*	**77.32**
C.7 Introduced this strategy in the past 3 years																		
Selected	*59*	**75.64**	*41*	**71.93**	*100*	**74.07**	*55*	**61.11**	*51*	**77.27**	*106*	**67.95**	*114*	**67.86**	*92*	**74.80**	*206*	**70.79**
Q54. 16. Removing children from school																		
C.6 Applied strategy in 2014																		
Selected	*7*	**8.97**	*4*	**7.02**	*11*	**8.15**	*10*	**11.11**	*3*	**4.55**	*13*	**8.33**	*17*	**10.12**	*7*	**5.69**	*24*	**8.25**
C.7 Introduced this strategy in the past 3 years																		
Selected	*10*	**12.82**	*5*	**8.77**	*15*	**11.11**	*10*	**11.11**	*4*	**6.06**	*14*	**8.97**	*20*	**11.90**	*9*	**7.32**	*29*	**9.97**
Q55. 17. Eating wild food																		
C.6 Applied strategy in 2014																		
Selected	*66*	**84.62**	*48*	**84.21**	*114*	**84.44**	*64*	**71.11**	*50*	**75.76**	*114*	**73.08**	*130*	**77.38**	*98*	**79.67**	*228*	**78.35**
C.7 Introduced this strategy in the past 3 years																		
Selected	*70*	**89.74**	*50*	**87.72**	*120*	**88.89**	*72*	**80.00**	*59*	**89.39**	*131*	**83.97**	*142*	**84.52**	*109*	**88.62**	*251*	**86.25**
Q56. 18. Selling land																		
C.6 Applied strategy in 2014																		
Selected	*0*	**0.00**	*1*	**1.75**	*1*	**0.74**	*1*	**1.11**	*1*	**1.52**	*2*	**1.28**	*1*	**0.60**	*2*	**1.63**	*3*	**1.03**
C.7 Introduced this strategy in the past 3 years																		
Selected	*0*	**0.00**	*2*	**3.51**	*2*	**1.48**	*1*	**1.11**	*3*	**4.55**	*4*	**2.56**	*1*	**0.60**	*5*	**4.07**	*6*	**2.06**
Q57. 19. Rationing food																		
C.6 Applied strategy in 2014																		

Selected	33	42.31	27	47.37	60	44.44	45	50.00	34	51.52	79	50.64	78	46.43	61	49.59	139	47.77
C.7 Introduced this strategy in the past 3 years																		
Selected	32	41.03	24	42.11	56	41.48	40	44.44	32	48.48	72	46.15	72	42.86	56	45.53	128	43.99
Q59. 1.Minimum tillage																		
C.8 Applied strategy in 2014																		
Selected	22	28.21	23	40.35	45	33.33	37	41.11	28	42.42	65	41.67	59	35.12	51	41.46	110	37.80
C.9 Applied strategy in 2011																		
Selected	31	39.74	30	52.63	61	45.19	35	38.89	35	53.03	70	44.87	66	39.29	65	52.85	131	45.02
Q60. 2.Zero tillage																		
C.8 Applied strategy in 2014																		
Selected	18	23.08	11	19.30	29	21.48	21	23.33	12	18.18	33	21.15	39	23.21	23	18.70	62	21.31
C.9 Applied strategy in 2011																		
Selected	21	26.92	13	22.81	34	25.19	29	32.22	22	33.33	51	32.69	50	29.76	35	28.46	85	29.21
Q61. 3. Crop rotation																		
C.8 Applied strategy in 2014																		
Selected	78	100.00	55	96.49	133	98.52	80	88.89	61	92.42	141	90.38	158	94.05	116	94.31	274	94.16
C.9 Applied strategy in 2011																		
Selected	77	98.72	55	96.49	132	97.78	85	94.44	64	96.97	149	95.51	162	96.43	119	96.75	281	96.56
Q62. 4. Agro-forestry																		
C.8 Applied strategy in 2014																		
Selected	29	37.18	17	29.82	46	34.07	26	28.89	24	36.36	50	32.05	55	32.74	41	33.33	96	32.99
'C.9 Applika stratejia iha tinan 2011'																		
Selected	34	43.59	19	33.33	53	39.26	22	24.44	30	45.45	52	33.33	56	33.33	49	39.84	105	36.08
Q63. 5) Contour farming																		
C.8 Applied strategy in 2014																		
Selected	45	57.69	26	45.61	71	52.59	35	38.89	27	40.91	62	39.74	80	47.62	53	43.09	133	45.70
C.9 Applied strategy in 2011																		
Selected	42	53.85	23	40.35	65	48.15	33	36.67	25	37.88	58	37.18	75	44.64	48	39.02	123	42.27
Q64. 6. Mulching																		
C.8 Applied strategy in 2014																		
Selected	13	16.67	6	10.53	19	14.07	14	15.56	12	18.18	26	16.67	27	16.07	18	14.63	45	15.46
C.9 Applied strategy in 2011																		
Selected	16	20.51	10	17.54	26	19.26	17	18.89	10	15.15	27	17.31	33	19.64	20	16.26	53	18.21
Q65. 7. Integrated pest management																		
C.8 Applied strategy in 2014																		
Selected	25	32.05	14	24.56	39	28.89	18	20.00	11	16.67	29	18.59	43	25.60	25	20.33	68	23.37
C.9 Applied strategy in 2011																		
Selected	13	16.67	12	21.05	25	18.52	17	18.89	8	12.12	25	16.03	30	17.86	20	16.26	50	17.18
Q66. 8. Covering of crops																		
C.8 Applied strategy in 2014																		
Selected	55	70.51	39	68.42	94	69.63	57	63.33	37	56.06	94	60.26	112	66.67	76	61.79	188	64.60
C.9 Applied strategy in 2011																		
Selected	57	73.08	42	73.68	99	73.33	50	55.56	41	62.12	91	58.33	107	63.69	83	67.48	190	65.29
Q68. 1.Maize, improved variety																		
C.10 Did your household plant this crop in 2014?																		
Selected	61	78.21	46	80.70	107	79.26	66	73.33	49	74.24	115	73.72	127	75.60	95	77.24	222	76.29
C.11 Did your household plant this crop in 2011?																		
Selected	55	70.51	48	84.21	103	76.30	64	71.11	55	83.33	119	76.28	119	70.83	103	83.74	222	76.29
Q69. 2.Maize, standrad variety																		
C.10 Did your household plant this crop in 2014?																		
Selected	74	94.87	50	87.72	124	91.85	74	82.22	51	77.27	125	80.13	148	88.10	101	82.11	249	85.57
C.11 Did your household plant this crop in 2011?																		
Selected	51	65.38	36	63.16	87	64.44	53	58.89	43	65.15	96	61.54	104	61.90	79	64.23	183	62.89
Q70. 3. Cassava																		
C.10 Did your household plant this crop in 2014?																		
Selected	77	98.72	55	96.49	132	97.78	65	72.22	51	77.27	116	74.36	142	84.52	106	86.18	248	85.22
C.11 Did your household plant this crop in 2011?																		
Selected	70	89.74	52	91.23	122	90.37	72	80.00	58	87.88	130	83.33	142	84.52	110	89.43	252	86.60
C.12 How many different crops and vegetables did your household plant in 2014?																		
Mean	7.04		7.21		7.11		6.23		6.11		6.18		6.61		6.62		6.61	
Median	6		7		6		6		6		6		6		6		6	
C.13 How many different crops and vegetables did your household plant in 2011?																		
Mean	6.01		5.62		5.85		5.4		5.61		5.49		5.68		5.61		5.66	
Median	6		5		6		5		6		5		5.5		5		5	
C.14 Has your household or farmer group received any airtight drums by the MAKA'AS project?																		
1) Yes	20	26.32	16	29.63	36	27.69	17	19.32	10	15.87	27	17.88	37	22.56	26	22.22	63	22.42
2) No	56	73.68	38	70.37	94	72.31	71	80.68	53	84.13	124	82.12	127	77.44	91	77.78	218	77.58
99) I don't know	2		3		5		2		3		5		4		6		10	
C.14a Since you received these drums, has your level of post-harvest maize losses changed?																		
1) Yes, post-harvest losses have increased	11	55.00	11	68.75	22	61.11	10	58.82	4	44.44	14	53.85	21	56.76	15	60.00	36	58.06
2) No, there has been no change	1	5.00	0	0.00	1	2.78	0	0.00	2	22.22	2	7.69	1	2.70	2	8.00	3	4.84
3)Yes, post-harvest losses have decreased	8	40.00	5	31.25	13	36.11	7	41.18	3	33.33	10	38.46	15	40.54	8	32.00	23	37.10
99) I don't know	58		41		99		73		57		130		131		98		229	
C.15 How would you describe your household's ability to address climate risks such as irregular and unpredictable or extreme rainfall?																		
1) High	19	28.36	8	16.33	27	23.28	16	20.25	23	40.35	39	28.68	35	23.97	31	29.25	66	26.19
2) Moderate	34	50.75	27	55.10	61	52.59	46	58.23	22	38.60	68	50.00	80	54.79	49	46.23	129	51.19
3) Low	14	20.90	14	28.57	28	24.14	17	21.52	12	21.05	29	21.32	31	21.23	26	24.53	57	22.62
99) I don't know	11		8		19		11		9		20		22		17		39	
C.16 Which of the following statements best describes your household?																		
1) We are now better-adapted and more prepared for climate risks than four years ago.	47	75.81	32	72.73	79	74.53	47	63.51	31	65.96	78	64.46	94	69.12	63	69.23	157	69.16
2) Over the past four years, there has been no change in our ability to face climate risks.	12	19.35	6	13.64	18	16.98	19	25.68	12	25.53	31	25.62	31	22.79	18	19.78	49	21.59
3) We are now less prepared for climate risks than we were four years ago.	3	4.84	6	13.64	9	8.49	8	10.81	4	8.51	12	9.92	11	8.09	10	10.99	21	9.25
99) I don't know	16		13		29		16		19		35		32		32		64	
C.16a In your view, to what extent has the MAKA'AS project played a role behind this improvement?																		
1) Main positive role	26	74.29	19	82.61	45	77.59	31	91.18	11	50.00	42	75.00	57	82.61	30	66.67	87	76.32
2) Positive role amongst others	5	14.29	2	8.70	7	12.07	1	2.94	4	18.18	5	8.93	6	8.70	6	13.33	12	10.53
3) No role	4	11.43	2	8.70	6	10.34	2	5.88	7	31.82	9	16.07	6	8.70	9	20.00	15	13.16
99) I don't know	43		34		77		56		44		100		99		78		177	
C.17 Overall, has your situation in terms of food and income security changed over the past three years?																		
1) Yes, we are now better off than three years ago	45	66.18	35	72.92	80	68.97	51	65.38	39	73.58	90	68.70	96	65.75	74	73.27	170	68.83
2) No, it has not changed	23	33.82	13	27.08	36	31.03	26	33.33	13	24.53	39	29.77	49	33.56	26	25.74	75	30.36
3)Yes, we are now worse off than three years ago	0	0.00	0	0.00	0	0.00	1	1.28	1	1.89	2	1.53	1	0.68	1	0.99	2	0.81
99) I don't know	10		9		19		12		13		25		22		22		44	
C.17a_A.1 Any changes in the weather																		
1) Positive effect	34	75.56	27	77.14	61	76.25	35	68.63	23	57.50	58	63.74	69	71.88	50	66.67	119	69.59
2) No effect	10	22.22	6	17.14	16	20.00	8	15.69	13	32.50	21	23.08	18	18.75	19	25.33	37	21.64
3) Negative effect	0	0.00	2	5.71	2	2.50	8	15.69	3	7.50	11	12.09	8	8.33	5	6.67	13	7.60
4) Not applicable	1	2.22	0	0.00	1	1.25	0	0.00	1	2.50	1	1.10	1	1.04	1	1.33	2	1.17
C.17a_A.2 Any changes in the market (access/prices)																		
1) Positive effect	32	71.11	26	76.47	58	73.42	30	57.69	21	53.85	51	56.04	62	63.92	47	64.38	109	64.12
2) No effect	11	24.44	4	11.76	15	18.99	14	26.92	13	33.33	27	29.67	25	25.77	17	23.29	42	24.71
3) Negative effect	1	2.22	2	5.88	3	3.80	3	5.77	4	10.26	7	7.69	4	4.12	6	8.22	10	5.88
4) Not applicable	1	2.22	2	5.88	3	3.80	5	9.62	1	2.56	6	6.59	6	6.19	3	4.11	9	5.29
C.17a_A.3 Any changes in cultivation techniques																		
1) Positive effect	32	72.73	23	65.71	55	69.62	39	75.00	25	62.50	64	69.57	71	73.96	48	64.00	119	69.59
2) No effect	10	22.73	11	31.43	21	26.58	12	23.08	14	35.00	26	28.26	22	22.92	25	33.33	47	27.49
3) Negative effect	0	0.00	0	0.00	0	0.00	0	0.00	1	2.50	1	1.09	0	0.00	1	1.33	1	0.58
4) Not applicable	2	4.55	1	2.86	3	3.80	1	1.92	0	0.00	1	1.09	3	3.12	1	1.33	4	2.34
C.17a_A.4 Changes in water management																		
1) Positive effect	39	86.67	29	82.86	68	85.00	46	88.46	28	70.00	74	80.43	85	87.63	57	76.00	142	82.56
2) No effect	5	11.11	6	17.14	11	13.75	3	5.77	9	22.50	12	13.04	8	8.25	15	20.00	23	13.37
3) Negative effect	0	0.00	0	0.00	0	0.00	3	5.77	1	2.50	4	4.35	3	3.09	1	1.33	4	2.33
4) Not applicable	1	2.22	0	0.00	1	1.25	0	0.00	2	5.00	2	2.17	1	1.03	2	2.67	3	1.74
C.17a_A.5Any other factors (related to the project)																		
1) Positive effect	24	53.33	16	45.71	40	50.00	26	50.98	15	37.50	41	45.05	50	52.08	31	41.33	81	47.37
2) No effect	15	33.33	12	34.29	27	33.75	9	17.65	12	30.00	21	23.08	24	25.00	24	32.00	48	28.07

3) Negative effect	0	0.00	1	2.86	1	1.25	0	0.00	3	7.50	3	3.30	0	0.00	4	5.33	4	2.34
4) Not applicable	6	13.33	6	17.14	12	15.00	16	31.37	10	25.00	26	28.57	22	22.92	16	21.33	38	22.22
C.17a_A.6 Any other factors (unrelated to the project)																		
1) Positive effect	25	55.56	21	60.00	46	57.50	27	52.94	12	30.77	39	43.33	52	54.17	33	44.59	85	50.00
2) No effect	18	40.00	11	31.43	29	36.25	7	13.73	17	43.59	24	26.67	25	26.04	28	37.84	53	31.18
3) Negative effect	0	0.00	0	0.00	0	0.00	2	3.92	1	2.56	3	3.33	2	2.08	1	1.35	3	1.76
4) Not applicable	2	4.44	3	8.57	5	6.25	15	29.41	9	23.08	24	26.67	17	17.71	12	16.22	29	17.06
PART D | WATER MANAGEMENT & HYGIENE																		
D.1 What is your household's main source of drinking water?																		
1) Pipe or pump	3	3.85	1	1.75	4	2.96	21	23.33	7	10.61	28	17.95	24	14.29	8	6.50	32	11.00
2)Public tap	69	88.46	48	84.21	117	86.67	48	53.33	37	56.06	85	54.49	117	69.64	85	69.11	202	69.42
3)Tube well/bore hole	0	0.00	0	0.00	0	0.00	2	2.22	10	15.15	12	7.69	2	1.19	10	8.13	12	4.12
4)Protected well or spring	2	2.56	1	1.75	3	2.22	7	7.78	8	12.12	15	9.62	9	5.36	9	7.32	18	6.19
5)Unprotected well or spring	0	0.00	1	1.75	1	0.74	5	5.56	1	1.52	6	3.85	5	2.98	2	1.63	7	2.41
6) Rainwater collection	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
7)Bottled water	0	0.00	1	1.75	1	0.74	0	0.00	0	0.00	0	0.00	0	0.00	1	0.81	1	0.34
8) Water vendors, tank	2	2.56	2	3.51	4	2.96	1	1.11	2	3.03	3	1.92	3	1.79	4	3.25	7	2.41
9) River, lake or stream	2	2.56	2	3.51	4	2.96	1	1.11	0	0.00	1	0.64	3	1.79	2	1.63	5	1.72
10) Bamboo piped system from protected spring	0	0.00	1	1.75	1	0.74	1	1.11	1	1.52	2	1.28	1	0.60	2	1.63	3	1.03
11) Bamboo piped system from unprotected spring	0	0.00	0	0.00	0	0.00	3	3.33	0	0.00	3	1.92	3	1.79	0	0.00	3	1.03
12) Other	0	0.00	0	0.00	0	0.00	1	1.11	0	0.00	1	0.64	1	0.60	0	0.00	1	0.34
D.2 Over the past year, has water from your main source been unavailable for a day or longer?																		
1) Yes	59	78.67	44	78.57	103	78.63	63	70.00	49	76.56	112	72.73	122	73.94	93	77.50	215	75.44
2) No	16	21.33	12	21.43	28	21.37	27	30.00	15	23.44	42	27.27	43	26.06	27	22.50	70	24.56
99) I don't know	3		1		4		0		2		2		3		3		6	
D.3 How much time does your household spend each day to collect water?																		
1)Up to 30min	38	53.52	22	43.14	60	49.18	53	63.10	30	46.15	83	55.70	91	58.71	52	44.83	143	52.77
2)30-60 min	23	32.39	19	37.25	42	34.43	14	16.67	15	23.08	29	19.46	37	23.87	34	29.31	71	26.20
3) More than 60 min	10	14.08	10	19.61	20	16.39	17	20.24	20	30.77	37	24.83	27	17.42	30	25.86	57	21.03
99) I don't know	7		6		13		6		1		7		13		7		20	
D.4 Over the past three years, has access to water changed for your household? (DO NOT READ OPTIONS)																		
1) Yes, water access is now **better**	46	64.79	35	68.63	81	66.39	49	56.32	36	60.00	85	57.82	95	60.13	71	63.96	166	61.71
2) No, there has been **no change**	23	32.39	15	29.41	38	31.15	36	41.38	18	30.00	54	36.73	59	37.34	33	29.73	92	34.20
3) Yes, water access is now **worse**	2	2.82	1	1.96	3	2.46	2	2.30	6	10.00	8	5.44	4	2.53	7	6.31	11	4.09
99) I don't know	7		6		13		3		6		9		10		12		22	
D.5 What is the main reason for this change? (DO NOT READ OPTIONS)																		
1) Factors related to the MAKA'AS project	10	23.81	10	30.30	20	26.67	18	40.91	9	24.32	27	33.33	28	32.56	19	27.14	47	30.13
2) Other factors	32	76.19	23	69.70	55	73.33	26	59.09	28	75.68	54	66.67	58	67.44	51	72.86	109	69.87
99) I don't know	36		24		60		46		29		75		82		53		135	
D.6 Did you or any of your household members have any of the following diseases in the last three months…?																		
1) Yes	37	50.68	27	47.37	64	49.23	32	35.56	30	46.15	62	40.00	69	42.33	57	46.72	126	44.21
2) No	36	49.32	30	52.63	66	50.77	58	64.44	35	53.85	93	60.00	94	57.67	65	53.28	159	55.79
99) I don't know	5		0		5		0		1		1		5		1		6	
D.7 Over the past three years, has there been a change in the extent to which your household is affected by these diseases?																		
1)Yes, we are now less affected than in the past	53	76.81	42	79.25	95	77.87	54	68.35	34	61.82	88	65.67	107	72.30	76	70.37	183	71.48
2)No, there has been no change	15	21.74	11	20.75	26	21.31	25	31.65	20	36.36	45	33.58	40	27.03	31	28.70	71	27.73
3)Yes, we are now more affected than in the past	1	1.45	0	0.00	1	0.82	0	0.00	1	1.82	1	0.75	1	0.68	1	0.93	2	0.78
99) I don't know	9		4		13		11		11		22		20		15		35	
D.7a What might be the reasons as to why your household is less affected by these water-borne diseases?																		
1)Because we were trained how to keep our household surroundings cleaner	31	60.78	28	71.79	59	65.56	35	64.81	25	75.76	60	68.97	66	62.86	53	73.61	119	67.23
2)Because drinking water quality has improved	17	33.33	9	23.08	26	28.89	16	29.63	6	18.18	22	25.29	33	31.43	15	20.83	48	27.12
3) Because there was less rain	2	3.92	1	2.56	3	3.33	1	1.85	1	3.03	2	2.30	3	2.86	2	2.78	5	2.82
4)Because we had luck	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5) Other	1	1.96	1	2.56	2	2.22	2	3.70	1	3.03	3	3.45	3	2.86	2	2.78	5	2.82
99) I don't know	27		18		45		36		33		69		63		51		114	
Q95. D.8 Concerning sanitary conditions, hand washing facilities and practices, is there anything that improved over the past three years																		
1) Yes, sanitary conditions																		
Not Selected	46	58.97	37	64.91	83	61.48	53	58.89	36	54.55	89	57.05	99	58.93	73	59.35	172	59.11
Selected	32	41.03	20	35.09	52	38.52	37	41.11	30	45.45	67	42.95	69	41.07	50	40.65	119	40.89
2) Yes, hand washing facilities																		
Not Selected	64	82.05	44	77.19	108	80.00	75	83.33	53	80.30	128	82.05	139	82.74	97	78.86	236	81.10
Selected	14	17.95	13	22.81	27	20.00	15	16.67	13	19.70	28	17.95	29	17.26	26	21.14	55	18.90
3) Yes, hand washing practices																		
Not Selected	56	71.79	41	71.93	97	71.85	67	74.44	55	83.33	122	78.21	123	73.21	96	78.05	219	75.26
Selected	22	28.21	16	28.07	38	28.15	23	25.56	11	16.67	34	21.79	45	26.79	27	21.95	72	24.74
99) I don't know																		
Not Selected	61	78.21	45	78.95	106	78.52	74	82.22	51	77.27	125	80.13	135	80.36	96	78.05	231	79.38
Selected	17	21.79	12	21.05	29	21.48	16	17.78	15	22.73	31	19.87	33	19.64	27	21.95	60	20.62
PART E | GENDER																		
E.0 What is your civil status?																		
1) Married	73	93.59	50	87.72	123	91.11	81	90.00	52	78.79	133	85.26	154	91.67	102	82.93	256	87.97
2) Single, widowed or divorced	5	6.41	7	12.28	12	8.89	9	10.00	14	21.21	23	14.74	14	8.33	21	17.07	35	12.03
E.1.1 …decides what to do with family income?																		
1) Only men	11	15.28	4	8.00	15	12.30	14	17.28	11	21.15	25	18.80	25	16.34	15	14.71	40	15.69
2) Mostly men	9	12.50	3	6.00	12	9.84	11	13.58	5	9.62	16	12.03	20	13.07	8	7.84	28	10.98
3) Men and women equally	52	72.22	40	80.00	92	75.41	56	69.14	35	67.31	91	68.42	108	70.59	75	73.53	183	71.76
4) Mostly women	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5) Only women	0	0.00	3	6.00	3	2.46	0	0.00	1	1.92	1	0.75	0	0.00	4	3.92	4	1.57
99) I don't know	6		7		13		9		14		23		15		21		36	
E.1.2…attends meetings or activities in the village?																		
1) Only men	12	17.14	5	10.64	17	14.53	12	14.81	7	13.46	19	14.29	24	15.89	12	12.12	36	14.40
2) Mostly men	12	17.14	5	10.64	17	14.53	10	12.35	5	9.62	15	11.28	22	14.57	10	10.10	32	12.80
3) Men and women equally	45	64.29	35	74.47	80	68.38	59	72.84	37	71.15	96	72.18	104	68.87	72	72.73	176	70.40
4) Mostly women	1	1.43	0	0.00	1	0.85	0	0.00	0	0.00	0	0.00	1	0.66	0	0.00	1	0.40
5) Only women	0	0.00	2	4.26	2	1.71	0	0.00	3	5.77	3	2.26	0	0.00	5	5.05	5	2.00
99) I don't know	8		10		18		9		14		23		17		24		41	
E.1.3 …decides what to plant, when and where (food crops)?																		
1) Only men	5	6.94	2	4.00	7	5.74	5	6.17	4	7.69	9	6.77	10	6.54	6	5.88	16	6.27
2) Mostly men	8	11.11	5	10.00	13	10.66	4	4.94	4	7.69	8	6.02	12	7.84	9	8.82	21	8.24
3) Men and women equally	53	73.61	40	80.00	93	76.23	67	82.72	35	67.31	102	76.69	120	78.43	75	73.53	195	76.47
4) Mostly women	2	2.78	0	0.00	2	1.64	2	2.47	5	9.62	7	5.26	4	2.61	5	4.90	9	3.53
5) Only women	4	5.56	3	6.00	7	5.74	3	3.70	4	7.69	7	5.26	7	4.58	7	6.86	14	5.49
99) I don't know	6		7		13		9		14		23		15		21		36	
E.1.4 …decides what to plant, when and where (cash crops)?																		
1) Only men	6	8.33	2	4.00	8	6.56	4	4.94	3	5.77	7	5.26	10	6.54	5	4.90	15	5.88
2) Mostly men	12	16.67	8	16.00	20	16.39	6	7.41	5	9.62	11	8.27	18	11.76	13	12.75	31	12.16
3) Men and women equally	51	70.83	37	74.00	88	72.13	68	83.95	38	73.08	106	79.70	119	77.78	75	73.53	194	76.08
4) Mostly women	0	0.00	0	0.00	0	0.00	2	2.47	3	5.77	5	3.76	2	1.31	3	2.94	5	1.96
5) Only women	3	4.17	3	6.00	6	4.92	1	1.23	3	5.77	4	3.01	4	2.61	6	5.88	10	3.92
99) I don't know	6		7		13		9		14		23		15		21		36	
E.1.5 …decides on agricultural investments?																		
1) Only men	12	16.67	3	6.00	15	12.30	8	9.88	8	15.38	16	12.03	20	13.07	11	10.78	31	12.16
2) Mostly men	11	15.28	12	24.00	23	18.85	20	24.69	8	15.38	28	21.05	31	20.26	20	19.61	51	20.00
3) Men and women equally	48	66.67	34	68.00	82	67.21	53	65.43	32	61.54	85	63.91	101	66.01	66	64.71	167	65.49
4) Mostly women	1	1.39	0	0.00	1	0.82	0	0.00	3	5.77	3	2.26	1	0.65	3	2.94	4	1.57
5) Only women	0	0.00	1	2.00	1	0.82	0	0.00	1	1.92	1	0.75	0	0.00	2	1.96	2	0.78
99) I don't know	6		7		13		9		14		23		15		21		36	
E.1.6 …prepares food?																		
1) Only men	1	1.39	0	0.00	1	0.82	0	0.00	0	0.00	0	0.00	1	0.65	0	0.00	1	0.39
2) Mostly men	0	0.00	0	0.00	0	0.00	0	0.00	1	1.92	1	0.75	0	0.00	1	0.98	1	0.39
3) Men and women equally	17	23.61	10	20.00	27	22.13	12	14.81	7	13.46	19	14.29	29	18.95	17	16.67	46	18.04
4) Mostly women	35	48.61	22	44.00	57	46.72	42	51.85	26	50.00	68	51.13	77	50.33	48	47.06	125	49.02
5) Only women	19	26.39	18	36.00	37	30.33	27	33.33	18	34.62	45	33.83	46	30.07	36	35.29	82	32.16
99) I don't know	6		7		13		9		14		23		15		21		36	
E.1.7 …cares for children?																		
1) Only men	1	1.39	0	0.00	1	0.82	1	1.23	0	0.00	1	0.76	2	1.31	0	0.00	2	0.79

2) Mostly men	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
3) Men and women equally	36	50.00	20	40.00	56	45.90	35	43.21	14	27.45	49	37.12	71	46.41	34	33.66	105	41.34
4) Mostly women	21	29.17	14	28.00	35	28.69	22	27.16	20	39.22	42	31.82	43	28.10	34	33.66	77	30.31
5) Only women	14	19.44	16	32.00	30	24.59	23	28.40	17	33.33	40	30.30	37	24.18	33	32.67	70	27.56
99) I don't know	6		7		13		9		15		24		15		22		37	
E.2 Which of the following statements best applies to your household?																		
1) Over the past three years, **men have gained more influence** in household decisions.	38	58.46	26	65.00	64	60.95	43	59.72	20	44.44	63	53.85	81	59.12	46	54.12	127	57.21
2) Over the past three years, there has been **no change** in the way men and women make household decisions	24	36.92	12	30.00	36	34.29	27	37.50	21	46.67	48	41.03	51	37.23	33	38.82	84	37.84
3)Over the past three years, **women have gained more influence** in household decisions.	3	4.62	2	5.00	5	4.76	2	2.78	4	8.89	6	5.13	5	3.65	6	7.06	11	4.95
99) I don't know	13		17		30		18		21		39		31		38		69	
E.3 What is the main reason for this change? (DO NOT READ OPTIONS)																		
1) Factors related to the MAKA'AS project	7	17.95	8	30.77	15	23.08	17	37.78	6	25.00	23	33.33	24	28.57	14	28.00	38	28.36
2) Other factors	32	82.05	18	69.23	50	76.92	28	62.22	18	75.00	46	66.67	60	71.43	36	72.00	96	71.64
99) I don't know	39		31		70		45		42		87		84		73		157	
E.4.1...takes part in village meetings?																		
1) Only men	6	8.33	5	9.26	11	8.73	8	9.09	8	12.70	16	10.60	14	8.75	13	11.11	27	9.75
2) Mostly men	14	19.44	8	14.81	22	17.46	16	18.18	6	9.52	22	14.57	30	18.75	14	11.97	44	15.88
3) Men and women equally	52	72.22	39	72.22	91	72.22	59	67.05	43	68.25	102	67.55	111	69.38	82	70.09	193	69.68
4) Mostly women	0	0.00	0	0.00	0	0.00	4	4.55	4	6.35	8	5.30	4	2.50	4	3.42	8	2.89
5) Only women	0	0.00	2	3.70	2	1.59	1	1.14	2	3.17	3	1.99	1	0.62	4	3.42	5	1.81
99) I don't know	6		3		9		2		3		5		8		6		14	
E.4.2 ...speaks during village meetings?																		
1) Only men	8	10.96	5	9.09	13	10.16	6	6.82	5	7.94	11	7.28	14	8.70	10	8.47	24	8.60
2) Mostly men	20	27.40	12	21.82	32	25.00	18	20.45	12	19.05	30	19.87	38	23.60	24	20.34	62	22.22
3) Men and women equally	44	60.27	37	67.27	81	63.28	63	71.59	41	65.08	104	68.87	107	66.46	78	66.10	185	66.31
4) Mostly women	1	1.37	0	0.00	1	0.78	0	0.00	4	6.35	4	2.65	1	0.62	4	3.39	5	1.79
5) Only women	0	0.00	1	1.82	1	0.78	1	1.14	1	1.59	2	1.32	1	0.62	2	1.69	3	1.08
99) I don't know	5		2		7		2		3		5		7		5		12	
E.4.3...influences decisions about village affairs?																		
1) Only men	8	11.11	4	7.41	12	9.52	7	7.95	8	12.90	15	10.00	15	9.38	12	10.34	27	9.78
2) Mostly men	14	19.44	12	22.22	26	20.63	22	25.00	15	24.19	37	24.67	36	22.50	27	23.28	63	22.83
3) Men and women equally	49	68.06	37	68.52	86	68.25	57	64.77	39	62.90	96	64.00	106	66.25	76	65.52	182	65.94
4) Mostly women	1	1.39	0	0.00	1	0.79	1	1.14	0	0.00	1	0.67	2	1.25	0	0.00	2	0.72
5) Only women	0	0.00	1	1.85	1	0.79	1	1.14	0	0.00	1	0.67	1	0.62	1	0.86	2	0.72
99) I don't know	6		3		9		2		4		6		8		7		15	
E.4.4 ...makes decisions about village affairs?																		
1) Only men	8	10.96	3	5.56	11	8.66	6	6.82	11	17.46	17	11.26	14	8.70	14	11.97	28	10.07
2) Mostly men	14	19.18	12	22.22	26	20.47	24	27.27	12	19.05	36	23.84	38	23.60	24	20.51	62	22.30
3) Men and women equally	49	67.12	36	66.67	85	66.93	58	65.91	40	63.49	98	64.90	107	66.46	76	64.96	183	65.83
4) Mostly women	1	1.37	1	1.85	2	1.57	0	0.00	0	0.00	0	0.00	1	0.62	1	0.85	2	0.72
5) Only women	1	1.37	2	3.70	3	2.36	0	0.00	0	0.00	0	0.00	1	0.62	2	1.71	3	1.08
99) I don't know	5		3		8		2		3		5		7		6		13	
E.4.5 ...represents the village vis-à-vis the government?																		
1) Only men	8	11.11	9	16.98	17	13.60	7	7.95	10	16.39	17	11.41	15	9.38	19	16.67	34	12.41
2) Mostly men	35	48.61	24	45.28	59	47.20	31	35.23	16	26.23	47	31.54	66	41.25	40	35.09	106	38.69
3) Men and women equally	28	38.89	18	33.96	46	36.80	49	55.68	35	57.38	84	56.38	77	48.12	53	46.49	130	47.45
4) Mostly women	1	1.39	1	1.89	2	1.60	1	1.14	0	0.00	1	0.67	2	1.25	1	0.88	3	1.09
5) Only women	0	0.00	1	1.89	1	0.80	0	0.00	0	0.00	0	0.00	0	0.00	1	0.88	1	0.36
99) I don't know	6		4		10		2		5		7		8		9		17	
E.4.6...controls village funds?																		
1) Only men	6	8.33	3	5.66	9	7.20	6	6.90	4	6.56	10	6.76	12	7.55	7	6.14	19	6.96
2) Mostly men	4	5.56	4	7.55	8	6.40	9	10.34	3	4.92	12	8.11	13	8.18	7	6.14	20	7.33
3) Men and women equally	48	66.67	41	77.36	89	71.20	61	70.11	42	68.85	103	69.59	109	68.55	83	72.81	192	70.33
4) Mostly women	6	8.33	1	1.89	7	5.60	4	4.60	6	9.84	10	6.76	10	6.29	7	6.14	17	6.23
5) Only women	8	11.11	4	7.55	12	9.60	7	8.05	6	9.84	13	8.78	15	9.43	10	8.77	25	9.16
99) I don't know	6		4		10		3		5		8		9		9		18	
E.4.7 ...conducts volunteer work?																		
1) Only men	3	4.17	5	9.09	8	6.30	5	5.68	2	3.08	7	4.58	8	5.00	7	5.83	15	5.36
2) Mostly men	4	5.56	6	10.91	10	7.87	10	11.36	9	13.85	19	12.42	14	8.75	15	12.50	29	10.36
3) Men and women equally	63	87.50	43	78.18	106	83.46	72	81.82	53	81.54	125	81.70	135	84.38	96	80.00	231	82.50
4) Mostly women	2	2.78	0	0.00	2	1.57	1	1.14	0	0.00	1	0.65	3	1.88	0	0.00	3	1.07
5) Only women	0	0.00	1	1.82	1	0.79	0	0.00	1	1.54	1	0.65	0	0.00	2	1.67	2	0.71
99) I don't know	6		2		8		2		1		3		8		3		11	
E.4.8 ...is involved in village-based organisations?																		
1) Only men	4	5.56	6	11.11	10	7.94	6	6.90	4	7.27	10	7.04	10	6.29	10	9.17	20	7.46
2) Mostly men	18	25.00	9	16.67	27	21.43	16	18.39	8	14.55	24	16.90	34	21.38	17	15.60	51	19.03
3) Men and women equally	49	68.06	38	70.37	87	69.05	64	73.56	43	78.18	107	75.35	113	71.07	81	74.31	194	72.39
4) Mostly women	1	1.39	0	0.00	1	0.79	1	1.15	0	0.00	1	0.70	2	1.26	0	0.00	2	0.75
5) Only women	0	0.00	1	1.85	1	0.79	0	0.00	0	0.00	0	0.00	0	0.00	1	0.92	1	0.37
99) I don't know	6		3		9		3		11		14		9		14		23	
E.5 Which of the following statements best applies to your community?																		
1) Over the past three years, **men have gained more influence** in community decisions.	36	56.25	31	75.61	67	63.81	51	64.56	31	58.49	82	62.12	87	60.84	62	65.96	149	62.87
2) Over the past three years, there has been **no change** in the way men and women make community decisions	26	40.62	10	24.39	36	34.29	25	31.65	21	39.62	46	34.85	51	35.66	31	32.98	82	34.60
3)Over the past three years, **women have gained more influence** in community decisions.	2	3.12	0	0.00	2	1.90	3	3.80	1	1.89	4	3.03	5	3.50	1	1.06	6	2.53
99) I don't know	14		16		30		11		13		24		25		29		54	
E.6 What is the main reason for this change? (DO NOT READ OPTIONS)																		
1) Factors related to the MAKA'AS project	9	25.00	9	30.00	18	27.27	13	25.00	9	30.00	22	26.83	22	25.00	18	30.00	40	27.03
2) Other factors	27	75.00	21	70.00	48	72.73	39	75.00	21	70.00	60	73.17	66	75.00	42	70.00	108	72.97
99) I don't know	42		27		69		38		36		74		80		63		143	
PART F | COMMUNITY CAPACITY																		
F.1. How likely is it that you would support this activity?																		
1) Very likely	38	51.35	17	32.69	55	43.65	37	48.05	33	58.93	70	52.63	75	49.67	50	46.30	125	48.26
2) Likely	29	39.19	20	38.46	49	38.89	28	36.36	14	25.00	42	31.58	57	37.75	34	31.48	91	35.14
3) Unlikely	2	2.70	6	11.54	8	6.35	5	6.49	4	7.14	9	6.77	7	4.64	10	9.26	17	6.56
4) Very unlikely	5	6.76	9	17.31	14	11.11	7	9.09	5	8.93	12	9.02	12	7.95	14	12.96	26	10.04
99) I don't know	4		5		9		13		10		23		17		15		32	
F.2 To what extent do people in this village contribute towards making the village a better place to live?																		
1)To a great amount	31	43.06	15	31.25	46	38.33	36	42.35	24	41.38	60	41.96	67	42.68	39	36.79	106	40.30
2)To a considerable amount	18	25.00	21	43.75	39	32.50	25	29.41	22	37.93	47	32.87	43	27.39	43	40.57	86	32.70
3)To a small amount	20	27.78	10	20.83	30	25.00	22	25.88	8	13.79	30	20.98	42	26.75	18	16.98	60	22.81
4)Not at all	3	4.17	2	4.17	5	4.17	2	2.35	4	6.90	6	4.20	5	3.18	6	5.66	11	4.18
99) I don't know	6		9		15		5		8		13		11		17		28	
F.3 How often do villagers get together to jointly request government officials or political leaders with requests for action?																		
1) Once a month or more often	20	37.04	16	43.24	36	39.56	32	46.38	26	50.00	58	47.93	52	42.28	42	47.19	94	44.34
2) Several times a year	2	3.70	5	13.51	7	7.69	7	10.14	5	9.62	12	9.92	9	7.32	10	11.24	19	8.96
3) About once every year	11	20.37	6	16.22	17	18.68	14	20.29	11	21.15	25	20.66	25	20.33	17	19.10	42	19.81
4) Less than once a year or never	21	38.89	10	27.03	31	34.07	16	23.19	10	19.23	26	21.49	37	30.08	20	22.47	57	26.89
99) I don't know	24		20		44		21		14		35		45		34		79	
F.4 Overall, how effective do you feel that engagement of villagers has been in terms of getting the government to take the desired action?																		
1) High	13	18.84	4	8.16	17	14.41	12	14.46	13	22.41	25	17.73	25	16.45	17	15.89	42	16.22
2) Moderate	41	59.42	30	61.22	71	60.17	51	61.45	29	50.00	80	56.74	92	60.53	59	55.14	151	58.30
3) Low	15	21.74	15	30.61	30	25.42	20	24.10	16	27.59	36	25.53	35	23.03	31	28.97	66	25.48
99) I don't know	9		8		17		7		8		15		16		16		32	
F.5 Which of the following statements best applies to your community?																		
1) Villagers here are now working together **more** than three years ago.	42	68.85	30	68.18	72	68.57	61	80.26	36	72.00	97	76.98	103	75.18	66	70.21	169	73.16
2)Villagers here are now working together **less** than three years ago	8	13.11	10	22.73	18	17.14	11	14.47	6	12.00	17	13.49	19	13.87	16	17.02	35	15.15
3)Over the past three years, the extent to which villagers work together has **not changed**	11	18.03	4	9.09	15	14.29	4	5.26	8	16.00	12	9.52	15	10.95	12	12.77	27	11.69
99) I don't know	17		13		30		14		16		30		31		29		60	
F.6 What is the main reason for this change? (DO NOT READ OPTIONS)																		
1) Factors related to the MAKA'AS project	18	40.00	13	35.14	31	37.80	25	39.06	11	30.56	36	36.00	43	39.45	24	32.88	67	36.81
2) Other factors	27	60.00	24	64.86	51	62.20	39	60.94	25	69.44	64	64.00	66	60.55	49	67.12	115	63.19
99) I don't know	33		20		53		26		30		56		59		50		109	
PART G | PROJECT REVIEW																		
G.1 In your view, who benefitted from the project?																		
1) All households in the village	9	12.50	3	5.88	12	9.76	10	12.50	9	15.79	19	13.87	19	12.50	12	11.11	31	11.92
2) Most households in the village	4	5.56	1	1.96	5	4.07	7	8.75	4	7.02	11	8.03	11	7.24	5	4.63	16	6.15

3) A few households in the village	59	81.94	45	88.24	104	84.55	63	78.75	44	77.19	107	78.10	122	80.26	89	82.41	211	81.15
4) Nobody in the village	0	0.00	2	3.92	2	1.63	0	0.00	0	0.00	0	0.00	0	0.00	2	1.85	2	0.77
99) I don't know	6		6		12		10		9		19		16		15		31	
G.1a Do you know the criteria on which beneficiaries were selected?																		
1) Yes	23	36.51	17	36.96	40	36.70	20	28.57	13	27.08	33	27.97	43	32.33	30	31.91	73	32.16
2) No	40	63.49	29	63.04	69	63.30	50	71.43	35	72.92	85	72.03	90	67.67	64	68.09	154	67.84
G.1bDo you think that these criteria were fair?																		
1) Yes	14	60.87	10	58.82	24	60.00	12	60.00	7	58.33	19	59.38	26	60.47	17	58.62	43	59.72
2) No	9	39.13	7	41.18	16	40.00	8	40.00	5	41.67	13	40.62	17	39.53	12	41.38	29	40.28
99) I don't know	55		40		95		70		54		124		125		94		219	
G.2 Over past three years, have you learned anything new from the MAKA'AS project?																		
1) Yes	21	31.82	15	29.41	36	30.77	25	33.33	19	31.67	44	32.59	46	32.62	34	30.63	80	31.75
2) No	45	68.18	36	70.59	81	69.23	50	66.67	41	68.33	91	67.41	95	67.38	77	69.37	172	68.25
99) I don't know	12		6		18		15		6		21		27		12		39	
G.3 To what extent do you currently apply what you have learned?																		
1) I apply everything I have learned	18	90.00	12	80.00	30	85.71	17	68.00	16	84.21	33	75.00	35	77.78	28	82.35	63	79.75
2) I apply most of what I have learned	2	10.00	3	20.00	5	14.29	6	24.00	0	0.00	6	13.64	8	17.78	3	8.82	11	13.92
3) I do not yet apply what I have learned, but plan to do so in the future	0	0.00	0	0.00	0	0.00	2	8.00	2	10.53	4	9.09	2	4.44	2	5.88	4	5.06
4) I do not apply anything I have learned	0	0.00	0	0.00	0	0.00	0	0.00	1	5.26	1	2.27	0	0.00	1	2.94	1	1.27
99) I don't know	58		42		100		65		47		112		123		89		212	
Q132. G.4 What are the reasons why you did not apply some of the things you have learned? (DO NOT READ OPTIONS)																		
1) I do not have the resources to implement the changes																		
Not Selected	35	44.87	26	45.61	61	45.19	39	43.33	39	59.09	78	50.00	74	44.05	65	52.85	139	47.77
Selected	43	55.13	31	54.39	74	54.81	51	56.67	27	40.91	78	50.00	94	55.95	58	47.15	152	52.23
2) I do not feel confident in applying new techniques																		
Not Selected	74	94.87	51	89.47	125	92.59	80	88.89	58	87.88	138	88.46	154	91.67	109	88.62	263	90.38
Selected	4	5.13	6	10.53	10	7.41	10	11.11	8	12.12	18	11.54	14	8.33	14	11.38	28	9.62
3) I do not want to put my livelihood at risk																		
Not Selected	71	91.03	52	91.23	123	91.11	84	93.33	61	92.42	145	92.95	155	92.26	113	91.87	268	92.10
Selected	7	8.97	5	8.77	12	8.89	6	6.67	5	7.58	11	7.05	13	7.74	10	8.13	23	7.90
4) I do not know who to contact if I have problems with the new technique																		
Not Selected	74	94.87	52	91.23	126	93.33	88	97.78	60	90.91	148	94.87	162	96.43	112	91.06	274	94.16
Selected	4	5.13	5	8.77	9	6.67	2	2.22	6	9.09	8	5.13	6	3.57	11	8.94	17	5.84
5) I see no advantage in the new technique(s)																		
Not Selected	78	100.00	57	100.00	135	100.00	88	97.78	62	93.94	150	96.15	166	98.81	119	96.75	285	97.94
Selected	0	0.00	0	0.00	0	0.00	2	2.22	4	6.06	6	3.85	2	1.19	4	3.25	6	2.06
G.5Do you think that the new techniques/strategies that you have learned are worth applying into the future?																		
1) Yes, all of them	28	49.12	16	44.44	44	47.31	31	50.00	27	51.92	58	50.88	59	49.58	43	48.86	102	49.28
2) Yes, some of them	16	28.07	13	36.11	29	31.18	21	33.87	17	32.69	38	33.33	37	31.09	30	34.09	67	32.37
3) No	13	22.81	7	19.44	20	21.51	10	16.13	8	15.38	18	15.79	23	19.33	15	17.05	38	18.36
99) I don't know	21		21		42		28		14		42		49		35		84	
G.6 Thinking of the most technique/strategy that is most important to you, do you think you will be able to apply it into the future?																		
1) Yes, on my own	34	60.71	25	58.14	59	59.60	43	63.24	32	59.26	75	61.48	77	62.10	57	58.76	134	60.63
2) Yes, with support from others	10	17.86	10	23.26	20	20.20	19	27.94	14	25.93	33	27.05	29	23.39	24	24.74	53	23.98
3) No	12	21.43	8	18.60	20	20.20	6	8.82	8	14.81	14	11.48	18	14.52	16	16.49	34	15.38
99) I don't know	22		14		36		22		12		34		44		26		70	

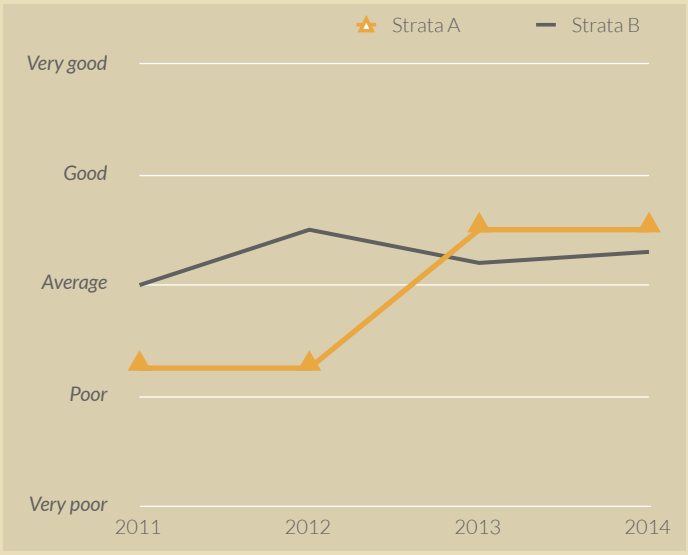
B. Trend analysis summary

Appendix B: Change of perceived living conditions in the project villages (Strata A/ Strata B)

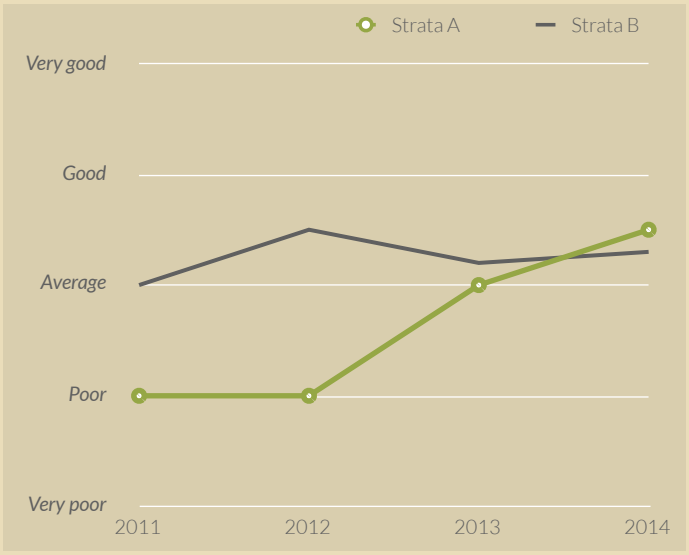
Area	Strata A (high activity concentration)						Strata B (low activity concentration)						Project impact?
	Year				Change	Principal factor for change	Year				Change	Principal factor for change	
	2011	2012	2013	2014			2011	2012	2013	2014			
Livelihood & Food security													
Livelihood	2.25	2.25	3.5	3.5	+1.25	Level of food production	3	3.5	3.2	3.3	+0.3	Level of food production	+
Food security	2	2	3	3.5	+1.5	Weather conditions	3	3.5	3.2	3.3	+0.3	Weather conditions	(+)
Agriculture													
Crop production	2	2	3	3.5	+1.5	Timely start of rainy season	3	3	3	3	0	/	(+)
Vegetable production	2	3	4	4	+2.0	Water and soil conditions	2.5	3	3	3.5	+1	Weather conditions	+
WASH													
Sanitation	2	2.25	3	3.25	+1.25	Toilets & hygiene trainings, weather conditions	2.5	2.8	3	2.5	0	Toilets and hygiene trainings, weather conditions	+
Drinking water	2.5	2.5	2.8	2.8	+0.3	Water supply system, weather conditions	2.5	2.5	2.8	2.8	+0.3	Water supply system, weather conditions	+
Disaster risk preparedness													
Disaster risk preparedness	2.5	2.5	3.5	3.5	+1.0	Traiinings and reforestation	3	3	3	3.5		Trainings and reforestation	+
Community capacity													
Community cohesion	3.0	3.5	3.5	3.5	+0.5	Mutual support	2.0	2.0	3.0	3.0	+1.0	Finding consensus	
Participation	3.5	3.5	3.5	3.5	0	/	3.5	3.0	3.5	3.5	0	/	
Connection to local government	3.0	3.0	3.0	3.0		/	4.0	3.5	4.0	4.0		/	

Source: Results from five workshops, during which participants were asked to rate their living conditions across five thematic areas for each year between 2011 and 2014. The table shows the average results from those villages with high project activity concentration (Strata A) and from those where activity concentration was low (Strata B). Results show where the project was among the principal factors for bringing positive change (marked as +) and where it contributed to a positive change as a secondary factor (marked as (+)).

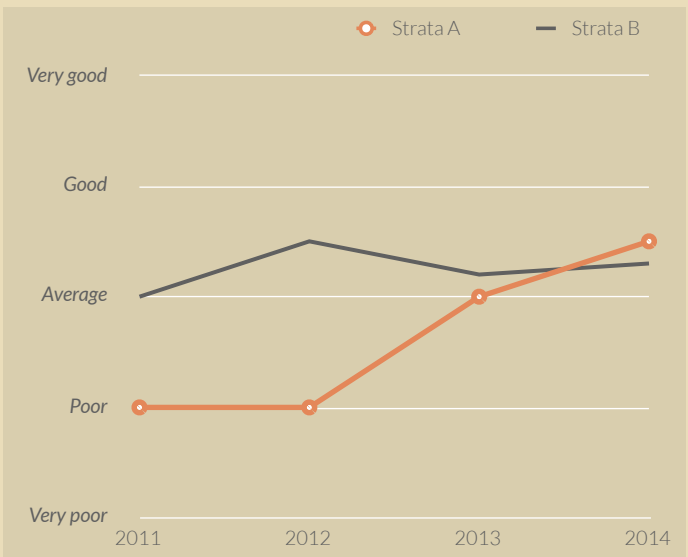
Livelihood



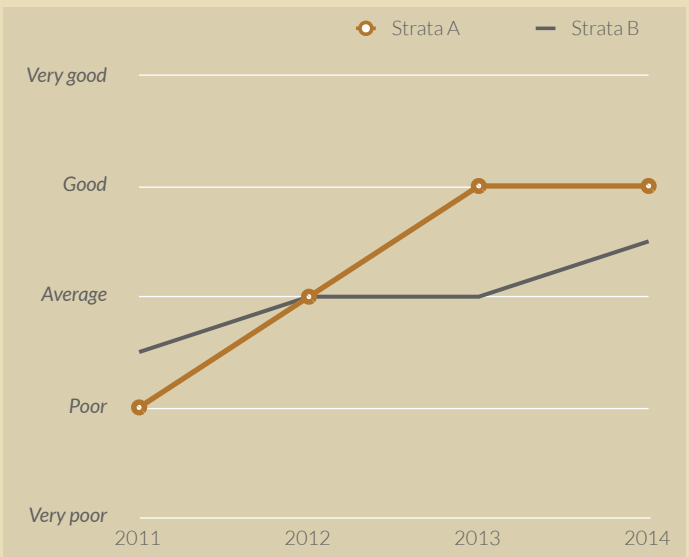
Food security



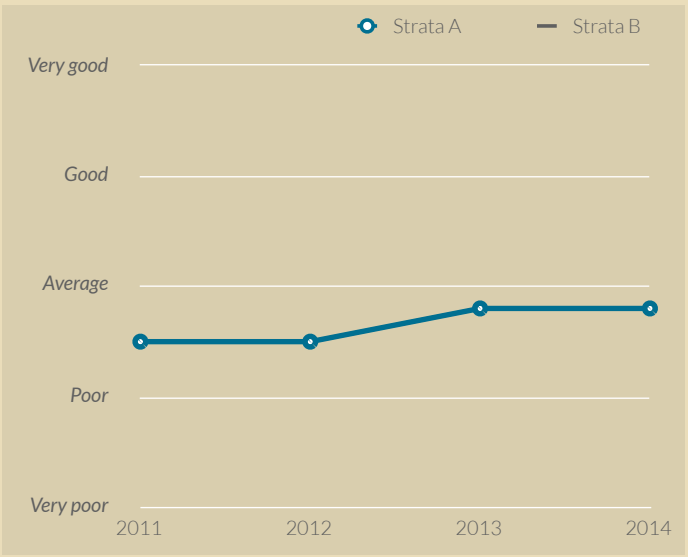
Crop production



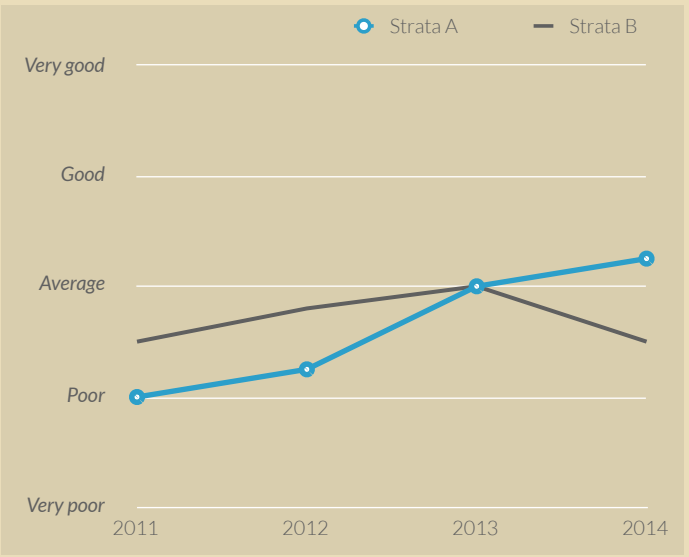
Vegetable production



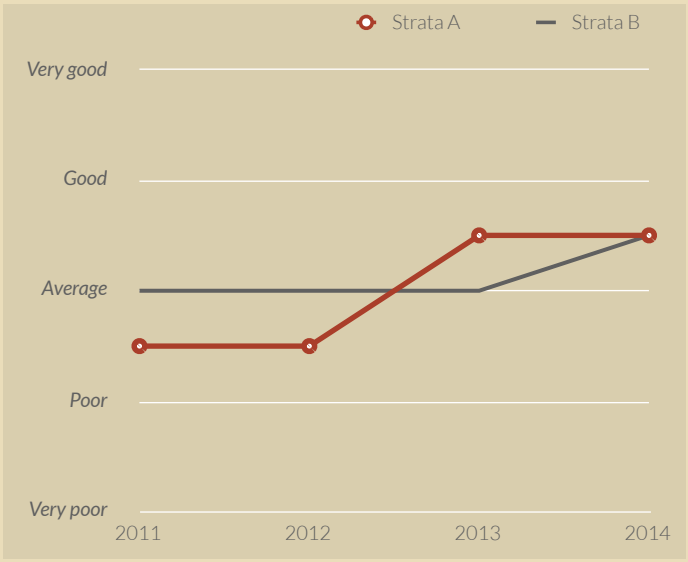
Drinking water



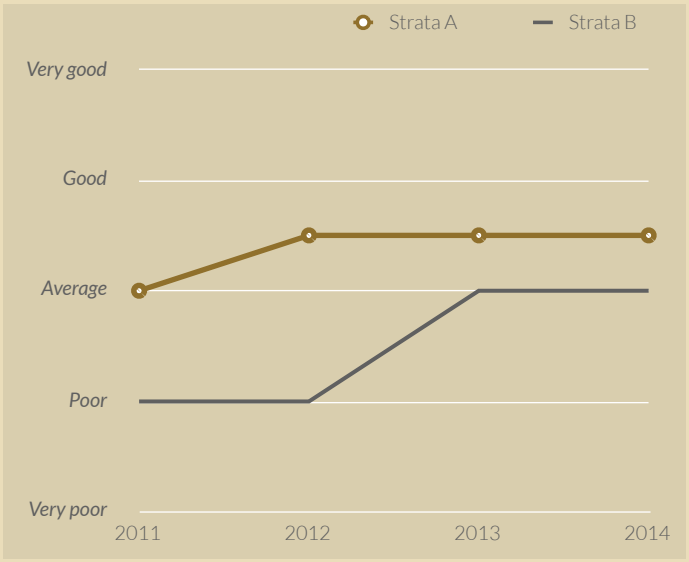
Sanitation



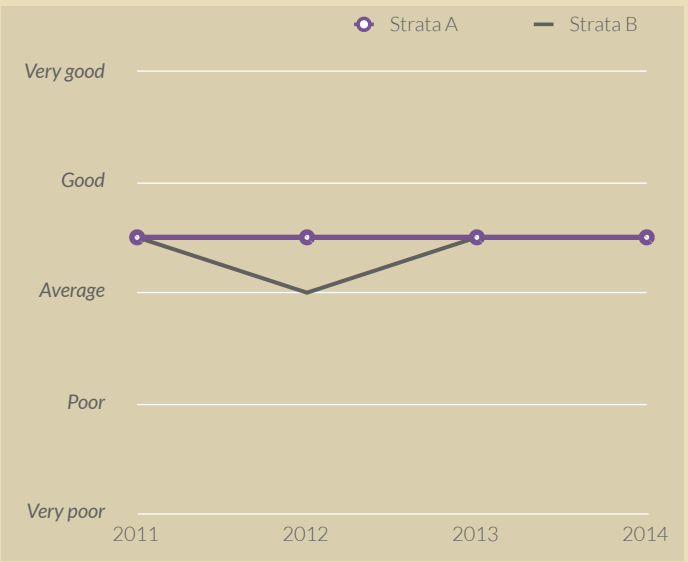
Disaster preparedness



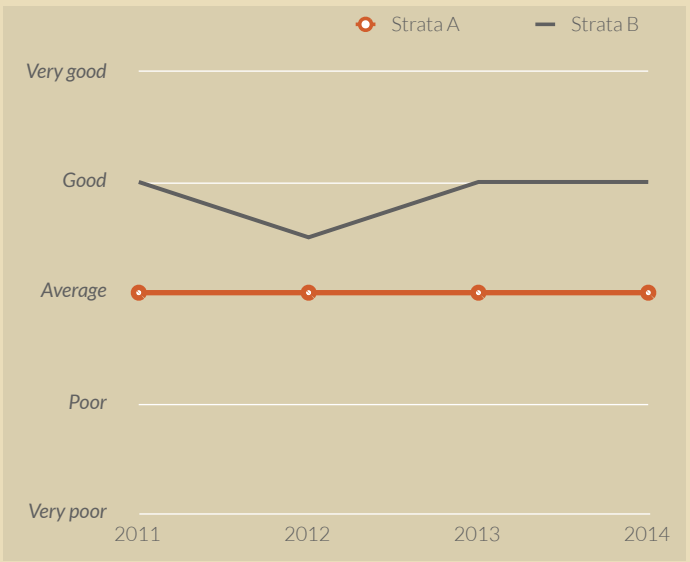
Community cohesion



Public participation

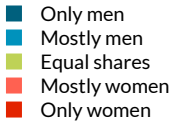


Links to local government



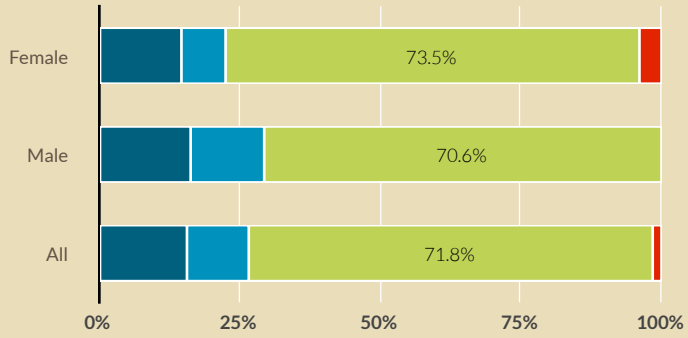
C. Gender analysis

Household roles

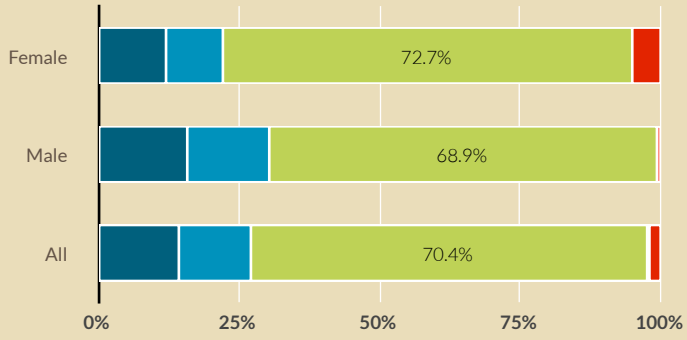


The charts on these two pages illustrate gender-related survey results. Questions E.1.1-E.1.5 show the balance of decision-making power in the household, while the last two question serve as a tool for comparison and control. Questions E.4.1 - E.4.6 (overleaf) illustrate decision-making at the community level, while the last two questions serve as a comparison tool. All charts illustrate the gender balance as it is currently being perceived. For a discussion of change - and the impact the project has had, see chapter 6.3 on page 22.

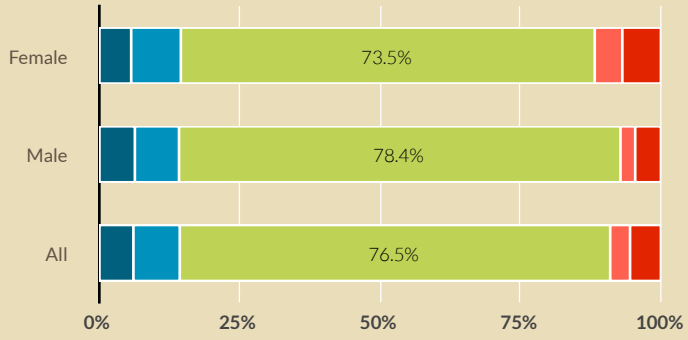
E.1.1 ...decides what to do with family income?



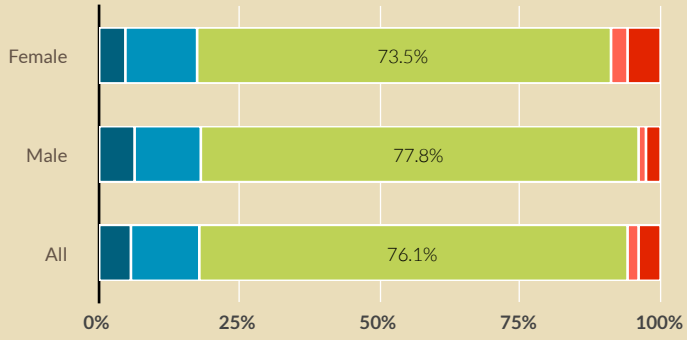
E.1.2 ...attends meetings or activities in the village?



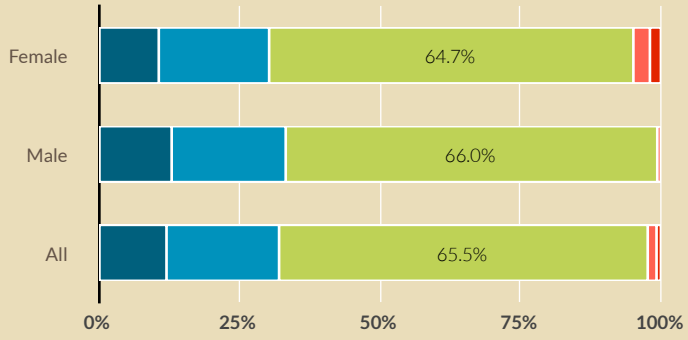
E.1.3 ...decides what to plant, when and where (food crops)?



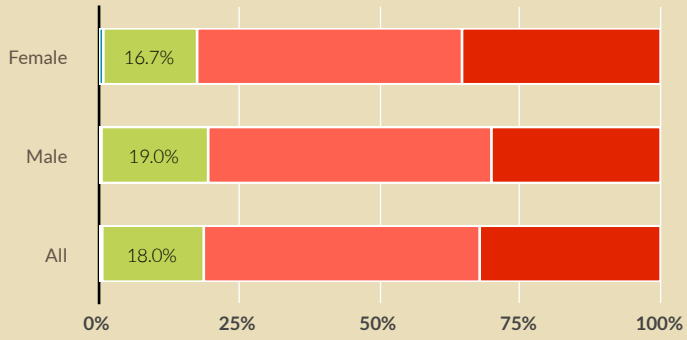
E.1.4 ...decides what to plant, when and where (cash crops)?



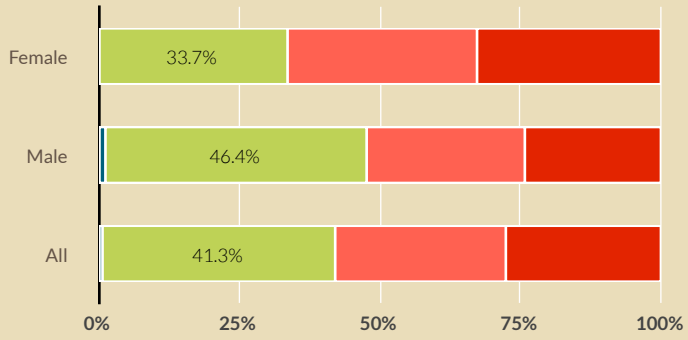
E.1.5 ...decides on agricultural investments?



E.1.6 ....prepares food?

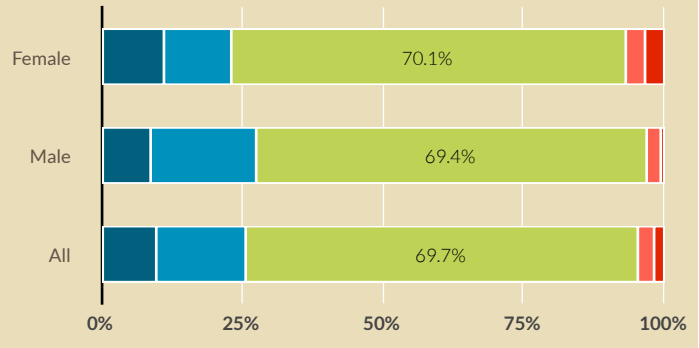


E.1.7 ...cares for children?

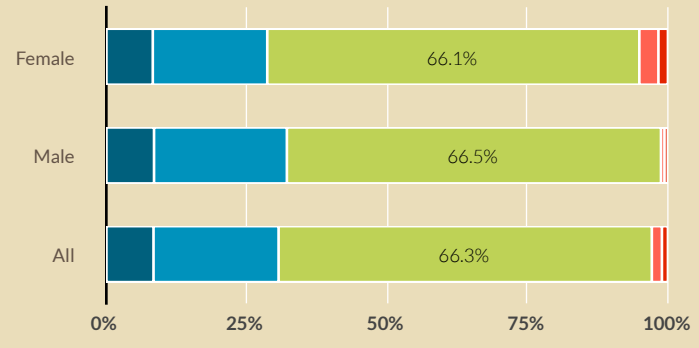


Community roles

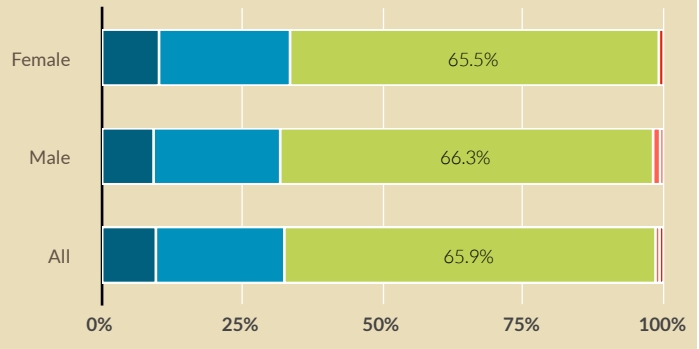
E.4.1 ...takes part in village meetings?



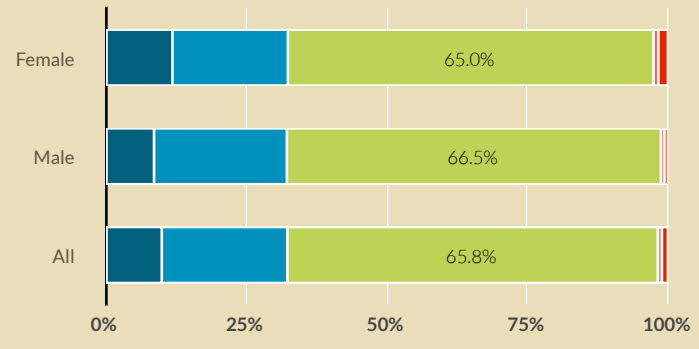
E.4.2 ...speaks during village meetings?



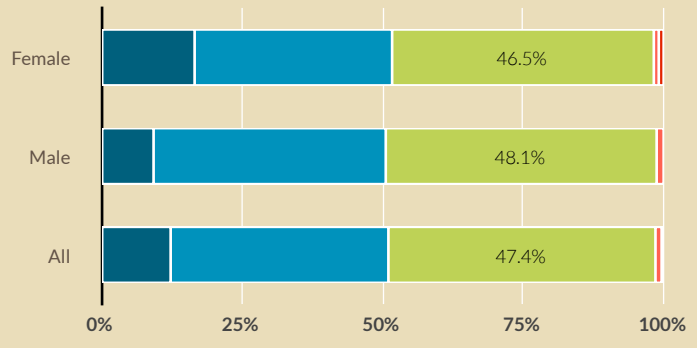
E.4.3 ...influences decisions about village affairs?



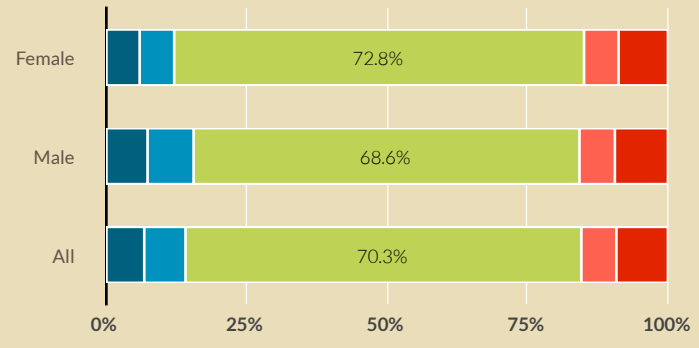
E.4.4 ...makes decisions about village affairs?



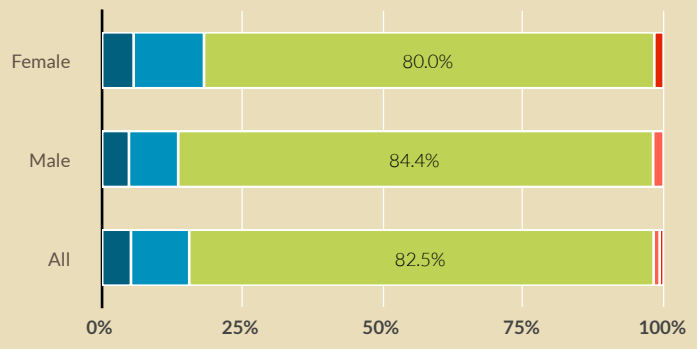
E.4.5 ...represents the village vis-a-vis the government?



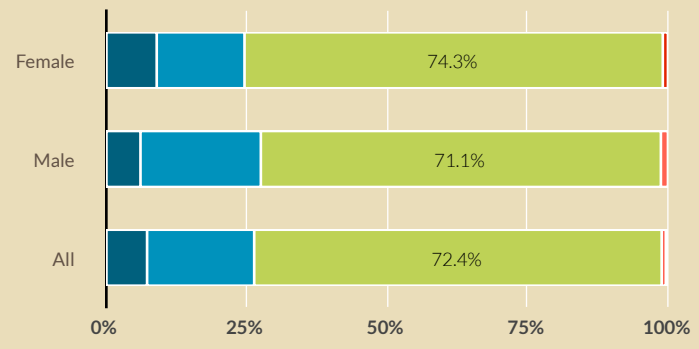
E.4.6 ...controls village funds?



E.4.7 ...conducts volunteer work?



E.4.8 ...is involved in village-based organisations?



KUESIONARIO SURVEY UMA KAIN	**NUMBER** (NOT TO BE FILLED OUT BY ENUMERATOR) : _____
FINAL EVALUATION OF THE MAKA'AS PROJECT/AVALIASAUN FINAL HOSI PROJETO MAKA`AS	**Note:** *Questions marked by italics/underlined*allow for multiple answers/perguntas nebe marka ho italic/ga lina okos permite resposta barak

PARTE O | IDENTIFIKASAUN……

0.1 Ita bot nia kode enumerador saida?
What is your enumerator code?

A ☐	D ☐	G ☐
B ☐	E ☐	H ☐
C ☐	F ☐	J ☐

A.1	*Iha aldeia nebe halao intervista nee?*	*In which aldeia is this interview being conducted?*	
1)		Laklolema	☐
2)		Tau Talo	☐
3)		Metiluli	☐
4)		Lebuana	☐
5)		Kamalehohoru	☐
6)		Kai to letehou	☐
7)		Kaileulema	☐
8)		Nartutu	☐
9)		Test run A	☐
10)		Test run B	☐

PARTE A | BASIC INFORMATION (Informasaun Basiku)……

Lee statementu ba Resposta nain nebe potensial. *Hallo, hau nia naran=--------, hau servisu ho Projeto MAKA`AS atu aprende barak liu kona ba kondisaun moris iha ita bot nia komunidade. Parte nee revijaun nee hosi Projeto MAKA`AS nebe implementa iha nee. Hau hakarak husu ita bot perguntas kona ba ita bot nia familia, ita bot nia vid amoris, preparasaun be desastre, no assuntu suco. Survey nee sei halao durante minutu 30 to40 atu kompleta no anonimus-signigika katak ita bot nia naran no diresaun sei record. Karik ita bot participa, ita bot bele deside atu la resposta perguntas ou atu hapara intervista iha kualker tempo.* ***Ita bot konkorda atu halo intervista ____Sim _____Lae***	***STATEMENT TO BE READ TO POTENTIAL RESPONDENTS.*** *Hello, my name is _____ . I am working with the MAKA'AS project to learn more about the conditions in your community. This is part of a review of the MAKA'AS project that was implemented here. I would like to ask you questions about your family, your livelihoods, disaster preparedness, and village affairs. The survey will take 30 to 40 minutes to complete and is anonymous - which means that your name and address will not be recorded. If you participate, you can decide not to answer a question or to stop the interview at any time.* ***Do you agree to be interviewed?*** *_____ Yes _____ No (→TERMINATE INTERVIEW)*

A.1	**Respondente nia generu?**	*What is the gender of the respondent?*	
1)		Feto	☐
2)		mane	☐

A.2	**Ema hira hela iha ita bot nia uma kain?**	*How many people live in your household?*	
1)	Hakerek numero	Write number	___

A.3	**Se mak chefi de familia iha uma kain nia laran?**	*What is the gender of the head of the household?*	
1)	Feto	Female	☐
2)	Mane	Male	☐

PART B | INVOLVEMENT IN THE PROJECT (Involvementu iha Projeto……

B.1	**Ita bot rona ona kona ba projeto MAKA`AS (Mudansa Klimatika iha ambiente seguru)**	*Have you ever heard of the MAKA'AS (mudansaKlimatikaihaAmbienteSeguru) project?*	
1)	Sim	Yes	☐
2)	Lae	No	☐

B.2	**Ita bot ou membro hosi ita bot nia uma kain, membro hosi grupo toos nain nebe supporta hosi CARE?**	*Are you, or is any member of your household, a member of a farmers' group supported by CARE?*	
1)	Sim	Yes	☐
2)	lae	No	☐
99)	Hau lahatene	I don't know	☐

B.3	**Ita bot, ou membro hosi ita bot nia uma kain, membro hosi GMF iha aldeia (Grupo Maneija facilidade)**	*Are you, or is any member of your household, a member of your aldeia's GMF (GrupuManejaFasilidade)?*	
1)	Sim	Yes	☐
2)	Lae	No	☐
99)	Hau Lahatene	I don't know	☐

B.4	**Iha tinan tolu liu ba, ita bot simu ona treinamentu hosi Projeto MAKA`AS**	*Over the past three years, have you received any training from the MAKA'AS project?*	
1)	Sim	Yes	☐
2)	Lae	No	☐
99)	Hau la hatene	I don't know	☐

B.5	**Iha tinan tolu liu ba, ita bot simu ona material supporta hosi Projeto MAKA`AS?**	*Over the past three years, have you received any material support from the MAKA'AS project?*	
1)	Sim	Yes	☐
2)	Lae	No	☐
99)	Hau lahatene	I don't know	☐

B.6	**Konsidera iha inisiu hosi projeto MAKA`AS, statementu tuir mai ida nebe mak esplika ita bot nia involvementu**	*Considering the beginning of the MAKA'AS project, which of the following statements best describes your involvement?*	
1)	Hau sidauk involve iha assesmentu ou enkontro planiamentu	I have not been involved in any assessments or planning meetings	☐
2)	Hau participa iha enkontro maibe la kontribui	I participated in meetings but did not contribute	☐
3)	Hau participa iha enkontro no kontribui iha planiamentu	I participated in meetings and contributed to planning	☐
99)	Hau lahatene	I don't know	☐

B.7	**Pelmenus, durante ita tolu nia laran oinsa ita bot hetan malu ho staff projeto MAKA`AS nian?**	*On average, how often in the past year have you met MAKA'AS project staff?*	
1)	Fulan ida dala ida ou mneus	Once a month or less often	☐
2)	Dala rua iha fulan ida	About twice a month	☐
3)	Fulan ida dala tolu ou liu hosi nee	Three times a month or more often	☐
4)	Nunka	Not at all	☐
99)	Hau lahatene	I don't know	☐

PART C | CLIMATE-RESILIENT LIVELIHOODS (IKLIMA VIDA MORIS RESILIENS……..

Livelihood diversification (SO1-2) Diversifikasaun vida moris

C.1/2 Block	**Hau hakarak husu ita bot kona ba ita bot nia stratejia vida moris. Hau lista stratejia varidade no depois husu ita bot applika stratejia iha tinan 2014, no iha tinan 2011**	*I would like to ask you about your livelihood strategies. I will list various strategies and then ask whether you applied the strategy in 2014, and in 2011.*	**C.1 Did your household practice this work in 2014? (Ita bot nia uma kain pratika servisu nee iha tinan 2014?**	**C.2 Did your household practice this work in 2011? Ita bot nia uma kain pratika servisu nee iha 2011?**
On-farm work (servisu iha toos)				
1)	Produsaun ai han ba konsumu uma kain	Crop production for household consumption	☐	☐
2)	Produsaun ai han ba faan/hasae rendementu	Crop production for sales/income-generation	☐	☐
3)	Produsaun animal no produto animal	Production of animals and animal products	☐	☐
4)	Servisu agrikultura	Agricultural labour	☐	☐
5)	Seluk servisu iha toos	Other on-farm work	☐	☐
Off-farm work (la servisu iha toos)				
6)	Iha abilidade servisu(karpintaria, servisu badae)	Skilled labour (carpentry, metal work etc)	☐	☐
7)	Aktividade negosio kiik (faan iha strada ninin, hein loja)	Small business activities (street vending, shop keeping)	☐	☐
8)	Servisu formal (governo, NGO, Seitor privada)	Formal employee (government, NGO, private sector)	☐	☐
9)	Produsaun handicraft	Handicraft production	☐	☐
10)	Osan mai hosi ema seluk (rai liur, domestiku)	Remittances (foreign, domestic)	☐	☐
11)	Faan ai/karakol	Wood/charcoal sales	☐	☐
12)	Produtu floresta laos ai	Non-timber forest products	☐	☐
13)	Peska/kasa	Fishing/hunting	☐	☐
14)	Servisu seluk nebe laos toos nian	Other off-farm work	☐	☐

C.3	**Iha 2014, servisu iha toos no laos iha toos nee hirak mak kontribui ba ita bot nia vida moris (hahan no rendementu)**	*In 2014, how much did on-farm and off-farm work contribute to your livelihood (food and income)?*
1)	Uja funsaun slider iha survey, nebe mak iha parte karuk indika 100% iha toos no iha parte los 100% la servisu iha toos	Use slider function in iSurvey, where the left side indicates 100% on-farm and the right 100% off-farmwork.

C.3a	**Fila ba 2011, kahur nee differente**	*Back in 2011, was this mix different?*		FLOW/lalaok
1)	SIm	Yes/	☐	→ *C.3b*
2)	lae	No/	☐	→ *C.4*
99)	/hau lahatene	I don't know	☐	→ *C.4*

C.3b	**Oinsa servisu iha toos no laos iha toos kontribui ba ita bot nia vida moris (han no rendementu)**	*In 2011, how much did on-farm and off-farm work contribute to your livelihood (food and income)?*
1)	uja funsaun slider iha Isurvey, nebeparte los indika 100% hosi toos no 100% laos hosi toos	Use slider function in iSurvey, where the left side indicates 100% on-farm and the right 100% off-farm work (

C.3c	**Projeto MAKA`AS iha funsaun halo mudansa nee**	*Has the MAKA'AS project played any role behind this change?*		FLOW. Lalaok
1)	Lae, laiha funasaun	No, it did not play a role.	☐	→ *C.4*
2)	Sim, iha funsaun posetivu entre sira seluk	Yes, it played a positive role amongst others.	☐	
3)	Sim iha funsaun importante	Yes, it played the main role.	☐	
99)	Hau lahatene	I don't know.	☐	

Climate information (SO1-3) Informasaun klimatika

C.4	**Ita bot nia uma kain iha assesu ba informasaun klimatika (sessaun/mensal/seminal)?**	***BL: C2****Does your household have access to climate information (seasonal/monthly/weekly forecasts)?*		FLOW/Lalaok
1)	sim	Yes/	☐	→ *C.4a*
2)	lae	No/	☐	→ *C.5*
99)	Hau la hatene	I don't know/	☐	→ *C.5*

C.4a	*Ita bot nia uma kain uja informasaun klimatika ne*	*BL: C3Does your household use this climate information?*		FLOW/lalaok
1)	Sim	Yes/	☐	→ *C.5*
2)	Lae	No/	☐	
99)	hau lahatene	I don't know/	☐	

Climate-resilient practices (SO1-1)-Pratika klimatika resliens

C.5	**Iha tinan sanulu liu ba, ita bot esperiencia ona mudansa ruma iha iklima, hanesan udan tau iha tempo differente, mudansa iha temperature, bai loron etc)**	***BL: C4** Over the past ten years, have you experienced any changes in the climate, such as different times of rain, changes in temperature, drought etc)*	
1)	Sim	Yes/	☐
2)	/lae	No	☐
99)	hau lahatene	I don't know/	☐

C.6/7 Block	**Hau hakarak husu ita bot nia stratejia adaptasaun. Hau sei lista stratejia varidade. Hau sei husu ita bot applika stratejia iha tinan 2014, no ita bot introdus iha tinan tolu liu ba.**	***BL: C5**I would like to ask you about your adaptationstrategies. I will list various strategies. Iwilland then ask whether you applied the strategy in 2014, and whether you introduced it over the past three years.*	**C.6 Did your household apply this strategy in 2014? Ita bot nia uma kain applika atratejia iha tinan 2014**	**C.2 Did you introduce this strategy over the past three years? Ita bot introdus stratejia iha tinan tolu liu ba**
Climate adaptation				
1)	diverfikasaun ai han	Crop diversification/	☐	☐
2)	daptasaun klimatika-resliens ai han	Adoption of climate-resilient crops/a	☐	☐
3)	ajustamentu tempo kuda	Adjustment of planting times/	☐	☐
4)	diversifikasaun rendementu	Income diversification/	☐	☐
5)	/rai ai han	Seed saving and storage	☐	☐
6)	servisu kasual	Casual labour/	☐	☐
7)	halo toos besik uma	Home gardening/	☐	☐
8)	irigasaun	Irrigation/	☐	☐
9)	pratika agrikultura foun	New agricultural practices/	☐	☐
10)	kuda fali a	Tree replanting/ i	☐	☐
11)	impounding/koileta udan been	Rainwater harvesting/	☐	☐
12)	faan animal	Selling of livestock/	☐	☐
13)	rai bee hodi rega	Storing water for plants/	☐	☐
14)	rai bee ba animal	Storing water for livestock/	☐	☐
15)	rai han animal	Storing fodder for livestock/	☐	☐
16)	/hasai labarik hosi eskola	Removing children from school	☐	☐
17)	/han hahan fuik	Eating wild food	☐	☐
18)	faan rai	Selling land/	☐	☐
19)	fahe ai han	Rationing food/	☐	☐

C.8/9 Block	**Hau hakarak husu ita bot kona ba ita bot nia stratejia vida moris. Hau sei lista varidade stratejia no husu karik ita bot applika stratejia iha tinan 2014, no iha tinan 2011**	*I would like to ask you about your livelihood strategies. I will list various strategies and then ask whether you applied the strategy in 2014, and in 2011.*	**C.8 Did your household apply this strategy in 2014? Ita bot nia uma kain applika stratejia iha tinan 2014**	**C.9 Did your household apply this strategy in 2011? Ita bot nia uma kain applika stratejia iha tinan 2011**
Conservation farming				
1)	Kultivasaun minimu	Minimum tillage	☐	☐
2)	Zero kultivasaun	Zero tillage	☐	☐
3)	Ai han rotasaun	Crop rotation	☐	☐
4)	Agro floresta	Agro-forestry	☐	☐
5)	Toos kontur	Contour farming	☐	☐
6)	mulsa	Mulching	☐	☐
7)	Jestaun peste nebe integrado	Integrated pest management	☐	☐
8)	Kobre ai han	Covering of crops	☐	☐

C.10/ 11Block	**Hau hakarak husu ba ita bot kona ba ita bot nia batar no aifarina. Hau sei lista varidade stratejia no husu ita bot karik applika stratejia iha tinan 2014, no iha tinan 2011**	*I would like to ask you about your maize and cassava. I will list various strategies and then ask whether you applied the strategy in 2014, and in 2011.*	**C.10 Did your household plant this crop in 2014? Ita bot nia uma kain kuda ai han nee iha tinan 2014**	**C.11 Did your household plant this crop in 2011? Ita bot nia umakain kuda ai han nee iha tinan 2011**
Climate-resilient crops/ klimatika-ai han resliens				
1)	Batar, varidade diak	Maize, improved variety	☐	☐
2)	Batar, varidade standar	Maize, standard variety	☐	☐
3)	aifarina	Cassava	☐	☐

C.12/ 13 Block	**Ai han differente hira no modo ita bot nia uma kain kuda**	*How many different crops and vegetables did your household plant…*	**C.12 … in 2014? Iha tinan 2014**	**C.2 …in 2011? Iha tinan 2011**
Crop diversification/diversifikasaun ai han				
1)	Numero ai han/modo nebe differente	Number of different crops/vegetables	___	___

C.14	**Ita bot nia uma kain ou grupo toos nain simu bidon ruma hosi Projeto MAKA`AS**	*Has your household or farmer group received any airtight drums by the MAKA'AS project?*		FLOW
1)	sim	Yes	☐	→ *C.14a*
2)	lae	No	☐	→ *C.15*
99)	Hau lahatene	I don't know	☐	→ *C.15*

C.14 a	**Desde ita bot simu bidon, ita bot nivel post koileta batar iha mudansa kona ba lakon**	*Since you received these drums, has your level of post-harvest maize losses changed?*		FLOW
1)	Sim, post koileta lakon aumenta	Yes, post-harvest losses have increased	☐	→ C.15
2)	Lae, la iha mudansa	No, there has been no change	☐	
3)	Sim, post koileta lakon menus	Yes, post-harvest losses have decreased	☐	
99)	Hau lahatene	I don't know	☐	

C.15	**Oinsa ita bot esplika ita bot nia uma kain nia abilidade atu direiji ba risku klimatika hanesan irregular no buat nebe labele prediksi ou udan monu rai nebe makas**	*How would you describe your household's ability to address climate risks such as irregular and unpredictable or extreme rainfall?*		FLOW
1)	ass	High	☐	→ C.16
2)	moderado	Moderate	☐	
3)	menus	Low	☐	
99)	Hau lahatene	I don't know	☐	

C.16	**Statementu nebe mak esplika diak liu ita bot nia uma kain**	*Which of the following statements best describes your household?*		FLOW
1)	Ami agora diak liu-adapta no prepara ba risku klimatika duke tinan hat liu ba	We are now better-adapted and more prepared for climate risks than four years ago.	☐	→ C.16a
2)	Iha tinan hat liu ba, la iha mudansa iha ami nia abilidade atu infrenta risku klimatika	Over the past four years, there has been no change in our ability to face climate risks.	☐	→ C.17
3)	Ami agora ladun prepara ba risku klimatika duke tinan hat liu ba	We are now less prepared for climate risks than we were four years ago.	☐	→ C.17
99)	Hau lahatene	I don't know	☐	→ C.17

C.16 a	**Tuir ita bot nia vijaun, too iha nebe Projeto MAKA`AS nia funsaun hodi hadia nee**	*In your view, to what extent has the MAKA'AS project played a role behind this improvement?*		FLOW /lalaok
1)	Iha funsaun posetivu importante	Main positive role	☐	→ C.17
2)	Iha posetivu importane entre sira seluk	Positive role amongst others	☐	
3)	La iha funsaun	No role	☐	
99)	Hau lahatene	I don't know	☐	

C.17	**Em jeral, ita bot nia sitasaun in termus hosi seguransa ai han no rendementu muda ona iha tinan tolu liu ba**	*Overall, has your situation in terms of food and income security changed over the past three years?*		FLOW
1)	Sim, ami agora diak liu duke tinan tolu liu ba	Yes, we are now better off than three years ago	☐	→ C.17a
2)	Lae, sidauk iha mudansa	No, it has not changed	☐	→ D.1
3)	Sim, ami agora att liu duke tinan tolu liu ba	Yes, we are now worse off than three years ago	☐	→ C.17a
99)	Hau lahatene	I don't know	☐	→ D.1

C.17 a	**Iha maneira saida hosi fator tuir mai nebe iha funsaun ba iha mudansa nee? Marka, `la applikabel` karik fator nee la esiste iha ita bot nia kontestu.**	*In what way did any of the following factors play a role behind this change? Mark "not applicable" if this factor does not exist in your context.*	1) Positive effect/efetiu posetivu	2) No effect/la iha efetiu	3) Negative effect/efetiu negavitu	4) Not applicable/la applikabel
A1	Mudansa ruma iha klimatika	Any changes in the weather	☐	☐	☐	☐
A2	Mudansa ruma iha merkado (asesu/presu)	Any changes in the market (access/prices)	☐	☐	☐	☐
A3	Mudansa ruma iha tekniku kultivasaun	Any changes in cultivation techniques	☐	☐	☐	☐
A4	Mudansa ruma iha jestaun bee	Changes in water management	☐	☐	☐	☐
A5	Fator seluk (relasaiona ba projet)	Any other factors (related to the project)	☐	☐	☐	☐
A6	Fator seluk (la relasiona ba projeto)	Any other factors (unrelated to the project)	☐	☐	☐	☐

PART D | WATER MANAGEMENT & HYGIENE (Jestaun BEE no HIJINE……

D.1	**Ita bot nia uma kain hetan bee hemu hosi nee.**	***BL:E.1** What is your household's main source of drinking water?*	
1)	kanu ou motabomba	Pipe or pump/	☐
2)	torneira publiku	Public tap/	☐
3)	be kee	Tube well/borehole/	☐
4)	be matan nebe proteje	Protected well or spring/	☐
5)	be matan nebe la proteje	Unprotected well or spring/	☐
6)	koleksaun udan been	Rainwater collection/	☐
7)	bee butir	Bottled water/	☐
8)	tanki	Water vendors/tank/	☐
9)	mota, lagua	River, lake or stream/	☐
10)	sistama uja au hosi be matan nebe proteje	Bamboo piped system from protected spring/	☐
11)	sistema uja au hosi be matan nebe la proteje	Bamboo piped system from unprotected spring/	☐
12)	seluk	Other/	☐

D.2	**Iha tinan kotuk, bee nebe ita bot uja karik la dispoinivel ba loron ida ou ba tempo naruk?**	***BL:E.2** Over the past year, has water from your main source been unavailable for a day or longer?*	
1)	Sim	Yes/	☐
2)	/Lae	No	☐
99)	/hau lahatene	I don't know	☐

D.3	**Ita bot gasta nia uma kain gasta tempo hira kada loron hodi kolekta bee**	***BL:E.6** How much time does your household spend each day to collect water?*	
1)	liu minutu 30	Up to 30 minutes/	☐
2)	minutu 30-60	30-60 minutes/	☐
3)	/liu minutu 60	More than 60 minutes	☐
99)	/hau lahatene	I don't know	☐

D.4	**Iha tinan tolu liu ba assesu ba bee nee muda ona ba ita bot nia uma kain**	*Over the past three years, has access to water changed for your household? **(DO NOT READ OPTIONS).***		**FLOW/lalaok**
1)	im, assesu ba bee agora diak liu	Yes, water access is now better. **S**	☐	→ *D.5*
2)	Lae, la iha mudansa	No, there has been no change.	☐	→ *D.6*
3)	Sim, assesu ba bee agora att liu	Yes, water access is now worse.	☐	→ *D.5*
99)	Hau lahatene	I don't know.	☐	→ *D.6*

D.5	**rasaun imporante saida ba mudansa nee (keta lee opsaun)**	*What is the main reason for this change? **(DO NOT READ OPTIONS)***		**FLOW, lalaok**
1)	Fator relasiona ba projeto MAKA`AS	Factors related to the MAKA'AS project.	☐	→ *D.6*
2)	Fator seluk	Other factors.	☐	
99)	Hau lahatene	I don't know.	☐	

D.6	**Ita bot ou membro ruma hosi uma kain iha moras ruma iha fulan tolu liu ba:Diareahea, disentri, lumbriga, tifoid, infesaun matan (trakoma.**	*BL: E.24 Did you or any of your household members have any of the following diseases in the last three months: Diarrhoea, dysentery, worms, typhoid, eye infection (trachoma)? Translated as: Diarrhoea, diarrhoea with fever, eye infection.*	
1)	Sim	Yes	☐
2)	Lae	No/	☐
99)	hau lahatene	I don't know/	☐

D.7	**iha tina tinan tolu kotuk ba, iha ona mudansa ruma ba iha ita bot nia uma kain nebe affeta hosi moras hirak nee (lalika lee opsaun)**	*Over the past three years, has there been a change in the extent to which your household is affected by these diseases **(DO NOT READ OPTIONS)***		**FLOW**
1)	Sim, ami agora affeta menus duke iha passadu	Yes, we are now **less** affected than in the past.	☐	→ *D.7a*
2)	Lae, la iha mudansa	No, there has been **no change.**	☐	→ *D.8*
3)	Sim, ita agora mais affeta liu duke iha passadu	Yes, we are now **more** affected than in the past.	☐	→ *D.8*
99)	Hau labatene	I don't know.	☐	→ *D.8*

D.7a	**karik rajaun saida tamba sa ita bot nia uma kain ladun hetan moras hosi bee**	*What might be the reasons as to why your household is less affected by these water-borne diseases?**(DO NOT READ OPTIONS)***	
1)	Tamba ita treina ona oinsa atu mantein no hamos ita nia fatin	Because we were trained how to keep our household surroundings cleaner.	☐
2)	Tamba kualidade bee hemu aumenta tan	Because drinking water quality has improved.	☐
3)	Tamba la dun iha udan	Because there was less rain**.**	☐
4)	Tamba ita iha beneficiu	Because we had luck.	☐
5)	seluk	Other.	☐
99)	Hau lahatene	I don't know.	☐

D.8	**hare ba kondisaun sanimaentu, facilidade fase liman no pratika, karik iha buat balun nebe aumenta iha tinan tolu liu ba**	*Concerning sanitary conditions, hand washing facilities and practices, is there anything that improved over the past three years? **(DO NOT READ OPTIONS)***	
1)	Sim, kondisaun saniamentu	Yes, sanitary conditions.	☐
2)	Sim, facilidade fase liman	Yes, hand washing facilities.	☐
3)	Sim pratika fase liman	Yes, hand washing practices**.**	☐
99)	Hau lahatene	I don't know.	☐

PART E| GENDER (PARTE E JENERU.....

E.0	Ita bot nia status civil saida	*What is your civil status?*		FLOW/lalaok
1)	Kabenain	Married	☐	→ *E.1*
2)	Mesak, faluk ou divorsa	Single, widowed or divorced	☐	→ *E.4*

E.1Block	Se mak iha ita bot nia uma kain…	*Who in your **household**…*	1) Only men/mane det	2) Mostly men/mayoria mane	3) Men and women equally/ mane no feto hanesan	4) Mostly women/ mayoria feto	5) Only women/feto det	99) I don't know/hau lahatene
E.1.1	…decide atu halo saida ho rendementu familia	…decides what to do with family income?	☐	☐	☐	☐	☐	☐
E.1.2	…atende enkontro ou aktividade iha suco	…attends meetings or activities in the village?	☐	☐	☐	☐	☐	☐
E.1.3	…decide kuda saida, banhira no iha nebe (ai han)	…decides what to plant, when and where (food crops)?	☐	☐	☐	☐	☐	☐
E.1.4	…decide kuda siada, banhira no iha nebe (ai han buka osan nian)	…decides what to plant, when and where (cash crops)?	☐	☐	☐	☐	☐	☐
E.1.5	…decide kona ba investementu agrikultura	…decides on agricultural investments?	☐	☐	☐	☐	☐	☐
E.1.6	Prepara ai han?	…prepares food?	☐	☐	☐	☐	☐	☐
E.1.7	Hare labarik sira?	…cares for children?	☐	☐	☐	☐	☐	☐

E.2	Statementu ida nebe mak diak liu applika ba ita bot nia uma kain	*Which of the following statements best applies to your household?*		FLOW
1)	Iha tinan tolu liu ba, mane mak iha influencia barak liu iha halo decisaun ba uma kain	Over the past three years, men have gained more influence in household decisions.	☐	→ *E.3*
2)	Iha tinan tolu liu ba, la iha mudansa oinsa maneira mane no feto halo decisaun iha uma kain	Over the past three years, there has been no change in the way men and women make household decisions	☐	→ *E.4*
3)	Iha tinan tolu liu ba, feto hetan influencia liu iha decisaun uma kain nian	Over the past three years, women have gained more influence in household decisions.	☐	→ *E.3*
99)	Hau lahatene	I don't know	☐	→ *E.4*

E.3	Rajaun importante saida ba mudansa nee (Labele lee Opsaun)	*What is the main reason for this change? **(DO NOT READ OPTIONS)***		FLOW
1)	Fator relasiona ba Projeto MAKA`AS	Factors related to the MAKA'AS project	☐	→ *E.4*
2)	Fator seluk	Other factors	☐	
99)	Hau lahatene	I don't know	☐	

E.4 Block	Se mak iha ita bot nia komunidade…	*Who in your **community**…*	1) Only men/mane det	2) Mostly men/mayoria mane	3) Men and women equally/feto no mane hanesan	4) Mostly women/ mayoria feto	5) Only women/feto det	99) I don't know/hau lahatene
E.4.1	Hola parte iha enkontro suco	…takes part in village meetings?	☐	☐	☐	☐	☐	☐
E.4.2	Koalia durante enkontro iha suco	…speaks during village meetings?	☐	☐	☐	☐	☐	☐
E.4.3	Influencia iha decisaun kona ba assunto suco	…influences decisions about village affairs?	☐	☐	☐	☐	☐	☐
E.4.4	Halo decisaun kona ba assuntu suco	…makes decisions about village affairs?	☐	☐	☐	☐	☐	☐
E.4.5	Representa suco iha governo	…represents the village vis-à-vis the government?	☐	☐	☐	☐	☐	☐
E.4.6	Kontrola fundu suco	…controls village funds?	☐	☐	☐	☐	☐	☐
E.4.7	Halao servisu voluntario	…conducts volunteer work?	☐	☐	☐	☐	☐	☐
E.4.8	Involve iha organijasaun nebe nia base iha suco	…is involved in village-based organisations?	☐	☐	☐	☐	☐	☐

E.5	Statementu ida nebe mak applika diak liu ba ita bot nia komunidade?	*Which of the following statements best applies to your community?*		FLOW
1)	Iha tinan tolu liu ba, mane mak hetan influencia makas liu iha decisaun komunidade.	Over the past three years, men have gained more influence in community decisions.	☐	→ *E.6*
2)	Iha tinan tolu liu ba, la iha mudansa iha maneira feto no mane halo decisaun iha komunidade	Over the past three years, there has been no change in the way men and women make community decisions	☐	→*F.1*
3)	Iha tinan tolu liu ba, feto mak hetan influencia liu iha halo decisaun komunidade	Over the past three years, women have gained more influence in community decisions.	☐	→ *E.6*
99)	Hau lahatene	I don't know	☐	→ *F.1*

E.6	Rajaun importante saida ba mudansa nee (labeleLee Opsaun)	*What is the main reason for this change? **(DO NOT READ OPTIONS)***		FLOW/lalaok
1)	Fator nebe relasiona ba Projeto MAKA`AS	Factors related to the MAKA'AS project	☐	→ *F.1*
2)	Fator seluk	Other factors	☐	
99)	Hau lahatene	I don't know	☐	

PART F| COMMUNITY CAPACITY, Kapacidade Komunidade……

F.1	**Ita bot nia suco nee implementa aktividade nebe beneficia ba interese hotu no kondisaun iha suco-maibe sei la lori beneficia direta ba ita bot nia uma kain. Oinsa mak ita bot bele supporta aktividade nee**	*Suppose your village were to implement an activity that would benefit the overall welfare and conditions of the village - but that would not bring direct benefits to your household. How likely is it that you would support this activity?*	
1)	Hakarak tebes	Very likely	☐
2)	hakarak	Likely	☐
3)	duvida	Unlikely	☐
4)	Duvida liu	Very unlikely	☐
99)	Hau lahatene	I don't know	☐

F.2	**Too iha nebe ema iha suco kontribui ba halo suco nee diak liu hodi moris?**	*To what extent do people in this village contribute towards making the village a better place to live?*	
1)	To iha montante nebe diak liu	To a great amount	☐
2)	Too iha montante nebe bele konsidera	To a considerable amount	☐
3)	Too iha montante nebe kiik	To a small amount	☐
4)	La iha liu	Not at all	☐
99)	Hau lahatene	I don't know	☐

F.3	**Dala ruma ema suco tur hamutuk husu ba officias governo ou lider politika ba assaun ruma?**	*How often do villagers get together to jointly request government officials or political leaders with requests for action?*	
1)	Fulan ida dala ida ou liu	Once a month or more often	☐
2)	Dala barak iha tinan ida nia laran	Several times a year	☐
3)	Tinan ida dala ida	About once every year	☐
4)	Menus hosi tinan ida dala ida ou nunka	Less than once a year or never	☐
99)	Hau lahatene	I don't know	☐

F.4	**Em jeral, effetivu oinsa tuir ita bot nia hanoin katak involvementu hosi ema iha suco in termus hosi governo foti assaun ruma nebe precisa**	*Overall, how effective do you feel that engagement of villagers has been in terms of getting the government to take the desired action?*	
1)	ass	High	☐
2)	moderado	Moderate	☐
3)	menus	Low	☐
99)	Hau lahatene	I don't know	☐

F.5	**Statementu nebe mak diak liu applika ba ita bot nia komunidade**	*Which of the following statements best applies to your community?*		**FLOW/lalaok**
1)	Ema iha suco servisu hamutuk liu hosi tinan tolu liu ba	Villagers here are now working together **more** than three years ago.	☐	→ *F.6*
2)	Ema iha suco agora servisu hamutuk menus hosi tinan tolu liu ba	Villagers here are now working together **less** than three years ago	☐	→*F.6*
3)	Iha tinan tolu liu ba, ema iha suco servisu hamutuk sidauk iha mudansa	Over the past three years, the extent to which villagers work together has not changed	☐	→ *G.1*
99)	Hau lahatene	I don't know	☐	→ *G.1*

F.6	**Rajaun importante saida ba iha mudansa nee (keta lee opsaun)**	*What is the main reason for this change? **(DO NOT READ OPTIONS)***		**FLOW**
1)	Fator relasiona ba Projeto MAKA`AS	Factors related to the MAKA'AS project	☐	→ *G.1*
2)	Fator seluk	Other factors	☐	
99)	Hau lahatene	I don't know	☐	

PART G| PROJECT REVIEW…(Parte G Reve Projeto)……

G.1	**Tuir ita bot nia vijaun, semak beneficiu hosi projeto nee?**	*In your view, who benefitted from the project?*		**FLOW**
1)	Uma kaoin hotu iha suco	All households in the village	☐	→ *G.2*
2)	Mayoria uma kain iha suco	Most households in the village	☐	→*G.1a*
3)	Uma kain balun iha suco	A few households in the village	☐	→ *G.1a*
4)	La iha ema ida suco	Nobody in the village	☐	→ *G.2*
99)	Hau lahatene	I don't know	☐	→ *G.2*

G.1a	**Ita bot hatene criteria kona ba hili beneficiario sira**	*Do you know the criteria on which beneficiaries were selected?*		**FLOW**
1)	Sim	Yes	☐	→ *G.1b*
2)	Lae	No	☐	→*G.2*
99)	Hau latene	I don't know	☐	→*G.2*

G.1b	**Ita bot hare criteria nee justu**	*Do you think that these criteria were fair?*		**FLOW**
1)	Sim	Yes	☐	→ *G.2*
2)	lae	No	☐	
99)	Hau lahatene	I don't know	☐	

G.2	**Iha tinan tolu liu ba, ita bot aprende ona buat foun ruma hosi Projeto MAKA`AS**	*Over past three years, have you learned anything new from the MAKA'AS project?*		FLOW
1)	Sim	Yes	☐	→*G.3*
2)	lae	No	☐	→*G.4*
99)	Hau lahatene	I don't know	☐	→*G.4*

G.3	**Too iha nebe ita bot applika saida mak ita bot aprende ona**	*To what extent do you currently apply what you have learned?*		FLOW
1)	Hau aplika buat hotu nebe hau aprende	I apply everything I have learned	☐	→ *G.5*
2)	Hau applika mayoria saida mak hau apprende	I apply most of what I have learned	☐	→*G.4*
3)	Hau la applika saida mak hau aprende ona, maibe planu atu halo iha futuru	I do not yet apply what I have learned, but plan to do so in the future	☐	→*G.4*
4)	Hau la applika buat ida hosi saida mak hau apprende ona	I do not apply anything I have learned	☐	→*G.4*
99)	Hau lahatene	I don't know	☐	→*G.4*

G.4	**Rajaun saida mak ita bot la applika buat nebe ita bot appreden ona (keta lee opsaun)**	*What are the reasons why you did not apply some of the things you have learned?* ***(DO NOT READ OPTIONS)***	
1)	Hau la iha rekursu atu implementa mudansa	I do not have the resources to implement the changes	☐
2)	Hau la sente konfiden/fiar ann applika tekniku foun	I do not feel confident in applying new techniques	☐
3)	Hau lakohi tau hau nia vida moris iha risku	I do not want to put my livelihood at risk	☐
4)	Hau lahatene atu kontaktu see karik hau iha problema ho tekniku foun	I do not know who to contact if I have problems with the new technique	☐
5)	Hau hare la iha vantajen ba iha tekniku foun	I see no advantage in the new technique(s)	☐
6)	Seluk	Other:_____	☐

G.5	**Ita bot hare katak tekniku/stratejia foun nebe ita bot aprende nee diak applika iha futuru**	*Do you think that the new techniques/strategies that you have learned are worth applying into the future?*		FLOW
1)	Sim, sira hotu	Yes, all of them	☐	→ *G.5b*
2)	Sim, balun hosi nee	Yes, some of them	☐	→*G.5a*
3)	Lae	No	☐	→*G.5a*
99)	Hau lahatene	I don't know	☐	→*G.6*

G.5a	**Opsional: ita bot bele foo esemplu hosi stratejia/applika la diak? Tamba sa la diak atu applika**	*OPTIONAL: Can you give me an example of a strategy **notworth** applying? Why is it not worth to be applied?*	
1)	**Hakerek iha nee**	Write here:	☐

G.5b	**Opsional: ita bot bele foo esemplu hosi stratejia/applika diak? Tamba sa diak atu applika?**	*OPTIONAL: Can you give me an example of a strategy **worth** applying? Why is it worth to be applied?*	
1)	**Hakerek iha nee:**	Write here:	☐

G.6	**Hare ba iha tekniku/stratejia nebe importante liu ba ita bot, tuir ita bot katak bele applika iha futuru?**	*Thinking of the most technique/strategy that is most important to you, do you think you will be able to apply it into the future?*	
1)	Sim, halo applika rasik	Yes, on my own	☐
2)	Sim, ho supporta hosi ema seluk	Yes, with support from others	☐
3)	lae	No	☐
99)	Hau lahatene	I don't know	☐

G.7	**Iha feedback ruma konaba projeto nebe ita bot hakarak fahe-esemplu, saida mak em particular lao diak, ou maneira oinsa projeto hanesan bele halao diak liu?**	*Is there any feedback on the project that you would like to share – for instance, what went particularly well, or ways how similar projects could be carried out better?*
1)		Write here:

Obrigado ba ita bot nia participasaun iha survey nee / *Thank you for your participation in this survey.*

Food, water, rain, risk: these four aspects are at the heart of MAKA'AS project that CARE and WaterAid implemented with funding from the Australian Department of Foreign Affairs and Trade (DFAT). Launched in July 2012, the project set out to facilitate community-based adaptation to climate change amongst 33 villages in Timor-Leste's Liquica district. This included ***promoting*** of climate-resilient livelihoods (e.g. through crop diversification and conservation farming), ***enhancing*** the access to safe drinking water and improved sanitation, ***reducing*** the risk from erosion and landslides, and ***enabling*** broader village plans for climate change adaptation.

This evaluation finds that the project led to increased agricultural production and higher incomes amongst farmer group members. It also generated significant improvements in water and sanitation, bringing down the prevalence of water-borne diseases as a result. Furthermore, it raised climate change awareness amongst villagers and government partners, and reinforced community capacity - important aspects to stimulate adaptive action.

Yet, the extent to which they have transcended into adaptive local planning and increased climate resilience was limited by multiple factors. These include a) insufficient funding for national-level policies and plans in adaptation, b) the treatment of farmer and water management as target groups rather than vehicles for broader reach and adaptive planning, and c) climatic conditions that have been favourable for agricultural production over the past two years, which in local eyes rendered adaptive planning as a low priority.

To make community-based adaptation even more effective, the report concludes that future programming will need to be more holistic, broad and layered, while better address deeper capacity constraints amongst local government partners.

care

WaterAid