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Case Study:

Central and Northern Rakhine State Case Study: Revisiting emergency response and recovery projects in disaster and conflict affected communities

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**Central and Northern Rakhine State Case Study:
Revisiting emergency response and
recovery projects in disaster and conflict
affected communities**

Food and Agriculture Organization of the United Nations

Office of Evaluation (OED)

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Contents

<i>Acknowledgements</i>	v
<i>Acronyms and abbreviations</i>	vi
Executive Summary	1
1. Introduction	2
1.1 Purpose the case study	2
1.2 Scope of the study	2
1.3 Objectives of the case study	3
2. Methodology	4
2.1 Methods	4
2.2 Team Composition.	5
2.3 Limitations	5
2.4 Theory of change.....	6
3. Agricultural context	7
3.1 Humanitarian and development issues.....	7
3.2 Recurring issues and vulnerabilities.....	8
3.3 FAO interventions.....	8
4. Findings	10
4.1 Findings on the current situation	10
4.2 Findings on increase in income.....	11
4.3 Findings on land ownership and agriculture relationships.....	13
4.4 Findings on social cohesion	14
4.5 Findings on gender and inclusion	15
4.6 Findings on increase in knowledge and change in practices	15
4.7 Findings on displacement and migration	16
4.8 Findings on independence from food and other aid	17
5. Conclusions	19
6. Ways forward	21
Appendix 1. Rakhine State Social Network Analysis	23
1. Introduction	23
2. Background and context of the Project/Programme	23
2.1 Description of the projects.....	23
2.2 Purpose of the analysis.....	24
3. Methodology.....	24
3.1 Limitations.....	24
4. Results and discussion	25
4.1 Social Network Analysis between organizations.....	25
4.2 Social Network Analysis between organizations and villages.....	30

Tables and Figures

Tables

Table 1: FAO projects between 2010 and 2016 reviewed in preparation of the case study.....	2
Table 2: Breakdown of household level interviews.....	5
Table 3: Case study sampling matrix and the methods used in collection of data in central and northern Rakhine State in May – June 2015.....	5
Table 4: FAO project delivery in Rakhine State.....	9
Table 5: Summary of beneficiaries in Rakhine	9
Table 6: Simplified timeline of FAO activities in Rakhine.....	9
Table 7: Source of income of the respondents.....	10
Table 8: Coping mechanism taken by the respondents.....	11
Table 9: Types of inputs/support received from FAO	11
Table 10: Simplified timeline of FAO activities in Rakhine	24

Figures

Figure 1: Reconstructed theory of change for responses in central and northern Rakhine State.....	6
Figure 2: Perceived independence from food aid among 52 farming households.....	17
Figure 3: Need for future interventions.....	20
Figure 4: Overall “Degree Centrality” model of organizations in Rakhine State showing where FAO is situated and the top three most connected organizations.....	25
Figure 5: Closer look at the “Degree Centrality” model of the organizations in Rakhine State showing the most connected organizations (node).....	26
Figure 6: “Betweenness Centrality” model of organizations in Rakhine State showing the organizations that have the most influence in terms of information flow, but not necessarily the most connected	27
Figure 7: “Closeness Centrality” model, showing the speed of information diffusion from one organization to its network	28
Figure 8: “Modularity Model” showing the different sub-networks within the organization network in Rakhine State	29
Figures 8.1-8.4: Top four subnetwork in Rakhine State	29
Figure 9: Overview of the social network of Rakhine State.....	30
Figure 10: Filtered overview of the social network of Rakhine State showing FAO.....	31

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Acronyms and abbreviations

AAP	Accountability to Affected Populations
AEW	Agri-extension Worker
AHVM	Agricultural Hazard and Vulnerability Mapping
CPE	Country Programme Evaluation
CPF	Country Programming Framework
DOA	Department of Agriculture
DRR	Disaster Risk Reduction
ECC	Emergency Coordination Committee
FAO	Food and Agriculture Organization of the United Nations
FGD	Focus Group Discussion
IDP	Internally Displaced People
IRC	International Rescue Committee
KII	Key Informant Interview
LBVD	Livestock Breeding and Veterinary Department
MIMU	Myanmar Information Management Unit
NGO	Non-governmental Organization
NRS	Northern Rakhine State
RAP	FAO Regional Office for Asia and the Pacific
SNA	Social Network Analysis
SW	Stakeholder Web
UNICEF	United Nations Children's Fund
WFP	World Food Programme

Executive Summary

- ES1 The Rakhine case study contributes to the Food and Agriculture Organization of the United Nations (FAO) Myanmar Country Programme Evaluation (CPE) from 2011 to 2016. This case study seeks to provide a collective picture of FAO emergency response interventions in Rakhine State over the course of the programme period under review and inform future emergency and recovery programming in the region.
- ES2 Central and northern Rakhine State (NRS) experienced recurrent natural disasters and several intercommunity conflicts. The region's population is generally divided into two major religious groups further characterized by their ethnic origins. These differences, in addition to other factors, have resulted in violent confrontations beginning in 2012, causing loss of life and destruction of farms and infrastructure. Floods, mudslides and cyclones along with the sporadic violence have displaced many households over the years. Those who remain in their villages face similar risks, with limited attention and support services.
- ES3 The study covered six emergency and recovery/rehabilitation projects where FAO responded to humanitarian emergencies brought about by disasters or conflict from 2011 to 2015 in six townships in central and northern Rakhine State. This includes: Buthidaung, Kyauktaw, Maungdaw, Minbya, Mrauk U, and Sittwe. The study involved review of project documents and consultations with various stakeholders in Rakhine, and interviews with beneficiary households and communities.
- ES4 FAO's response provided seeds for rice, pulses, ground nut, and vegetable, fertilizers, bio-pesticides and agricultural inputs, livestock (cattle, goats, poultry), fishing gears and equipment, rehabilitation of infrastructure, training in improved agro-technological and livestock production.
- ES5 There is general positive feedback on the inputs provided by FAO in various projects gathered from post-distribution surveys and group discussions. Among the positive characteristics are the good quality in the rice, legume and vegetable seeds, fertilizers and livestock (cattle and buffalo are more preferred for farming).
- ES6 FAO's strong partnership with the government provided needed support for its activities. However, there is general weakness in FAO's partnership with other development agencies and civil society organization in Rakhine.
- ES7 The impact of FAO's intervention has been in preventing farmers from spiralling into further debt; however, the positive impact of FAO's support remains short-term due to the recurring shocks faced by communities over the course of a year. A number of the project areas were beset with landslides, floods and saltwater intrusion due to strong wind and rains during or immediately after project implementation.
- ES8 There is conscious effort in FAO implementation to target women, female headed households and vulnerable groups with limited economic opportunities, especially in the distribution of poultry and small ruminants. Communities appreciate the specific targeting of landless, women and elderly.
- ES9 The impact of FAO's intervention has been in preventing farmers from spiralling into further debt. FAO-assisted communities have been more stable and are more able to re-engage in their farming activities following shocks.
- ES10 FAO should explore developing a Rakhine programme focusing on building resilience of Rakhine and Muslim agriculture communities. Through a programmatic approach, FAO could address immediate and medium-term needs around emergencies and shocks while addressing the underlying causes of vulnerability and contributing to social cohesion and peacebuilding over the long-term.

1. Introduction

- 1 The Food and Agriculture Organization of the United Nations (FAO) Myanmar Country Programme Evaluation (CPE) covers the programme period from 2011 to 2016. The evaluation process began with an inception mission in December 2015 followed by a series of consultations, project reviews and evaluation missions through November 2016.
- 2 Through consultations with the FAO Myanmar Country Office and several development partners in December 2015, it was agreed that a documentation of FAO emergency response projects in central and northern Rakhine State (NRS) was needed. This would provide a review of the experience in the last programme period and inform future emergency programming in the region.

1.1 Purpose the case study

- 3 The central and northern Rakhine State case study contributes to the FAO Myanmar Country Programme Evaluation by providing a collective picture of FAO's emergency response interventions in Rakhine State over the course of the current programme period. The CPE provides accountability to different FAO stakeholders while contributing to learning at the corporate, regional and country level. This case study helps identify effective approaches to emergency response and recovery in Myanmar in the context of central and northern Rakhine State. Opportunities for learning at the implementation and coordination levels are identified throughout the case study process.
- 4 The primary users of this study are the FAO Myanmar Country Office and the FAO Regional Office for Asia and the Pacific (RAP). Secondary beneficiaries of this report will be other actors such as UN agencies and international non-governmental organizations (NGOs) which could use the results in designing related interventions.
- 5 This case study also provides an opportunity for beneficiaries to provide feedback and contribute to further programme planning and implementation in central and northern Rakhine State. This study contributes to the better application of equity-based principles in future Office of Evaluation Country Programme Evaluations.

1.2 Scope of the study

- 6 The study covered seven emergency and recovery/rehabilitation projects that responded to humanitarian emergencies brought about by disasters or conflict events from 2011 to 2016 in six townships in central and northern Rakhine State (see Table 1). This includes the townships of Buthidaung, Kyauktaw, Maungdaw, Minbya, Mrauk U and Sittwe.

Table 1: FAO projects between 2010 and 2016 reviewed in preparation of the case study

FAO Project Code	Project name	Budget USD	Project Period
OSRO/MYA/ 001/CHA	Enhanced Food Security and Livelihoods in NRS	400 000	Mar - Dec 2010
OSRO/MYA/ 003/CHA	Post-Floods Restoration of Food Security and Livelihoods	750 000	Mar - Dec 2010
OSRO/MYA/102/CHA	Enhancing Food and Nutritional Security Through Crop Production in NRS	380 000	
UNJP/MYA/ 014	Enhancement of Human Security for the Muslim Resident Population and other vulnerable persons in Northern Rakhine State, Myanmar	774 438	Jan - Dec 2011

TCP/MYA/ 3405	Emergency Support to Affected Communities in Rakhine State	500 000	Sep 2013 - Dec 2014
OSRO/MYA/ 402/FRA	Enhance of Food Security and Resilience for Conflict-affected Communities in Northern Rakhine State, Myanmar	200 000 150 000	Nov 2014 - Sep 2015
OSRO/MYA/ 502/CHA	Livelihoods recovery support for conflict-affected communities in Northern Rakhine State, Myanmar	500 000	Oct 2015 - Jun 2016

1.3 Objectives of the case study

7 The case study's objectives include:

- Identify and highlight key aspects of the work done by FAO in central and northern Rakhine State that will inform the FAO Myanmar Country Programme Evaluation and the FAO Myanmar Country Programming Framework (CPF);
- Document and qualify factors that reduce inequity for specific populations that are often the vulnerable groups in their country; and document and analyse processes that lead to inclusion (or exclusion) of populations in FAO's interventions;
- Foster organizational learning, accountability and lessons learning to better integrate equity-based principles in future Office of Evaluation Country Programme Evaluations; and
- Contribute to empowering vulnerable groups, giving them the opportunity to raise their concerns and be heard by organizations and partners.

2. Methodology

- 8 Initial discussions with agencies and other relevant stakeholders were completed to prepare, contextualize and streamline the study objectives and questions. Starting from the Country Programme Evaluation inception in December 2015 until March 2016, FAO (country, regional and headquarters), government, other UN agencies and international NGOs were consulted to inquire their stake and interest in the study. This was supplemented by a review of background documentation on Rakhine. Documents reviewed include project-related documents and other relevant country and regional references.

2.1 Methods

- 9 Initially, a **Social Network Analysis (SNA)** was conducted to map the partnerships in central and northern Rakhine (see Appendix 1). The data used came from the 3W - matrix of the Myanmar Information Management Unit (MIMU); this data set included the Organization, its implementing projects and partners and where it is working. The results of the SNA were validated in the field and used to identify respondents for the key informant interviews (KIIs).
- 10 A mixed method sampling was used with an emphasis on qualitative information (see to Table 2). Due to compounding limitations and considerations (i.e. security and access), a purposive sampling was used for site selection. The team completed 37 focus group discussions (FGDs) and 57 key informant interviews in 19 villages of the six townships mentioned in the previous section.
- 11 To the extent possible, FGDs aimed to ensure representation of the sub-groups in the six townships visited. Out of the 19 villages sampled, 11 were Muslim, 7 were Rakhine and one village with assimilated population. Out of the 37 FGDs, 16 were with only women, 18 with only men as there was an effort to ensure that women were equally able to provide feedback in both Rakhine and Muslim communities. Only three FGDs were mixed men and women and this was only possible in Rakhine communities. Total respondents for the FGDs were 358 individuals.
- 12 Since some of the projects had been completed two to three years before the study, the evaluation team used tools that helped communities to recall emergencies and the related interventions such as **Agriculture Hazard and Vulnerability Mapping (AHVM)**. These tools are commonly used in community-based disaster risk reduction (DRR) and agriculture recovery projects. This exercise set the disaster and agriculture contexts of the communities and identified vulnerabilities and disaster/conflict impacts that FAO projects meant to address. This resulted in a visual representation of FAO's interventions against the agriculture-related needs and vulnerabilities.
- 13 **Focus group discussion** was used to acquire information on the relevance and results of the interventions by FAO and other organizations in response to these hazards and vulnerabilities.
- 14 After, **Stakeholder Web (SW)** was used to facilitate mapping of organizations. Derived information included type of service, access and links between organizations. Participants also identified agencies providing services to vulnerable groups such as women, including pregnant and lactating women, widow/widower, child-led household, elderly, and people with disabilities.
- 15 Participants from each village type/townships were selected based on agreed criteria,¹ village typologies and project type. Specific care and arrangements were made to ensure representation and ease of conversation especially among vulnerable groups. The team

1 The criteria used included: gender, vulnerable group, religion and type of participation/role in FAO projects (recipient, trainee, non-beneficiary).

conducted separate discussions for men and women, especially in Muslim villages. No mixed Muslim and Rakhine FGDs were conducted due to sensitivities around the ethnic conflict.

- 16 The entire exercise was preceded by messages clarifying the purpose of the exercise and the role of the facilitators. This is important not to set expectation and other benefit from the exercise other than accountability and learning. Discussions were conducted in safe and neutral areas, accessible to all identified respondents, and secluded, as in the case of Muslim women's groups. The above considerations were made to ensure that FAO remains faithful to its commitment to accountability to affected populations (AAP).²
- 17 **Key informant interviews** were conducted with representatives of UN agencies, international and national NGOs, FAO staff and government partners at the national, state, township and village level in central and northern Rakhine State. These interviews were meant to gather specific feedback on the interventions of FAO, the quality of engagement and approaches used, especially around partnerships and complementation of activities. KII with households referred to in Table 2 were conducted to gather specific feedback. Respondents were identified among groups of participants or were previously identified as having received inputs or training from FAO projects. Community leaders and representatives were also interviewed.

Table 2: Breakdown of household level interviews

Number of total respondents for KII	52
% of female respondents	34 %
Average HH size	6.40
% of Muslim respondents	63 %
% of Buddhist respondents	37 %

Table 3: Case study sampling matrix and the methods used in collection of data in central and northern Rakhine State in May – June 2015

Methods	Agencies	Township	Village	Events/Individuals
FGD (PRA, AHVM & SW)	na	6	21	37 FGD with 370 individuals
KII (Gov., UN, INGO)	10	na	na	na
KII (households)	na	6	21	74 individuals

2.2 Team Composition.

- 18 The study team was overseen by the Office of Evaluation Officer and led by regional consultant. The team was composed of a national facilitator and four Rakhine-based facilitators with personal understanding of the context and dynamics as well as capacity in the local languages (Arakanese/Rakhine, Muslim/Bengali and Myanmar). This was very important, especially in the conduct of group discussions and interviews in Muslim communities.

2.3 Limitations

- 19 **Recall and attribution:** Most of the projects reviewed were short-term emergency projects which were completed at least two to three years ago. In addition, there are succession and sometimes overlapping of development actors in village level response in Rakhine. Beneficiaries could not easily recall which inputs were distributed by specific organizations, and separate interventions conducted by FAO.

² Accountability to Affected Populations is a series of good practice principles agreed by the UN Inter-Agency Standing Committee in 2011. FAO committed to practicing AAP and ensuring that interventions and engagement with beneficiaries and partners are sensitive to their needs, contexts and do not pose any risk of harm.

- 20 **Language:** The evaluation team worked in four languages. The Terms of Reference, tools, analysis and final report were developed in English. Training of the facilitation team was conducted in English. The focus group discussion and key informant interview tools were translated into Myanmar language, then administered in either Arakanese/Rakhine or Muslim/Bengali language. Discussions were documented in Myanmar language then further translated to English for analysis and report. Deeper and probing conversation was possible in the field. However, due to the different levels of translations while in the field, FGDs took longer than usual. Hence, the use of the Participatory Rural Appraisal tools was advantageous in acquiring additional information.
- 21 **Access and information:** Some communities were inaccessible due to security or distance. Also, given that some of the projects terminated four to five years before the case study, and in light of the new political changes and changes brought about by displacement and conflict, some of the village names and structures were already changed.

2.4 Theory of change

- 22 The theory of change was developed to assist in the analysis of the interventions. It was formulated by the regional consultant and was validated with the FAO Myanmar Country Office. The theory of change above was constructed based on a review of project documents and the analysis of the agriculture context, and underlying and recurring causes of vulnerabilities among the different ethnic groups of Rakhine. As reviewed, FAO interventions in central and northern Rakhine State collectively aimed to foster resilient livelihoods and a thriving agriculture sector. Specifically, FAO aimed:

- To provide solutions to reduce dependence on food and other aid and to prevent additional displacement of the population living in isolated villages.
- To provide immediate support to small farmers and fisher folk, necessary to increase food security, avoid malnutrition and prevent migration to internally displaced people (IDP) camps.
- To focus on the production of high quality protein food produce from small-scale livestock enterprises, to augment the nutritional status of vulnerable groups such as children, pregnant and lactating mothers which will provide an income generating activity in which women are traditionally engaged in Myanmar.
- In addition to support towards family food security production, provide short generation inputs with potential for surplus, such as self-foraging livestock to offer a sustainable approach to enhancing family livelihoods.

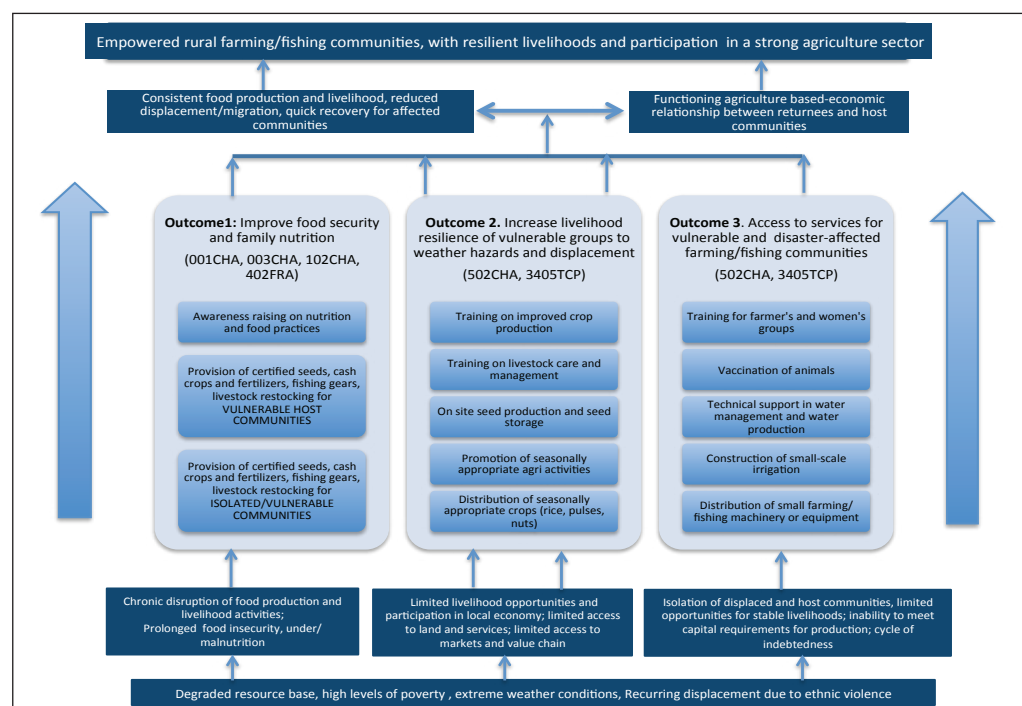


Figure 1: Reconstructed theory of change for responses in central and northern Rakhine State

3. Agricultural context

- 23 Rakhine State has 18 townships, 2 082 village tracts and 7 720 villages. Rakhine is the second poorest state in Myanmar, with about 43.5 percent of its population living under the poverty line, compared to the country average of 25.6 percent.³ The population in Rakhine is estimated at about 3.3 million, with 1.6 million male and 1.7 million female. The average household size is 6 people; against the national average of 5.2. Kyauktaw, Myebon, Mrak U, Pauktaw, Ponnagyun, Rathedaung and Sittwe are the densest townships in the northern half of Rakhine. These townships have rural population of over 80 percent except for Sittwe.
- 24 Rakhine State has been historically a top producer of aquaculture products. Agriculture, fishery and aquaculture are the main sources of livelihood in Rakhine State. The main crops produced are rice and cereals as well as pulses. The northern townships have the largest share of rice production. Landless farmers are agriculture labourers or are able to access land through shared cropping or lease. The summer cereal harvest is 23 174 tonnes (2010 data), which is only 1.8 percent of the monsoon production. This is due to a lack of irrigation during summer cropping. In addition, based on historical data, northern Rakhine has intensified the use of fertilizer as compared to other states.

3.1 Humanitarian and development issues

- 25 Disasters and violence have displaced many farming households over the years. Humanitarian aid prioritizes displaced population while on the other hand isolated communities sometimes receive little attention and remain with limited means for livelihood. The disruption of farming activities has a long-term impact on resource degradation, food production and livelihoods, contributes to the cycle of indebtedness and causes chronic food insecurity and malnutrition in the region. The central and northern Rakhine State in Myanmar has experienced recurrent natural disasters and intercommunity conflict. The region's population is generally divided into two major religious groups further characterized by their ethnic origins. These differences, in addition to other factors, have led to violent confrontations beginning in 2012, causing loss of life and destruction of farms and infrastructure. Floods, mudslides and cyclones along with the sporadic violence have displaced many households over the years. Those who remain in their villages face similar risks, with limited attention and support services.
- 26 The violence that escalated in 2012 has resulted in a general lack of trust amongst communities. This also contributed to a chronic unavailability of labourers for farms and a lack of stable work for some communities, as most Muslim communities are hired by Rakhine land owners. As a result, some groups have resorted to migration for work or migration to camps for internally displaced people. There is high dependence on food aid within these communities.
- 27 Despite the fact that 90 percent of the population lives in rural villages and relies on farming for livelihood, 60 percent of the population is landless. This percentage however varies in the northernmost region (including the townships of Buthidaung and Maungdaw) where there is more land and IDPs have better access to land. Southern townships face controversial issues related to land tenure, access to land and fishing grounds.
- 28 Due to compounded causes of food insecurity, malnutrition (GAM) prevalence in Rakhine is estimated at 25 percent. High GAM⁴ rates are observed in Buthidaung (21.4) and Maungdaw (20) (UNICEF, 2015).

3 MIMU/Integrated Household Living Condition Survey 2009-2010.

4 Based on the WHO (2003) classification, the acceptable GAM rate is <5%, Poor = 5-9%, Serious is 10-14% and Critical is >=15%.

3.2 Recurring issues and vulnerabilities

- 29 The factors below are largely contributing to the low levels of food security and resilience among rural communities, as well as increasing potential migration to the camps for internally displaced people:
- The mutual exclusion between Muslim and Buddhist communities through violence, threats and intimidation considerably reduce access to land and fishing areas. This also caused disturbance and destruction in the fishery and agriculture sectors as well as in traditional markets.
 - The recurring population displacement and acute limitations to movements for those not displaced caused breakdown of value chains, losses in food production and destruction of assets.
 - Humanitarian aid has to the present time focused on the camps for internally displaced people, giving priority to sectors such as food, shelter, hygiene and sanitation infrastructures, along with non-food aid. Hence, the assistance for livelihood recovery has generally received less funding and the communities living in isolated villages have received limited assistance or none at all.
 - Limited or no use of agricultural land, debt, and collapse of value chains have critically affected food security in Rakhine in general.
 - The Rakhine Response Plan estimated that the needs for the livelihood sector at USD 5 530 253 has been underfunded. These needs were estimated for the immediate assistance to IDPs and were not including those of the population in isolated villages.
- 30 In addition to the factors above, agriculture-related issues that substantially weaken food security over a protracted period include:
- The decrease in cash flow and the following increase in debt affect a household's inability to invest in production (purchase of inputs such as fertilizer, materials, etc.). This problem is also reflected in mounting debt in absolute livelihood terms, and in relation to the ability of farmers and fishers to purchase inputs, gear and boat fuel/repairs for the next season.
 - Substantial decrease in livestock production due to self-consumption or selling of livestock to make up for the lack of income. Accusations of cattle theft are widespread.
 - There is a widespread reversion to more primitive cultivation practices in order to reduce exposure to crop loss, such as reduction in fertilizer use and preference for cheap local seed over improved/certified commercial varieties, and to minimize labour and time spent in the field, such as a return to broadcast rice seeding over transplanting and avoidance of weeding.
 - Huge disruption in the labour relations due to ethnic violence has generated a lack of labour force in Buddhist communities and a chronic unemployment in Muslim communities, which are a traditional suppliers of agriculture labour.

3.3 FAO interventions

- 31 FAO projects have primarily aimed to respond to immediate livelihood recovery needs of vulnerable farming communities affected by disasters or conflict. Through different projects, FAO extended agriculture support to both the displaced populations and isolated and host communities to facilitate the recovery of agriculture-based livelihoods, gradually reduce the need for food aid and further reduce displacement of farming households.
- 32 Between 2010 and 2016, FAO implemented eight projects in central and northern Rakhine State totalling to USD 3 834 839. Five projects were emergency projects, and non-emergency projects totalled to 1 604 305 (see Table 4). The main townships where FAO worked and is working are: Buthidaung, Kyauktaw, Maungdaw, Minbya, Mrauk U, Rathedaung, and Sittwe, with the bulk of the projects implemented in northern Rakhine State (Buthidaung and Maungdaw).

Table 4: FAO project delivery in Rakhine State

Period	Emergency (USD)		Non-Emergency	
	Count	Value (USD)	Count	Value (USD)
1999-2010			7	6 953 672
2010-2016	5	2 230 534	3	1 604 305

33 Table 5 shows the target and actual beneficiaries of the projects. It shows that an estimated 23 500 household beneficiaries were targeted in central and northern Rakhine. This amounts to about 116 414 individuals. Only three projects cited a disaggregated data on women and children in their project document. Out of a total of 99 414 individuals from the three projects, women beneficiaries were 52 539 (52%).

Table 5: Summary of beneficiaries in Rakhine

Project Symbol	Target				Actual			
	Households	Individuals	Women	Children <5	Households	Individuals	Women	Children <5
OSRO/MYA/001/CHA	5 000				6 711	43 621	22 247	6 543
OSRO/MYA/003/CHA	8 720	54 064	28 492	6 812	10 658	66 080	34 825	8 326
OSRO/MYA/102/CHA	4 000	27 200	13 872	4 624				
OSRO/MYA/502/CHA	3 300	18 150	10 175		3 300	18 150		
OSRO/MYA/402/FRA	900	5 000						
TCP/MYA/3405	1 600							
UNJP/MYA/014/UNO		12 000						

34 The projects provided seeds for rice, pulses, ground nut, and vegetable, fertilizers, bio-pesticides and agricultural inputs, livestock (cattle, goats, poultry), fishing gears and equipment, rehabilitation of infrastructure, training in improved agro-technological packages. The assistance was also provided to enhance the capacity of resource-poor and poverty-stricken farmers to produce a wide variety of vegetable, rice, pulses and other crops, including improvement of fisheries and aquaculture development by using sustainable and environmentally-friendly technologies. Table 6 shows the different projects completed by FAO in Rakhine and some overlapping conflict and natural calamities in the area.

Table 6: Simplified timeline of FAO activities in Rakhine

Year	Event	FAO Response
2010	Flooding (October)	OSRO/MYA/001/CHA OSRO/MYA/003/CHA UNJP/MYA/014/UNO
2011	Flooding (July)	OSRO/MYA/102/CHA
2012	Violence, displacement of 140 000 Individuals (June-October) Flooding (August)	
2013	Violence, in Sagaing and Shan State (June - October 2012)	TCP/MYA/3405
2014		
2015		OSRO/MYA/402/FRA OSRO/MYA/502/CHA

4. Findings

4.1 Findings on the current situation

- 35 Based on the focus group discussion and key informant interview, the study found that agriculture is the foremost source of income (60 percent of the respondents) mainly through rice farming. Also, general labour is the second most preferred livelihood. Based on the sample, individuals usually have an average of two major types of livelihood. **With the exception of “general work” and “working with the government” most income generating activities are more traditional and based on agricultural inputs.** Other livelihood sources of households interviewed are presented in Table 7. The most important time for agriculture is the planting season, from June to July. There was no major shift in livelihood before and after the conflict for the villages sampled.

Table 7: Source of income of the respondents

Income Type	Before Conflict		After Conflict	
	No.	% overall	No.	% overall
Agriculture	31	60 %	31	60 %
General Worker	21	40 %	22	42 %
Livestock	15	29 %	14	27 %
Winer Crop	14	27 %	14	27 %
Fishing	10	19 %	10	19 %
Vegetable Growing	8	15 %	8	15 %
Government staff	6	12 %	6	12 %
Sewing	3	6 %	3	6 %
Small-scale business	2	4 %	2	4 %
Traditional Selling	2	4 %	0	0 %
Small-scale Business	2	4 %	2	4 %
Woven basket	1	2 %	1	2 %
NGOs staff	1	2 %	1	2 %
Average number of income sources =			2.23	

- 36 Information on the respondents’ coping strategies are presented in Table 8. Based on the study, food shortage is most heavily felt in the months of April and May. Farming households earn higher income after the monsoon harvest season in November and December and often spend these on food needs, education, health, maintenance of houses and agriculture inputs.
- 37 Health costs increase in October when more family members get sick. The price of rice (paddy) is lowest after the monsoon harvest and highest in April and May, the leanest and driest months of the year. Diarrhea is also common in April and May, around the dry season, where sources are limited, which increases the stress on household finances. **Borrowing money is still the most common coping mechanism, followed by casual labour and selling of household assets.** None of the farmers interviewed resorted to planting monsoon crops and reduction of food consumption. Access to water is directly related to increase in production, both in terms of a more consistent water supply for crop cultivation and the ability to have two cropping cycles per year. Fishing is also an opportunity presented by access to water resources.

Table 8: Coping mechanism taken by the respondents

Coping mechanism	No.	%
Borrow money	42	95 %
Casual worker	23	52 %
Selling asset	27	61 %
Growing winter crop	0	0 %
Reduce food consumption	0	0 %
Raising animal	1	2 %
Fire wood collection	2	5 %
Traditional selling	1	2 %
Sewing	1	2%
Average number of coping mechanisms	2.68	

- 38 Flooding and storms, as well as pest infestations majorly affect livelihoods. Strong rain and floods wash off not just agricultural lands crops, prawn ponds and livestock but also homes along the river banks. This is true for townships in the north, west and south. Saltwater intrusion is a concern across all townships visited. The combination of strong winds and high tides during planting season hamper the rice planting activities in low lying areas. These areas commonly have rice paddies bordering river tributaries. **When asked to map the hazardous areas of their communities, it was found that the poorest members of the village were those living in areas most prone to floods, landslides and strong winds.**

4.2 Findings on increase in income

- 39 **Where FAO has been able to distribute appropriate inputs at the right time, both farmers and government partners report an increase in production and household income.** Based on the farmers interviewed, 15 percent claimed that FAO contributed to the increase in the number of animals and another 15 percent said FAO inputs helped increases in crop production. This is consistent with the inputs that FAO has distributed in its communities as shown in Table 9.

Table 9: Types of inputs/support received from FAO

Type of FAO inputs	No.	%
Goat	16	33 %
Crop seed	31	65 %
Poultry	12	25 %
Dam	4	8 %
Fertilizer	25	52 %
Fishing net	1	2 %
Well	1	2 %
Road	1	2 %
School	1	2 %
None received	0	0 %
Average number of items from FAO =	2	

- 40 Only 10 percent of those interviewed mentioned that FAO contributed to reduced risk and increased resilience. Despite most Rakhine projects focused on immediate food security and livelihood needs, 10 percent of farmers interviewed said that FAO increased their resilience. This feedback could be generally attributed to training and capacity-building

components (e.g. nutrition awareness, crop and animal production, and household savings). Households who were able to pay off their initial debt after a good harvest also had a better ability to invest in agriculture inputs for the next cropping cycle.

- 41 **There is general positive feedback on the inputs provided by FAO in various projects gathered from post-distribution surveys and group discussions.** Among these there is good quality of rice, legume and vegetable seeds and the fertilizers. Ka Ze Yi (usual aid) varieties of rice and corn fetched higher prices at the market. When unaffected by pests and weather hazards, a bag of the Ka Ze Yi corn covers half an acre of land. Less the initial investment of MMK 50 000 (USD 50) for labour and additional inputs, a farming household can bring in a total of MMK 200 000 (USD 200) at harvest from the half acre. District and township officials also corroborate this information across townships visited. The increase in production is attributed to the infusion of good quality fertilizers which farmers are otherwise unable to afford without FAO support.
- 42 The more successful interventions are around FAO's distribution of summer season crops while livestock are among the most appreciated. Post-floods, cattle and buffalo are more preferred for farming. Pigs are most profitable while goats are for multiplication. Goats and pigs are often sold live for cash. Chickens and goats are preferred especially by landless farmers because these require little input. If distributed at the right time, poultry (chickens and doves) contribute to increase in income for landless and vulnerable groups as these are much easier to care for and less intensive. Vaccinations, weather conditions and knowledge of animal care (extension services) are key to the success of livestock interventions.
- 43 Projects with food or cash for work components (for small scale infrastructure) provide immediate income while providing more long-term assistance. FAO and the World Food Programme (WFP) built water harvesting facilities in the north (Buthidaung and Maungdaw) for the United Nations Joint Programme project from 2010 to 2012 which continues to receive good feedback in the discussions and is one of the more easily recalled of FAO interventions. Rakhine communities report increase in income mainly because the dam allows two cropping per year. Neighbouring communities also enjoy the same benefit.
- 44 **The positive impact of FAO support remains short-term due to the recurring shocks faced by communities over the course of a year.** A number of the project areas were beset with landslides, floods and saltwater intrusion due to strong wind and rains. For instance, Cyclone Komen in 2014 caused losses in inputs and animals among two-thirds of the 900 household beneficiaries of 402/FRA towards the end of the project. FAO was able to re-distribute chickens to only 100 farmers with the remaining budget. Other projects like MYA/3405 distributed good seeds in 2014 but strong rains and floods damaged standing crops and storage.
- 45 **Communities that received FAO seed interventions in 2013 reported increased high yield per acre, which allowed them to partially pay their debts in 2014 and completely pay them in 2015.** Projects that conducted post-distribution assessments have been able to trace the timing of distribution against the utilization of inputs but are not in a position to determine the increase in income. On the one hand, reports from projects with longer time frames such as MYA/3405 have been able to assess changes in food consumption as a result of the project.⁵
- 46 **The impact of FAO's intervention has been in preventing farmers from spiralling into further debt. Focus group discussion and interview respondents say they just revert to the 'way it was before' after facing new shocks. Township officials say that despite not being able to contribute to a sustained change in income, FAO-assisted communities have been more stable and are more able to re-engage in their farming activities following shocks.** Borrowing money/inputs is the most common coping mechanism but could contribute to a cycle of debt if production is disrupted.

⁵ For instance, the assessment reported 75 percent of respondents consumed the same type of food as the previous year but 40 percent of households said they were able to eat rice three times a day in the last three months, compared to the previous year.

4.3 Findings on land ownership and agriculture relationships

- 47 Most FAO target communities are able to access land either owned or granted through settlement arrangement with government. Landless communities, mostly internally displaced people (informal settlers outside villages or IDP camps), are employed as farm labourers or rent land from the village. Land ownership is predominant among Rakhine communities in Minbya, Mrauk U, Pauktaw, and Sittwe. In the northern Rakhine State, Muslim communities in Buthidaung Maungdaw and are predominant land owners. IDPs (Rakhine and Muslim) rent land from Muslim households who are unable to farm. 'Landed' Muslim communities in other townships have either been appropriated settlement areas and communal farmland by government or are able to rent land from Rakhine communities. **Agriculture labour is predominantly provided by Muslim communities, with the exception of Rakhine IDPs in the north.** Farming families with three to four acres only plant for consumption and those with 25-35 acres plant for selling.
- 48 **In the course of various conversations, the team found that the term 'IDPs' is more nuanced. For instance, Muslim communities are called IDP communities but in conversation, they expressed that their families were granted settlement in the area for many years.** These communities also 'own' farm lands, individually or as communal farms. Settlements like these have functional village systems and facilities with some located behind government property (such as the Border Control Department) and have monitored movement or limited access to the town. In this regard, the community isolation is brought about by restriction and not by road access or distance. Many of these communities were affected by the conflict in 2012 or have since experienced outbreaks of violence. Their restriction has meant a more steady presence of development agencies providing health, education, agriculture inputs and monthly food rations.
- 49 Restricted settlements near the coast also have limited access to fishing grounds. FAO projects in these communities provide access to agriculture inputs and training which they may otherwise not been exposed to. These also increase agriculture activities in the village compensating for employment opportunities missed outside of their settlements.
- 50 Access to the market is not an issue for unrestricted Muslim or Rakhine communities. However, for Muslim restricted areas, they only sell within the village, they can engage in possible partnership with nearby villages but have to bypass the Rakhine villages nearby by going through the mountains to reach other Muslim communities. Some Rakhine villages as well don't have markets within the village and are unable to sell to the neighbouring Muslim communities. Instead, products are sold to buyers from town who collect products from the villages.
- 51 Very few households interviewed said that they had goods to sell to the market. Only 4 percent of the respondents said they were able to sell their produce outside their village while another 4 percent has enough produce to sell within the village. **Communities also report that it is more cost effective to sell to middle men who come to their village rather than make the trip themselves.**
- 52 **Communities which have been affected by violence report that their ability to seek or provide farm labour has been limited. Farmers from restricted Muslim are able to work as labourers in nearby Muslim farms but may need to find ways to bypass nearby Rakhine communities. Women in restricted Muslim communities have been unable to work as farm labourers or engage in odd jobs in neighbouring Rakhine villages.**
- 53 **Land rental has become more expensive which has discouraged many farmers who said farming has become less profitable, especially as crops have become more susceptible to pests and weather hazards.** Plots of land tended are not necessarily affected by violent events but farmers are more concerned about access to water and the cost of production.

4.4 Findings on social cohesion

- 54 There are different factors that have affected the extent of access or exclusion of communities. Restrictions are either made by government and social interest groups or are self-imposed and extend to villages, town centres, markets or fishing grounds.
- 55 There is also a general feeling of mistrust amongst Rakhine and Muslim villages, especially in communities which were directly affected by violence. Agriculture has suffered in both Rakhine and Muslim communities, with both reporting acres of standing crops being abandoned or burned during the conflict. **Resumption of agriculture relationships (land owner-tenant/labourer) have not completely recovered.** Theft of crops and animals came up as common concerns, to the point where some of the livestock recipients said it limited grazing areas for their goats.
- 56 Some villages with Rakhine and Muslim internally displaced people are still internally divided, resulting in inconsistency in information among respondents. Security is also an important concern in these areas. Agriculture and forestry concerns become secondary worries. The case study team visited several isolated communities in Minbya, Mrauk U, Pauktaw and Sittwe that host a limited number of Muslim households in the village periphery or have neighbouring Muslim villages. The isolation⁶ in these communities has to do with distance and access to town, which is the main reason they receive very limited aid or interventions from either government or development agencies.
- 57 The team observed much better symbiotic agriculture relationships in these types of isolated communities. Muslim communities are consistently employed as labourers throughout the year and have tended to Rakhine farms which received FAO inputs. It was also observed that the farther from the centre the communities were, the closer the two groups became, showing self-facilitated cohesion after the 2012 conflict. **Agriculture and livelihoods are the binding factors in these communities.** Communities such as Zay Pu Gyaw for instance, show that closer relationships between Rakhine and Muslims facilitated the exchange of agriculture information (such as the care for FAO distributed corn seeds) as well as complementation in the provision of needed services and goods.



The Rakhine community of Zay Pu Gyaw is host to some 70 Muslim internally displaced people who have settled in the outer ring of the village, close to the river. The Rakhine households own farms and the Muslims provide labour for the fields. The Rakhine households do not fish and the Muslim villagers are able to sell their fish to the community. Contrary to what has happened in other communities, Zay Pu Gyaw became a close knit community during and after the 2012 conflict. No major issues of violence have been reported and in contrast, a symbiotic economic and agriculture has developed.

⁶ According to general classification, isolated communities are Rakhine villages that are surrounded by Muslim villages or settlement, or vice versa. The isolation referred to in this report is the distance and access to services.

4.5 Findings on gender and inclusion

- 58 Generally, analysis of impact of conflict and disasters on women does not appear in project documents. **This considered, there is conscious effort in FAO implementation to target women, female headed households and vulnerable groups with limited economic opportunities, especially in the distribution of poultry and small ruminants.** It is also important to note that IDPs who plant in other areas are not excluded from distributions. According to the Department of Agriculture (DOA), only 5 to 10 percent of the region is covered by FAO interventions.
- 59 Communities appreciate the specific targeting of FAO (i.e. landless, women, elderly, using land size as qualifier) as the inputs are given to those who are actual farmers or are in need. **Communities are able to recall the process where community meetings are called to identify the poorest, women headed families, elderly, disabled, and households with younger children. The majority of the villages see FAO support as equal and fair enough with FAO staff joining to identify who the most vulnerable are, especially in Muslim isolated areas.** Most inception phases of projects involve consultations with a number of communities to determine preferred varieties of crops and breeds of livestock.
- 60 There has been an increasing demand from Rakhine interest groups to ensure a 50-50 distribution of Rakhine and Muslim beneficiaries and adjustment to this is discussed by the township level Emergency Coordination Committee. The ECC is composed of township government representatives (including the Department of Agriculture and the Livestock Breeding and Veterinary Department - LBVD), elders, township administration and social interest groups (youth, political/ethnic parties). Proposed target Muslim and Rakhine villages will also be deliberated here and only those areas approved and agreed by the group are reached. Some of the interventions do not reach the isolated areas, especially where the populations are not strongly organized and unable to send a representative.
- 61 Most villages visited have received support from various international NGOs but the most common are food and livelihood inputs. Muslim settlements have been provided with education, health and water, sanitation and hygiene facilities but did not specifically target women and/or other vulnerable groups, with the exception of children (for education facilities). In most group discussions or interviews, men and women could not distinguish organizations and the specific inputs provided. Recall is mostly around the inputs their households received.
- 62 It is important to note that the cost of casual labour varies but there is significant difference between men and women. Men make between MMK 5 000 and 6 000 (USD 5-6) for daily labour while women make between MMK 1 500 and 2 000 (USD 1.5-2) per day. Muslim women receive the lower band.

4.6 Findings on increase in knowledge and change in practices

- 63 All FAO projects have some form of capacity-building components, depending on the project objectives or the inputs distributed. In addition to training on animal and crop care and production, FAO has also organized training for household nutrition and small businesses. **Community members were able to recall the training they received from FAO and consider these helpful. Feedback from communities with delayed input distributions also said that they could still apply what they learned from the livestock and crop production training in their farms. They also recognize that knowledge on crop and animal care would help them recover from future disasters and conflicts.**
- 64 Most project activities commence with training and planning with government staff at the township level and the training of trainer's approach is used. Not all training of beneficiaries is done on site. Some of the **contact farmers** or community volunteers are trained in clusters at the township level, with the expectation that they will pass on the information to their village. Limited training opportunities tailored for generally excluded groups (women/elderly) – most of those who attend training are men as these are conducted outside the community.

- 65 **While most *contact farmers* and members of Livestock Breeding and Management Groups are men, more women are involved in the training and capacity-building activities at the village level. At this point, women take a higher representation, except when training activities are conducted around July during the planting season when participation from women drops to 30 percent.** More Rakhine women received training and knowledge livestock raising and caring method (giving food, water and bath). There has been limited training participation from Muslim women.
- 66 **Capacity-building activities, like training on livestock and crop management have been limited by language. Central and northern Rakhine State region uses native Arakanese/Rakhine and Muslim/Bengali language; the use of both languages is limited among Rakhine and Muslim populations. Technical staff brought in from Yangon speak Myanmar and use this language to communicate in the region.** Several project reports indicated language as a barrier and limitation as much is lost or misunderstood, even when using local interpreters.
- 67 Township DOA and LBVD have more means to provide extension work during FAO projects but extension services dwindle or become extremely limited post-project. Extension services are strapped for budget so limited to one-off training during distribution or in the training component of short-term projects. Township officials are also mostly Rakhine and have limited ability to visit Muslim areas due to language.
- 68 **The recruitment and training of volunteer agri extension workers (AEWs) in the village is a strategy to alleviate the need for extension work but not all are able to sustain their role beyond the project.** There are functioning models for community-based extension service (AEW) which can be replicated. The team found a non-FAO supported Rakhine community (control group) which had functioning village animal and crop extension workers who had been previously trained by another agency. Despite the project ending, both male and female AEWs provided service to the community in the absence of government extension workers.



Even if other agencies do not support us with material things, we have learned how to raise livestock so we can also help ourselves.

Rakhine Farmer

4.7 Findings on displacement and migration

- 69 FAO's emergency projects have targeted both displaced and host communities and in certain projects have clearly articulated the desire to prevent further displacement or migration through the resumption of agriculture activities. There have been reports of migration to Thailand or Malaysia for work among the respondent communities. Most communities are long-term settlers. Displacements due to violence and disasters are temporary as most affected communities return to their villages because of their farms and properties.
- 70 When flood events occur, farmers say they move to higher ground for three to five days or until flood waters subside, seeking shelter in temples/mosques or in the mountains and eventually return to their homes and tend to their livelihood. Violent incidents have

affected some communities where they report of a few houses being burned (Muslim) and crops being destroyed, but communities choose to remain or return to the villages.

- 71 In the case of Mrauk U, which has a better mix of Rakhine and Muslim population, there was no felt need to move. Muslim and Rakhine members of the community were able to go back to normal relations, resuming agriculture relationships at village level. Muslim populations were able to go to local markets but did not linger.
- 72 **While migration does not seem too prevalent in the communities visited, they did say that labour during planting and harvest season has become difficult to source because some workers have left to work elsewhere.** However, this also needs to be substantiated with the point that there has been a decrease in the hiring of labour of Muslim farm workers.

4.8 Findings on independence from food and other aid

- 73 **FAO interventions have been more successful at providing immediate needs for agriculture production and contribute to food sources at the household level. Because of the recurring nature of shocks, most households have very limited capacity to better re-build and gain sustained independence from food aid.**
- 74 At the time of the visits, the World Food Program was scheduled to phase out of general household food distributions in some zones in Rakhine. According to their assessment, the situation of 20 000 people has changed in Zone 1 (affected by violence in Kyauktaw, Minbya and Mrauk U), where people have gone back to their communities. There is a general reflection that prolonged aid may have created dependency.
- 75 The team observed that communities which have received prolonged support from various agencies have exhibited signs of dependence on food aid and other services and had limited interest in expanding or sustaining livelihood activities. Focus group discussions with communities receiving food rations and other aid from international NGOs showed a limited willingness to engage in production, citing access to land and resources for inputs. Isolated Rakhine or Muslim communities had more motivation in engaging in agriculture activities (receiving agri-inputs) and were more self-reliant.
- 76 Underlying vulnerabilities of communities have not changed and socio-economic impacts of previous conflicts and floods or dry spells still remain. Casual labour, which is the highest income source in all agro-ecological zones opportunities, has decreased since the conflict and where functional, opportunities are not consistent across the year. The cost of land rental and casual labour is said to have increased and the disparity in the pay between men and women workers remains.

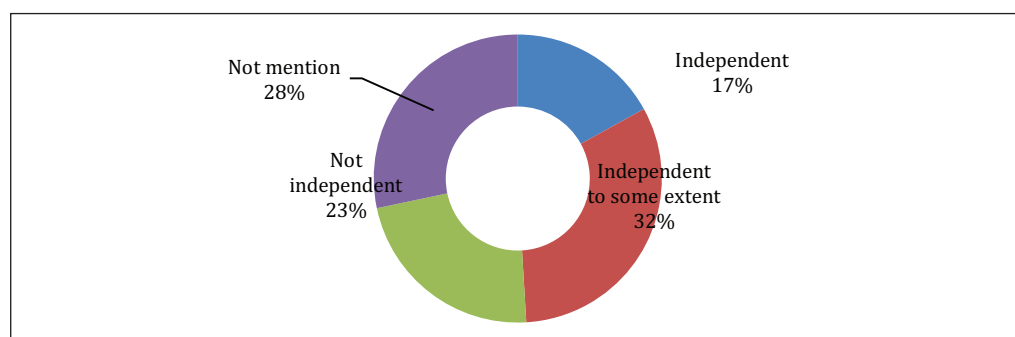


Figure 2: Perceived independence from food aid among 52 farming households

- 77 Only 17 percent of farmers interviewed said they are able to carry on without food aid while 33 percent said they felt they have become more independent but would need some form of limited support. Around 23 percent of those interviewed said they did not see themselves as capable of being independent from the food aid.

- 78 Further support needs include animal vaccination, prevention of saltwater intrusion, agriculture and livestock inputs, fertilizers and pesticides, small boats, oars and nets for those whose main income is fisheries, fish pond for additional livelihood, more dams, health and agri-education.
- 79 Communities with access to water impounding/dam components have expressed more capacity for independence and self-reliance. Dams and small scale irrigation provide reliable sources of irrigation which make two cropping possible. The dams are also a possible source of fish for household consumption.

5. Conclusions

Conclusion 1. Projects implemented from 2010 to 2016 responded to needs for agriculture production and household nutrition, following conflict or natural disasters. Out of the seven projects, four projects were implemented in northern Rakhine State, where access to land and food insecurity is more prevalent.⁷ FAO projects also responded to risks and vulnerabilities highlighted by a WFP Food Security Assessment in northern Rakhine State in 2011 that said only 40 percent of households had access to agricultural lands, that farming households with land holdings lower than two acres were more likely to be food insecure and that immediate food needs was the main reason for people taking loans.⁸

Conclusion 2. Across all projects, FAO targeted smallholders and landless/tenant farming households and further prioritized women and vulnerable groups within the community, ensuring that those most likely to be food insecure will have the means to provide for their immediate food and livelihood needs. Crop production and livestock inputs were also tailored to household assets and capacities of beneficiaries. Provision of training also ensured that beneficiary farmers have the information they need to utilize the inputs distributed.

Conclusion 3. Timing of input distribution is crucial. All projects discuss this aspect in their reports and have adequate recommendations for future projects. For instance, the post distribution assessment of MYA/3405 clearly recommends rice seeds to be distributed in June, ahead of the monsoon cropping season from July to August, which is the most crucial in terms of access to water and volume of production. A similar recommendation is made for vegetable seeds distribution prior to the September, December and January cropping season. By missing these times, FAO runs the risk of farmers either milling the rice seeds or keeping the seeds for the next season and risking poor germination.

Conclusion 4. Delays cause missed opportunities for FAO to affect livelihoods of farmers through the use of better variety seeds or miss out on an entire cropping season. The timing of distributions is also crucial to preventing further household debt for agriculture inputs.

Conclusion 5. Similar recommendations have been made across project reports and assessments on breeds and timing of livestock distributions. For instance, projects that distribute livestock around July will compete for labour and farmers' time and have high probability of diseases and high mortality in transit due to the rains.

Conclusion 6. A number of FAO emergency projects run into longer inception processes and procurement issues. Projects MYA/3405 and 402/FRA, for instance, were framed as emergency projects responding to the conflict incidents in 2012 but were implemented beginning in 2013.

Conclusion 7. Beneficiary and distribution records are collected by the Department of Agriculture and the Livestock Breeding and Veterinary Department and submitted to FAO for the project data only. Township level DOA and LBVD are able to produce these in a more organized manner, so information is available for monitoring and follow-up projects.

Conclusion 8. Early recovery of farming communities from the impact of shocks has been challenging to measure across all projects due to the limited time frame. Only two projects (MYA/3405 and 402/FRA) have attempted to provide more systematic assessment of the project's activities. Even then, it was too soon to measure if production did in fact increase or if household nutrition improved. Other projects such as 001/CHA, 003/CHA and 102/CHA reported success in terms of inputs having been distributed in time. At the time of the case study, 502/CHA was still setting up the post-distribution assessment for the crop and livestock distributions.

Conclusion 9. The recurring nature of shocks has greatly affected the ability of families to benefit from the inputs provided. Such has been the case of Cyclone Komen wiping affecting two-thirds of the 402/FRA beneficiaries and the impact of pests, diseases and long dry spell for another two-thirds of 3405/CHA areas.

7 Shagun Gupta. Development in Times of Transition; Socio-Economic Status of Rakhine State, Myanmar. LIFT

8 World Food Program. Food Security Assessment in Northern Rakhine State. 2011

Conclusion 10. While capacity-building is a main component of FAO's interventions, effectiveness of such activities depends on the mode and timing of delivery and the opportunity to immediately apply the new learning using the inputs. There is still a huge disparity in the attendance of men and women where a 50 percent female attendance is rare. Training did not include disaster risk reduction (preparedness and evacuation of animals for instance).

Conclusion 11. Behaviour change and improved practices are long-term goals which are reached through continues injection of information and inputs. The impact of training on household nutrition cannot be measured and/or achieved within project of less than an eleven-month period. Generally weak extension services especially in Muslim and isolated communities limit the people's access to information and support which would help farmers reinforce the application of new knowledge and skills.

Conclusion 12. FAO interventions have been geared towards providing for immediate needs, with the assumption that households with improved food security are able to engage in more livelihood opportunities. Capacity-building activities are ideally more lasting than the inputs; however, given the limited time frame of projects, training events have been limited to one-off sessions.

Conclusion 13. Communities have expressed their limitation to prepare for recurring disasters. More farmers are concerned that they are unable to protect their crops and animals from pests and diseases, especially those brought about by the changing climate pattern. Very little information comes to the communities, and particularly for Muslim communities in terms of agriculture extension support and information materials. Figure 3 shows the need for further inputs, according to the farmers interviewed. The Figure also shows that expressed need for training.

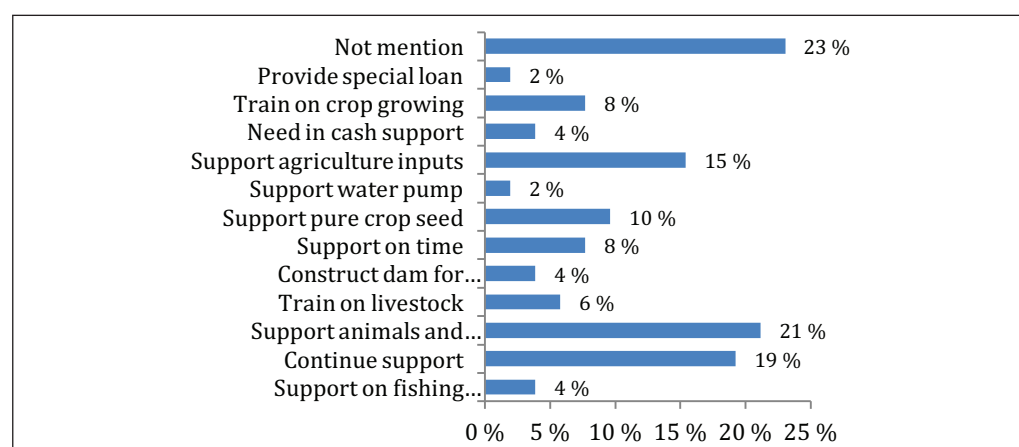


Figure 3: Need for future interventions

Conclusion 14. According to other agencies, there has been limited engagement from FAO in terms of strategies and complementation of livelihood and agriculture interventions in the region. FAO co-chairs the Food Security Working Group with WFP but at the time of the case study, had not chaired a meeting of actors for some time. FAO interventions were not commonly known among agencies who were in fact looking to FAO to provide technical guidance to the various livelihood interventions being implemented. For instance, some international NGOs were providing agriculture and livestock inputs with very limited or no training components and were hiring their own local specialists.

Conclusion 15. FAO has had seven emergency projects responding to either conflict or flood events between 2010 and 2016. These projects were implemented in different target areas and in different periods, with most projects at less than eleven months, around input distribution with short training components.

Conclusion 16. FAO Myanmar does not have a Rakhine programme. All projects reviewed were individual projects responding to specific flood or conflict events, with no follow-up projects. There seems to be an assumption that follow-up and extension work will be through local government partners, despite budget limitations for extension services.

6. Ways forward

- 80 As part of a global review in 2010, a review of FAO Myanmar Central Emergency Response Fund funded projects under the Nargis response set down operational, procurement and implementation recommendations specific to Rakhine and also the systems in Myanmar. Similar reflections and recommendations are also discussed at length in individual project reports from 2011 to 2015, including the more recently completed 402/EC and MYA/3405. In addition, possible actions for improvement from recent experience include:
- 81 Information on animal and crop care need to be standardized and made accessible. For instance, printed materials have been few and usually distributed to the volunteer extension workers only. Language and literacy is also a limitation, especially for Muslim communities, so popular materials with photos may be used in future activities.
- 82 Adjust inputs (delay or identify alternatives) and distribution schedules to meet the cropping calendar; availability of water, land holding and condition with careful consideration of inputs in relation to stresses brought by monsoon season:
- explore ways to complement emergency interventions of other agencies;
 - explore ways to jump-start extension services around predicted stress periods;
 - develop good and functioning models for community-based extension service (AEW).
- 83 FAO could expand its influence in Rakhine by capitalizing on its various early warning and food security monitoring (IPC) products to inform actors and facilitate complementation of interventions in Rakhine. This will respond to the guidance needs of the sector in the region and aligns with FAO's leadership role in the food security and agriculture sector.
- 84 FAO is the only agency with a direct partnership with the Livestock Breeding and Veterinary Department and the Department of Agriculture as such is in a crucial position to influence and help build the capacity of the local government to provide much needed extension services.
- 85 As per the experience of this case study, language and access to communities is challenging in Rakhine and this is an opportunity for FAO to explore partnerships with local NGOs who have facility for the language and have more intimate knowledge of local dynamics.
- 86 There is a need for nuanced analysis of the situation in Rakhine and consideration for the difference and the changing dynamics even within Muslim or Rakhine communities across townships. Political sensitivities may have discouraged a deeper analysis and engagement in the past but recent developments in Myanmar have opened opportunity for more dialogue around peace and reconciliation.
- 87 FAO should explore developing a Rakhine programme focusing on building resilience of Rakhine and Muslim agriculture communities. Through a programmatic approach, FAO could address immediate and medium-term needs around emergencies and shocks while addressing the underlying causes of vulnerability and contributing to social cohesion and peacebuilding over the long term. Some of the activities/strategies could include:
- inputs with potential to outlive recurring shocks such as small-scale dams and water harvesting infrastructure (saltwater intrusion and water supply);
 - build elements of disaster preparedness in crop and livestock training;
 - explore on-farm capacity-building like Farmer Field Schools and open opportunities for land owners and farm workers;
 - facilitate joint access to market or economic opportunities
- 88 The portfolio may consist of Technical Cooperation Programmes (TCPs) geared towards more regular development type interventions for specific target populations, facilitating

social cohesion and increased productivity. Shocks may be addressed by short-term OSRO/CERF projects which could be tied to ongoing TCPs for follow-up.

- 89 The nature of chronic food insecurity and recurring shocks could classify Rakhine as a protracted crisis. Protracted crisis and resilience-building are relevant to the context and an opportunity for programming under a new Country Programming Framework. Addressing underlying vulnerabilities of the region and zeroing in on recurring climate-related shocks is also consistent with the two priorities⁹ of the FAO Regional Office for Asia and the Pacific.
- 90 There is a need for constant presence of an FAO programme (or project) office in Rakhine, with staff who are able to make engagement and programmatic decisions for the region. Given that most government partners are only proficient in Rakhine and Myanmar language, there is a need to put together a team of Muslim speakers or for FAO to work with local NGOs who have facilities for Muslim languages and can enter freely in Muslim areas (even township officials would not go to Muslim settlements etc.) Not all distributions have an FAO staff present though the current project staff in Sittwe have tried to be present. Among FAO's approach to building resilience there is a 'timely and effective response'. Among the first lessons and actions to be taken there is to increasingly improve procurement and distributions. The following could also be the advantages of establishing a constant operation presence:
- presence and hands on support to field operations
 - active decision-making at field level
 - stronger voice in local/regional coordination
 - consistent monitoring and evaluation and support to implementation quality to partners
 - improve direct dialogue/joint implementation with government partners.

9 FAO RAP's pillar for implementing FAO's Five Strategic Objectives in the Asia Pacific includes One Health and Climate Change.

Appendix 1. Rakhine State Social Network Analysis

1. Introduction

91 The FAO Office of Evaluation has initiated a Country Programme Evaluation in Myanmar, covering the period from 2012 to 2016. The activities and tentative schedule for this evaluation are as included: 1) review of project documentation and related literature in October and November 2015; 2) three-week inception mission to Myanmar in December 2015 to meet with the FAO Representation, government partners and development organizations to discuss and prepare the Terms of Reference; 3) three-week beneficiary assessment of the work conducted by FAO in Rakhine State in April-May 2016; 4) three evaluation missions to Myanmar tentatively set in October 2016; and 5) workshop with FAO Myanmar and government staff before and after finalizing the evaluation report to discuss the final evaluation report recommendations.

2. Background and context of the Project/Programme

2.1 Description of the projects

92 Rakhine State has 18 townships, 2 082 village tracts and 7 720 villages. The population in Rakhine is estimated at about 3.3 million, with 1.6 million males and 1.7 females. The average household size is of 6 people, whereas the national average is 5.2. The townships of Kyauktaw, Myebon, Mrauk U, Pauktaw, Ponnagyun Rathedaung and Sittwe are the most dense townships in the northern half of Rakhine, all above 110 000 individuals. The northernmost part of Rakhine which is Buthidaung ranges from 40 000 to 50 000 individuals. (MIMU, 2014). All of the townships aforementioned have high rural population above 80 percent except for Buthidaung, Kyauktaw, Ponnagyun Rathedaung and Sittwe which have the highest rural population by percentage. The coastal townships of the northern half of Rakhine include the town of Maungdaw, Pauktaw and Sittwe.

93 The Rakhine State in Myanmar has been host to recurrent natural disasters and intercommunity conflicts. The region's population is generally divided into two major religious groups further characterized by their ethnic origins. These differences, in addition to other factors, have resulted in violent confrontations beginning in 2012, causing loss of life and destruction of farms and infrastructure. Floods, mudslides and cyclones along with the sporadic violence have displaced many households over the years.

94 FAO's interventions in the region have primarily aimed to respond to immediate livelihood recovery needs of vulnerable farming communities affected by disasters or conflict. Through different projects, FAO extended agriculture support to both the displaced populations and isolated and host communities to facilitate the recovery of agriculture-based livelihoods, gradually reduce the need for food aid and further reduce displacement of farming households. A mass of other organizations has subsequently established presences in Rakhine State since 2010 at the onset of Cyclone Giri (see Table 10).

Table 10: Simplified timeline of FAO activities in Rakhine

Before 2010	2010		2011		2012		2013		2014		2015		2016
	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun
GCP /MYA /001 /HCR			Cyclone Giri (October)										
GCP /MYA /002 /HCR					Flooding (JuyI)								
GCP /MYA /003 /EC					Violence, Displacement of 140 000 Individuals (June Oct 2012)								
GCP /MYA /004 /UNO					Flooding (August)								
GCP /MYA /005 /EC							Violence, in Sagaing and Shan State (June-Oct 2012)						
GCP /MYA /009 /EC		OSRO /MYA /001 /CHA		OSRO /MYA /102 /CHA			TCP/MYA/3405						
		OSRO /MYA /003 /CHA									OSRO/MYA/402/ FRA		
	UNJP /MYA /014 /UNO											OSRO /MYA /502 /CHA	

2.2 Purpose of the analysis

95 To be used as an analytical tool to model networks in Rakhine State and capitalize on existing network attributes to suggest strategic and/or management recommendation.

96 To support the data collected in the field through triangulation with quantitative data.

3. Methodology

97 The analysis used the data from Myanmar Information Management Unit (MIMU) from the 3W – reporting of organizations working in Myanmar. The 3W is often used in emergency response, however MIMU has expanded the use of this information and has been collecting data since 2012. The total rows of information totals to about 109 000+. The data used for the Social Network Analysis) in Rakhine State totals to about 6 900+ rows of information. This includes information on project, partners, and implementation status.

98 The SNA was conducted using the GEPHI Software. This process involved preparing the data format as Nodes (unique items) and Edges (connections) and weighting the connections. For the first analysis “Between Organizations” the weight used was the number or partnership between organizations in terms of implemented activities per village. For the second analysis “Between Organizations and Villages” the connection was weighted using the prior weight and additionally the number of projects implemented in a village ward per organization. The algorithm used for both analysis is “Force Atlas”.

3.1 Limitations

99 All sectors were considered in the analysis. Rakhine State, especially northern and eastern Rakhine, has experienced several emergencies since 2010. This caused several sectors such as food security, livelihood, health etc. projects to be tightly interlinked.

100 The assumption was made that each sector has equal weight. The sectors considered included: agriculture, disaster risk reduction, health, infrastructure, livelihoods, non-food items, nutrition, protection, water sanitation and hygiene, food, education, governance, camp coordination and camp management, shelter, peace-building conflict prevention, environment, mine action, coordination, social protection and private sector development.

4. Results and discussion

4.1 Social Network Analysis between organizations

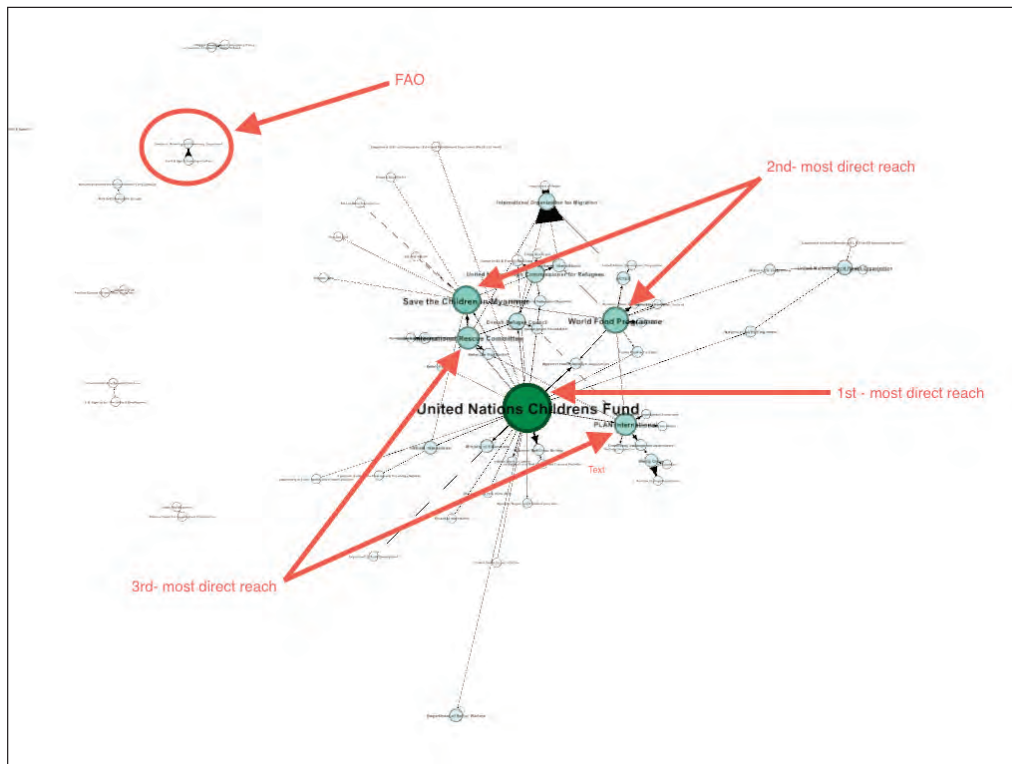


Figure 4: Overall “Degree Centrality” model of organizations in Rakhine State showing where FAO is situated and the top three most connected organizations

101 **Degree Centrality:** Figure 4 shows the “Degree Centrality” model of originations and implementing partners in Rakhine State. This shows all sectors that organizations are working in. In this model, if the circle is darker and bigger then it means that it has the most direct reach. Orange arrows show where FAO is situated within the organization network. In general, the model tells us that one organization, the United Nations Children’s Fund (UNICEF), has the highest number in direct reach within the network. It also shows the second most directly connected with organizations are Save the Children and the World Food Programme; in the third place there are the International Rescue Committee (IRC) and Plan International. The use of this model is that if FAO would want to partner with the greatest number of organizations, it can use those with the highest “Degree Centrality”. This will make other organizations connected to those well-connected organizations, second degree connections of FAO. The models show where FAO is situated within the overall network in Rakhine State. The modelling output shows that FAO is not connected to any large network in Rakhine State.

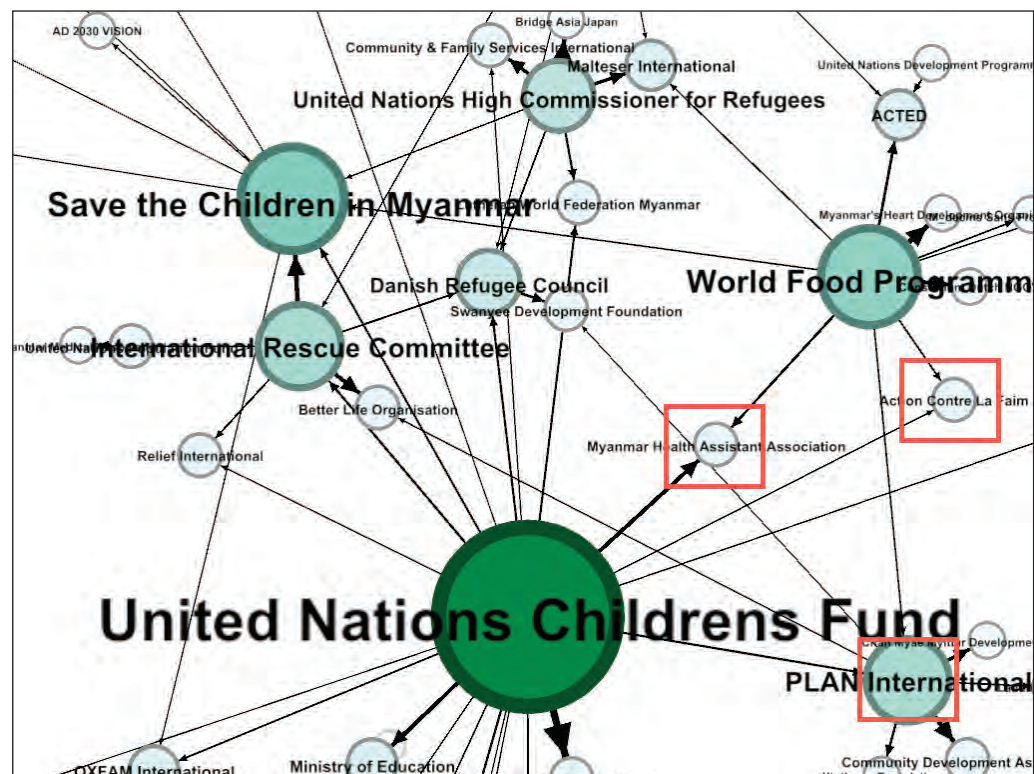


Figure 5: Closer look at the “Degree Centrality” model of the organizations in Rakhine State showing the most connected organizations (node)

- 102 Figure 5 shows a closer look into the “Degree Centrality” model. It shows that in some organizations, like in UNICEF and WFP, connection is stronger through the use of shared implementing partners such as the Myanmar Health Assistant Association, Action Contre La Faim and Plan International (in orange boxes). In Figure 4, FAO is mostly partnered with the Livestock, Breeding and Veterinary Department of the Ministry of Agriculture, Livestock and Irrigation.
- 103 Thicker arrows mean more partnership between organizations in terms of projects implemented. This can be useful in prioritizing stronger partnerships to be made at the field level. The direction of the arrows shows the direction of the partnership. For example, if a choice is to be made between the International Rescue Committee and Plan International based on this model, Plan International should be prioritized as it has five outward directed partnerships and is connected with two strong inward partnerships as compared to IRC with four outward partnerships.

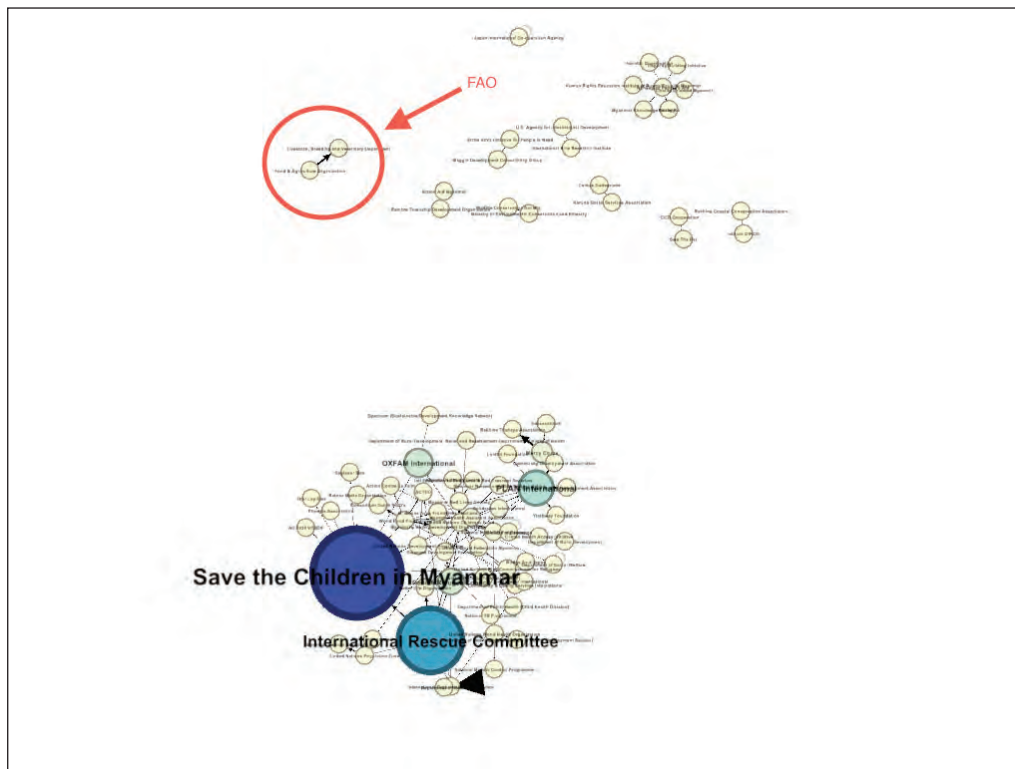


Figure 6: “Betweenness Centrality” model of organizations in Rakhine State showing the organizations that have the most influence in terms of information flow, but not necessarily the most connected

- 104 **Betweenness Centrality:** Figure 6 shows the “Betweenness Centrality” model of the organizations in Rakhine. The larger and darker the circle, the more connected it is. The model’s interpretation is that Save the Children Myanmar and the International Rescue Committee are the most used paths to connect within the network. The modelling is a combination of direct connections or connections through a secondary, tertiary and quaternary etc. pathway.
- 105 Based on this model, some possible management decision can be surmised. In terms of dissemination of information (i.e. project information, agriculture extension information, etc.) connecting with either Save the Children Myanmar or the International Rescue Committee would have more effect than any other organization. This is in contrast with the most “directly” connected organization in Figure 4 (UNICEF). Both Figure 4 and 5 tell us that UNICEF has deeper connection but Save the Children has more varied ones.
- 106 FAO is not linked to any network in this model; linking to this network might be a possible management action as it would involve more organizations. Another management recommendation based on this model is if there is an opportunity to possibly build a network to include other non-connected organizations in Rakhine.



Figure 7: “Closeness Centrality” model, showing the speed of information diffusion from one organization to its network

- 107 **Closeness Centrality:** This model shows the speed in which variables (i.e. information, services or coordination) reach from one organization to another. The larger and lighter are the circles, the faster the speed of variables flow (i.e. information). The model computes for the speed of flow regardless of the number of its connections. This means that some organizations will have a high speed of flow regardless of their connections.
- 108 Figure 7 shows that FAO is among several organizations that can reach other organizations in its network at a very fast rate, making flow of variables such as information, coordination, etc., efficient in its network. One way of interpreting this model is that if speed of information is sought in the large network, then organizations such as Oxfam, Mercy Corps, International Federation of Red Cross and Red Crescent Societies, Plan International, Danish Refugee Council, the United Nations Development Programme and the World Health Organization should be partnered with. This is in slight contrast with the “Degree Centrality” model where UNICEF is the priority, and with the “Betweenness Centrality” model where Save the Children is the priority.

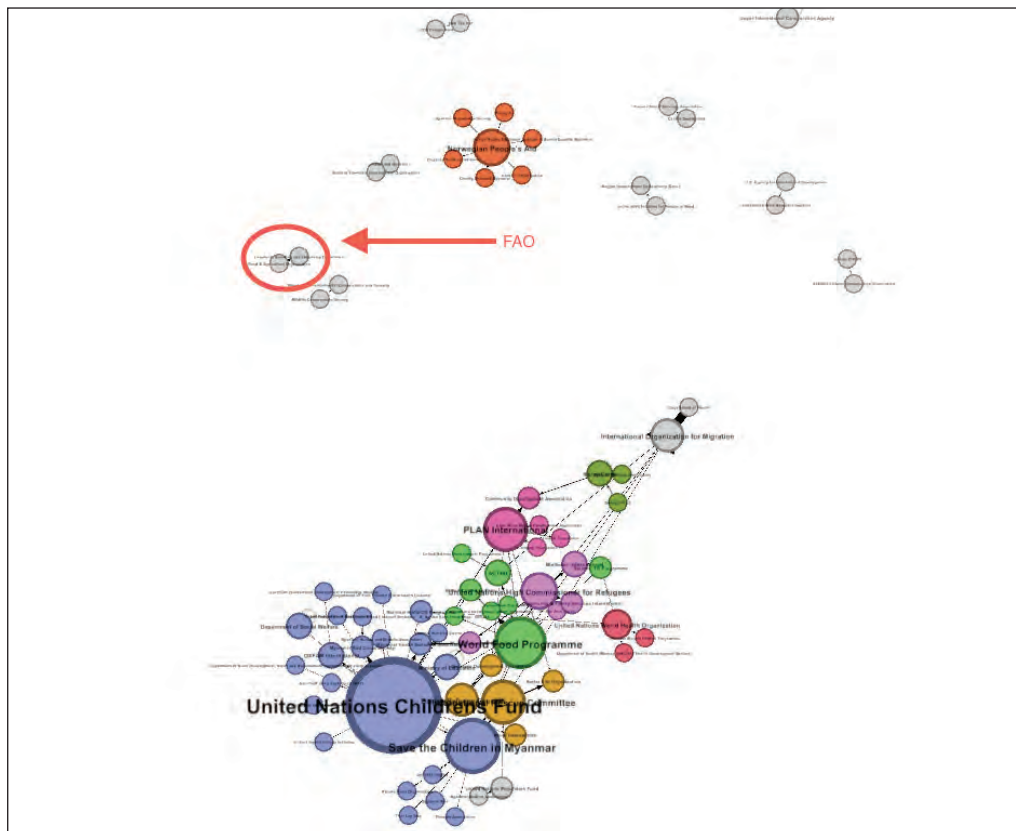
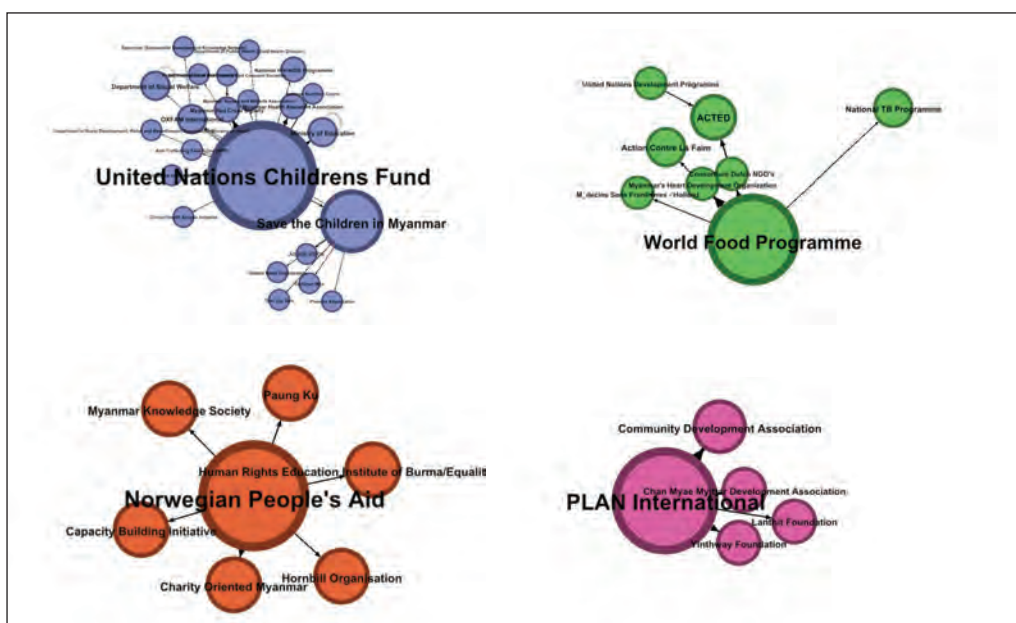


Figure 8: “Modularity Model” showing the different sub-networks within the organization network in Rakhine State

109 **Modularity:** This model shows the different subnetworks within the network. Figure 8.1 shows that there are 8 major subnetworks in the Rakhine (non-grey colour) and several isolated networks (grey colour) such as FAO. Figures 8.3-8.4 show the top four distinct subnetworks arranged by the strength of the network. The strongest subnetwork is UNICEF, followed by WFP, then Norwegian People’s Aid and Plan International network.

110 This model can be used if there is a specific subnetwork that FAO wants to partner with.



Figures 8.1-8.4: Top four subnetwork in Rakhine State

4.2 Social Network Analysis between organizations and villages

- Figure 9 shows the SNA results if all organizations and villages were considered in defining the social network in Rakhine. The weight used is the number of projects implemented by the organization in the village and how many projects are shared between organizations. The diagram shows a very intricate network; based on initial analysis of the “Degree Centrality”, WFP and IRC are the most connected organizations in the network.

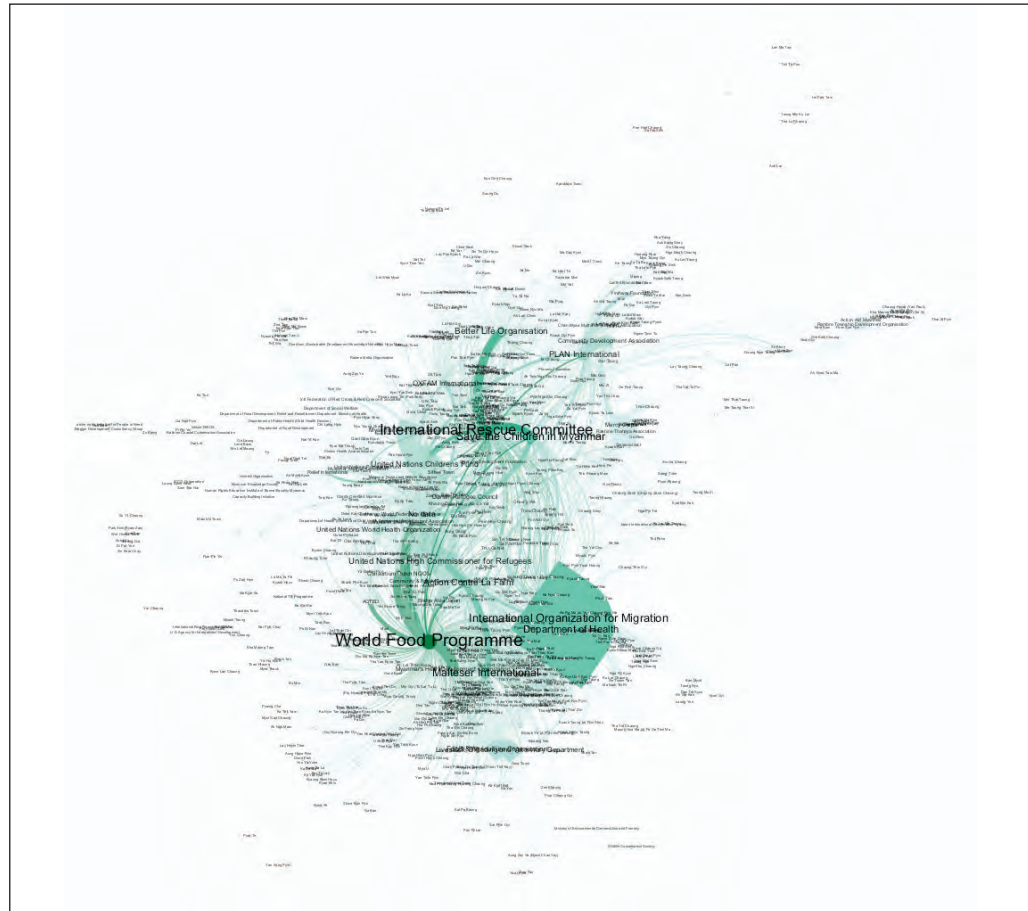


Figure 9: Overview of the social network of Rakhine State

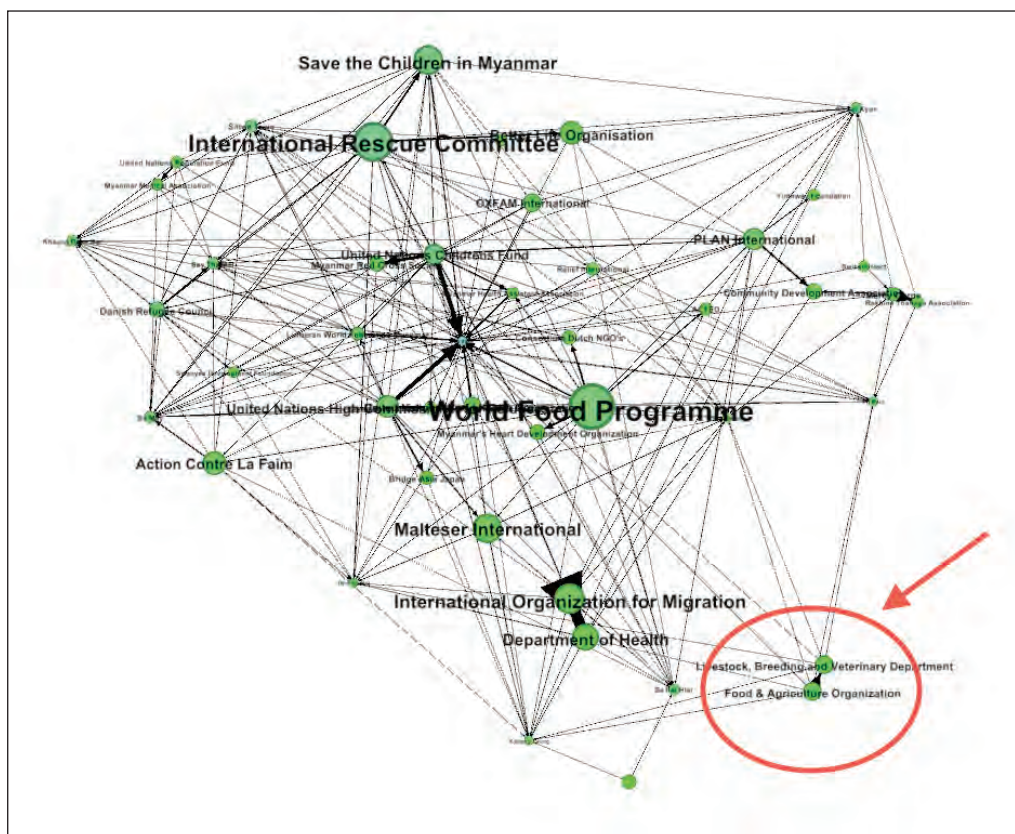


Figure 10: Filtered overview of the social network of Rakhine State showing FAO

- 111 Figure 10 shows a closer look into the SNA, and situates where FAO is positioned. This diagram shows that other than the connection with the Livestock Breeding and Veterinary Department, FAO also shares linkages with the greater network through some villages.



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