



ADAPTATION FUND

AFB/PPRC.9/12
7 June, 2012

Adaptation Fund Board
Project and Programme Review Committee
Ninth Meeting
Bonn, Germany, 26-27 June 2012

PROPOSAL FOR EGYPT

I. Background

1. The Operational Policies and Guidelines for Parties to Access Resources from the Adaptation Fund, adopted by the Adaptation Fund Board, state in paragraph 41 that regular adaptation project and programme proposals, i.e. those that request funding exceeding US\$ 1 million, would undergo either a one-step, or a two-step approval process. In case of the one-step process, the proponent would directly submit a fully-developed project proposal. In the two-step process, the proponent would first submit a brief project concept, which would be reviewed by the Project and Programme Review Committee (PPRC) and would have to receive the approval by the Board. In the second step, the fully-developed project/programme document would be reviewed by the PPRC, and would finally require Board's approval.

2. The Templates Approved by the Adaptation Fund Board (Operational Policies and Guidelines for Parties to Access Resources from the Adaptation Fund, Annex 3) do not include a separate template for project and programme concepts but provide that these are to be submitted using the project and programme proposal template. The section on Adaptation Fund Project Review Criteria states:

For regular projects using the two-step approval process, only the first four criteria will be applied when reviewing the 1st step for regular project concept. In addition, the information provided in the 1st step approval process with respect to the review criteria for the regular project concept could be less detailed than the information in the request for approval template submitted at the 2nd step approval process. Furthermore, a final project document is required for regular projects for the 2nd step approval, in addition to the approval template.

3. The first four criteria mentioned above are:

1. Country Eligibility,
2. Project Eligibility,
3. Resource Availability, and
4. Eligibility of NIE/MIE.

4. The fifth criterion, applied when reviewing a fully-developed project document, is:

5. Implementation Arrangements.

5. In its 17th meeting, the Adaptation Fund Board decided (Decision B.17/7) to approve "Instructions for preparing a request for project or programme funding from the Adaptation Fund", contained in the Annex to document AFB/PPRC.8/4, which further outlines applicable review criteria for both concepts and fully-developed proposals.

6. Based on the Adaptation Fund Board Decision B.9/2, the first call for project and programme proposals was issued and an invitation letter to eligible Parties to submit project and programme proposals to the Adaptation Fund was sent out on April 8, 2010.

7. According to the Adaptation Fund Board Decision B.12/10, a project or programme proposal needs to be received by the secretariat no less than nine weeks before a Board meeting, in order to be considered by the Board in that meeting.

8. The following fully-developed project document titled "Building Resilient Food Security Systems to Benefit the Southern Egypt Region" was submitted for Egypt by the World Food Programme (WFP), which is a Multilateral Implementing Entity of the Adaptation Fund. This is the fourth submission of the proposal. The first submission was considered at the Board's 15th meeting as a project concept that was not endorsed. A revised and re-focused concept was submitted to the 16th meeting and endorsed. The fully-developed proposal was submitted to the

Board's 17th meeting but withdrawn following the initial technical review findings and therefore was not considered.

9. The current submission was received by the secretariat in time to be considered in the 18th Adaptation Fund Board meeting. The secretariat carried out a technical review of the project proposal, assigned it the diary number EGY/MIE/Food/2011/1 and filled in a review sheet.

10. In accordance with a request to the secretariat made by the Adaptation Fund Board in its 10th meeting, the secretariat shared this review sheet with WFP, and offered it the opportunity of providing responses before the review sheet was sent to the Project and Programme Committee Review of the Adaptation Fund.

11. The secretariat is submitting to the Project and Programme Review Committee the summary and, pursuant to decision B.17/15, the final technical review of the project, both prepared by the secretariat, along with the final submission of the proposal in the following section.

Project Summary

Egypt – Building Resilient Food Security Systems to Benefit the Southern Egypt Region

Implementing Entity: *WFP*

Project/Programme Execution Cost: USD 594,273

Total Project/Programme Cost: 6,255,500

Implementing Fee: USD 437,885

Financing Requested: USD 7,287,658

Project/Programme Background and Context:

The proposal highlights major climate change risks and vulnerabilities in Egypt, especially for the agriculture sector and implications for food security in the Middle and Southern Egypt region. The project aims to enhance the adaptive capacity of rural communities in Southern Egypt while establishing the area as a hub for learning on adaptation in the context of Egypt.

The project aims to achieve two objectives: 1. Increase the resilience of agriculture in Southern Egypt to climatic changes; and 2. Build institutional capacity within government and communities to enable climate change adaptation replication and sustainability. The project's Component 1 will introduce and scale up proven approaches to food security, livelihoods and natural resource management in Southern Egypt. Component 2 will build national, sub-national and community capacity for climate adaptation, as well as document lessons learned and best practices.

Component 1: Adaptation through technology development and transfer (USD 4,536,124)

Interventions as part of Component 1 are based on the current state of knowledge regarding climate change adaptation from national and global experience and research as well as beneficiary consultation. The actual set of activities to be implemented will differ somewhat from one location to another according to the particular needs of the communities involved as well as soil composition, weather conditions, available infrastructure including connections (roads), energy source, water availability, and other technical considerations. The outputs under this component will include several on-the-ground activities aimed towards revamping and upgrading production systems in beneficiary areas, primarily through the introduction and use of water saving irrigation and other adaptation techniques; the establishment of agro-forestry greenhouses and plots with sub-surface irrigation, including nurseries for growing trees and new varieties; and the development of livestock and poultry hubs for selection and breeding of new heat resistant varieties.

Component 2: Institutional capacity building at the central and local levels for scaling up climate resilience of farming communities (USD 1,302,129)

Component 2 will compliment the activities of component 1 by supporting enabling activities at national, regional, and local levels to understand climate trends and impacts; replicate adaptation interventions through the training of government technical staff; document lessons learned and best practices; share project results and lessons learned; mainstream new approaches in local and regional planning; and target universities through curriculum.



ADAPTATION FUND

ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: REGULAR PROJECT DOCUMENT

Country/Region: **Egypt**

Project/Programme Title: **Building Climate Resilient Food Security in Southern Egypt**

AF Project ID: **EGY/MIE/Food/2011/1**

NIE/MIE Project ID: **WFP ID _____**

Regular Project Concept Approval Date: **12/14/2011**

Reviewer and contact person: **Shyla Raghav**

NIE/MIE Contact Person: **Gianpietro Bordignon; Randall Purcell**

Requested Financing from Adaptation Fund (US Dollars): **6,904,318**

Anticipated Submission of final document (if applicable): **n/a**

Co-reviewer(s): **Mohamed Bakarr**

Review Criteria	Questions	Comments on 5/10/2012	Comments on 5/29/2012
Country Eligibility	1. Is the country party to the Kyoto Protocol?	Yes	
	2. Is the country a developing country particularly vulnerable to the adverse effects of climate change?	Yes, Egypt is a developing country that is susceptible to sea level rise and an increase in mean temperature. With a low percentage of arable land, Egypt's agriculture sector and the livelihoods of those who rely on agriculture are at risk due to the impacts of climate change.	
Project Eligibility	1. Has the designated government authority for the Adaptation Fund endorsed the project/programme?	<i>Yes. However, endorsement letter has wrong project title and older date. Please provide a new endorsement letter relevant for the current proposal.</i>	
	2. Does the project / programme support concrete adaptation actions to assist the country in addressing	Yes, the proposed project will target governorates in Southern Egypt to support concrete adaptation actions. Because of the strategic importance of the sector and geographies being targeted, the project has potential to assist the country in addressing	

	<p>adaptive capacity to the adverse effects of climate change and build in climate resilience?</p>	<p>adaptive capacity. The project design has benefitted significantly from a comprehensive consultative process and baseline establishment, which has ensured the feasibility of most proposed actions within the context of the target regions. The project has potential to generate tangible results on adaptive agricultural, water conservation methodologies that can be upscaled and replicated on a larger scale. CR1: While the text should remain, please remove reference of the CRs in the project document, and remove the track changes. Please only highlight new information provided following the current review. CR2: Please clarify where the hub described in Output 1.2 will be located and maintained. CR3: Please clarify how technologies will be identified and prioritized in Output 1.3. CR4: Please expand on how the loans administered under Component 1 and associated training activities will be linked with training activities under Component 2.</p>	<p>CR1: Addressed</p> <p>CR2: Addressed</p> <p>CR3: Mostly addressed. However, the methodology to select technologies was not provided. CR4: Addressed.</p>
	<p>3. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations?</p>	<p>Yes, as designed, the proposed project will provide social, economic, and environmental benefits to some of the most vulnerable populations in Egypt, including women.</p>	
	<p>4. Is the project / programme cost effective?</p>	<p>Yes, the proposal has justified the current proposal by identifying viable alternatives to the proposed interventions.</p>	

	<p>5. Is the project / programme consistent with national or sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments?</p>	<p>Requires clarification. The project should consider identifying a conceptual framework as to how the focus on Southern Egypt per se will influence adaptation capacity for food security in the country. Given the clear case made on projected effects of CC in the country, it would seem prudent to have Southern Egypt placed in the context of nation-wide responses. This will ensure that the concrete adaptation actions will be integrated nationally for long-term sustainability.</p> <p>CR5: Please clarify how: a) the focus on Southern Egypt fits into the country's Agricultural Climate Adaptation Strategy as outlined in Section D; b) how the concrete adaptation actions will influence the country's overall adaptive capacity in the agriculture and food security sector. The statement, <i>"Proposed project activities are designed to incorporate most of these priorities,"</i> should be followed by a summary of how this is demonstrated in the proposal.</p>	<p>CR5: Addressed. It is clear that project will indeed deliver many tangible outputs that the country can use in advancing its adaptive capacity nationally. The focus on Southern Egypt, however, remains justified solely on projected effects of CC, even though there is still no evidence that the region per se has been singled-out in the Government Policy on adaptation. It is therefore expected that the project outputs will serve as mechanism to influence adaptation actions elsewhere in the country. This has been more constructively elaborated in the proposal on pages 45-46.</p>
	<p>6. Does the project / programme meet the relevant national technical standards, where applicable?</p>	<p>Requires clarification.</p> <p>CR6: Please clarify how EIAs will be triggered and employed for activities that require water use/diversion, land use, etc.</p>	<p>CR6: Mostly addressed.</p>
	<p>7. Is there duplication of project / programme with other funding sources?</p>	<p>Requires some clarification. The proposal highlights a number of initiatives already under implementation in the target region and notes that there will be no risk of duplication. However, it is not clear how well the investments will be aligned to maximize adaptation benefits in the entire region.</p> <p>CR7: Please clarify specific areas of synergy between the proposed project and those</p>	<p>CR7: Addressed. However, while it is stated that there will be no geographical overlap with</p>

		<p>highlighted (i.e. USAID and IFAD projects) to demonstrate potential for maximizing adaptation benefits.</p>	<p>IFAD, it is also noted that climate change adaptation is not IFAD's focus (page 50, para 3). WFP must ensure that IFAD's focus on some districts in the governorates of Sohag, Qena and Assuit does not pre-empt those districts from the adaptation actions under the proposed project. The project should also consider if IFAD actions in those districts present any climate change vulnerability risks that could be mitigated by the proposed project.</p>
	<p>8. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?</p>	<p>Yes, the project has a component that clearly addresses knowledge management.</p>	
	<p>9. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations?</p>	<p>Yes. The proposal has been designed and re-designed following a comprehensive consultative process. The review recognizes the proposal as community-driven.</p>	
	<p>10. Is the requested financing justified on the basis of full cost of adaptation reasoning?</p>	<p>Requires some clarification. The request is justified except for output 1.5 (cash and voucher system) under Component 1. The plan to invest nearly USD 900,000 on a system that pays people "adapt" should be re-considered or further justified. CR8: Output 1.5 output should either be more adequately justified on the basis of adaptation reasoning or, for example, folded into/synchronized with output 1.3 where the financing will leverage adaptation benefits for an even larger number of people. CR9: This section should discuss each</p>	<p>CR8: Addressed. CR9: Addressed.</p>

		Component separately (with the baseline and Additionality with AF Funds for each Component). Please formulate the information accordingly.	
	11. Is the project / program aligned with AF's results framework?	Yes	
	12. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	Requires some clarification. The "loan scheme" appears quite useful and appropriate as an approach for the project, but the sustainability is only justified on the basis of the income being generated from repayments. Although the amounts involved are small enough, it would be useful to clarify the institutional aspects of such a scheme. CR10: Please clarify how the NGOs would accommodate changing circumstances in the communities in order to maintain value-added of the scheme, as well as the possibility of an exit strategy for the NGOs that will empower communities to "adapt" the scheme.	CR10: Addressed.
Resource Availability	1. Is the requested project / programme funding within the cap of the country?	Yes	
	2. Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?	Yes, 8%	
	3. Are the Project/Programme Execution Costs at or below 9.5 per cent of the total project/programme	Yes, 8.7%	

	budget (including the fee)?		
Eligibility of NIE/MIE	4. Is the project/programme submitted through an eligible NIE/MIE that has been accredited by the Board?	Yes, through WFP, a MIE	
Implementation Arrangement	1. Is there adequate arrangement for project / programme management?	Yes, the proposal has outlined arrangements for project management, including utilizing NGOs to execute portions of the project.	
	2. Are there measures for financial and project/programme risk management?	Yes, the proposal has outlined the key risks to the proposal's success.	
	3. Is a budget on the Implementing Entity Management Fee use included?	Yes CR11: However, please provide a break-down of what activities are included under each function.	CR11: Addressed.
	4. Is an explanation and a breakdown of the execution costs included?	Yes	
	5. Is a detailed budget including budget notes included?	Yes, at an adequately detailed level.	
	6. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators?	Yes	

	7. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?	Yes. CR12: However, the inception workshop has been budgeted as part of M&E and also in Output 1.1. Please clarify.	CR12: Addressed.
	8. Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from the Fund's results framework?	Yes	
	9. Is a disbursement schedule with time-bound milestones included?	Yes	

Technical Summary	<p>The proposed project will focus on addressing adaptation in a major production sector that has livelihood implications in the Southern Region of Egypt. The proposed approach will deliver concrete adaptation actions through two main components, that focus on the testing, demonstration, and delivery of adaptive technologies complimented by capacity building and awareness raising. The project has the potential to influence and improve adaptive capacity on the national level.</p> <p>The initial technical review recognizes that the proposal has been shaped by a comprehensive consultative process that enhances participatory involvement of the communities and ensures a higher possibility of project sustainability. The technical review, however, has identified several minor issues that require clarification within the context of the entire initiative and the national framework for adaptation.</p> <p>The following observations are clarification requests are made: CR1: While the text should remain, please remove reference of the CRs in the project document, and remove the track changes. Please only highlight new information provided following the current review. CR2: Please clarify where the hub described in Output 1.2 will be located and maintained. CR3: Please clarify how technologies will be identified and prioritized in Output 1.3.</p>
-------------------	--

CR4: Please expand on how the loans administered under Component 1 and associated training activities will be linked with training activities under Component 2.

CR5: Please clarify how: a) the focus on Southern Egypt fits into the country's Agricultural Climate Adaptation Strategy as outlined in Section D; b) how the concrete adaptation actions will influence the country's overall adaptive capacity in the agriculture and food security sector. The statement, "*Proposed project activities are designed to incorporate most of these priorities,*" should be followed by a summary of this is demonstrated in the proposal.

CR6: Please clarify how EIAs will be triggered and employed for activities that require water use/diversion, land use, etc.

CR7: Please clarify specific areas of synergy between the proposed project and those highlighted (i.e. USAID and IFAD projects) to demonstrate potential for maximizing adaptation benefits.

CR8: Output 1.5 output should either be more adequately justified on the basis of adaptation reasoning or, for example, folded into/synchronized with output 1.3 where the financing will leverage adaptation benefits for an even larger number of people.

CR9: This section should discuss each Component separately (with the baseline and Additionality with AF Funds for each Component). Please formulate the information accordingly.

CR10: Please clarify how the NGOs would accommodate changing circumstances in the communities in order to maintain value-added of the scheme, as well as the possibility of an exit strategy for the NGOs that will empower communities to "adapt" the scheme.

CR11: However, please provide a break-down of what activities are included under each function.

CR12: However, the inception workshop has been budgeted as part of M&E and also in Output 1.1. Please clarify.

Final review:

The final technical review finds that the proposal has evolved significantly since its initial submission and the concept proposal. Most issues had been resolved following the baseline assessment and comprehensive community consultation which has ensured the proposed activities are community-driven and more likely sustainable for supporting adaptive methodologies at the national scale.

The issues identified during the initial technical review of the current submission have been sufficiently addressed. It is recommended, however, that the proponent continues to engage IFAD and other partners that are active in the target region to ensure integration of the proposed projects' outcomes into agricultural processes throughout the region.

Date:

5/11/2012, 5/30,2012



PROJECT PROPOSAL

PART I: PROJECT/PROGRAMME INFORMATION

PROJECT/PROGRAMME CATEGORY:	REGULAR PROGRAMME
COUNTRY/IES:	EGYPT
TITLE OF PROJECT/PROGRAMME:	BUILDING RESILIENT FOOD SECURITY SYSTEMS TO BENEFIT THE SOUTHERN EGYPT REGION
TYPE OF IMPLEMENTING ENTITY:	MULTILATERAL IMPLEMENTING ENTITY
IMPLEMENTING ENTITY:	UNITED NATIONS WORLD FOOD PROGRAMME
EXECUTING ENTITY/IES:	MINISTRY OF AGRICULTURE, WITH THE MINISTRY OF ENVIRONMENT
AMOUNT OF FINANCING REQUESTED:	US\$ 6,904, 318 (over 4 years)

I. PROJECT / PROGRAMME BACKGROUND AND CONTEXT:

I.A. Background:

Egypt has a growing population (currently 81 million¹ and expected to exceed 140 million by the year 2050). Food security is threatened by limited water resources (current per capita water resources are 900m³), and arable land resources (only 3.5 percent of total land area). Land resources are further threatened by a number desertification factors. Climatic conditions in terms of temperature rise and high evapo-transpiration add more complexity and present a number of challenges for food production and food security.

Egypt covers an area of nearly one million km². The Mediterranean Sea lies to the North, the Red Sea to the East (total coastline of 3,500 km), and Libya to the West.

The general climate is dry, hot and desert. Lower Egypt's climate during the winter is mild with some rain over the coastal areas, while Upper Egypt is rainless with warm sunny days and cool nights. During the summer, the climate is hot and dry all over Egypt².

Most of Egyptian land is desert. Only 3.5 percent of its land area is arable with the total cultivated land reported as 8 million acres of "old" land in the Nile Valley and 2 million acres of reclaimed land³. Expansion through land reclamation is limited by water scarcity and inefficiency of water use. Egypt's agricultural production has not kept pace with its growing population, and the country remains a net food importer.

¹ Estimate of the Central Authority for Public Mobilization and Statistics based on the 2006 Census

² Egyptian Environmental Affairs Agency. Egypt's 2nd National Communication to the United Nations Convention on Climate Change. May 2010.

³ Ministry of Agriculture. National Strategy for Climate Adaptation in Agriculture. August 2010.

Agricultural land is already threatened by a number of factors, including urbanization (which accompanies population growth in villages), sand encroachment from the Western Desert, and salinization of Delta lands due to seawater seepage.

Egypt's total water budget is estimated at about 58 billion m³, 95 per cent of which is drawn from the Nile (55.5 billion cu. m.). The remaining five per cent is resourced from groundwater and rainfall. Inflowing Nile water is stored in Lake Nasser and shared between Egypt and Sudan. Rain falls mostly in winter and on the Mediterranean coast and does not exceed 130-170 mm⁴. The per capita water share is less than 900 m³ per year, signifying water stress in the country. Agriculture uses 80 per cent of Egypt's water resources. Egypt ranks among the lower 10 percent of countries in the region in terms of water efficiency in irrigation, with only limited advancement over the past ten years⁵.

The country currently imports 50 percent of its wheat needs, a staple commodity for Egyptians. Meat production was estimated to be 0.67 million tones/year in 2007 while the demand was 1.01 tons/year. The deficit of 37% is covered through imports. Poultry production was estimated at 0.85 million tons in 2007 compared to demand of 1.095 million tones. Fish production is estimated to be 1.1 million tons/year while consumption is 1.25 million tons, with the deficit compensated for by imports. Aquaculture takes up an area of 350,000 acres, providing 63% of the national produce. About 92% of these are fresh water species, mainly tilapia at a rate of 300 tons/acre annually. Approximately 8% of aquaculture are marine producing mullet, sea bass, sea bream and shrimps. Some 98.8% of aquaculture is in the Delta and Lower Egypt, with less than 1.3% in Upper Egypt. Accordingly, most of the fish needs of Upper Egypt are imported with prices some 30-50% higher than those in Lower Egypt⁶.

Egypt is categorized as a lower middle income country, with a GNP per capita of USD 2,070 in 2008. Until 2010, Egypt's economy grew at a rate of more than 7 percent a year. However, this masked growing income disparity and increasing poverty. Egypt's Gini Coefficient was 34.4 percent in 2008, suggesting a high degree of income inequality.⁷ The proportion of jobless youth reached about 60 percent in 2010⁸. Increasing poverty and unemployment trends led to a popular uprising in January/February 2011, which led to the President stepping down. Egypt's interim government has managed to keep the economy moving, but the growth rate fell to 1.9 percent in 2010/2011⁹.

Unfortunately, this is happening concurrently with an unprecedented global spike in food prices in 2011¹⁰. The country is highly vulnerable to food price shocks. Nominal wheat prices on domestic markets increased by 32 percent in 2010 and rice by 42 percent¹¹. Inflation is expected to peaked at 15 percent during 2011, with food prices comprising 40 percent of the consumer price index¹². Despite government's heavy subsidies on wheat flour and bread, consumers are not fully exempted from the impact of global food price rises as prices of non-subsidized products, pulses, staples and animal products have increased.

Since 2006, Egypt's food security has been impacted by a series of shocks, including the avian influenza epidemic and the combined food, fuel and global financial crises, topped by recent political events which have contributed to stalled economic growth in key sectors such as tourism and construction. The impact on food security has been compounded by the influx of returning workers

⁴ Excerpt from Egypt's 2nd National Communication to the United Nations Convention on Climate Change. May 2010.

⁵ Egypt National Competitiveness Council. 2009. Egyptian National Competitiveness Report.

⁶ Egyptian National Strategy for Climate Change Adaptation in Agriculture, May 2010

⁷ Government of Egypt. 2008. Egypt Demographic and Health Survey (DHS).

⁸ Egypt Human Development Report (2010). Ministry of Planning and UNDP.

⁹ Central Bank of Egypt. Monthly Statistical Bulletin. September 2011.

[http://www.cbe.org.eg/public/All_Monthly_Statistical_Bulletin_PDF/2011/Bulletin_2011_09_Sep/08_Indicator\(Real_Sector\)1.pdf](http://www.cbe.org.eg/public/All_Monthly_Statistical_Bulletin_PDF/2011/Bulletin_2011_09_Sep/08_Indicator(Real_Sector)1.pdf)

¹⁰ FAO Food Price Index. 2011. <http://www.fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/>

¹¹ FAO/GIEWS. North Africa Brief. March 2011.

¹² Economist Intelligence Unit. Egypt Country Report. March 2011.

from Libya who originate from the most vulnerable districts in Egypt, and whose return represents a significant loss of income for entire communities. A joint assessment, carried out in March 2011,¹³ found that many returnees' families were facing the threat of food shortages. The assessment found the same worrying situation among other groups affected by recent events, such as internal migrants returning from other parts of Egypt as a result of the slowdown in the tourism and construction sectors.

I.B. Climate Change and Food Security in Southern Egypt

The country is comprised of three agro-ecological zones, namely Lower, Middle and Southern (also known as Upper) Egypt and Egyptian agriculture is dominated by smallholdings of less than 0.4 of a hectare.

Southern Egypt (see Figure 1) is comprised of five Governorates, namely, Assiut, Sohag, Qena, Luxor and Aswan and has a population of 8 million, of which almost 7 million live in rural communities. It has a cultivated area of 1.13 million acres, constituting 14% of the country's agricultural land¹⁴. It is home to 37 percent of Egypt's population and 45 percent of the country's rural population¹⁵. With 45.8% of households living under the national poverty line, more than twice the rate elsewhere, and 15.6% of its population designated extreme poor, Southern Egypt region is the poorest region in the country¹⁶.



Figure 1: Southern Egypt

¹³ Joint WFP/UNICEF Rapid Assessment on the Situation of Returnees from Libya in the Governorates of Assiut and Sohag, March 2011.

¹⁴ Helmy, Eid et al, Assessing the Economic Impacts of Climate Change On Agriculture in Egypt: A Ricardian Approach, July 2006

¹⁵ Egyptian National Agricultural Adaptation Strategy, May 2010

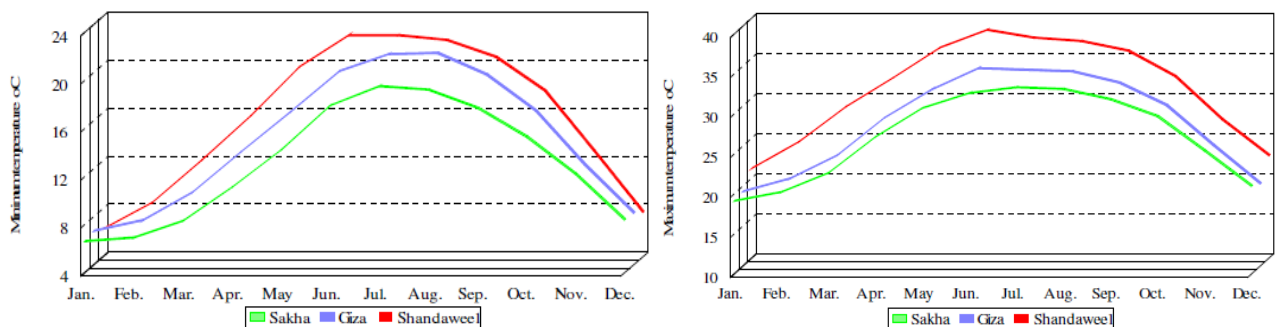
Egypt Human Development Report (2010). Ministry of Planning and UNDP

¹⁶ Egypt Human Development Report (2010). Ministry of Planning and UNDP.

According to Egypt's Second National Communication, Egypt is one of the world's most vulnerable countries to the potential impacts of climate change¹⁷. **Southern Egypt, in particular, faces some of the worst climatic shocks.** Table 1 shows historically higher temperatures in Southern Egypt. Figure 2 shows that this region is also expected to continue to suffer from the highest rates of temperature rise (up to 1.5-2°C on average by the year 2040).

Zone	Governorate	Mean Temperature
Lower Egypt	Alexandria	20.2
	Port Said	20
	Behera	20.7
	Damietta	20.2
	Kafr El Shiek	19.2
	Gharbia	20.4
	Dakahlia	20.9
	Sharkia	20.7
	Monofia	21.2
	Qualiobia	21.1
	Ismailia	20.4
	MEAN	20.48
Middle Egypt	Giza	20.5
	Beni Suef	21.5
	Fayoum	22
	Menia	21.1
	MEAN	21.28
Southern (Upper) Egypt	Assuit	22.9
	Sohag	22.9
	Qena (and Luxor)	24.9
	Aswan	26.9
	MEAN	24.4

Table 1: Temperature Data From the Egyptian Meteorological Authority Over 40 years.



¹⁷ - Egypt Second National Communication (ESNC) EEAA May 2010; and
 - World Bank (2009). Convenient Solutions to an Inconvenient Truth: Ecosystem-based Approaches to Climate Change. Environment Department Report.

Figure 2: Mean Maximum and Minimum Temperatures

Food production is comparatively lower in the Southern zone than elsewhere in the country. The higher temperature of the zone is a key factor contributing to lower agricultural productivity. On one hand, the climate impacted environment is forcing people to overexploit their already stressed natural resources, mainly land and water, to compensate for low productivity. On the other hand, low productivity is one of the key reasons for chronic poverty, preventing people from investing to enhance their productivity through the provision of inputs and maintenance of land, leading to further deterioration of the resource base and ultimately incomes¹⁸.

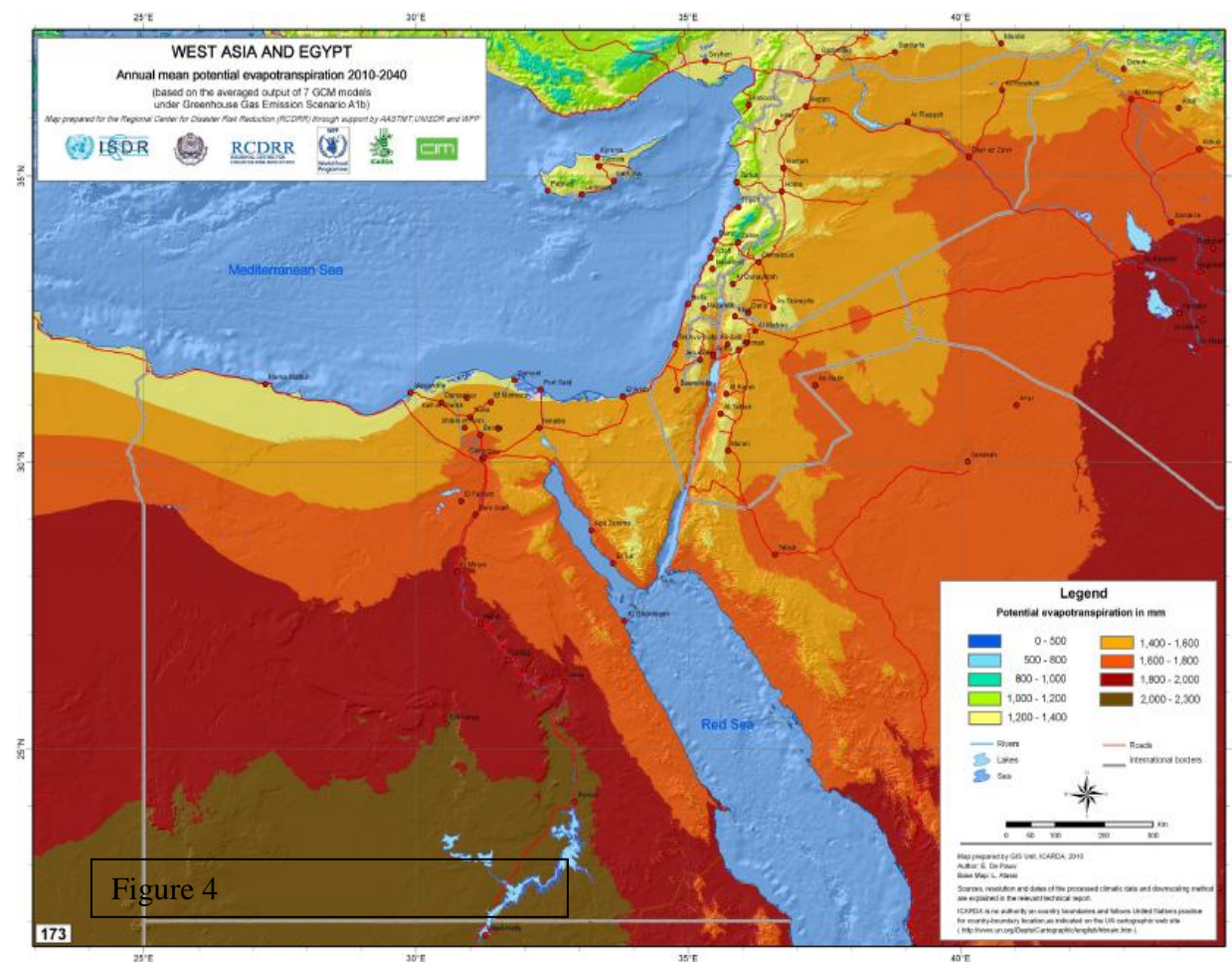


Figure 4: Evapotranspiration Rates (2010-2040)

(Source: W. Göbel and E. De Pauw. 2010. Climate and Drought Atlas for Parts of the Near East A baseline dataset for planning adaptation. Report by the International Centre for Agricultural Research in Dry Areas (ICARDA))

Projected temperature rise is likely to increase crop-water requirements and decrease crop water use efficiency. Crop water requirements of Egypt's strategic crops are expected to increase from 6 to 16 percent at temperatures increases of 2 and 4 degrees respectively¹⁹. As depicted in the map above (Figure 4), Southern Egypt will be prone to more (200-400 mm) evapo-transpiration than elsewhere in the country by 2040, posing more demand for water resources in the zone.

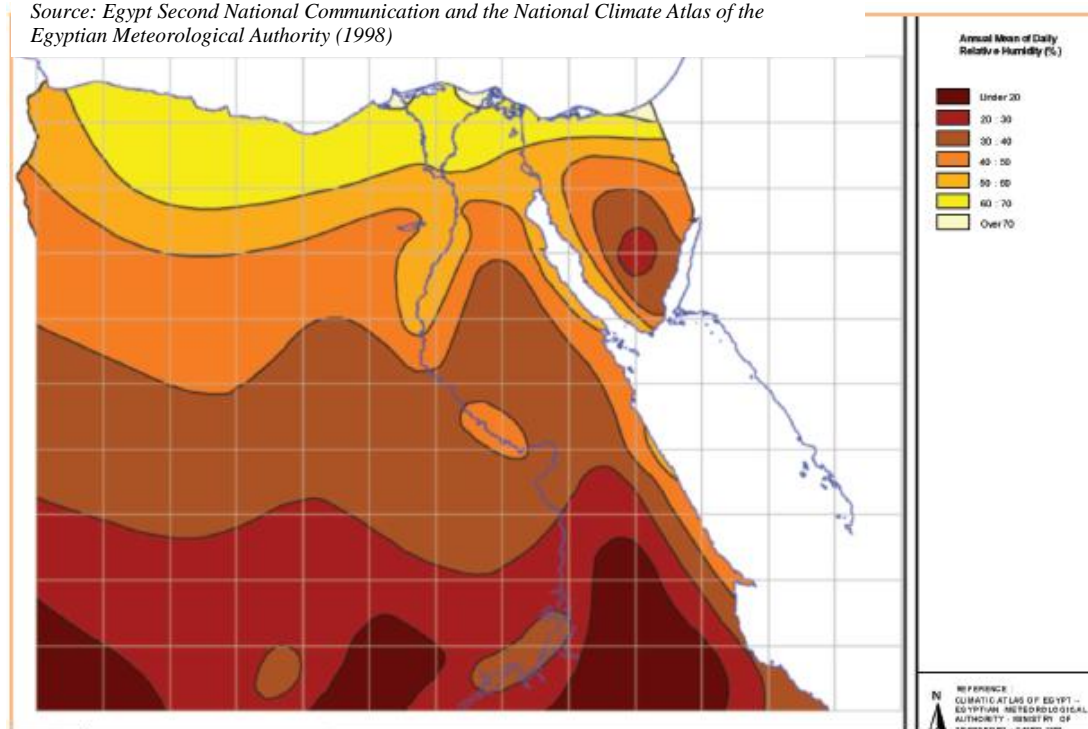
¹⁸ Conclusions of 'The Environment of Poverty and Poverty of the Environment' conference. Menia University. 1999.

¹⁹ Egypt National Environmental, Economic and Development Studies (NEEDS) for Climate Change. Under UN Convention on Climate Change, April 2010 and Egypt Second National Communication, May 2010.

Southern Egypt suffers from higher levels of drought, indicated by relative humidity. Figure 5 shows mean relative humidity (RH) throughout Egypt. The mean RH in Southern Egypt governorates is below 40 percent, while in middle and northern Egypt it rises to 60 percent and beyond.

Figure 5: Mean Relative Humidity

Source: Egypt Second National Communication and the National Climate Atlas of the Egyptian Meteorological Authority (1998)



Heat and frost waves are generally more frequent, intense, and unpredictable in Southern Egypt. Resulting crop failures have been on the rise in the zone. Although no official data is published to quantify crop losses from more erratic weather, failures of fruits and vegetables, and the effect on prices, are widely reported in the media, and are of increasing concern to producer groups.²⁰

I. C. Impacts of Climate on Food Security in Southern Egypt

A series of focus groups were conducted to validate the results above with beneficiary communities in Assiut, Sohag, Qena, Luxor and Aswan. Consultations showed that people are aware that climatic changes are affecting their rural livelihoods in different ways in the various communities. This includes effects on productivity of crops such as maize, wheat, tomato, as well as cattle and goats/sheep.

Southern Egypt’s vulnerability to climate change and variability will impact food productivity and security in the region in several ways:

Reduced crop productivity

Studies indicate that the expected increase in temperature will affect crop yields (see Table 2) and give rise to pests, many of which are unknown to farmers. This will reduce agricultural productivity and production of the zone, which in turn will affect the incomes of the 55 percent of the labor

Table 2. Projected Changes in Crop Production in Egypt Under Climate Change Conditions (Source: Egypt Agriculture Climate Adaptation Strategy, (2010))

Crop	Change percent	
	2°C temp. Increase	4°C temp increase
Wheat	- 14	- 36
Maize	- 19	- 20
Soybeans	- 28	
Barley	- 20	
Cotton	+ 17	+ 31

²⁰ Interview with the Chairman of the Agricultural Federation of Qena,

force engaged in agriculture, and the millions more – especially women - engaged in micro-enterprises that depend on agriculture.

According to Mr. Samy Kamel, Director of Agriculture in Sedik El Menshawy-Sohag, during the winter season of 2009/2010, the temperature rose unexpectedly, and led to a reduction in wheat productivity by about 40% in the newly reclaimed areas of Sohag, Assiut and Qena. Tomato growers in Oena also reported that their crop was totally destroyed in 2009 and 2010 due to unexpected heat shocks.

Reduced availability of water resources:

Food availability is largely influenced by the availability of water from the Nile, which in turn depends on Ethiopian rainfall and temperature regimes upstream. The results shown in Table 3 below indicate that Nile flows are sensitive to climatic changes. With 4°C warming and 20 percent reduction in precipitation, Nile flows may decrease by 98 percent. With a 20 percent reduction in precipitation and 2°C warming the decrease may be 88 percent. Strezpek et al (2001)²¹ developed ten different scenarios for Nile flows. Only one of the ten scenarios predict eventual increase in the distant future, the other nine scenarios show long term reduction ranging between 10% and 90% by the year 2095.

Egypt relies on the Nile to provide 95% of its water resources. The country’s sensitivity to changes in precipitation rates on the Ethiopian Plateau and increases in temperatures and associated evaporation losses is thus extremely high. In particular, as 85% of water resources are used for agriculture, any deficit in Nile water flow will directly affect food production and security, particularly in Southern Egypt, where crop -water demands will be increasing with temperature rises.

This threat is not helped by the fact that Egypt is a water stressed country, where irrigation efficiency is low. Furrow irrigation is the most practiced means of irrigation. Average water use per acre is 50 cu. m. per day, which is high. Furthermore, most farmers interviewed in Southern Egypt indicated that they experienced problems in water management, leading to insufficiency of water resources that affects crop productivity. It is also worth noting that inefficient water management in the form of poor irrigation and drainage systems affects soil quality and productivity across the country.

Table 3: Climate Change and Nile Flows²²

Climate Warming, °C	Change in Precipitation, percent	Change in Nile Flows, percent
+4	-20	-98
+2	-20	-88
0	-20	-63
+4	+20	-68
+2	+20	+1
0	+20	+71

Rising crop pests and disease levels:

Higher temperature causes negative effects in the form of rising crop pest levels that negatively affect crop productivity.²³ Scientific observations confirm that the severity of some pests and diseases affecting strategic crops has increased in the last few decades. Examples include severe epidemics of tomato late blight (*Phytophthora infestans*) witnessed heavily in Southern Egypt last year. *Tuta Absoluta* was also reported by farmers in focus groups conducted in Southern Egypt to have increased

²¹ Strezpek, K.M., Yates, D.N., Yohe, G. Tol, R.J.S. and Mader, N. (2001), Constructing “Not implausible” Climate and Economic Scenarios for Egypt, Integrated Assessment 2,139-157, Integrated Assessment Society.

²² Egypt Second National Communication (2010)

²³ Egypt Second National Communication (2010)

in recent years but no solution is known to them. This is supported by research on this topic, indicating that the spread of Tuta absoluta is linked closely to temperature rise, where the incidence of this infestation is expected to be higher in Southern Egypt compared to lower Egypt, and in warmer months compared to relatively cooler months²⁴.

Wheat leaf rust caused by *Puccinia triticina* and stripe rust disease caused by *Puccinia striiformis* are also increasing due to rising temperature.²⁵ Furthermore, *downy mildew* is also reported by Southern Egypt farmers in focus groups to have increased in this region, which was non-existent in some distinct spots in the area.

Reduced livestock productivity:

Climate-induced heat stress reduces livestock productivity. New animal diseases, including Blue Tongue disease and Rift Valley fever, have emerged in Southern Egypt. Both are attributed to observed changes in the climate²⁶. In field consultations, women in Shouraneya village, Sohag Governorate reported that “cattle in the village have recently suffered from increased incidence of fever in higher temperatures and we cannot explain why... if not caught in time, the cattle can die... veterinarian care is not up to its optimum standard in our village.”

The availability of fodder is at risk due to climate change impacts on crop productivity. Farmers in Sohag reported that clover crops subjected to chill episodes at early stages of growth remained stunted.

It is reported that the increase in temperatures are hazardous to laying hens, not only because of greater mortality rates, but also because of the reduction in the number and quality of the eggs produced²⁷. Research results indicate that low growth occurred with increases of temperatures of just 1-2 degrees, and with a direct effect on the central nervous systems of birds, reducing metabolic rate, feed consumption and egg yolk precursors. The birds' reproduction rates are also reported to decrease in high temperatures as a result of changes in semen characteristics and retardation of testicular development²⁸. Farmers in Sohag reported that they can buy chicks for as much as EGP 50, but that they end up dying because of high temperatures.

Institutional issues which compound the impact of climate change on food production and food security:

Farmers report that extension services provided by the government and by some private companies do not adequately account for climatic factors, and are in general insufficient for their needs. There is a shortage of on-farm educational programs, such as demonstration farms, information channels, farm-to-farm exchanges, etc. This is in addition to limited financial solutions and their unsuitability to the nature of agriculture and animal raising activities. This limits the ability of farmers to innovate and adopt new initiatives to overcome climatic challenges. Financial solutions are limited to micro-lending, while different – maybe often more suitable – solutions such as micro-savings, insurance, guarantees, etc., are mostly not known or accessible.

²⁴ Abolmaaty S.M; M.K. Hassanein; *A.A. Khalil and A.F Abou-Hadid. Impact of Climatic Changes in Egypt on Degree Day's Units and Generation Number for Tomato Leaf miner Moth Tuta absoluta, (Meyrick) (Lepidoptera gelechiidae). Nature and Science, 2010;8(11)

²⁵ Abolmaaty, S.M. (2006), Assessment of the Impact of Climate Change on Some Rust Diseases for Wheat Crop Under Egyptian Environmental Conditions, PhD Thesis, Faculty of Agriculture, Al-Azhar University.

²⁶ Egypt National Environmental, Economic and Development Studies (NEEDS) for Climate Change. Under UN Convention on Climate Change, April 2010

²⁷ Dagher, N.J, Nutrient Requirements of Poultry at High Temperatures, Poultry Production in Hot Climates, 2008

²⁸ Hassan, I.I. et al, Effect of Siliuim Sources and Levels and Vitamin E on Productive and Reproductive Performance of Matrouh Layers Under Egyptian Summer Conditions, 5TH International Poultry Conference, TABA, Egypt, 2009

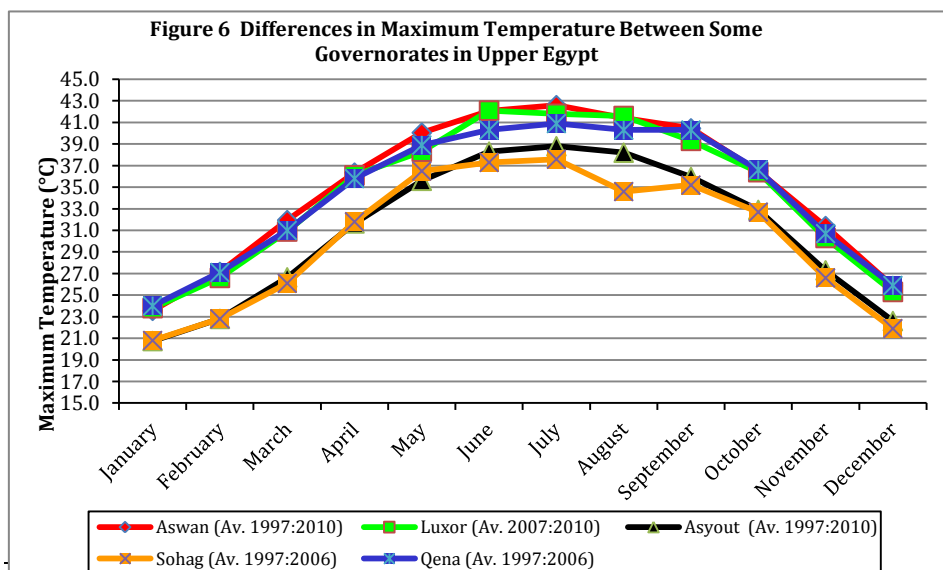
In conclusion, Southern Egypt stands to lose up to a minimum of 30 percent of its food production by 2050 as a result of climate change impacts, including reduced crop and livestock productivity, increasing crop-water demand and reduced water use efficiency, increase in pest and disease infestations, institutional weaknesses, etc. This will compound the already economically stressed and food –insecure state of the region.

In response, the Government has proposed a project which aims to 1) improve the adaptive capacity of the Southern zone in the face of anticipated climate-induced reduction in food production and 2) build institutional capacity at all levels to enable sustainability and replication throughout the zone and the country. The two objectives are cornerstones of Egypt’s National Adaptation Strategy. The Government has also prepared a strategy for climate change adaptation in the agricultural sector. The strategy forms the section on agriculture in the National Adaptation Strategy for Egypt, which is still in draft. It focuses on the expected risks of climate to productivity of ten major crops, animal production, and fisheries. The strategy singles out the need for developing new areas and exploring and disseminating water efficient and heat resistant crops and methods of production.

I. D. Selection of Project Locations within Southern Egypt:

With climate being the main selection criteria, all agro-climatology parameters for the 5 governorates were analyzed as a first step for identification of locations within the Southern zone. Daily readings²⁹ of minimum and maximum temperatures, wind speed, relative humidity, and evapotranspiration over the periods 1997-2006 for Assuit and Sohag, 1997-2010 for Aswan and Qena and 2007-2010 for Luxor³⁰ were used. Figures 6 to 9 summarize the findings. Rainfall was excluded as it is almost non-existent in these locations.

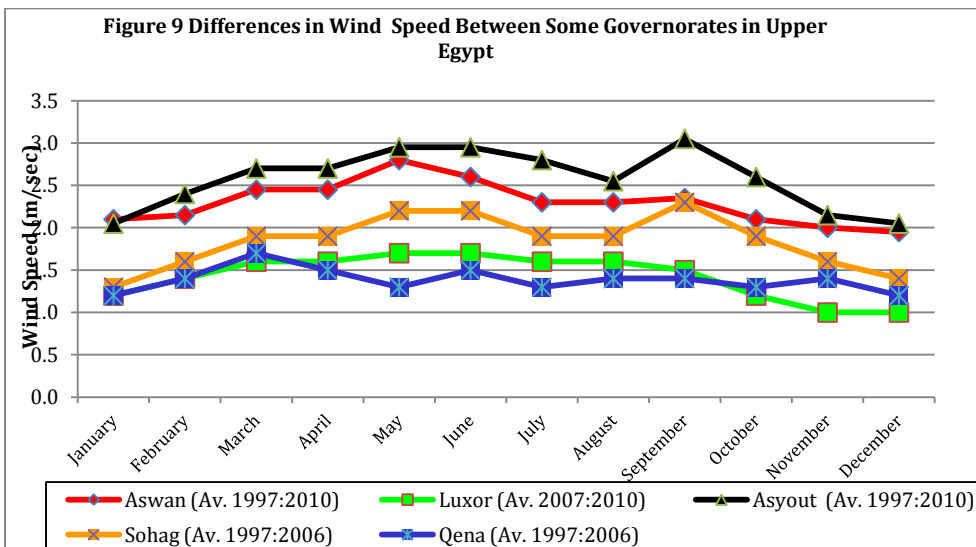
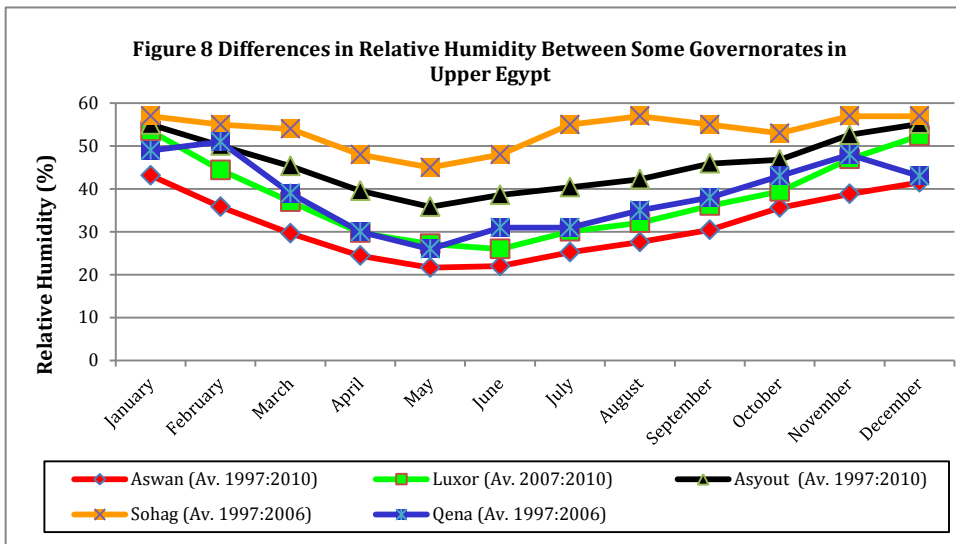
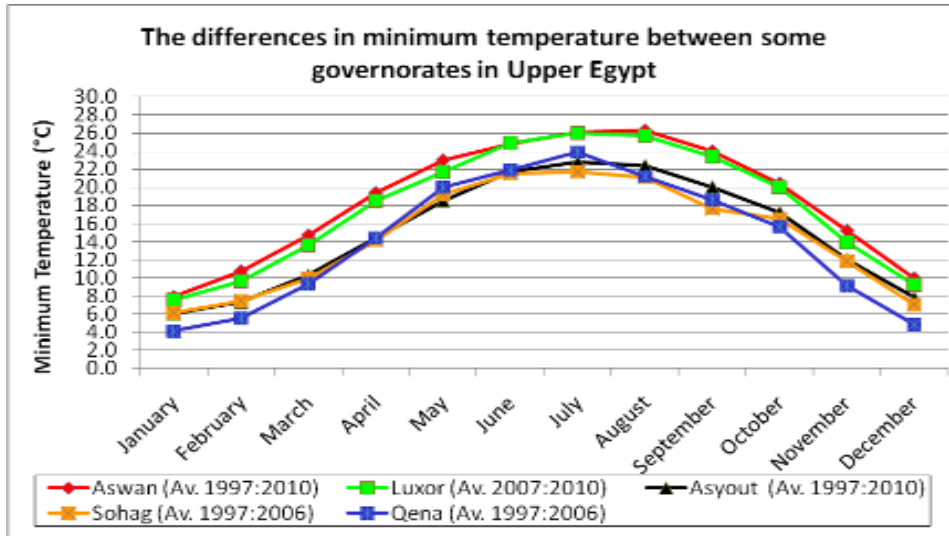
According to Figure 6, Aswan and Luxor have similar maximum temperature values. Figure 7 also shows that they behave similarly with respect to minimum temperatures. However, they have distinctively different humidity and wind speed recordings as shown in Figures 8 and 9. Likewise, Assuit and Sohag behave similarly with respect to minimum and temperatures; Assuit however has considerably higher wind speeds. Figures 6 and 7 show that Qena has its own patterns of temperature, with maximum temperatures similar to those of Luxor and Aswan, but minimum temperatures that are considerably different. Figure 8 also shows that Qena has distinctively lower wind speed than the



other governorates. The analysis leads to the conclusion that each of the five governorates has its own climatic characteristics.

²⁹ Recordings issued on a quarterly basis by the Central Administration of Agricultural Extension, Ministry of Agriculture

³⁰ Analysis was made on the data available. Recordings from stations in Assuit and Sohag were stopped as of December 2006 and thus no data is available beyond 2006, whereas recordings in Luxor started in 2007 and thus no data is available before that.



Evapotranspiration was used to validate this finding. Evapotranspiration is a composite parameter in which wind speed, humidity and temperatures are used by agro-climatologists to define and compare agro-climatological areas. Table 4 below shows the differences in evapotranspiration rates among the governorates of the zone, indicating that each is a distinct climatological area.

Because the Southern zone is comprised of 5 different climatic areas, it was decided to assist communities in all five governorates comprising the zone. Covering the whole of Southern Egypt will facilitate scaling up interventions as each governorate has its own distinct local administration body, budget, and sovereignty that has increased over time with the decentralization of various functions.

With climatic data in Egypt being recorded only at the governorate level, it was concluded that all districts and villages of a governorate/climatic area are climatically representative of the area. This means that: a) with climate being the main criteria, all districts and villages in a governorate are equally eligible for funding under the project; and b) implementation in 2 or 3 villages per governorate (climatic area, will effectively generate climate adaptation lessons for the whole area.

In light of the above, and as the governorate is the lowest administrative unit for which climate indicators can be applied, it was necessary to employ other considerations for selection of districts, then villages within districts, which would be models to pursue by neighboring villages. Socio-economic and food security vulnerability was used to fine-tune selection of locations at a sub-governorate level. This was done with the understanding that socio-economically vulnerable groups are particularly prone to the negative impacts of climate change. Those considerations are also in line with the IPCC definition of climate vulnerability, which takes into account exposure to climate and sensitivity of locations and their adaptive capacity. Locations that are already worse off, and highly

Table 4: Average Evapotranspiration Rate (mm/day)					
	Aswan	Luxor	Assiut	Sohag	Qena
Jan	3.77	2.75	2.94	2.50	2.79
Feb	4.85	3.79	3.98	3.40	3.75
Mar	6.52	5.15	5.39	4.53	5.21
Apr	7.87	6.43	6.88	5.93	6.23
May	9.36	7.35	8.35	7.44	6.74
June	9.36	8.07	9.01	7.77	7.45
July	9.08	7.84	8.83	7.26	7.14
Aug	8.69	7.52	8.11	6.39	6.89
Sept	7.95	6.39	7.45	6.38	6.20
Oct	6.30	4.79	5.76	4.97	4.85
Nov	4.74	3.22	3.85	3.32	3.68
Dec	3.74	2.52	2.97	2.50	2.80
Ave	6.85	5.49	6.12	5.20	5.31

populated at the same time, are less resilient to climatic shocks and changes. Unlike more resilient communities, they have considerable difficulty absorbing climate-induced agricultural failures or underperformance and subsequent income shortfalls. In fact, these groups can lose their entire livelihood base after one or two weather shocks.

The WFP vulnerability index was used to select districts. The index was developed in 2007 and expresses, through an array of integrated basic indicators, including income deprivation, unemployment, infant mortality, percentage of the population without access to sanitation, illiteracy rates and percentage of those not enrolled in school.

Within the selected districts, and with an objective of amplifying the projects' potential in building resilience of the most vulnerable groups, the latest available poverty data (and considering the UNDP definition of multi-dimensional poverty) was used for the selection of the 3 poorest villages in which the project would work- with the view of targeting a minimum of 2 villages in each governorate.

Field visits and stakeholders consultations at the local level then followed, leading to the final selection of villages. Criteria for selection included accessibility, security, the presence of tribal conflicts or social tension, willingness and capacity of the local community, and the presence of competent service providers³¹ with whom the project can partner in implementation and sustainability. The following table summarizes the outcomes of the process.

Governorate	Villages identified by poverty ranking	Conclusions from field visit and/or consultations about village
Aswan	Benban Bahary*	Implementation possible
	Mansoria *	Implementation possible
	Kalabcha*	Implementation possible
	EL Toweisa	No NGO/CDA available and thus implementation in village not recommended
Luxor	Nego Kebly*	Implementation possible
	Halfa 3*	Implementation possible
	Kommier*	Implementation possible
Qena	Kosier Bakhanes	Implementation in village not recommended due to family feuds resulting in volatile security and frequent gun- shooting outbreaks in the village
	EL Maharza*	Implementation possible in the village. CDA in Samhoud to extend services.
	Samhoud *	Implementation possible in the village
Sohag	Nazlet Ali*	Implementation possible in the village. CDA in Ali Ibn Abi Taleb to extend services.
	Ali Ibn Abi Taleb*	Implementation possible in the village. CDA in Ali Ibn Abi Taleb to extend services
	El Naza El Baharia*	Implementation possible in the village. CDA in Ali Ibn Abi Taleb to extend services
Assuit	El Khawaled*	Implementation possible in the village. CDA in Mother village (Shamia) to extend services
	El Awana*	Implementation possible in the village. CDA in EL Loqa to extend services
	El Loqa*	Implementation possible in the village.

* Selected villages for implementation under the project

Table 5- Selected Villages for Implementation

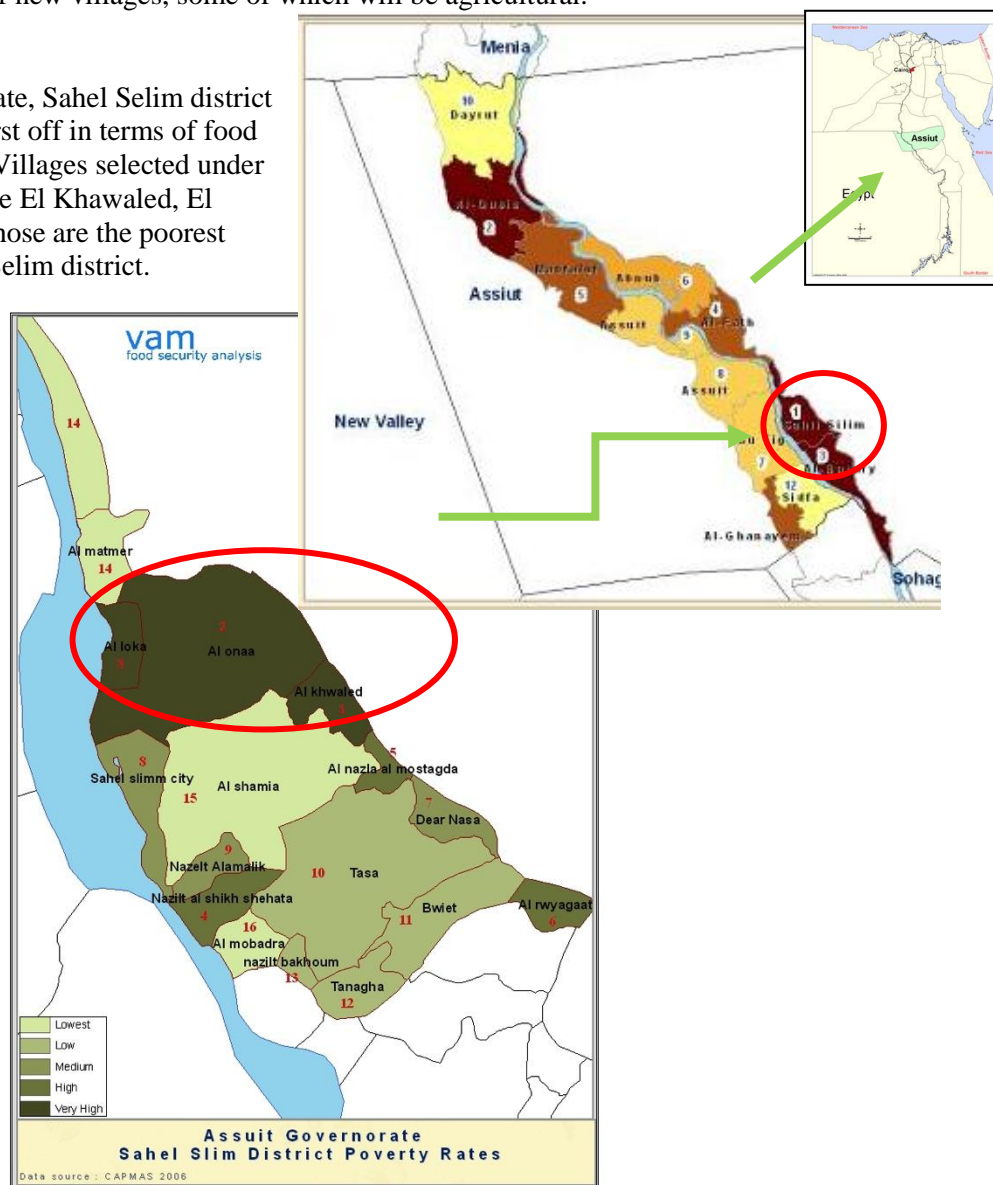
In addition to the villages listed in the table, Lake Nasser villages will also be included to offer models for adaptation in newly reclaimed land. The rationale for this is given below.

³¹ Please refer to the section on institutional assessment of NGOs/CDAs for further details

About the Project Locations:

1. **Assiut Governorate:** Assiut lies in the Middle Egypt region (a sub-region of Southern Egypt). It has a population of about 3.5 million of which 2.2 million live in rural areas. There are no major towns outside the capital city. Agriculture is the main activity, and the major crops are cotton, grains and vegetables. The main livestock is poultry, which is sensitive to heat shocks. The governorate stretches 120 kms along the banks of the Nile, and into the Eastern and Western deserts. This provides significant potential for land reclamation. The government has provided significant assistance to this poorest and most food insecure governorate to expand by establishing a number of new villages, some of which will be agricultural.

Under Assiut Governorate, Sahel Selim district was selected, as the worst off in terms of food security vulnerability. Villages selected under Sahel Selim district were El Khawaled, El Awana, and El Loqa. Those are the poorest three villages in Sahel Selim district.

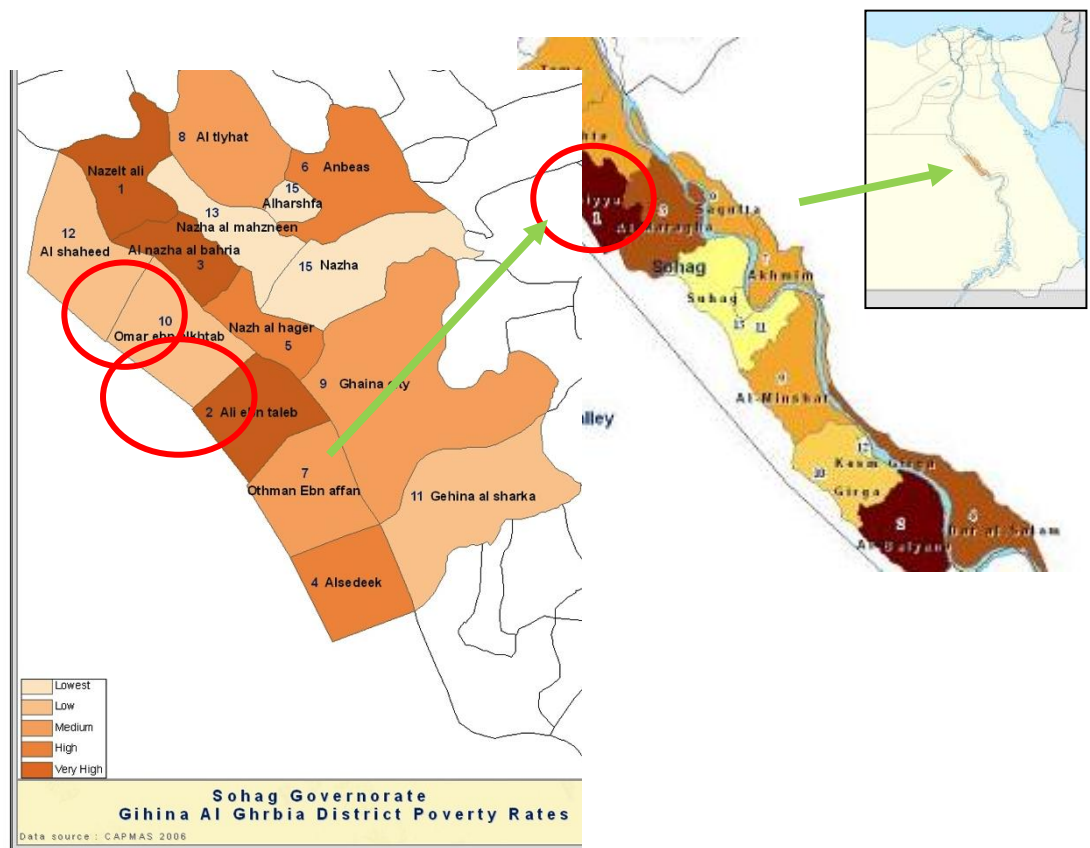


³² In 2007, the Government declared its intention to target the poorest 1000 villages (out of an overall total of around 5000 villages). The choice of the 1000 poorest villages was based on Egypt's 2006 poverty map, developed by the Ministry of Economic Development. These 1000 villages will be targeted for a significant level of investment in an integrated package of basic services.

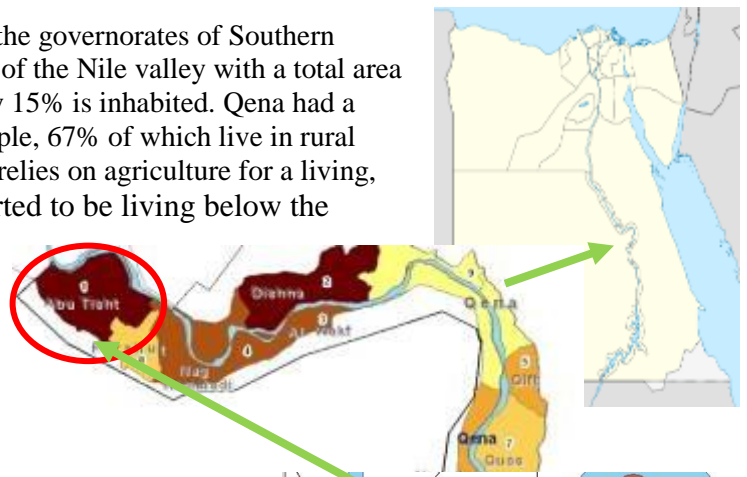
2. **Sohag Governorate:** Sohag lies in the Middle Egypt region, south of Assiut. It has a population of about 3.8 million people of which the vast majority are in rural areas. Agriculture is the main activity. The governorate stretches about 100 kms in a narrow strip along the banks of the Nile, constrained from any desert expansion from stretching into the Eastern and Western deserts. This limits the governorate’s horizontal expansion potential, and makes it ideal for an adaptation demonstration within old lands. Sohag is among the top governorates in terms of food insecurity.

Within the governorate of Sohag, the most food insecure district of Gehena El Gharbia was selected. Within Gehena El Gharbia, two villages of Nazlet Ali and El Naza El Baharia were chosen.

In addition, one newly reclaimed village of “Ali Ibn Abi Talib” was selected as this falls under a different administrative hierarchy, and the project seeks to demonstrate to the government that adaptation interventions work in different contexts, old or new communities.

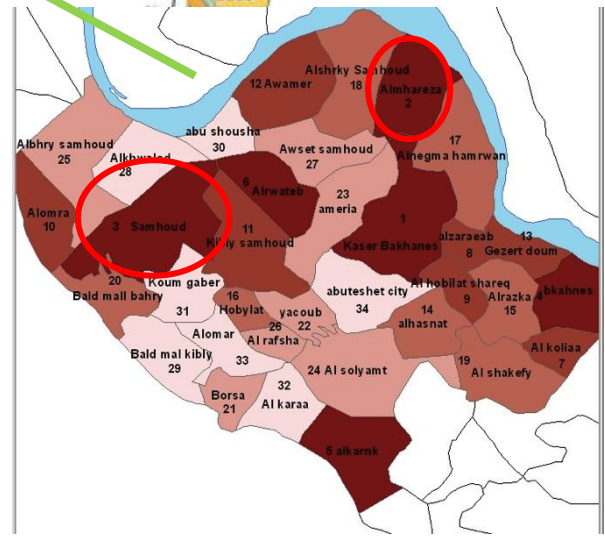


3. Qena Governorate: Qena is one of the governorates of Southern Egypt, covering a stretch of 180 Km of the Nile valley with a total area of 9565 km² of which approximately 15% is inhabited. Qena had a population of about 2.65 million people, 67% of which live in rural area. 65% of the Qena's population relies on agriculture for a living, with 63% of the governorate reported to be living below the national poverty line. Water stress and high temperatures have been known to be among the main harsh environment characteristics of the governorate, and are identified as key reasons for its low crop productivity.



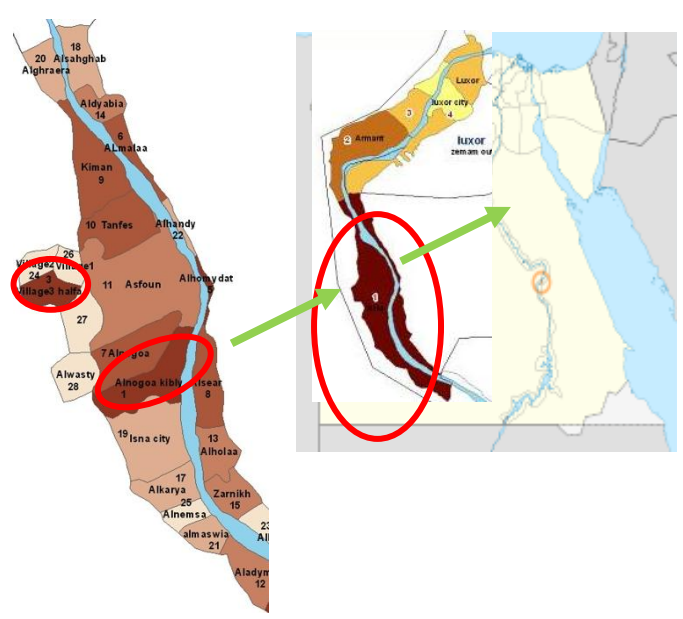
They have also been identified as main constraints for horizontal expansion opportunities. Climate-induced increases in temperature and extreme weather events are expected to exasperate this situation. As such, the governorate is among the most vulnerable governorates as far as climate-induced impacts on agriculture and livelihoods.

Within Qena governorate, the district of Abu Tisht was selected as among the most vulnerable in the governorate. Within Abu Tisht, the villages of El Maharza and Samhoud were chosen from among the poorest villages.



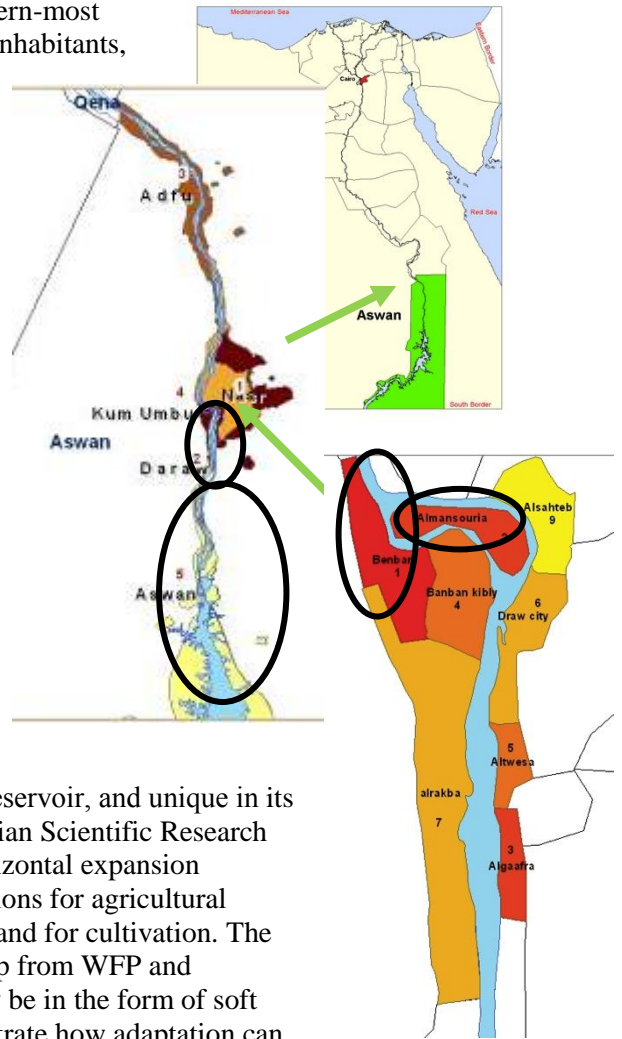
4. Luxor Governorate: The Governorate of Luxor is located in Upper Egypt. It was upgraded from city following Presidential Decree 387 for the year 2009, particularly because 52% of its population is rural. It is currently divided administratively into seven cities and six districts.

The total area of Luxor is 2,424.82 km² including the desert hinterland, out of which 241.42 km² are inhabited. Areas of cultivated land are estimated at 47,212 acres, while the area of arable reclaimable lands is estimated at 37,000 acres⁸². Luxor is predominantly touristic. Agricultural activities are mainly in cultivation of sugarcane, local beans, wheat and maize, employing approximately 61% of the population.



In Luxor, the district of Esna was selected as the most food insecure. Within Esna, the villages of Naga Kebli, Halfa 3, and Kommier were selected.

5. Aswan Governorate: Aswan Governorate is the Southern-most governorate of Egypt. It has a population of 1,100,000 inhabitants, and occupies an area of 34,608 km². Aswan is Egypt's hottest, driest governorate. Its climate ranges from mild in the winter to very hot in the summer with absolutely no rain all year. There is maybe 1 or 2 mm of rain every 5 years. In fact, Aswan is one of the driest inhabited places on earth. It is a famous world-wide touristic attraction owing to its history, monuments, high dam and botanical garden. Economic activities of the governorate are limited, with tourism, agriculture and fishing in the forefront.



Sixty percent of the population is employed in agriculture, and owing to the harsh climate agricultural productivity is comparatively low. Sugar cane is the main crop, but wheat and maize are also grown for domestic use.

Daraw district was selected in Aswan for being among the most food insecure in the governorate. The villages of Benban Bahary and Mansouria were selected from among the poorest villages in Daraw.

The Lake Nasser Zone is the country's main fresh water reservoir, and unique in its food production potential. A study undertaken by the Egyptian Scientific Research Academy in 2009 to identify and compare locations for horizontal expansion concluded that the Lake area is one of the most viable locations for agricultural development due to availability of freshwater and suitable land for cultivation. The government has already started to develop the area with help from WFP and development partners. Activities in this location will mostly be in the form of soft assistance (extension, demonstration farms, etc.) to demonstrate how adaptation can be applied in the context of development of new lands.

I.E. Baseline Assessment of Project Locations:

A participatory methodology that utilized an array of tools was used for the baseline assessment of villages where the project is to be implemented. Among these tools were:

A review of secondary data. Basic village information in Egypt is bi-annually updated through surveys undertaken by information centers in village local units. Secondary data of 2011 for the selected villages were obtained from these centers.

Secondary data obtained for villages included: Total population of the village, type of villagers (native, new settlers or old settlers), percent female-male, educational status, access to basic services, estimated percentage of poor (under national poverty line), area of the village, geographical location, total area of agricultural land, type of agricultural land (old or reclaimed lands), soil composition, main livelihood activities and percentage of villagers occupied in each, unemployment, average land holding size, average rental cost of agricultural land, main animal activities and production volumes, availability of vet services, and availability of registered NGOs and their fields of work.

In-depth meetings

In-depth interviews were conducted with central and local officials, where discussions included issues that secondary data might not depict such as appreciation of climate change and resulting problems, security status/issues, tribal conflicts or social tensions, presence of marginalized or vulnerable groups, expected acceptance and level of cooperation, etc. Information from these meetings was used to cross-check information that obtained from questionnaires and secondary data.

Please refer to Annex 2 for a full listing of the points of discussion in these meetings.

Field visits and baseline documentation

Field visits followed in order to consult communities, undertake a situational analysis, and document the baseline for the villages. Elements of this baseline included:

- Mapping crop and animal production practices, productivity, costs, etc.
- Understanding climate-induced impacts, resulting problems, local coping strategies and knowledge of potential adaptation mechanisms
- Mapping local and regional resources including manpower, marketing channels, technical expertise, natural resource, potential suppliers, etc.
- Identifying gaps and local resources that can be utilized in addressing the gaps and lay the foundation for sustainable interventions
- Assessing acceptability levels for suggested adaptation options
- Institutional assessment through a mapping of available services providers. This included an assessment of the effectiveness and efficiency of services provided, capacities, financial and technical support needs, potential roles in project implementation, etc.
- Identifying potential risks and hazards and mitigation/ adaptation means
- Developing of indicators for quantification of some aspects of the baseline situation

Data for the above was sought through a wide range of participatory mechanisms that included focus group discussions with community members, in-depth meetings and semi-structured interviews with officials. A rapid survey for some of the potential beneficiaries was also undertaken with 100 questionnaires administered in each village to obtain data on:

- **Socio-economics of the village**, including gender formulation and age composition, educational status, occupations, accessibility and adequacy of basic services including schools, health units and medication, and markets
- **Cultivation**, including average landholdings, percentage of landowners, subsistence farmers, farming labor, crop patterns and sowing dates, agricultural inputs and costs of cultivation, crop productivity, use of labor, available marketing channels and pricing mechanisms, previous experience with organic and contract farming, problems faced, etc.
- **Animal production**, including types and average numbers of animals raised, purpose of raising, current feeding practices and costs, guardian/keeper, past experience with loans for animal projects and their mode of implementation, knowledge and use of alternative fodder, adequacy of vet care and advice
- **Irrigation**, including current irrigation practices, sources of water, problems and costs of irrigation, presence of water users associations or agreed upon rotations
- **climate change and weather variability**, including understanding/knowledge of these phenomena, changes in type, frequency and/or intensity of extreme weather events , impacts on crops and animals and resulting problems as well as knowledge, experience and problems with adaptation or coping mechanisms
- **Information access and sharing**, including sources of information about agricultural practices and animal raising, appropriateness and effectiveness of these sources, accessibility to internet services, and local means of information dissemination

- **Acceptability of potential adaptation interventions**, including willingness of adoption, provisions for success and reasons for refusal
- **Mapping of local non-governmental development services providers** and their types, services, popularity and community evaluation of their performance

Please refer to Annex 7 for the interview tools and questionnaire and to Annexes 8 for the baseline assessment profiles of the villages.

Institutional assessment:

Two types of NGOs are active in rural Egypt. One includes civil society non-governmental organizations, including community development associations registered in and supervised by the Ministry of Social Affairs. According to their by-laws, such organizations can work in their own villages, within their districts or governorates or even nationwide. They can also operate in several developmental fields including poverty alleviation, illiteracy eradication, environmental protection, agricultural development, handicap support, among other domains of community development. They are managed by an elected board of directors and report to a general assembly, both comprised of civilians on a voluntary basis.

Another type of NGO is the agricultural cooperative, established and supervised by the Ministry of Agriculture. These are operated by government staff hired by the Ministry of Agriculture and aim to extend agricultural services to farmers. Due to limited resources they are only able to provide allocations of subsidized fertilizers and weak extension support. As per their bylaws, they only benefit landowners, thus large segments of rural society, including farmers renting land, wage farm labor, and women are not served.

The objective of the institutional assessment was to identify competent CDAs/NGOs in the different project locations that could, with limited capacity building if needed, be entrusted with the management of the loan portfolios of the project in each village and oversight of the sustainability of activities after the project closed. As a starting point, the possibility of cooperating with all kinds of NGOs/CDAs was explored. However, cooperatives were soon ruled because of their restrictive eligibility criteria.

With cooperatives excluded, and to fulfill the above mentioned objective, a systematic multi-stage methodology was applied. This included:

- Identification and screening of all registered NGO/CDAs in the project locations. As a point of departure, all NGOs/CDAs active in the project villages were identified through the district's NGOs and Civil Work Directorate in the Ministry of Social Affairs. In its capacity as the supervising authority, this directorate has a file for each registered NGO/CDA in its geographical jurisdiction. Contents of these files include the NGO registration documents, copies of its annual progress reports, annual financial accounts, minutes of board and general assembly meetings, external audit reports (when done), as well as periodical inspection reports done by the directorate staff. The files were reviewed and their contents were used as a screening tool, whereby the strongest NGOs/CDAs active in each village were identified. In most villages, one NGO was identified. There were villages, however, where 2 and 3 NGOs were found, on paper, to be equally strong and active.
- Field visits to NGOs/CDAs were the second step. In-depth meetings and focus groups were undertaken with board and General Assembly members. All available documents including records, journals, registers, meeting minutes, etc., were reviewed. Two guiding checklists for the technical and financial assessment (see Annex 9) were used to compile findings and document assessment results.
- The visibility and popularity of the NGO/CDA as well as the level of community satisfaction with its services and service delivery mechanisms was also assessed through the survey questionnaire.

According to the assessments, the selection of the NGOs/CDAs was concluded with the strongest and most popular NGO in each village selected. Capacity building needs were also identified for some

CDA/NGO to overcome identified institutional weaknesses and enhance their performance as loan managers.

It was possible to identify NGOs/CDAs for project service delivery in most villages. However, some villages were had no active or adequately strong NGOs/CDAs. Where possible, it was concluded that strong NGOs/CDAs of neighboring villages would extend services or technically support/supervise NGOs in villages which have no NGO or CDA. It was decided that the project would not include villages where that option was not possible.

Please refer to Annexes 9, 10 and 11, for NGO/CDA assessment reports.

II. PROJECT / PROGRAMME OBJECTIVES:

II.A. Overall Objective

The project seeks to 1) improve the adaptive capacity of the Southern region of the country in the face of anticipated climate-induced reduction in food production and 2) build institutional capacity at all levels to enable sustainability and replication. The two objectives are cornerstones of Egypt's National Adaptation Strategy.

Component 1. Adaptation to climate change through technology development and transfer.

Objective: Enhance climate resilience and improve food security in Southern Egypt, to serve the 45 percent of Egypt's rural population living in this region.

Component 2. Capacity building for climate knowledge and adaptation replication

Objective: Build capacity at national, regional and local levels to understand climate trends and impacts and replicate adaptation interventions.

PROJECT / PROGRAMME COMPONENTS AND FINANCING:

Table 4. Components, outcomes and financing (See Annex 5 for full project budget, disbursement schedule and budget notes)

Project Component	Expected Concrete Outputs	Expected Outcomes	Amount Requested (US\$)
1. Adaptation through technology development and transfer	Output 1.1. Community level mobilization and climate adaptation planning	Improved adaptive capacity of the Southern region of the country in the face of anticipated climate-induced reduction in food security through asset creation, knowledge/technology transfer, and capacity/skills development.	101,950
	Output 1.2. Establishment of a climate change and adaptation online application		100,000
	Output 1.3. Introduction and use of water saving irrigation and other adaptation techniques		1,433,129
	1.4. Building resilience in agricultural production		1,744,835
	1.5. Building resilience through		1,156,210

	livestock and poultry production'		
Subtotal Component One			4,536,124
2. Institutional capacity building at the central and local levels for scaling up climate resilience of farming communities	2.1 Training of government technical staff	Government more committed to investing in – and sustaining – climate risk reduction strategies and measures	275,450
	2.2. Documentation of lessons learned and best practices		349,500
	2.3 . Sharing project results and lessons learned and mainstreaming new approaches in local and national planning		600,300
	2.4. Universities integrate climate adaptation solutions into their academic curriculum		76879
Subtotal Component Two			1,302,129
TOTAL			5,838,253
Project execution costs (9.5 percent)			554,634
Project management fee (8 %)			511,431
Grand Total			6,904,318

Project Execution Costs	Year 1	Year 2	Year 3	Year 4	Total
Project coordination	56,880	56,880	56,880	56,880	227,520
Programme Assistant	14,000	14,000	14,000	14,000	56,000
M&E	34,000	34,000	34,000	34,000	136,000
Procurement and logistics	10,886	10,886	10,886	10,886	43,544
Travel	2,000	4,000	4,500	2,800	13,300
Running costs	18,000	18,000	18,000	18,000	72,000
IT	6,271				6,271
Total	142,037	137,766	138,266	136,566	554,634

Disbursement schedule

	Upon Agreement signature	One Year after Project Start ^{a/}	Year 2 ^{b/}	Year 3	Year 4 ^{c/}	Total
Scheduled Date						
Project Funds	1,389,146	2,160,904	1,951,661	791,178	100,000	6,392,888
Implementing Entity Fee	127,857	127,857	127,857	127,857		511,431

PROJECT CALENDAR:

Milestones	Expected Dates
Project start date	August 2012
Midterm review	September 2014
Project Closing	August 2016
Terminal Evaluation	December 2016

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Describe the project / programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

The proposed project is a key element in Egypt's climate adaptation strategy in three crucial respects: 1) it will apply adaptation technologies that will assist Southern Egypt- both the old lands and new developments- to cope with rising temperature and low water availability, 2) it will generate knowledge, document lessons learned and best practices on climate-proofing of agricultural production, and 3) it will enhance food security in the face of climate threats.

Component 1. Adaptation through technology development and transfer

Interventions as part of Component 1 are based on the current state of knowledge regarding climate adaptation from national and global experience and research as well as beneficiary consultation. The actual set of activities to be implemented differ somewhat from one location to another according to the particular needs of the communities involved as well as soil composition, weather conditions, available infrastructure including connections (roads), energy source, water availability, and other technical considerations.

In the course of full project appraisal, consultations were undertaken with beneficiary communities on the outcomes and outputs mentioned below, and the concept note was amended accordingly. Consultations enabled the team to weigh trade-offs and allowed beneficiaries and the Government to choose the most appropriate adaptation options with the understanding that the beneficiaries themselves will be responsible for managing the interventions and maintaining created assets well beyond the life of the project. The number of beneficiaries and number of acres directly covered by the project were adjusted after field consultations. (See more on consultations in Section H and Annexes 2, 6 and 7.)

Output 1.1. Community mobilization and planning

The baseline protocol, undertaken as part of the preparation process of this proposal, focused on assessing resources and climate risks in the area, food production, resource utilization practices, among other relevant factors.

The baseline assessment utilized tools such as review of secondary data and in-depth interviews in select villages within districts identified as most vulnerable. Upon selection of the villages, assessments were conducted including climate-induced impacts and local coping strategies; institutional assessment at the village level to identify key actors and service providers; identification of potential risks and hazards and mitigation/ adaptation means for each accordingly; and refinement of monitoring indicators. Data for the above was sought through a wide range of participatory mechanisms that include focus group discussions with different groups of stakeholders, in-depth

meetings and semi-structured interviews with officials. A rapid survey for some of the potential beneficiaries was also undertaken to obtain data for the indicators that are to be developed and that shall be used for monitoring and evaluation purposes as implementation begins.

Other activities for community mobilization will include:

- Organizing and inception workshop to inaugurate project and initiating mobilization of stakeholders.
- Selection of volunteers from each project location to work under a well-chosen community organization that provides the institutional structure to manage community based activities.
- Mobilization and training of volunteers to raise awareness about climate change and variability and impacts on agriculture, and education of communities on potential preparedness techniques in agriculture and livestock.

The baseline assessment found that none of the villages have water user associations (WUAs), though some villages were familiar with the concept. A communal organized system for water management is a requirement for the proposed project to succeed. Therefore, community mobilization efforts will include support to the organization, formation and formal establishment of water users associations. WUAs will be the key structure responsible for managing the water-related outputs of the proposed project.

Output 1.2. Establishment of a climate and food security monitoring system in project areas

There are currently climate monitoring stations in all suggested locations. However, they are not linked and not used to their optimum capacity. Information monitored by these stations is not available to farmers to enable them to make informed decisions. Output 1.2 will upgrade the capacity of climate monitoring, forecasting, analysis, and reporting/dissemination of data and information in the Southern region. Key indicators include temperature, wind speed and direction, drought, evapotranspiration. The future outlook is for units across the country to be networked with each other with a view to building a nationwide system to support decision making.

A nationwide climate monitoring system is part of the Agricultural Climate Adaptation Strategy (see below), and is envisioned to be managed by the Central Laboratory for Agricultural Climate (CLAC) of the Ministry of Agriculture and Land Reclamation (MALR). The Centre has recently procured climate monitoring stations. Other stations belong to another government agency (Egyptian Meteorological Authority), and are not linked to the Ministry of Agriculture's stations. The project will help the Government develop a software to utilize information from these stations and make it (including 5-day forecasts) available on the internet for use by farmer organizations in Arabic. The software will also generate adaptation solutions in the form of technology suggestions and tips for farmers depending on forecasted and actual climate conditions. This software, as a central information hub, will be jointly developed, managed and maintained by concerned entities under the Ministry's Agricultural Research Center, including CLAC, the MALR's Climate Change Information Center and Soil, Water and Environment Research Institute (SWERI), and relevant research institutes, in addition to the Egyptian Meteorological Authority. The Ministry of Agriculture's Agricultural Research Center will assume administration responsibilities of the system as it is mostly concerned with applications of climate data in agriculture. The project will also provide technical assistance on development of the monitoring system, and utilization of the data/information for better decision making, forecasting, providing advice to farmers, knowledge management, and risk assessment to inform investment.

Activities under Output 1.2 will include:

- Development of a new software for linking climate stations that already generate five-day forecasts to a central hub, and linking it to applications in agriculture, namely information about appropriate technology and advice/tips to farmers on how to address upcoming weather

episodes. The system would disseminate climate information and adaptation guidance through specialized agricultural TV channels, radio and newspapers.

- Identification of focal points who that will be in charge of obtaining climate information and adaptation guidance on a daily basis within community organizations, and encouraging them to recruit new staff from among unemployed educated youth.
- Training of focal points on utilization of the system and means of disseminating information and advice within the village, through extension meetings, farmer field schools, vehicles carrying microphones (a commonly used mechanism for disseminating news), and/or word of mouth.
- Putting the system on trial, identifying shortfalls and testing a variety of interventions.

Output 1.3. Introduction and use of water saving irrigation and other adaptation techniques

Water use efficiency was the common high priority objective for all stakeholders interviewed. Since all Egyptian villages depend on Nile water, irrigation and drainage systems are very similar in many respects, although there are some minor differences depending on the difference in distance from the Nile, the surrounding topography and the quality of water. Consultations revealed the distinct features of new vs. old villages in types of efficient irrigation systems that could be applied. New lands lend themselves more to application of drip and sprinkler irrigation systems. In fact, those technologies are required by the government in order to balance the additional water needs of horizontal expansion with the water stress condition that the country faces. It also lends itself to use of solar energy for pumping water as the locations are not yet connected to the grid.

It is envisaged that public works will be entrusted to a specialized company working and overseen by the strong prevailing community organization in each village, which –based on the consultations undertaken - in some cases will be the village agricultural cooperative and in other cases the village community development association. The role of the community organization will be to oversee the work being undertaken and to ensure it is on schedule and to the satisfaction of water users. Their role is also to provide protection, liaising with the police, and to resolve any conflicts that may arise in the course of undertaking works (more on conflict resolution and security in the risks section).

The organization has another important role to play, which is managing financing and up-scaling. It is envisioned that works using project grant financing will be undertaken for a demonstration plot of about 150 acres in each village. This would be repaid to the community organization over three-year installments. This is justified by the fact that advancements in irrigation can improve production and productivity by 20 percent on average. Impact on incomes is expected to be positive, and so there is a strong willingness to pay. Installments will be paid at no interest, but will include a service fee to cover the local organization's costs. Repayments will be used to contract with the company for another plot. This scheme for financing was suggested by many of those interviewed in the course of project appraisal as a mechanism that has worked before for relatively “large” investments of over USD 2000.

The benefits in all villages from interventions directly financed by the project will cover 1900 acres, and approximately 4600 beneficiary farmers. If the land that can be improved by the community organization with the capacity built and financial assets left behind is included, the area covered increases to 4570 acres by year 6 (two years beyond project life) and approximately 10,200 beneficiary farmers (see Table 7).

Steps for the design of irrigation systems in the new lands include the following:

- Development of contractual modalities, and agreement of contracts between the community organization and each farmer. The purpose of the contract is to commit both sides to the works agreed upon, timeframe, resources from both sides, allowable and unallowable actions, and responsibilities of both parties.

- After contracts are signed, the tendering process would start for phase I works. The tender document would stress the importance for the contractor to demonstrate capacity to involve unskilled labor from among unemployed and landless people in the village.
- Demonstration fields would then be set up to train select community pioneers on management of the enhanced irrigation system, and light maintenance work.

The design phase of the project would be carried out in year 1 of the project.

Implementation would be conducted in years 2 and 3. It would include:

- Contracting with a specialized company for installation of the system.
- Involving water users associations as key entities in supervision.
- Providing technical assistance to WUAs on financial management and procurement, while collecting the first installments from farmers (in years 3 and 4) to ensure scale up and sustainability.

Coordination with other donors is particularly important for this activity. IFAD is rehabilitating irrigation infrastructure and assisting the establishment of water user associations in Sohag, Assuit and Qena. WFP will work in different villages and will introduce different and complementary solutions. However, WFP intends to maximize synergies with the IFAD project by involving IFAD supported staff into the proposed project's reporting, monitoring and evaluation framework.

Table 7: Schedule of Installation of Efficient Irrigation

Source of funding/year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
The project (acres)	n/a	800	800	300	n/a	n/a	1900
Community organizations (acres)	n/a	0	265	615	918	870	2670
Beneficiaries (people)	n/a	1500	1500	1850	2750	2600	10,200

The extensive consultations conducted in the different villages (see Annex), as well as with technical experts in the ministries and universities involved, led to the identification of several technologies for water saving irrigation in old lands. Priorities mentioned, and adopted by the project accordingly, are laser leveling of soil, canal lining, canal sloping, strip irrigation, gated pipe irrigation, volumetric water distribution, crop consolidation at meska and merwa levels, new scheduling mechanisms (Motarfa) between users at the same Merwah, Merwahs at the same Meska and Meskas at the same branch canal, and simple canal clearing of weeds. These technologies complement each other, and will be applied as a package in each of the villages. A consultant team will be hired competitively to do the design work for each village, and another will carry out the works needed.

Output 1.4. Building resilience in agricultural production

During field consultations farmers identified key climate related challenges. These include heat shocks in summer and cold waves (chills) in winter. The former is more of a problem as cold waves have been experienced frequently enough over the past years so that there is some knowledge of how to deal with them. Farmers understanding of the relationship between climatic variables and agriculture/livestock is limited to their current experiences. Very few people (whether farmers, community leaders or local government officials) have a broader understanding of climate change and future scenarios.

Planned Interventions for agriculture: Upon consulting with farmers and stakeholders, the following interventions are to be implemented:

Introduction of heat tolerant varieties of common crops such as wheat, maize, sorghum and tomato. In response to the need for more heat tolerant varieties expressed by communities, the project will disseminate new grain sorghum hybrids in Qena, and Luxor, Sohag and Assuit. This offers a means for adapting to the rising competition among cereal crops and contributing to bridging the widening gap between national production and consumption, expected to be exacerbated by climate change.

Traditional **sorghum** has a huge genetic diversity that enables it to cope efficiently in marginal and harsh conditions. Consequently, it performs well under abiotic stresses like drought spells, hot weather, and saline soil. It can tolerate 4-5 degrees increase in temperature more than traditional maize. Whereas the production of traditionally cultivated maize is in the range of 22-23 ardab³³/acre, the sorghum cultivations productivity in Upper Egypt in 2010 was in the average of 16.5 ardab/acre³⁴. To overcome this gap, the Agriculture Research Center was able to successfully develop and register 6 new hybrids of sorghum with productivity ranging between 22 and 35 ardab/acre. Two of the hybrids are ready for immediate dissemination, while four will need a year of seeds preparation. In addition to high productivity, the new hybrids retain the drought and heat tolerance properties of the traditional sorghum. They also have a recorded water requirement that is 30% less than traditional maize.³⁵

The project introduces the new hybrids to farmers, demonstrating its economic and environmental benefits to promote cultivation as a supplement to traditional maize. It will train extension specialists on the characteristics of the new hybrids and their recommended agricultural packages (soil preparation, tillage, machinery, sowing time, plant density, fertilization, irrigation, pest and bird attack control, suitable procedures and harvest time and post-harvesting practices.) The project will start with the two available hybrids in phase 1, while the second phase will start in 2 years and will involve the dissemination of the other 4 hybrids.

With respect to **wheat**, the Agriculture Research Center has developed several heat and drought tolerant varieties through cross-breeding. The new hybrids are reported to tolerate 4-5 degrees increases in temperature and have a 35-45 % saving in water requirement with the same productivity as traditional ones³⁶. The project will pilot and disseminate the cultivation of these new varieties to replace traditional ones.

New hybrids of heat tolerant tomato are now available in Egypt. The project will introduce them in the same manner as sorghum and wheat.

Dissemination of water-saving sugar cane varieties

³³ An “ardab” is an Egyptian weight unit for cereal crops, equivalent to 140 kilograms

³⁴ Source: Bashir, Mohamed et al (2010), *Grain Sorghum Development in Upper Egypt*, Agriculture Research Center, Egypt

³⁵ Source: Interview with Dr. Michel Fakhry, Maize Department, Field Crops Research Institute, Agriculture Research Center

³⁶ Source: Dr. Eman Sadek, Wheat Research Department, Field Crops Research Institute, Agriculture Research Center

Farmers in Qena, Luxor and Aswan depend heavily on sugar cane due to the presence of a large sugar industry in this area. However, sugar cane is becoming more controversial because of its high water requirements, which is expected to become more of an issue with rising temperature and increased water stress. Sugar cane consumes 13000 m³ of water per acre, making it the second largest water consuming crop in Egypt after rice. The Sugar Crops Research Institute of the Agriculture Research Center has developed a new variety of sugar cane characterized by narrower leaves with fluffs and thus reducing water loss through transpiration by about 25-30%. Transpiration already accounts for 60% of the water consumption of sugar cane, and temperature rise in the Southern zone is expected to add another 16% to this figure. Accordingly, this new variety is expected to substantially reduce crop-water requirements, while maintaining this important source of livelihood for over two million rural inhabitants who depend on sugar cane. Introduction of this new variety, coupled with improved land preparation and irrigation techniques (laser leveling, strip irrigation, double lining, perforated pipes and plantation of sprouts instead of seeds) has been proven to reduce water consumption by 30-40%. As 317,000 acres are cultivated annually in Qena, Luxor and Aswan, the expected water savings and resulting cost reductions associated with the new varieties is expected to be considerable.³⁷

The project will establish demonstration fields in Aswan, Luxor and Qena to demonstrate the benefits of the new variety and the improved irrigation techniques as well as their means of application. Groups of farmers from neighboring areas will be supported to visit the fields 3 times (at the critical plant growth phases) for orientation and up-scaling in their fields.

Piloting and dissemination of changing of sowing dates

Experiments by several of the research units of the Agriculture Research Institute show that changing the sowing dates of many crops to two months earlier than traditional practice has manifold climate-adaptation benefits. It reduces water loss through evapotranspiration as it allows the crop to reach maturity one or two months before temperatures rise. It also helps avoid disease infestation associated with temperature rise. And it allows a one- or two-month period for plantation of additional crops, increasing land use efficiency, farmers' income and food availability.³⁸

Project staff will produce instructional material, train extension workers, implement pilot demonstration fields and offer technical support to farmers on applying optimal sowing dates under conditions of climate change and variability.

Piloting and dissemination of intercropping practices

Intercropping, if practiced correctly, is an effective means to increase land use efficiency, rural incomes and food availability. Farmers in Egypt have practiced forms of intercropping for a very long time. However, they have done so with limited or no scientific foundation, and thus the full potential of intercropping has not been harnessed. For example, in many cases, there has been insufficient consideration of aspects like competition and disease transmission among crops, which can lead to the destruction of one or more of the intercropped crops.³⁹

The project aims at enriching farmers intercropping abilities to employ intercropping potential to the fullest as a climate change adaptation tool. This will be done through provision of scientifically-guided on- the- job training and technical support to farmers and extension workers.

Piloting and dissemination of low-cost plant nutrient supplementation

³⁷ Source: Interview with Dr. Ahmed Zaki, Sugar Crops Research Institute, Agriculture Research Center

³⁸ Source: 2nd national Communication on Climate Change

³⁹ Source: Interview with Dr. Ismail Eweis El Sayed, Intercropping Department, Field Crops Research Institute, Agriculture Research Center

The National Research center has successfully identified low-cost nutrient supplements that have dramatic impacts on increasing crop productivity and improving heat, drought and salinity tolerance of plants⁴⁰. These include Vitamin E, cobalt and salicylic acid. The project will build on this work, showcasing the modalities and benefits of utilizing these supplements and disseminating them to farmers in Upper Egypt. This will be done by twinning the technical expertise of the National Research Center with the community access of local NGOs in the governorates of Southern Egypt. To that end, pilots of two demonstration field days will be implemented in each governorate, bringing together groups of 100 farmers to learn about the intervention and witness the positive impact on productivity.

Crop value addition

Several interventions can be introduced to enhance the value of crops and diversify sources of rural incomes. Diversification is a measure to reduce potential risks of climatic shocks to rural incomes. Potential new value addition ventures include introduction of organic farming for niche markets; high value crops such as strawberry, guava, pomegranate (in Sohag and Assuit); as well as medicinal and aromatic plants. This also includes the introduction of simple post-harvest equipment such as sun-dryers and oil extractors both at household and communal levels. In parallel, activities such as contract farming, linking to markets, etc. will be undertaken to improve marketing and to maximize value-addition. Where appropriate, links to other operational projects in the area will be made (see section F).

Table 6, below, maps the interventions to be implemented in each village under output 1.4

Modality of implementation of agricultural interventions:

The above mentioned technologies/interventions will be implemented through the following modalities:

Consolidation of land holdings: this was seen by farmers as an essential first step to any agricultural intervention as Egypt in general suffers from land fragmentation. Over 90 percent of land holders in the project villages own/ rent less than three acres. Barriers between smallholder land plots represent a major cause of land loss and land use inefficiency in Egypt in general, and land fragmentation makes difficult any new productivity enhancing intervention. Land consolidation is an essential first step in the proposed project. Previous work in several governorates showed positive results, with farmers reporting increases of up to 30% in their incomes due to additional land being cultivated and economies of scale being realized when small farmers collaborate as one farm in procurement, cultivation, and marketing. Steps for land consolidation will include:

- Marking borders of original plots of land
- Conducting soil analysis to determine characteristics and productivity of each plot
- Signing bilateral contracts between the farmers and the project.
- Applying agricultural mechanization, procuring seeds, cultivating the same cropping pattern throughout the consolidated area, applying the same treatments.

The project will cover all costs in the first season. In second season farmers will cover 50% of implementation costs. In the third season farmers will cover 75% of farm production costs, and ultimately, in the fourth season, the farmers will bear all the costs.

Establishment of demonstration/ experimental fields: Very few demonstration fields have been established since liberalization of the agricultural sector, when government involvement in farming decisions was eliminated, and with it government services, such as demonstration farms and extension

⁴⁰ Source: Interview with Dr. Nadia Gad El Rab, Dr. Magda Fouad, Plants Nutrition Department, National Research Center

services. Private companies, particularly suppliers of seedlings, seeds and other agricultural inputs, began to provide extension services on limited scale, but coverage has been poor. Other extension and support services are limited to efforts on the part of agricultural cooperatives or donor funded programs.

During project consultations farmers welcomed the establishment of demonstration farms on their lands (land provided for free by the community) in the middle of consolidated plots.

Extension services: Training will be provided for government extension workers. The project unit will also recruit private sector extension services, with or without supply of agricultural inputs. This aims at establishing a core group of community extension workers who can assist other communities.

The combination of extension services and demonstration farms is expected to benefit approximately 21,600 people.

Farm-to-farm: once successful practices are spread throughout individual villages, the village itself can be a demonstration farm for neighboring villages through farm-to-farm exchanges. This is expected to benefit 1500 people who participate in farm-to-farm visits, but each of them is expected to benefit at least 5 other farmers, amounting to 7500 farmers benefiting directly from expertise gained.

Output 1.5. Building resilience through livestock and poultry production (also see Annex 12 for feasibility studies)

The aim of this set of interventions is two-fold: 1) to enhance the resilience of community livestock to climatic shocks; and 2) to increase food production in the community despite climatic challenges, and improve child nutrition, especially through the provision of poultry. This is much needed considering that Assiut, and Sohag, Qena, Luxor and Aswan (as well as Lake Nasser communities) are among the most protein deficient regions in the country. The intervention will also enhance women's role in society, as they are the guardians of raising livestock in rural Egypt.

Upon consulting with farmers and stakeholders, the following interventions are planned:

Improving productivity of poultry under increasing temperatures

In response to reported problems caused by heat waves, this intervention will build on the research undertaken by the Animal Production Research Institute in supplementing hens feed to improve their production and reproduction performance under heat stress. According to published papers, there is evidence that augmenting hen feed with low-cost additives including Vitamin E, sodium chloride or selenium improves weight gain, egg production, egg weight, and other reproductive performance traits under heat stress.⁴¹ Awareness raising sessions will be undertaken to introduce the intervention and its mode of implementation.

Diversifying income through raising rabbits and ducks and bee keeping

During consultations, community members emphasized that the diversification of their income would provide an effective means to build resilience to climate impacts.

⁴¹ reference: Hassan I.I. et al (2009) *Effect of Selenium and Vitamin E on Productive and Reproductive Performance of Matrouh Layers Under Egyptian Summer Conditions*, 5th International Poultry Conference, Egypt.

Raising rabbits is considered one of the easy and profitable means of enhancing household livelihoods. The project will aim to disseminate this household venture among the poor, particularly women. A revolving fund will be established in cooperation with NGOs in Assuit and Sohag⁴² to establish 100-household enterprises. Pooled financing agreements will be signed between NGOs and beneficiaries mandating borrower households to repay collective loans of L.E. 2500 (equivalent to USD 417) with an interest rate of 5% in two installments at the end of the third and sixth months respectively. By the end of each semester, the NGO would be able to establish a new batch of 100 projects.

Beneficiaries will be trained on animal care and project management, while technical support will be provided over the first three years to the NGOs and beneficiaries through the Agriculture Research Center. The cost of the loan will be sufficient to cover NGO administrative costs. Feasibility analysis indicated that each household can generate a quarterly income of L.E. 1335 (USD 226) from this project.

Revolving lending mechanisms will similarly be established for ducks and bee-keeping projects. For ducks, NGOs will offer loans of L.E. 1000 (USD 167) to beneficiaries at an interest rate of 5%. Repayment will be made in three installments of L.E. 350 (USD 58) every 10 weeks. The loan is expected to generate a sustainable household income of L.E. 619 (USD 103) every 10 weeks. For bee-keeping, NGOs will offer loans of L.E. 7000 (USD 1167) at an interest rate of 5%. Repayment is to be made in monthly instalments of L.E. 490 (USD 82) each over a period of 15 months. The project is expected to generate a monthly net household income of L.E. 884 (USD 147) .

Adaptation through heat tolerant varieties of goat

In Assuit, Sohag, Qena and Luxor and Aswan livelihoods of the rural poor, particularly women, will be enhanced by introducing heat tolerant goats through revolving microfinance facilities operated by local NGOs. To that end, a goat flock of 500 mature female goats and 20 male ones will be maintained by NGOs. Males will be provided from genetically selected heat and drought tolerant flocks by the research farms of the Animal Production Research Institute (APRI) to improve the productivity of the offspring, while female goats will be purchased from both local markets (visually assessed) and from the research farm of APRI. The animals will be kept in research farms of APRI and/or South Valley University in both Assuit and Qena (Mataana).

A dissemination and breeding plan will be developed in cooperation with partner local NGOs whereby they will disseminate the female goats to poor community members on a revolving basis. Two payback models will be implemented. Under the first model, agreements will be signed between the NGO and beneficiaries stipulating that each farmer is to receive two pregnant goats and is to return a female offspring to the NGO within a six- month period. The offspring will be raised to maturity in the research farms and will be disseminated to a new group of beneficiaries one month after its insemination. Under the second model, the payback will be made in six monthly cash installments of L.E. 150 (USD 25) each. To promote subscription and facilitate monitoring an incentive service will be offered to beneficiaries whereby monthly visits shall be paid by the trained NGO staff as well as APRI to provide technical advice on vaccinations, proper feeding and veterinary care as well as to periodically monitor progress in fattening.

Communal units for collective processing of produced milk will be provided and run by NGOs. To that end, funding of L.E. 29, 000 (USD 4830) will be provided for establishment of processing projects that include collection of goat's milk from different beneficiaries, processing into goats cheese, fermented milk and yogurt, and marketing of the products in nearby cities. This will offer a window for the beneficiaries of the goats' projects to market their milk, which might otherwise be difficult (as villagers may prefer cow's milk). And it will generate revenue for the NGOs, strengthening their financial capacity and enhancing the chances for sustainability.

⁴² Past experiences of NGOs revealed that rabbit raising is not profitable in Qena, Luxor and Aswan due to high mortality rates resulting from hot weather

Adaptation through alternative livestock fodder

One of the limiting factors in raising animals in Egypt is the high cost of fodder. Traditionally, livestock feed in Egypt is composed of clover to which hay and protein concentrate (in the form of maize, and minerals) is added. An animal consumes some 5% of its weight in clover, 1.5% of its weight in hay and 1.5% in protein concentrate. As such, a cow that weighs 300 kg consumes 15 kg of clover (valued at L.E 15 or USD 2.5), 4.5 kg of hay (L.E. 4.5 or USD 0.75) and 4.5 kg of concentrates (about L.E. 9 or USD 1.5), and this adds up to cost L.E. 28.5 or USD 4.75 /cattle head/day. This is unattainable for the average poor family in rural Upper Egypt whose income is about LE 750/month (equivalent to USD 125 at market exchange rates). This cost can be expected to rise with climate-induced reductions in yield of clover per unit of land area.

The project will introduce an innovative technique that uses agricultural waste as a main constituent, upon supplementation with low-cost additives (molasses and bran) for improvement of its nutritional value in animal fodder. The cost of preparing the mix is estimated at L.E. 250/ton. A daily intake of 2 kg will reduce an animal's need of traditional fodder by 30%, increase profitability for smallholders, reduce the demand for berseem and maize, consequently availing its cultivation land and water for other crops and contributing to relieving climate-induced pressures on resources. The technique will also utilize agricultural waste that would otherwise be disposed of by burning.

The project will disseminate the use of the new animal fodder among farmers in all five governorates. Awareness material will be prepared, and awareness campaigns organized including 10 demonstration pilots. 500 farmers will be trained on how to prepare the fodder.

Institutional interventions: to manage these livestock schemes, an operational unit comprised of an accountant and a coordinator will be formed in each of the proponent NGOs. Seed funding of L.E. 50,000 (USD 8333) will be provided to cover operational costs of the units in their first year. Those funds will be dispersed to community organizations that prepare and provide a clear and thorough business plan. Only community organizations that are assessed and approved by the project unit will be accepted as implementing entities for livestock schemes.

With field consultations noting an absence of adequate vet services in most villages, the project will support community based vet centers to offer services and recruit the expertise they need from nearby research stations. Similarly, in response to the request for technical support voiced by community members, training and ongoing technical assistance on animal nutrition will be provided. Lessons learned will be transferred to other Southern Egypt communities through farm-to-farm exchanges (see Output 1.4). Likewise, the training material developed on animal keeping and project management will be used under component 2 of the project for scaling up and replication elsewhere.

During field consultations, the risk of theft of assets following an increase in crime rates in the country was assessed. Discussions and feedback revealed that this is a low risk with animals and associated equipment as they will be housed in the beneficiaries' own barns. It was also confirmed that crimes of this nature are highly unlikely to occur in the selected villages, where there are strong social linkages. Accordingly, the need for insurance against this risk is not evident, although this will be monitored as the project is implemented.

Activities under Output 1.5 will include:

1. Undertake capacity building for partner NGOs/CDAs as identified in the institutional assessment
2. Train beneficiaries on project management and specifics of raising/keeping livestock, including nutrition.
3. Introduction of seed cattle and goat heads as a startup livestock fund for the community through provision of seed animals

4. Train veterinarians and assistance in provision of improved vet services.
5. Support for community organizations in implementation, and follow up in their startup phase.

Table 6 maps the interventions to be implemented in each location (and technical consideration behind disqualifications). Annex 8 provides the baseline and adaptation analysis for all villages.

Table 6. Mapping of Interventions in Project Villages																								
Governorate	Village	Crop production									Animal production					Irrigation	Information management							
		Heat tolerant wheat varieties	Heat tolerant Sorghum	Heat tolerant tomato	Water saving cane	Intercropping	Change of sowing dates	Low-cost nutrients for improved heat	Postharvest processing		Rabbit loans	Ducks loans	Goats loans	Bees loans	Alternative fodder		Nutrients for poultry heat	Irrigation management	Sprinkle/drip irrigation	Linkage to on-line warning system	SMS in extension			
	Kalabsha	√	Sorghum in Aswan is threatened by birds attacks	√	√	√	√	√	√	Rabbits have poor performance in high temperatures of Aswan, Luxor and Qena	√	√	√	√	√	Irrigation management	Soil salinity problems make this unfeasible	√	Poor mobile signal in area					
Aswan	Benban Bahary	√		√	√	√	√	√	√		√	√	√	√	√			√		√	√	√	√	
	Mansouria	√		√	√	√	√	√	√		√	√	√	Date wasps in the area threaten bee projects	√			√		√	√	√	√	
Luxor	Kommier	√		√	√	√	√	√	√		√	√	√	√	√			√		√	Old land	√	√	
	Nego'e Kebly	√		√	√	√	√	√	√		√	√	√	√	√			√		√		√	√	√
	Halfa 3	√		√	√	√	√	√	√		√	√	√	√	√			√		√		√	√	√
Qena	Maharza	√		√	√	√	√	√	√		√	√	√	√	√			√		√	√	√	√	
	Samhoud	√		√	√	√	√	√	√		√	√	√	√	√			√		√	√	√	√	
Sohag	Ali Ibn Abi Taleb	√		√	√	Sugar cane is not planted in the area	√	√	√		√	√	√	√	√			√		√	√	Old land	√	√
	Nazlet Ali	√		√	√		√	√	√		√	√	√	√	√			√		√	√		√	√
	El Naza El Bahria	√	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√					
Assuit	EL Khawalid	√	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√					

El Ona	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√
El Loqa	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√

Component 2 . Capacity building for climate knowledge and adaptation scale-up

Interventions in Component one will be scaled up through a number of mechanisms. One mechanism is the government’s 1000 village initiative, and relevant national programs as they are rolled out by the new government. At a minimum, lessons learned will be retained and disseminated to all actors involved in the 1000 poorest village initiative in order to replicate them in the government’s first phase of support to 151 villages covering some 1.7 million people.

Another mechanism is community based. It is made possible by the expansion in coverage of villages from three to 14, covering all of Southern Egypt governorates. The idea is that under component two, farm-to-farm visits and links will be organized to show case achievements of project villages to four or five neighbouring villages. This networking and exchange of knowledge will enable at least the soft interventions that do not require upfront investments to spread widely, thereby more than multiplying the impact of project investments. Furthermore, this may bring additional business to community organizations already empowered, through bringing additional customers demanding seedlings or financing for heat-tolerant animal heads. This communal mechanism is essential for effective scale-up of project interventions

The project will work on various levels including supporting a knowledge forum at the level of assisted villages; capacity building of key government staff, partly through organized workshops but largely on-the-job through engagement in project activities. The project will also contribute to policy analysis and advisory services to central and local government; conduct advocacy with new parliamentarians and local council members on the risks of climate change to food security; and engage key civil society organizations (such as the newly founded Farmers Syndicate and the Farmers Union). A key means of retaining and disseminating knowledge is the engagement of universities, particularly prominent local universities such as Assiut University and South Valley University (in Oena and Aswan).

Output 2.1. Training for Government technical staff

This output will design and implement a variety of training courses for government technical staff, particularly those in the 1000 Village Initiative, new projects that maybe started by the new government, and national research centres such as the Agricultural Research Centre under the Ministry of Agriculture.

Capacity will be built on climate analysis and prediction; climate change and food security vulnerability assessment, and the identification of adaptation options and evaluation of costs. The training will be a mix of classroom and on-the-job training

This activity will also include development of a software application (also referred to in output 1.2) to link climate stations a common hub and to develop adaptation applications to provide immediate guidance for use of farmers to suit different climates and shocks. Training of government staff on the developed application will be undertaken by the Ministry of Agriculture’s Central Laboratory for Agricultural Climatology and the Egyptian Meteorological Authority (EMA). EMA will be engaged in its capacity as the key authority in weather forecasting and the host of a regional training centre of the World Meteorological Authority.

Also, various institutes within the Agricultural Research Centre collect data on soil, water, evapotranspiration, among other agricultural climate data. Finally, the Nile Research Institute of the Ministry of Water Resources and Irrigation monitors water levels in the Nile and is able to forecast rise and fall of the Nile water levels depending on precipitation upstream. Field consultations showed

that climate monitoring stations are owned by other entities, such as Assiut University for example, which uses it for research purposes. Those stations are not linked.

Also, weather data is not linked to other pertinent agricultural and water data, without which the farmer cannot get the full picture of the climatic variables that s/he is facing in any given season.

Data and alerts are only communicated by the EMA publicly in the form of weather data. On the EMA website, they also post brief warnings concerning the agricultural climate (such as expected extreme temperature four days in advance). However, this information does not reach farmers effectively due to a disconnect between the available forecasting system and the extension services. In effect, farmers reported often not being able to anticipate climatic variability and shocks. There are no local institutions to help farmers utilize climate data in their farming decisions.

Regarding interventions and support mechanisms, farmers report that they are available but on an inconsistent basis. Those include government extension services, private sector extension services (by some suppliers of seeds and agrochemicals), and donor funded projects (most farmers consulted recalled the USAID Agricultural Exports and Rural Incomes project which introduced the concept of forward contracting). However, support mechanisms are not always informed regarding climatic issues. In fact, it was reported by the agricultural cooperative members in Bani Zeid village in Assiut that it was the private sector seeds supplier that advised them to plant at the wrong time of year (as the seed supplier was used to based on supplying seeds in the Delta), and farmers ended up losing 50% of yields due to high temperatures.

Similarly, financial solutions and programs are limited in availability, while they are a key adaptation solution. The institutions working in this area are limited to the Principle Bank for Development and Agricultural Credit (PBDAC), and the Social Fund for Development (SFD). PBDAC is affiliated to the Ministry of Agriculture and the Social Fund for Development was established by a Presidential decree to offer micro-lending services and other forms of assistance as part of the safety net of the government offered during the structural adjustment process in the early 1990s. Those two banks are perhaps the most far reaching from a geographical standpoint. However, PBDAC requires creditworthiness criteria and requires that farmers be the official landholders (members of the agricultural cooperative) in order to qualify for a loan. The SFD offers loans at a relatively higher interest rate. Its loans are linked to a financial repayment cycle rather than the traditional agricultural cycle, so they are asked to repay loans at the “wrong” times according to farmers. SFD also does not always have sufficient grant funds or state budget allocation that enable them to offer non-financial services and undertake adequate monitoring. Both banks use credit as the only financial service. Another reportedly key institution in micro-savings is the post system, which offers the most far reaching interest earning savings service in rural Egypt. There is no link between micro-savings and micro-credit. Guarantees and insurance are hardly practiced at all.

Based on the above analysis, it is foreseen that training would encompass the following:

1. Training on information management and dissemination, which includes a mix of awareness and hands on training on the system developed under output 1.2. Training should be provided to technical government staff of the EMA, Ministry of Agriculture’s Agricultural Research Centre, Ministry of Irrigation’s Nile Research Institute, and corresponding local departments in all Southern Egypt governorates.
2. Technical training pertinent to output 1.3, for Ministries of Agriculture, Water, and Environment (central and branches of the Egyptian Environmental Affairs Agency) including awareness of climatic scenarios and the risks to Egypt’s water resources; hands-on training on identification of hard and soft irrigation efficiency solutions; and strategic planning applied to this sector (whether at the national or local levels, each group at their appropriate level).
3. Technical training on adaptation in agricultural and animal raising/fattening, targeting the Ministry of Agriculture and Directorate of Agriculture.
4. An appropriate all the training materials developed under component one including those on animal raising and project/loans management will be provided to community organizations

and volunteers. This is in addition to training on community mobilization, awareness raising, managing communal assets (administrative and financial), etc.

5. Training on financial solutions would be designed in consultation with the key financial institutions working in this area (PBDAC, SFD, and the postal authority). Training will focus on building skills for managing solutions developed or adapted under Component 1. Training will also aim to build awareness about how financial solutions can help make the transition to climate adaptation.

Activities of Output 2.1 include:

- Identification of the groups of staff that are to be involved and their capacity building needs.
- Design of the capacity building packages for each group and implementing them.
- Monitoring improvements and integrating material in staff performance, identifying shortfalls and tweaking the capacity building packages.

Output 2.2 Documentation of lessons learned and best practice

This output will document knowledge and lessons generated and will put out a communication campaign through different specialized media channels, with the aim of reaching millions of farmers and rural inhabitants.

Key messages will include:

- Climate change and how it affects rural communities and livelihoods. Difference between climate change and variability will be simplified for general understanding.
- Information about the project interventions and services established in participating villages.
- Key messages related to adaptation guidance.
- Key messages related to 5-day forecasts and what to do in case of a forecasted climate shock.

Materials produced will include:

- Daily newspaper section on climate data for farmers
- Daily news announcement on climate data for farmers
- Brochures that give summary information about implementation approaches, best practice and key lessons learned. The information will be easy to read and pictorial. The target group will be farmers, extension officers, local NGOs, and Government technical staff, particularly in the directorates of Irrigation and Agriculture in Aswan, Assiut, and Sohag.
- More detailed, technical reports targeting government workers, NGOs and community organizations in Southern Egypt.
- Promotional material that provides a general overview of the project, its components and expected outcomes. This will be disseminated among partner agencies, and national local authorities, including local and national political representatives.
- A 20 minute documentary. The CD will be disseminated to concerned stakeholders including the governorates, NGOs, the Ministries of Agriculture, Environment, Irrigation, Social Solidarity, Planning and Finance at local and national levels, and members of the development partner group working in Egypt.
- Materials for an orientation program targeting new government officials, including a one hour briefing package for Ministers and senior government and full 2-day training for new technical staff in Ministries.

A network of local practitioners will be created and sustained which will, during the life of the project, be linked to and catalyzed by the activities surrounding project monitoring and reporting. It will include farmer organizations, extension workers, community volunteers who participate in the

baseline and evaluation of the project, and select beneficiary farmers. Champions in the network will document best practice and lessons learned and these will be shared through dedicated brochures, workshops and submissions to local media.

Output 2.3. Sharing project results and lessons learned and mainstreaming new approaches in local and national planning

This output will promote mainstreaming of adaptation interventions to mitigate climate change risks to food production in local and national planning. This will be accomplished through a package of complementary activities at the local level including:

- Facilitating expansion of community knowledge to benefit neighbouring villages. This includes organizing visits by beneficiary community organizations to four or five neighbouring villages and vice-versa to show case achievements and encourage dissemination of knowledge and solutions through civil society. In this context, training materials used in component one will be put to use under this activity. Beneficiary community members who have successfully carried out adaptation solutions will be recruited to launch this networking and technology transfer initiative among neighbouring villages. This will create about 1500 short-term income opportunities for beneficiaries and open up longer term opportunities. Longer term opportunities will be attained when sufficient demand has been created in neighbouring villages for technical assistance and other services provided by community organizations who have benefited under this project, which may bring additional business to community organizations already empowered, through bringing additional customers demanding seedlings or financing for heat-tolerant animal heads. This communal mechanism is essential for effective scale-up of project interventions
- Exploring the possibility of established revolving funds for livestock to benefit neighbouring villages through transfer of experiences or through a more sophisticated business model where beneficiary community organizations act as incubators for those of neighbouring villages.

At the national level, activities include:

- A training course for non-technical government officials and new parliamentarians on the concept of climate change and food security, analysis conducted for Egypt, and knowledge generated under the project
- Presentations to Ministers and senior government officials
- Site visits by relevant officials
- Organized events for beneficiaries to present their experiences to other potential beneficiaries
- Annual workshops that join project actors from community, department, regional and national level to discuss opportunities and constraints, and share experience and learning.
- Integration of reports into ministry of Agriculture and Environment's on-line data base.
- Broadcast of the project documentary on the Egyptian Agricultural Satellite Channel of the Ministry of Agriculture

Output 2.4. Integration of climate adaptation solutions into University curriculum

The project will engage experts from local universities, in particular Assiut University and South Valley University. Agreements will be signed with university management to enable them to engage students in field research, and to use knowledge generated under the project in enriching university curricula.

University professors interviewed (from Assiut and Sohag universities) believed the areas for collaboration with universities also include participation of students in field work, and providing case studies for courses in the same field (both universities already have courses taught in faculties of agriculture that touch on climatic issues).

Activities under Output 2.4 include:

- Agreement with Universities of the Southern Zone on modalities of cooperation and concluding MOA's accordingly
- Organization of student trainings and field visits as stipulated in the MOAs. Training materials and lessons documented under component 1, including those on animal raising, project and loans management, adaptation in agriculture and irrigation will be used.
- Inclusion of students in the extension trainings and involving them in provision of extension services for farmers
- Contracting of the universities and the research centres of relevance for design and delivery of trainings to be provided to beneficiaries
- Sharing of knowledge and training materials generated by the project under component 1 including those on animal raising, loans and project management, adaptation in agriculture and irrigation with the universities for upgrading of their modules on climate change adaptation.

For further details on how these materials will be used to disseminate information please refer to Section G below on knowledge management.

B. Describe how the project / programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities.

The number and types of beneficiaries are listed in Table 7, below. The project will provide a full range of multiple benefits, including the following:

Economic benefits: In an attempt to quantify the economic impacts of climate change on agriculture in Egypt, a study concluded that a reduction of approximately USD580 and USD1380/acre would occur on annual farm revenue with temperature increases of 1.5°C and 3.6°C, respectively, if no adaptation efforts are undertaken⁴³. For a household that relies on agriculture for a living, this reduction can represent up to 80% of total income. As a result, the livelihoods of already economically- stressed smallholders are at stake. And the risk is not just to growers, but also those involved in raising livestock and post harvest activities - and these are mainly poor women.

As mentioned earlier, climate change is expected to decrease crop and animal productivity in many ways in the absence of adaptation efforts. Studies indicate that the main crops of the Southern zone will be affected, with reductions of 28% in beans, 21% in sugarcane, 19% in maize and 20% in wheat with a temperature increase of 1.5-2°C. This will translate into a decline in what poor people can sell and a commensurate decline in their living standards. Studies by the Ministry of Agriculture indicate that the net revenue from sugar cane would drop from the current average of L.E. 3316/ acre to an average of L.E. 1846. Similarly revenue from sunflower will drop from L.E. 1238 to L.E 688 per acre⁴⁴.

Smallholders, estimated to be 90% of the farmers in the Southern zone, will be particularly hard hit. The average income for targeted vulnerable households ranges between 300-400 L.E. per month. This might be expected to decline by a minimum of 20-30% as a result of climate change. Not only land holders will be affected, but also landless labor in the sector will be distressed as the low income from farming will induce cutbacks in daily wages and loss of a good proportion of their jobs. Reduced productivity will also create a decrease, and potentially a shortage, in food supplies, generating price escalations and increasing financial burdens on low-income groups. As such, the rural poor, who constitute some 50% of the Southern zone's population, would be its highly vulnerable.

The project aims to introduce several adaptation techniques that would help vulnerable communities reduce their losses and ultimately salvage revenue that would otherwise be lost. The economic benefits of the project include the salvaged reductions in farm production on agricultural land and the

⁴³Eid, Helmy et al. Assessing The Economic Impacts of Climate Change on Agriculture in Egypt, 2006

⁴⁴ Source: Egyptian Agriculture Adaptation Strategy, 2010

resulting farmers' income. Considering a total of 14,600 acres that are directly benefiting from better management under this project, and the salvaged economic damage due to climate change estimated at USD 1380/acre/year (based on higher temperatures of 3.6⁰C as estimated by the GEF-funded Study on Assessment of Economic Impacts of Climate Change on Agriculture in Egypt), economic benefits amount to USD 20.148 m/year.

In addition, the project will transfer assets valued at approximately USD 2m, which raises the economic benefit to USD 22.148millions.

The project will also help smallholder farmers and landless labor to sustainably protect their livelihoods through income diversification and augmentation activities. This includes animal raising, which would benefit some 2000 households. In the case of goats, a minimum semi-annual net income of L.E 3967 would be generated per household from the sale of the goats' milk and offspring. Similarly, raising ducks is expected to generate L.E. 569 every cycle of 10 weeks from the sale of the matured ducks. Raising rabbits is expected to generate a minimum of quarterly income of L.E. 1335 from the sale of offspring. Bee projects are expected to generate a net income of L.E. 884/months from the sale of the produced honey, swarm bees, royal jelly, and pollen (see Annex 10 for detailed feasibility studies and income calculations for these interventions).

Calculations indicate that alternative cattle fodder will reduce the cost of cattle feeding by 36% reducing the daily cost from L.E. 28.5 to L.E.18/cow. This will increase profitability for those raising animals, significantly enhancing the livelihoods of smallholders as well as savings. The use of alternative fodder will also allow farmers to grow crops other than berseem, generating a minimum income of L.E. 2000/acre/season.

Besides being an effective means of adaptation to weather shocks by reducing risks, intercropping has been reported to increase farmers' income by 75-85% percent⁴⁵. By cultivating 2 or more biologically compatible crops simultaneously in the same plot of land, farmers can maximize outputs per unit of land, reducing cost of cultivation and generating revenue from 2 or more crops, rather than one.

Value addition, through plantation of high-value crops, organic farming, improved produce marketing and post-harvesting agro-processing is expected to have profound economic benefits by increasing the price of produce multi-fold. Vivid examples of this are sun-bed drying of tomato which increases the price of a kilogram from L.E 0.5 to L.E. 3, and organic farming which has increased the value of some beans 8 -fold (from L.E. 500 to L.E 4000 per ton).

In addition, improved irrigation projects are expected to save a minimum of 25-30% of the water used in irrigation in old lands and 40-60% in new lands⁴⁶. This will create an equivalent reduction in the cost of irrigation, valued at L.E. 250-400/acre/ season and L.E. 450-800/acre/season in old and new lands respectively.

Environmental Benefits:

The project will have several environmental benefits.

The project's interventions in irrigation are expected to cut water consumption in the targeted villages by 40-60%.

⁴⁵ Interview with Dr. Dr. Ismail Ewies, Intercropping research Station, Field Crops Research institute Agriculture Research Institute, May 2011

⁴⁶ <http://ahramonline.org.eg/articles.aspx?Serial=182462&eid=1815>

Alternative fodder will reduce the demand for berseem and maize, consequently freeing up land and water for other crops. It also utilizes agricultural wastes that would otherwise be disposed of by burning.

Intercropping also has positive environmental impacts. By simultaneously planting, growing 2 or more crops, farmers economize the use of water, fertilizer, pesticides and water.

Without the project, it is expected that farmers would undertake environmentally- detrimental practices, especially overexploitation of water and increasing fertilization, to enhance productivity in the face of climate-induced declines in productivity. The project's use of heat tolerant varieties, additives to improve heat tolerance of crops, change of sowing date, and intercropping, will reduce climate-induced productivity losses, helping prevent or at least minimize such practices.

Environmental benefits also include enrichment of biodiversity of the target area, restoration of ecosystems by growth of indigenous plants, stabilization of the lake and Nile shores, and protection of water resources from sand intrusion.

Social Benefits:

Chronic poverty in the rural areas of the Southern zone is at the root of many of the area's social problems⁴⁷. According to the National Child Labor Survey conducted by the National Council for Motherhood and Childhood and the Central Authority for Public Mobilization and Statistics (CAPMAS) in 2001, low household income was a key reason why 21% of children between 6-14 years old were engaged in child labor. 64% of these children are working in agriculture. Also, high school dropout and illiteracy rates reach as high as 70% in some communities, especially among girls⁴⁸. Malnutrition and poor affordability of proper health care with resulting chronic diseases are also endemic in the area, along with domestic violence and early marriage⁴⁹.

The impact of climate change on income and poverty can be expected to exacerbate such problems, particularly among women. Most post-harvesting enterprises are run by women. Likewise, animal raising and small scale agro-businesses are typically owned and managed by women. Given their responsibility for household nutrition, health and education within their families, women face more pressure from the consequences of climate change⁵⁰.

The animal raising projects and post harvest agro-processing, in particular, are expected to have significantly positive impacts on women and children. Even if men formally assume the obligations of lending, it is likely that the funds will be administered by women. And unlike revenue from land cropping, the project's financial revenue from income generating activities will be in hands of women, giving them a stronger voice on priorities and patterns of expenditure.

The animal raising projects will also improve the accessibility of the poor to high-cost food commodities such as meat, milk or eggs contributing to improved nutrition.

⁴⁷ Hassanien, Mahasen. (1999). Egypt: A poverty profile. Paper made for the ICSW Civil Society Forum on Poverty- 1999, New York

⁴⁸ Guzzardi, Joe (2011), Egypt Faces Huge Social Problems of overpopulation and poverty, internet article

⁴⁹ Kader, F.A and Hesham Makhoulf. (1998). Egypt: The Social and Behavioral Outcomes of Unintended Pregnancy

⁵⁰ Ghoneim, M. (2010). Qualitative Community Assessment. A report for WFP/Egypt

The social benefits of the project also include enhancement of social cohesion by co-operation activities, strengthened NGOs, community mobilization and establishment of shared community assets.

Table 7: Beneficiaries

Output	Beneficiaries
Output 1.1.	400 people mobilized through community organizations, to play a leading role in raising climate awareness and mobilizing the community. Those include community volunteers, trainers to be trained under the project, community pioneers, supervisors, and members of community organizations.
Output 1.3	20,075 farmers who will participate in various activities to enhance irrigation efficiency
Output 1.4	38,300 farmers benefiting from enhanced resilience of agricultural systems
Output 1.5	54,600 people, mainly women, who will either participate directly in setting up of livestock and poultry hubs, or benefit from the offspring of hub seed animals and birds; and/or in training sessions on choice of animals and animal care as means of preparedness for climate shocks and climate change.
Output 2.1	5000 technical staff from the concerned ministries, local government, parliamentarians, local council members, farmer unions, and specialized agricultural associations who will actively participate in scaling up of project interventions
Output 2.2	300 people participating in the local knowledge forum, representing 80 people approximately from each village, plus civil society, local government and the academic community
Output 2.3	700 participants in training, awareness raising at the policy and institutional level, and advocacy activities
Output 2.4	300 university students benefiting from the project experience
	137,575 direct beneficiaries + 1.7 million indirect beneficiaries over the long term representing the population of phase one of the first phase of the 1000 poorest village initiative

C. Describe or provide an analysis of the cost-effectiveness of the proposed project / programme.

The proposed project aims to provide concrete adaptation solutions to address threats of climate change to food security for a key deprived region in Egypt, namely Southern Egypt, which has the highest rates of temperature, drought and evapotranspiration, and at the same time is home to 45 percent of Egypt’s rural population. The region is also classified as the poorest and most food insecure. The adaptation solutions are based on knowledge gained in the planning process that led to formulation of the Government’s agricultural climate adaptation strategy and the National Adaptation Strategy.

The project focuses on a defined set of high priority issues and implements concrete adaptation interventions in locations that are representative of the majority of Southern Egypt. In parallel, the project also supports policy making and capacity building that will help the government to scale up through knowledge transfer and appropriate policies to the rest of Southern Egypt

From a project management perspective:

1. As an alternative to establishing more costly field offices, the project will partner with local community organizations as the principal project implementing arm in the field. A full field office in each location would have cost over USD 300,000.

2. The project will recruit community volunteers who will assist in implementation and ensure their sustainability. (The already performed well in project preparation). The project will support the negligible costs they incur in the process, mostly in the form of transport costs and consumables. This approach proved reliable and effective in various rural development projects in Egypt. This will help to lower the budget while anchoring the project within communities. It will also ensure that the majority of resources will go straight to the beneficiaries. Field staff on payroll to do the same work in various locations would have cost the project USD 250,000.
3. The project will partner with other significant projects in this area such as those funded by USAID and IFAD (see below), and aims through advocacy to help direct resources of the Government for development of this region towards scaling up of project results to reach the 1.7 million beneficiaries identified as “indirect beneficiaries”.
4. Spreading the project interventions to cover the whole Southern Egypt zone (Assiut to Aswan) - instead of 3 villages as initially proposed - makes it easier to scale up interventions. Under component 2 additional scale-up mechanisms are employed, where each participating village will serve as a model to neighboring villages. Awareness events will be carried out by participating community pioneers in each village for 4-5 neighboring villages. This will double the number of people adopting at least the soft adaptation solutions, which significantly boosts the cost effectiveness of the project.
5. The project interventions create directly over two thousand sustainable income generating opportunities in each village in service provision, animal raising, diversified agricultural production, and value addition. In comparison, the Social Fund for Development had indicated that creation of a job or a sustainable income opportunity costs anywhere between LE 20,000 to 25,000 (USD 3,333 to 4,167)⁵¹. This demonstrates the cost effectiveness of this project compared to other approaches.

From the economy’s perspective, the project will realize significant economic returns in terms of per unit of water. This cost is not fully understood by communities due to the lack of water pricing policies. However, it is undoubtedly a cost to the economy. Also from the economy’s perspective, the project would save significant resources in food imports. Assuming a 20% loss in yield due to climatic change and shocks (variability), the country would stand to save over one billion USD in wheat imports alone every year, at a time when the economy is weak and requires support.

Also, a “no-project” scenario would cause loss of significant resources. Food production can be valued at some USD580 /acre⁵² and southern Egypt has a cropped area of approximately 7 million acres.

Rural families in southern Egypt’s derive 60 percent of their income from agriculture, so any losses can be significant from a standpoint of impacts on food security and nutritional status and for the Government food subsidy budget. The cost of food subsidy provided by the Government already amounts to USD 570 million per year for rural resident of Southern Egypt (approximately 3.8m households).

⁵¹ Social Fund for Development. Annual Report. 2006.

⁵² Helmy, eid et al. Assessing The Economic Impacts of Climate Change on Agriculture in Egypt, 2006

Cost effectiveness in comparison to adaptation alternatives:

Project alternative solutions were selected based on those included in the Agricultural Climate Adaptation and National Adaptation Strategies. Alternatives to the chosen solutions are real options for the Government, either due to their citation in strategies or actual implementation. Table 8 below illustrates the cost comparison of different adaptation solutions.

Table 8: Chosen vs. Alternative Measures

Climate Risk to Food Security	Chosen Adaptation Measure(s)	Alternative Adaptation Measure(s)
<p>Uncertainty of Nile water over the coming years, particularly in light of higher temperature and erratic rainfall. Water shortage is the most likely scenario, which poses serious risks to sustainability of agriculture and ability of the country to feed its people.</p>	<p>The project focuses on on-farm water conservation solutions through small-scale low-cost technological solutions (such as lined canals, gated pipes, timed usage of water by each user, etc), in addition to soft management solutions such as introducing irrigation rotation/schedules, self-clearing of canals, among others. The project will set up demonstration pilots and will train local technicians who can participate in building, operating and maintaining those systems. The cost for this component is estimated at USD1.98 for a 1500 acre demonstration including training and upfront investments in demonstration plots. When scaled up, the cost per acre can be as low as USD 180, which is affordable for small farmers. It would be even more affordable if given through soft financing schemes, which is where the complementarity with the government’s programs would be important.</p>	<p>The Egypt water resources strategy (2030) refers to the need to build more dams and reservoirs and/or increase the capacity of the High Dam to better manage water storage. This is a much more expensive approach than what is being proposed.</p> <p>The same strategy recommends development of new water resources as a solution. It is feasible to dig wells in Nile valley farms, and for expansions into the desert. However, it is a less efficient and less sustainable approach from a natural resource standpoint. It is also more costly to carry out. A shallow well (20m deep) would cost approximately USD 900 per acre, in addition to maintenance and diesel costs for operation of the pump. A deeper well (100m deep) costs less per acre, but require a USD 140,000 upfront investment to irrigate 800 acres, in addition to energy costs.</p> <p>At the branch canal (mesqa and merwa) levels, the alternatives include subsurface irrigation and drainage pipes, which cost around USD 1000 on average. This would not be affordable for the average farmer in Southern Egypt. Should they attempt to scale up, they would need external financial assistance. Canal lining coupled with periodic clearing and communal management of water through effective water users associations is a cheaper alternative and saves</p>

		30 percent of water resources.
Cultivation and animal raising fail due to rising temperature over time and due to climatic variability	The project aims to train farmers on choice of appropriate crops and to bring into application heat and drought tolerant varieties that were already developed after many years of research. This will bring quick results to farmers within the life of the project and will be more cost effective. It is also quicker to scale up. The cost estimated for this activity in total, including establishment of infrastructure, training and other inputs is USD 1.5 million. Where there are clear benefits for establishing a breeding effort for enhanced varieties, this may be applied in a participatory manner.	The alternative (according to the Agricultural Climate Adaptation Strategy) is to breed new crops and animal varieties, which is a longer term and a much more costly approach. A breeding program for one new variety can last up to 10 years and cost tens of millions.
Rural livelihoods and income are affected by climatic change and variability.	The project focuses on improving the efficiency and productivity of natural resources and increasing the resilience in agriculture as a means of protecting rural incomes.	<p>There are alternatives to increasing rural incomes, such as linking farmers to markets, contract farming, food processing (increasing value of agricultural produce). However, those options do not improve efficiency of natural resources use and are not considered appropriate.</p> <p>Furthermore, the adaptation efforts presented here are pre-requisites for successful value chain enhancements. Also worth noting is that value chain opportunities require significant investments in cold chains, grain silos, and other infrastructure that can amount to millions of dollars, and this is a principal reason why it has not been a focus in Southern Egypt.</p> <p>Another alternative is finding off-farm jobs, which is beyond the scope of this project and is longer term in nature as it requires conditions that attract new investments and create jobs. So far, off-farm jobs in Southern Egypt have been highly constrained, as indicated by the World Bank Local/Rural Development Strategy for Egypt (2007).</p>

D. Describe how the project / programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

The proposed project is in line with the *Egyptian National Adaptation Strategy*. The Strategy was issued in May 2011, and draws on other relevant strategies, in particular the Agricultural Climate Adaptation Strategy issued in 2010, and the Water Resources Strategy, and considered adaptation strategies developed by other countries as examples. The Strategy aims to help the country to adapt to climate change in the sectors mentioned in the Egypt second national communication, namely coastal zones, water resources, agriculture, tourism, health, population, housing and roads. The Strategy objectives in summary are:

- Increased resilience of the Egyptian community to risks and disasters resulting from climatic changes and their effects on the above mentioned sectors.
- Developing adequate capacities to respond to and contain risks and disasters resulting from climate change through plans and specialized programs aiming to respond to the needs of local communities in this area.
- Reduction of disaster risks through early warning systems and support to concrete adaptation projects in the neediest locations.

The Strategy indicated its own determinants of success, which include political will; human and financial resources; institutional reform (mainstreaming climate adaptation into existing organizations); successful knowledge management system; adequate monitoring and evaluation systems; in addition to developing a national model for analysis and forecasting of climate change and its socio-economic risks.

Climatic risks and potential disasters were explained in detail in the strategy (which is consistent with the analysis in section (I)). The food-security related risks include temperature rise and heat shocks leading to increased evapotranspiration and crop water requirements; spread of pests; changes in agricultural plots as well as reduction in productivity; sea level rise leading to loss of land in the Delta. This is in addition to risks to water resources, which are shown in the scenarios to range from +20% to -90% losses in water resources. Those risks in turn pose additional risks to rural incomes, which affect small farmers and agricultural labor the most.

The project focus on the Southern zone is in line with the Agricultural Adaptation Strategy issued in 2010. Although the strategy does not detail vulnerability at zone's level, developing a Geographic Information System on climate vulnerability is among the objectives of the Strategy. Analysis conducted so far, which were summarized in section I B, will be made available as a starting point for the national system. Also, activities included under Output 2.1 will provide a significantly strengthen the national system. The ultimate national geographic system will include the information that is the focus of this project (climate data, cropping patterns, guidance for each zone and crop on how to manage climate shocks, ...etc), but will also include additional layers such as biodiversity, and will be scaled up as a nationwide system. This project will provide the necessary assistance to move forward the national system project.

Furthermore, Egypt's *National Agricultural Strategy* clearly stipulates vulnerability to rising temperatures as one of the most pressing issues that requires an immediate response. It includes an analysis of the expected negative impacts of temperature increases on crop and animal production. Although the analysis is thorough, it correlates the impacts to a generic 1-2 degrees increase in average temperature. The strategy also puts forward a number of complementary adaptation approaches, namely (1) compiling and analyzing data related to climate, land use, irrigation, livestock, and strategic food stocks, needed for

decision support; (2) supporting relevant scientific research and training programs; (3) supporting agricultural policies that encourage farmers to select climate friendly crops and animal varieties; and (4) supporting livelihoods of small farmers who are most vulnerable to shocks through improved technologies and approaches. Southern Egypt is an excellent launch pad for this line of interventions as it suffers from the highest levels of temperature and evapotranspiration and is likely to continue to do so in the future (see section I B).

More specifically, the Strategy stipulates the need to develop and disseminate new heat, salinity and drought tolerant crop and animal varieties for lessening losses in increased temperatures. It also mentions the change of sowing dates, intercropping, improved irrigation, plantation of high crops, and improving the soil composition among the priority areas of adaptation. Empowerment of farmers, diversification and augmentation of income generating activities is also featured as a prominent climate adaptation activity in vulnerable rural communities.

Lessons learned, best practices and knowledge generated by the project will feed directly into implementation of the national Strategy. More specifically, the project will disseminate new heat, salinity and drought tolerant varieties of main crops in the Southern zone—wheat, maize and sorghum and tomato. It will also disseminate heat tolerant livestock varieties for lessening losses in increased temperatures. Improved agricultural practices including change of sowing dates and scientifically-guided intercropping will be introduced. Several low-cost technologies for improved irrigation will also be piloted including laser leveling of soil, canal lining, canal sloping, strip irrigation, gated irrigation, volumetric water distribution, crop consolidation at meska and merwa levels, new scheduling mechanisms (Motarfa) between users at the same Merwah, Merwahs at the same Meska and Meskas at the same branch canal, and simple canal clearing of weeds in old lands and drip and sprinkle irrigation in new ones. Most of those interventions can be replicated by farmers due to their low cost.

The Strategy also relies heavily on empowering farmer communities. Public-sector investments in agriculture will be focused on irrigation superstructures, land reclamation and settlement of reclaimed land, and support for the research system. The project focus on community empowerment and working through community organizations offers a viable national response to the emphasis on the role of civil society, advocated for by the Strategy. This will be achieved in several ways, including trainings, technical support and backstopping, showcasing through demonstration fields as well as farm to farm visits. The provision of loans for animals raising also provides a good window for diversification and augmentation of income generating activities, identified by the strategy as an effective climate adaptation activity in vulnerable rural communities. Activities of Component 2 will enhance knowledge of communities and civil society organizations on a national scale. More specifically, dissemination of this wealth of information in National TV – Channel 1 and 2 -and national radio stations – namely the public program and Middle East Radio. Broadcast in specialized agricultural channels- Nour El Donia, agricultural satellite channels of Egypt and Saudi Arabia that have high viewership by Egyptian farmers. It is believed that this will be a good advocacy tool, encouraging farmers and community organizations elsewhere in the country to replicate and ultimately adopt the different interventions.

This project also addresses issues and recommendations of Egypt's *Initial and Second National Communications to the UNFCCC*. In both reports agriculture is recognized as one of the most climate vulnerable sectors. The Second National Communication recommends the urgent need for wider adoption of heat tolerant crops and livestock varieties in rural Egypt in general, in addition to piloting sustainable integrated land and water management in rural areas.

The project focus on the Southern zone is very much in line with the *Agricultural Adaptation Strategy* issued in 2010. Although the strategy does not detail vulnerability at zone's level, it clearly stipulates vulnerability to rising temperatures as one of the most pressing issues that need immediate interventions, and temperature are expected to be highest in the zone.

Selection of the Southern Zone will also support other national strategies. In 1998, The Government adopted a strategic plan until the year 2017 to tackle the root causes of poverty, unemployment, and to improve social development, and create economic growth, and political and legal conditions that favor equality and equity. The plan focused on the immediate needs of the poor, especially women, children, elderly, and unemployed youth through:

- Economic growth to increase income and employment opportunities
- Human development to raise poor people's capabilities through education, health care, nutrition and social initiatives
- Women's advancement and the closing of the gender gap
- Safety net measures for the poor and particularly for women
- Participatory governance so the poor can make their voices heard

The plan acknowledges that poverty rates in Upper Egypt are almost double those in Lower Egypt. It also indicates that human development indices show Upper Egypt governorates perform strikingly worse than the rest of the country in terms of gender inequality, maternal and infant mortality and illiteracy rates. Accordingly, it stressed the need to focus development work in Upper Egypt.

Upper Egypt remained the focus of national poverty alleviation efforts thereafter. The Ministry of Planning, in its poverty reduction strategy for 2004-2022, stipulates that poverty in Egypt has a strong regional dimension in that Upper Egypt is distinctly poorer than other parts of the country. Accordingly, it puts development of Upper Egypt at the heart of the strategy's priorities. In particular, it focuses on the agriculture sector and the need to facilitate the creation of micro and small enterprises.

The Government's National Poverty Alleviation Strategy of 2004 acknowledged NGOs and civil society as partners in assisting and complementing its work. As stated in the strategy, NGOs will be expected to find ways and means to mobilize financial, human and material resources of the private sector as well as reduce the cost of certain services or provide them in a more effective way. The flexibility of NGOs and their accessibility to the grassroots offer them advantages in rendering better public services. The projects' approach of building capacity through NGOs and CDAs supports the Government's strategy to entrust them as partners in development.

The project's in-kind loans for animal husbandry have particular relevance to national poverty alleviation strategies. With their gender implications, these loans support the strategies' objectives of women's advancement and the closing of the gender gap. Along the same lines, these income diversification and augmentation loans are very much in line with the objectives of increasing income and employment opportunities.

The projects' activities on improving irrigation efficiency in both old and new lands support the National Water Resources Management Plan issued in 2005. Although the plan is currently under review, increasing efficiency in irrigation to minimize losses and optimize usage of water resources will no doubt remain a top national priority.

The projects' environmental benefits support the 2002-2017 National Environmental Action Plan of Egypt. Although climate change was not identified as an environmental threat at the time the plan was issued, many of the project activities address priority agenda items, which include:

- Water conservation through increased irrigation efficiency and protection of water quality to close the rapidly widening gap between limited water resources and the escalating demand for water

- Sound environmental management of agriculture and rural development, including management of agriculture waste, the sustainable use of land by finding a balance that attains the greatest benefits while protecting and enhancing the environment, reduction in the use of chemical agricultural inputs, the enhancement of women, and poverty alleviation as a means to prevent overexploitation of natural resources
- Combating desertification in the Lake Nasser area and managing drought through heat and drought tolerant varieties
- Cooperation with NGOs as important partners in achieving sustainable environmentally-sound development

E. Describe how the project / programme meets relevant national technical standards, where applicable.

Compliance with national technical standards and legislative framework is achieved in several ways:

- To appraise interventions proposed under the project, a technical advisory committee comprised of experts from different domains of crop and animal production⁵³ was formed during the preparation of the full proposal. Over a series of 8 meetings, the committee discussed and approved the proposed interventions with an explicit view towards their compliance with national standards, laws and legislation and their acceptance in the project locations.
- The project complies with the national environmental law issued in law 4/1994, as well as national laws governing use of land and water resources. More specifically, the project mechanism of implementation through the Ministry of Agriculture and its different units is in compliance with Law 4/1994 article that stipulates that agencies and Ministries are to undertake, within their spheres of competence and through their stations and work units, interventions and monitor the components of the environment and relay their results and data to the competent authorities periodically.
- Likewise, the endorsement of the project by the Egyptian Environmental Affairs Agency is in fulfillment of the Law's stipulation that the Agency is the mandated authority to ensure that projects funded by donor organizations and countries are in line with environmental safety considerations. It also fulfills the law's stipulation that the Agency is the competent authority that is to study and analyze the environmental feasibility of proposed projects, whose construction or activities might affect the safety of the environment in order to protect it.
- The project will not be involved in agricultural activities stipulated by national regulations to be subject to EIA requirements, namely commercial animal raising and land reclamation of more than 100 acres. As such, an EIA is not required for the project and any of its activities. This conclusion was further validated in consultation with directors of the Environmental Units in the five governorates where the project is to be implemented. With that said, and as an auxiliary precaution, the Egyptian Environmental Affairs Agency placed itself to ensure effective implementation that abides by environmental regulations. In other words, the Agency shall oversee activities, ensure no impairment to the environment and during implementation, where or when needed, request changes in activities that it would foresee to harm the environment.

⁵³ Please refer to annex 13 for the composition of the committee

- The project is relevant to one of the main themes of Egyptian National Water Policy for the year 2017 particularly: 1-optimal use of available water resources and 2- protection of water quality and pollution abatement.

All irrigation interventions under the project will be undertaken in compliance with Law No. 12/1984 and its supplementary Law No. 213/1994, that are the legal basis for irrigation and drainage in Egypt. The laws define the use and management of public and private sector irrigation and drainage systems including main canals, feeders, and drains, and mesqas (small branches of irrigation channels irrigating one or less acres of land). In this regard, the project interventions will be in accordance with the following articles:

- Article 18, which specifies that land owners that utilize private mesqas shall be permitted to take water from it according to the ratio of the area that each one of them owns. Mesqa rotations for the lands that are subject to that system shall be formulated and that the Irrigation Department officials shall undertake the implementation of those rotations under their supervision.
- Article 19, which stipulates that those utilizing private mesqas and drains should purify them, remove Hythins plants, other plants and weeds obstructing the water current, and undertake maintenance and preservation of its watersides.
- Articles 20-25, which stipulate the legal procedures for management of meskas in lands owned by several people.

The project will use only registered new crop hybrids and varieties. This is in line with the Ministerial Decree No. 589 (2010) issued by the Ministry of Agriculture on enforcement of intellectual property and plant variety protection. In doing so, the project will also be ensuring that the varieties and hybrids meet Egyptian National Standards for Breeding issued by the Ministry of Agriculture in 1967.

F. Describe if there is duplication of project / programme with other funding sources, if any.

There is no duplication of funding. The funds requested from the Adaptation Fund fill a gap in financing and complement other resources. This is demonstrated by the description below of on-going programs in each of the project locations.

The Government invests significant resources in the development of the Southern Egypt region through multiple programs, the most prominent of which is *the 1000 village initiative*. The choice of the 1000 poorest villages was based on Egypt's 2006 poverty map, developed by the Ministry of Economic Development. In its first phase, the program has already targeted 151 villages with integrated basic services, including public works, skills development for economic empowerment, and environmental improvements. This project will assist the development of the 1000 village initiative by helping beneficiaries adapt to climatic change and shocks.

USAID currently invests in enhancing farmer income through value chain enhancement under an alliance between ACDI/VOCA (funded by USAID) and Heinz. This alliance supports 8000 small famers in Upper Egypt by strengthening horizontal and vertical linkages in the horticultural value chain to increase productivity and produce higher quality tomatoes and alternate crops. Activities focus on transferring appropriate technologies and applying good agricultural practices. The USAID project succeeds a series of projects aiming at promoting agribusiness in Egypt. This work has formed the basis for a number of donor supported initiatives including the World Bank Rural/Local Development Strategy for Upper Egypt (2005).

To maximize adaptation benefits, the proposed project will work closely with USAID and the Government on sharing good practice and lessons learned in complimentary areas. The aim will be to complement the work done so far by mainstreaming successful climate change adaptation interventions in agricultural practices as an integral part of enhancing value chains. The proposed project will seek to create synergies by linking beneficiaries to the different marketing channels established by USAID in its value chain enhancement initiatives. In parallel, the project will endeavor to maximize adaptation benefits by using USAID experiences and lessons learnt in promoting good agricultural practices. For example, the project shall build on USAID experience in improved tomato cultivation and recommendation packages to refine its heat tolerant tomato dissemination program. Likewise, lessons learned from the USAID extension techniques will be analyzed and used to strengthen project's capacity to disseminate different heat tolerant varieties, high value crops, improved irrigation efficiency interventions, etc. maximizing success potentials of these adaptation measures and their benefits.

The project also aims to create synergies with IFAD, which supports on-farm irrigation development in the old lands. Under several projects, IFAD is helping farmers in Karf El Shiek, Behera, Sohag, Qena and Assuit improve their irrigation water use efficiency by replacing open-channel irrigation systems with buried pipes through loans that they are to repay over 10 years. Farmers are also expected to participate in the project by work in soil excavation and refilling. To complement this, IFAD also helps farmers establish water users associations as means to enhance water management. It will also be training marketing associations in these governorates with the objective of enhancing the marketing potential of farmers. Finally, IFAD is supporting ultra-poor families in Qena and Assuit through provision of small and medium enterprise development loans via the Egyptian Social Fund for Development and national commercial banks as financial intermediaries.

Discussions with IFAD confirmed that there are no overlaps (IFAD will work in Sohag, Qena and Assuit, it will cover different districts) but also revealed that there are opportunities to create synergies, even though the scope, objectives and approaches of both projects are quite different. Whereas climate adaptation is not an IFAD area of focus, and while it is adopting a capital intensive investment-intensive approach to reduce losses in irrigation water, the proposed Adaption Fund project pilots low-cost participatory management interventions for improving irrigation efficiency, with the objective of offering climate adaptation models that can be replicated elsewhere in the governorates. Similarly, IFAD's offering of loans through commercial banks is distinctively different than the project's approach of empowering and employing local community based organizations with the aim of building local capacity in managing financial solutions and achieving sustainability.

Still, areas of synergy will be used to demonstrate potential for maximizing adaptation benefit. For example, potential to share lessons on optimizing farmers' participation in planning and implementation of interventions will be harnessed to sharpen the project's stakeholder involvement. Likewise, capitalizing on water users associations as a tool for improved water management will benefit from IFAD's activities and achievements in this domain. Comparison of opportunities and constraints of the different lending mechanisms will also be valuable in helping to redesign such mechanisms where necessary. For complementarily, the project will use the marketing associations trained by IFAD in linking its beneficiaries to enhanced marketing channels. Water user associations established by IFAD in districts and governorates where the proposed project will not work can also be used to disseminate information about the project's low-cost interventions for improved irrigation and their potentials in adapting to climate-induced water stress, expanding outreach and maximizing potentials for adaptation. Synergies with IFAD funded projects are easily achievable considering that both projects will be coordinated by the Ministry of Agriculture on behalf of the Egyptian government.

G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

The Government considers this project to be a model for learning which will allow the national government and South Egypt governorates, together with local communities, the opportunity to test and review new approaches to enhancing resilience in the face of climate change. The project is explicitly designed to establish best practice and scale up successful activities to achieve climate change resilience at scale.

WFP Egypt has included knowledge management and evidenced based programming as part of its country strategy. Several measures, articulated in component 2, will be taken to ensure that concerned governmental authorities are taking the lead in the follow-up of the project and eventually its feeding into governmental policies and programs. Importantly, the government’s Information and Decision Support Center (IDSC) will be involved in knowledge management as they are the repository of information and the backstopping office of the Prime Minister in terms of development information and decision support.

In parallel, several activities for knowledge management will be undertaken to retain and disseminate lessons learned and best practices. These include:

- Utilization of local media channels to reach a wider base of potential indirect beneficiaries. This includes featuring in specialized and relevant programs in El Saeed and TEEBA local TV channels that are broadcasted from Aswan and Luxor respectively and are dedicated to cover the Southern zone. It also includes 1-2 minutes advertisement spots in these channels where short messages about the project and its interventions can be relayed, with reference to where further information can be sought. The local radio station of Ganoub El Wadi will also be similarly used.
- Utilization of national TV and radio channels-e.g. Channels 1 and 2 on TV and the Public Program and Middle East radio channels
- Utilization of specialized agricultural satellite TV channels as above. This will include both governmental channels (such as the Agricultural Channels of the Egyptian and Saudi Ministries of Agriculture) and private ones (such as Nour El Donia)
- Utilization of the different knowledge products produced under component 2 of the project to reach different groups of beneficiaries.

The table below summarizes how different means and products will be employed to manage the knowledge generated under the project.

Knowledge management product/tool	Means/channels of utilization	Target audience	Purpose
Interviews and reports in specialized programs	Local TV channels -Teeba and EL Saeed TV channels Local radio channels – Ganoub El Wadi National TV and– Channel 1 and 2 National radio station-public program and Middle East Radio Specialized agricultural channels- Nour El Donia, agricultural satellite channels of Egypt and Saudi Arabia	Farmers and service providers in the 5 governorates	Present the different adaptation solutions implemented by the project and discuss the advantages and consideration of each

1-2 minutes Spots	Local TV channels -Teeba and EL Saeed TV channels Local radio channels – Ganoub El Wadi	Listeners/viewers of the channels	Highlight the different interventions and give reference to where further information can be sought
Brochures	Distribution	Farmers, extension officers, local NGOs, and government technical staff	Present summary information about implementation approaches, best practice and key lessons learned in an easy to read pictorial manner
Technical periodical reports	Discussion of contents and recommendations Integration in Ministry of Agriculture and Ministry of Environment on-line databases	Government workers, research station researchers, NGOs and community organizations in Southern Egypt	Present technical information to specialized stakeholders on progress of work, challenges faced, successes achieved so far, recommendation on future action, etc
Promotional material	Distribution- briefing meetings	Partner agencies, and national local authorities, including local and national political representatives	Promote replication of adaptation mechanisms through informing stakeholders who can replicate adaptation elsewhere about the tried-out solutions, their positive outcomes, added value, etc.
A 20 minute documentary.	Distribution	Governorates, NGOs, the Ministries of Agriculture, Environment, Irrigation, Social Solidarity, Planning and Finance at local and national levels, and members of the development partner group working in Egypt	
A one hour briefing package	Briefing meetings	Ministers and senior Government staff	Promote mainstreaming of CC adaptation in national planning through informing national

			decision makers
full 2-day training material	Undertake training sessions- including site visits	Technical ministerial staff in areas of project implementation, researchers in the Agricultural research stations in the zone	Build capacity of technical governmental staff for adoption and management of adaptation alternatives
NGO capacity building material	Undertake training sessions	NGOs in areas of project implementation	Build capacity of civil society service providers to undertake their roles in adoption and management of adaptation alternatives
Full 2-day training material		Technical ministerial staff in Southern Zone	Provide material that can be used by technical staff throughout the zone to improve their capacities in replication of successful adaptation interventions
NGO capacity building material		NGOs in the Southern Zone	Provide material that can be used by civil society throughout the zone to improve their capacities in replication of successful adaptation interventions
Orientation Workshops	Undertake workshops in project villages	Community members, government staff from concerned directorates, civil society and other service providers in the project villages	Introduce the project, its objectives, expected outcomes, etc. to different stakeholders
Annual Workshops	Undertake workshops in project villages	Community members, government staff from concerned directorates, civil Society and other service providers in	Brief different stakeholders about achievements made so far, challenges faced, solicit recommendations, etc.

		the project villages	
Farm- to farm visits	Organize farm-to farm visits	Farmers from benefiting and neighboring villages within the governorates of the zone	Facilitate technical support and on-the-job knowledge transfer
Demonstration fields	Undertake extension sessions around demonstration fields		
Harvest Days	Organize harvest days	Villagers from the benefiting villages	Celebrate successful interventions as a means to promote them within the village
Promotional meetings	Organize meetings in other villages where beneficiaries present their experiences to villagers elsewhere	Villagers throughout the governorates of the Southern Zone	Disseminate success stories and best practices in adaptation within the zone
Student training	Organize field days and summer training for students and researchers	University (Assuit, Sohag and South Valley) students and researchers and faculty staff High school agricultural students and teachers	Mainstream CC adaptation in curricula and student's know-how

H. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation.

This project is based on extensive consultations with a range of stakeholders and at all levels:

In May 2010, a stakeholder consultation was held in Aswan including beneficiaries of the WFP supported pilots in the region. The consultation, which included local community representatives, discussed the proposed Adaptation Fund project which was endorsed by stakeholders.

At about the same time a similar stakeholder consultation was held in Assiut for the Southern Egypt governorates. The consultation identified a number of food security challenges including responding to changes in the agricultural climate, and limited capacity and technology application in Upper Egypt villages. The consultation recommended transfer of technology and know-how and strengthening of government technical capacity and farmers' skills. The consultations were followed by summary meetings in Cairo among national actors where the current proposal was finalized.

Upon approval of the project concept, further consultations were conducted with different stakeholders in Southern Egypt. Consultations were carried out by a team from WFP and Ministry of Agriculture in

January 2012. Consultations are listed below, and their results are integrated into the appropriate sections of this proposal.

- Eight focus group discussions were held with farmers to get their feedback and climate issues, how it affects their lives; proposed priority solutions from their perspectives; and institutions who would manage this on their behalf. Annex 4 includes the focus group tool used, which is a series of unstructured questions used to guide the discussion. Of the eight focus group discussions, three were in newly developed villages in Aswan and Sohag and five in old traditional villages in Assiut and Sohag, to compare views as the project hypothesizes and seeks to demonstrate that adaptation solutions work in both old lands and new. Participants in each focus group discussion included 15-25 farmers and local and community officials. One focus group in Assiut was composed mostly of young women ages 20 – 35 years old comprising a mix of farmers and community volunteers.
- Additional, in-depth personal interviews were also held with the following officials and their staff:
 - Directors of Agriculture in Assiut and Sohag.
 - Director of Land Reclamation for Assiut, Sohag and Qena.
 - Professor of Agriculture, Sohag University
 - Professor of Agriculture, ~Assiut University
 - Head of the Community Development Associations in Shouraneya Village in Sohag.
 - Heads of agricultural cooperatives in each village

The results of these discussions were consistent from one group to another regarding climate related threats, the extent of people’s knowledge about climate change, adaptation priorities, possible solutions, and the state of current assets and structures (access to finance, information, and capacity of community organizations). The differences expressed by members of different villages were minor, which is why findings are integrated as one in the body of the proposal.

In preparation of this full project document, intensive consultative field visits were undertaken in February and March 2012. A total of 16 villages were visited in the five governorates of the Southern zone. Different groups of stakeholders were consulted, including civil society and community members, as well as government officials at central, governorate, district and village levels. Focus group discussions, in-depth meetings, and semi-structured interviews were conducted to finalize the selection of the villages where the project will work and agree on the interventions, activities, roles and responsibilities of different stakeholders, work plan and budget of work in each village. Furthermore, a rapid survey was undertaken where opinions of a sample of 100 community members from each village were sought.

Please refer to the section above on baseline documentation and Annexes 6 and 7 for further details on the process, tools used and outcomes of this consultative exercise.

I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

Egypt has been identified as particularly vulnerable to the impact of climate change. According to the Second National Communication reports (1999 and 2010 respectively) the most vulnerable sectors to climate change are coastal zones, water resources and agriculture.

Component 1

The Government has a structure in place to provide extension services to farmers, and so do some private sector companies, such as suppliers of seeds and agrochemicals. Climate adaptation currently does not feature among the extension services provided to farmers, although considerable knowledge exists about

it within the research institutions of the MALR. Without concrete adaptation measures, agricultural production, water resources, as well as farmer livelihoods will continue to be stressed.

Adaptation Alternative

The adaptation alternative will demonstrate substantial quantifiable improvements in agriculture, water, and livelihoods. As a result of irrigation efficiency, water savings are expected to range between 20-30 percent. Similarly, it is estimated that adaptation measures in agriculture introduced under this project will save about 20 percent of agricultural production and farmer incomes.

The project will provide feasible adaptation solutions based on tested technologies and approaches and transfer of knowledge and good practice to create robust, resilient, and sustainable livelihoods in the Southern zone and which eventually can be replicated throughout Egypt.

Consultations in the proposed project locations revealed that communities understand that the climate is changing and feel its impacts, especially as a result of weather variability which has impacted productivity and affected incomes. They expressed a need for support to help reduce their losses safeguard their livelihoods. Women were especially forthright in this regard. In many cases, they mentioned approaches and interventions that could help in this respect but were frustrated in not having the knowledge or resources to implement them on their own.

In other cases, however, communities were unaware of many of the plausible means that have been scientifically proven to allow for more sustainable natural resource management and enhance productivity in the face of higher temperatures, more variable weather and water scarcity

Component 1 of the project seeks to expose communities of the Southern zone to proven approaches and interventions that work for climate adaptation. The interventions include those requested by community members as well those that they were not aware of, but have been, through the different consultation tools found to be highly acceptable and welcomed upon their presentation.

The project will be providing an integrated package of interventions that have been selected and designed in participation with benefiting communities in response to the climate-induced problems that they now face and that would get worse with time without adaptation measures. These include assisting farmer communities to adopt low-cost and efficient irrigation techniques; adopting available heat tolerant and water efficient crop varieties with high economic value; increasing organic matter in the soil; and applying productive income-generating agro-forestry as a means to reduce the impact of direct sunlight on agriculture, as well as to protect the area from sand encroachment. Livestock and poultry hubs will be established to apply already developed heat resistant varieties and to offer windows for diversification of income as an adaptation tool.

Component 2

The Egyptian Government recognizes the impacts of climate change on its food production capacity in Southern Egypt with a direct impact on food security in the country. It has thus recognized the urgent need for adaptation technology and horizontal expansion as plausible means of filling a potentially huge food gap. This is manifested in the Government's issuance of the Agriculture Climate Adaptation Strategy, and the National Adaptation Strategy, both explicitly giving more urgency to adaptation techniques and developing new areas to produce more food. The Government has taken some steps towards implementation of the Strategy, such as purchase of climate monitoring equipment that provide a five-day forecast. However, much remains to be done in order to implement the Strategy.

The Government is targeting the poorest 1000 villages (out of an overall total of around 5000 villages), most of which are in Southern Egypt. The choice was based on Egypt's 2006 poverty map. However, agriculture in these villages also suffers from water scarcity and heat stress. Without investments that promise to make food production and basic livelihoods in these villages climate resilient the Government's 1000 village program would provide infrastructure but not be able to protect the livelihoods of inhabitants from climatic risks. Productivity and incomes would continue to decline and people would migrate to urban areas which are burgeoning and where the Government is hard pressed to provide services.

Adaptation Alternative

The project will be building capacity for replication and mainstreaming adaptation measures throughout the Southern zone. It will be documenting the experiences of communities and disseminating lessons learned and best practices among a wide range of local, regional and national stakeholders who are facing much the same climate threats as found in the Southern zone, especially with respect to temperature rise and water scarcity and their impacts on food security.

The Government considers the proposed project a pillar of participatory learning and innovation and central to its climate change adaptation and poverty reduction strategies. It is depending on the project to develop the lessons needed and capacities among Government staff at all levels and to expand these strategies nation-wide. As such, the project will leave behind institutions that are able to obtain and analyze climate data, process it for use to aid policy making and investment decisions, technical staff who can help communities implement climate adaptation solutions, and policy makers who will be more aware of climate change and food security challenges in the country and how to address them.

Finally, the Government considers the project's focus on women, civil society, the private sector and the research communities to be demonstrative of the only approach to adaptation and development which it considers robust and sustainable

J. Describe how the sustainability of the project/programme outcomes has been taken into account when designing the project.

This project has been explicitly designed for sustainability in the following ways:

Extensive baseline work was carried out to ensure that the project is working those communities where the uptake of project interventions would be ensured through appropriate conditions, especially the commitment of beneficiaries and availability of appropriate technical service providers..

The baseline identified capacity building needs in NGOs/CDAs with whom the project will partner. In response, the project will be providing institutional support to address these needs, empowering the NGOs to successfully fulfill their roles explicitly *during project implementation as well as after its completion, thus increasing sustainability*

Project beneficiaries are full participants in the project. They have been instrumental in choosing interventions and will be committed to maintaining them.

Provision of technical and capacity building support has been included in the project design as a key element to ensure that beneficiaries sustain their projects/activities. An example is the training in animal care and project management that will be provided for animal raising loan beneficiaries

The chosen interventions have proven themselves to work and the income generated will compel beneficiaries to sustain and expand their operations (see economic benefits).

The Government considers the project a pillar of its adaptation and poverty reduction strategy and, as demonstrated throughout the appraisal process, will mobilize all available resources to ensure its success.

Most of the income generation approaches and technologies focus on women beneficiaries who in the country and region (as elsewhere in the world) have a track record of diligence, accountability and perseverance.

The project loans mechanism has been designed to generate income that will make them self-sustaining. Loan values, repayments schedules, interest rates etc., have been calculated to sustainably generate revenue for the beneficiary, encouraging him/her to uphold it. Please refer to the feasibility studies (Annex 12) for further details. Agreements with the partner NGO/CDA shall stipulate that a portion of the interest funds from the loans shall be used by the NGO/CDA in covering its loan administration costs, thus ensuring sustainability of this lending facility. The remaining portion of the accrued interest shall be used by the NGO/CDA to follow-up on the other activities of the project after its lifetime. This will include inviting technical experts to visit farmers by-annually to support their project-introduced crops, varieties, practices, etc. It will also include organizing seasonal harvest days where project-introduced benefits will be celebrated to encourage adoption by other farmers and community members.

The project is designed to entrust NGOs with continued management of revolving loan schemes as well as oversight of activities after project completion. NGOs represent communities and are their administrative arm. As such, the NGOs are not meant to exit, but are rather expected to maintain the value-added, expand the loan schemes, and transfer solutions to neighbouring villages and potentially higher levels. Several considerations have been employed to support these NGOs in assuming this responsibility, including:

- Institutional assessment of NGOs in the villages and selection of those who can, with limited capacity building, be entrusted to undertake this role. This included in-depth discussions with selected NGOs to verify their understanding of sustained management and its responsibilities, as well as their willingness and ability to responsibly perform in this regard.

The baseline assessment has noted that some of these NGOs have successfully managed revolving loan schemes over periods of more than 15 years. Some extended their lending services to neighboring villages as well. This is very much in line with the project's approach of empowering NGOs to sustain activities, including lending services, and expand coverage to neighboring villages.

- Identification of institutional strengthening needs of the selected NGOs and accordingly catering for these needs in the project document.
- Sustainable provision of financial resources through interest on loans to enable the NGOs to cover the costs of ongoing management of activities.

Not least, component 2 of the project is designed to build institutional capacity at all levels in order to promote replication and sustainability. The activities focus on capturing and disseminating knowledge and experience through training government, civil society and farmers, documenting lessons learned and best practices, and widely sharing the results in an effort to mainstream successful new approaches in other localities and regions. Knowledge will be retained in local communities, among the many NGOs and other service partners supporting the project, in local, regional and central Government offices, and not least among local universities through the integration lessons learned in academic curricula as well as the involvement of students in several activities.

PART III: IMPLEMENTATION ARRANGEMENTS

A., Describe the arrangements for project / programme implementation.

Executing entities will be the Ministry of Agriculture in collaboration with the Ministry of Environment and local authorities and organizations. In villages, execution of most activities will be undertaken by community organizations after receiving training, and with assistance from Government and WFP as needed.

The Ministry of Agriculture is directly responsible for the overall adaptation strategy of Egypt in this sector. The Agricultural Research Center will be responsible for providing technical support to the project and ensuring that the project is achieving the intended targets within the National Agricultural Climate Adaptation Strategy. The Center will be responsible for managing climate monitoring and assist in the identification of suitable adaptation technologies.

The Ministry of Agriculture's Integrated Community Development Unit supported by WFP will oversee field implementation, identification of local sources of expertise, and implementation monitoring. It will retain knowledge created under the project and use it to feed into the Ministry's policy and decision making process.

The Ministry of Agriculture's Central Laboratory for Agricultural Climate (CLAC) was established in 1996 to develop a network of agricultural meteorology stations covering all agricultural land in Egypt, including old and new lands. It also seeks to conduct research to develop applications of the different agro-meteorological data to serve agricultural objectives, including use of mathematical models to estimate daily requirements of irrigation, fertilization, disease and pest forecasting and to account for the needs of fruit trees.

The Egyptian Meteorological Authority (EMA) manages weather stations throughout Egypt, including surface stations for common use of most sectors; agro-climatological stations; and aerial stations. EMA has a standing agreement for data sharing with the Ministry of Agriculture for weather data exchange. This aspect of collaboration will be enhanced in the context of this project, as technical support and advocacy will be provided for that purpose. EMA houses the World Meteorological Authority regional training center, which will be used to deliver pertinent training courses for the purposes of the climate information online application.

The Ministry of Local Development (MLD) will participate in the information component through its programme "Rabet", which has a team in place in every village in Egypt trained to collect information. They will collaborate on preparing village profiles integrating information about climatic shocks that the village faces and the communal adaptation efforts.

The Ministry of Environment and the Egyptian Environmental Affairs Agency (EEAA) will provide guidance for the overall project within its mandate and expertise, particularly as it relates to climate monitoring and adaptation. The Ministry of Environment will monitor implementation to ensure pollution prevention.

Local authorities will play a leading role in coordinating the implementation of Component 1, and will allocate land necessary for project activities. Local authorities will grant licenses for various activities as needed. It will facilitate and monitor implementation of project activities. More importantly, local

authorities will ensure that the project properly complements and enhances the efficiency of the Government's investments under the 1000 poorest village initiative.

The World Food Programme, Egypt Country Office will facilitate and supervise overall project implementation, oversee monitoring and evaluation; provide technical support; and report to the Adaptation Fund. WFP's principal role is fiduciary, supervisory, supporting, coaching, providing technical knowledge, monitoring and disseminating lessons learned.

Execution of most activities will be undertaken by community organizations after receiving training, and with assistance from consultants. More specifically, community organizations will undertake the following tasks:

- Community mobilization and organization of awareness activities and field training
- Recruitment/assignment of people to work in local information management units.
- Supervising public works for improved irrigation
- Soliciting help and technical assistance when needed on behalf of the community
- Managing revolving funds for livestock
- Managing land consolidation, and maintaining demonstration farms.

Collaboration will be forged with Universities in the area, such as the Assiut, Qena and South Valley University which can be in a position to provide expertise needed for the technology adaptation/transfer process.

For cross-cutting themes related to sustainable financing and scale-up financing, coordination will be undertaken with major financing entities with a far geographic reach, such as the PBDAC and the Social Fund for Development, in addition to the Postal Authority that plays a key role in micro-savings.

The table below maps roles of various entities per project output

Output/Entity	Ministry of Agriculture and Land Reclamation (MALR)	Egyptian Meteorological Authority (EMA)	Community Organizations	Local government/ Ministry of Local Development	Universities	WFP
Output 1.1. Community level mobilization and climate adaptation planning (including community awareness activities)	Technical support		Field organization and community mobilization	Operational support		
Output 1.2 Establishment of a climate change and food security monitoring system	Generating climate data through MALR owned climate stations and under agreement with EMA	Generating climate data through own climate stations and under agreement with MALR Deliver training	Deploy human resources to use online information system & communicate adaptation guidance to community	Connect their information centers to the system Prepare and periodically update village profiles through MLD's Rabat programme	Source of expertise where needed	Manage funds; recruit int'l & local consultants; organize

Output 1.3 Introduction and use of water saving irrigation and other adaptation techniques	Identify sources of local expertise and oversee implementation		Form water users associations; supervise public works on behalf of the community; mobilize unskilled labour from among the community	Departments of irrigation in governorates to approve workplans and provide technical oversight	Source of expertise where needed	advocacy activities; support coordination between stakeholders
Output 1.4 Building resilience in agricultural production	Set technical specifications for procurement of climate resilient seedlings. Participate in provision of training, oversight of implementation of demonstration farms Strengthen own extension teams under the project		Mobilize community pioneers (early adopters) of modified technologies; organize various field activities	Department of agriculture in governorate will monitor implementation	Source of expertise where needed	
Output 1.5. Development of livestock and poultry hubs for selection and breeding of new heat resistant varieties.	Set technical specifications for procurement of climate resilient varieties and vet equipments Participate in provision of training		Organize training and awareness sessions Manage livestock revolving funds; report on fund progress and financial data	Vet units in governorates will assist in conducting procurement of vet clinics related equipment Participate in provision of training	Source of expertise where needed	Manage funds; recruit int'l & local consultants; organize advocacy activities; support coordination between stakeholders
Output 2.1. Government technical staff trained	Support government wide advocacy process, participate in conducting training, and organize training for its own staff	Participate in training and advocacy	Put forward case studies for government training programs, help in organizing field training for government staff	Organize training for its own staff	Source of expertise where needed	Manage funds; recruit int'l & local consultants; organize advocacy and training activities
Output 2.3. Lessons learned and best practices documented	Participate in entire process	Participate in process as it relates to climate monitoring	Put forward success cases for advocacy materials		Source of expertise where needed	Manage funds; recruit int'l & local consultants;
Output 2.4. Sharing project results and				Coordinate mainstreaming		

lessons learned and mainstreaming new approaches in local and regional planning	Provide expertise where needed on entire process	Participate in process as it relates to climate monitoring	Cooperate with local government on regional and local planning	of project achievements in local and regional planning		organize advocacy and training activities; support coordination between stakeholders
Output 2.5. Universities integrate climate adaptation solutions into their academic curriculum	Provide expertise where needed on entire process	Provide expertise on climate monitoring for university curricula	Put forward ideas for student field work that directly benefits farmer communities		Deploy students to participate in field work Review curricula to integrate project themes	

B. Describe the measures for financial and project / programme risk management.

WFP's policy requires that risk assessment is conducted every year in all its programs. Table 8 summarizes key risks and mitigating factors.

Table 8: Risks and responses

Risk	Likelihood	Response
Unforeseen changes in poverty, hunger, nutrition and other socio-economic variables due to external factors such as Triple F crisis, pandemics, climate change.	Medium	Strengthen community resilience through adaptation solutions. Early warning systems for food prices (integrated into WFP's other programs in Egypt) Awareness on preparedness for and management of pandemic situations.
Potential conflict between farmers engaged in adaptation and in applying new techniques, and traditional farmers who are not.	Low	This risk is low because land ownership is clear in the chosen locations and each farmer is allowed to conduct modifications on his/her plot. However, success of the project depends on collaboration between farmers. To ensure this collaboration and avoid conflict, several contracts will be signed as part of the early phase of implementation, including contracts between the project representative and the farmer organization(s) involved, and individual contracts between the project and each participating farmer. These contracts will clarify the roles and responsibilities of each entity and the modality for resolving conflicts.
Lack of trust in the government honoring its commitment to offer the announced benefits to the beneficiaries	Low	The development of Southern Egypt is a high priority on the Government agenda. The Government honors its commitments, particularly when they are formalized in budgets. This is one of the success indicators of component two (scaling up). With regards to results and commitments funded under the Adaptation Fund, WFP is responsible for results and financial controls and is accountable in that respect to the Adaptation Fund and to the Government.
Non-sustainability of the project due to institutional or financial factors	Low	Previous studies proved the economic feasibility of agricultural productivity in the area. This has also been verified through detailed feasibility studies for the different lending activities. The project will also be building technical and institutional capacity which will increase

		<p>sustainability.</p> <p>Provisions have been made to empower local CDAs and entrust them with following-up and sustaining activities.</p>
<p>Security risk: Egypt in general has witnessed an increase in crime compared to the past, which poses a risk to property.</p>	Low	<p>Discussions and feedback from beneficiaries revealed that this is a low risk, with animals and associated equipment bought under the loans being housed in the beneficiaries' own barns. It was also confirmed that crimes of this nature are highly unlikely to occur in the targeted villages, with the strong social linkages tempering relations among the community members. Accordingly, the need for insurance against this risk is not evident, although this will be explored further as project implementation progresses.</p>
<p>Political Risk (also see Annex 1) i.e. non-smooth transition from the interim to the elected Government, leading to changes which impact project implementation.</p> <p>- Finally, all political parties of all ideological backgrounds already indicated they would honor Egypt's commitments towards international agreements, UNFCCC included</p>	Medium	<p>Educate and brief new officials on the project to avoid consequences of potentially slow handover</p> <p>Sign necessary agreements reflecting roles and responsibilities of government partners in advance of start-up</p> <p>Work collaboratively with governorate and local stakeholders involved to build ownership and maintain pressure on central government.</p>

C. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan.

Monitoring will be undertaken on several levels (see Table 8):

- WFP will sign implementation MOUs with MALR and EEAA who will undertake monitoring on a day-to-day basis in project locations for activities and progress. They will jointly prepare quarterly progress reports for submission to WFP as the multilateral implementing entity and to the management of the executing entity for review. Quarterly progress report formats will be developed prior to start of the project and included in memoranda of understanding with those entities.
- WFP personnel and consultants will undertake regular visits to the project locations to ensure that targets are met. Visits will entail periodically convening focus group discussion and in-depth interviews with key stakeholders to elicit maximum information about progress and road blocks.
- Bi-annual Progress reports on the overall project will be prepared by WFP as the multilateral implementing entity.

Evaluation will be based on (1) a baseline assessment; (2) midterm evaluation of project early outputs, project management arrangements, progress of implementation, bottlenecks, and impact where relevant; (3) final evaluation of project outputs and outcomes.

WFP will lead on M&E and knowledge management through use of WFP's own systems and will ensure proper integration into government and research systems. As detailed in component 2, several measures will be taken to ensure that concerned governmental authorities are taking the lead in the follow-up of the project and eventually feeding it into governmental policies and programs.

Table 8: Monitoring and Evaluation Plan and Budget

Task	Responsible Parties	Budget US\$*	Time frame
Monitoring field visits	WFP, MALR, EEAA	43,000	Monthly over the four year project
Quarterly reports	WFP and executing agencies	6,000	At the end of each quarter
Annual Progress Reports (APR)	WFP and executing agencies	5,000	At the end of each year
Meetings of the Project Steering Committee	WFP	22,000	Every 3 months
Mid-term Evaluation MTE	WFP recruited external evaluation team	15,000	Month 24 of the project
Final Evaluation (FE)	WFP recruited external evaluation team	20,000	After project conclusion
Final Report	WFP and executing agencies	10,000	At least two months before the end of the project
Financial Audit	WFP	15,000	End of project
TOTAL COST		136,000	

D. Include a results framework for the project proposal, including milestones, targets and indicator

A complete results framework for the project proposal, including milestones, targets and indicators is included in Annex 3.

(SIGNATURES ARE ATTACHED TO THE SUBMISSION)

Annex 1: The Political Situation in Egypt

In January 2011, Egypt witnessed a popular uprising, which led to overthrowing of ex-President Hosni Mubarak, who ruled the country for 30 years. The uprising was driven by several stated factors, some of which are economic (e.g. low incomes, inability to buy food, high rates of unemployment particularly among youth), and others are political (concern about fraud in the last parliamentary election cycle, authoritarian system, widespread corruption, ..etc). Since then, Egypt has witnessed rising levels of political participation, as evident in a referendum on constitutional changes, in which over 18 million people participated, and the recent parliamentary elections which witnessed over 60% participation rate, vis-à-vis three million politically active people for the last 30 years. Egypt now has a full interim government, led temporarily by the Supreme Council of Armed Forces, who declared it would protect the democratic process and handover to an elected government estimated by July 2012. The new democratically elected Parliament had its first meeting on January 23, 2012, and on a biweekly basis since then.

Presidential elections which mark the final step in handover of power to a civilian government, is currently underway. The voting process for Egyptians abroad is complete. The voting for Egyptians residing in Egypt is on May 23 and 24, 2012. Next steps until full handover are as follows:

- Results of Presidential elections (round one) are to be announced on May 26. If a candidate got 50% + 1 vote, the results will be final and the winner would be informed on May 29 (after any appeals have been settled).
- If none of the 13 candidates got 50% of votes + 1 vote, then another round of elections will take place between the top two candidates. This is scheduled for 16-17 June, 2012, and the final results would be announced on June 21, 2012.

The proposal already stated that political risk is medium risk simply because of how the risk is intentionally worded. Our risk here is not government change, but simply that the handover from the current fully operational interim government to the elected government would not be a smooth transition.

By “not smooth” we mean:

- heightened conflict that affects assets constructed under the project: but this is not so much of a risk because assets would not start to appear on the ground except after one year of project start. This risk is also addressed separately in the risk matrix and categorized as “low.”

- Delays in or incomplete handover of responsibilities from one official to another: this is a medium risk and WFP’s role here will be to educate and brief the new officials on the project.

- New government may change priorities: highly unlikely because food security and income generation are important outcomes of this project and will remain high on any government priorities. Climate change is a known phenomenon, which has received considerable interest in Egypt at the research and strategy levels. It is very hard to foresee a future government who would not consider food security and climate change as priorities. Climatic variability is also felt harshly and already is affecting food production, hence the ownership of the program by the beneficiary communities also, as they are the most harmed by the climatic threats. Furthermore, all political parties of all ideological backgrounds already indicated they would honor Egypt’s commitments towards international agreements, including with the UNFCCC, and to uphold the key principles on which this project is based. For example, the party that won majority seats in parliament – namely the Freedom and Justice Party – stated in its program that the 1000 village initiative will be upheld during the coming phase. They also highlighted the need to focus on water efficient irrigation techniques; focus more on less water consuming crops in agriculture; and create strong local organizations to help in water management.

The political risk is also stated as medium risk because all considerations are taken in this proposal to ensure that adaptation techniques introduced are people-centered, driven by the people and managed by them during and beyond the project life. The project will conduct a participatory baseline assessment in the selected governorates. While the governorates are chosen based on climate analysis (see more on the vulnerability index in Annex 2 below), the choice of communities within governorates and their needs assessment will be done by trained and supervised community volunteers, and will aim to identify the suitable techniques for each location in a participatory manner. The project will rely on carefully selected community volunteers who represent the majority of communities to spread climate awareness. Building the capacity of communities to predict climate episodes, use climate forecasts to make on-farm decisions. The project will partner with community organizations and building their capacity to implement project activities through them and by participation of beneficiary farmers and households. The project will partner with the newly founded farmer union and specialized agricultural associations in Component 2, in the process of advocacy, capacity building, and scaling up. The project will conduct a midterm and final evaluation in participation with the community.

Annex 2: Interview tool used for the consultative process in January 2012 (focus groups and in-depth personal interviews)

This tool guides focus group discussions and in-depth interviews conducted with key officials.

Aspect	Questions
Assessing understanding of climate change impacts and applied/potential coping mechanisms	<p>What do they define as a weather shock? Has it been witnessed lately? How frequently?</p> <p>Do they understand what climate change is and why it is happening? Its impacts?</p> <p>Have they received awareness/education assistance on the topic?</p>
	<p>What are the main impacts of such weather shocks/changes? Who is affected / how many people? What are the key adaptation means followed by farmers or animal breeders for each of the following climate related problems, and has it succeeded?</p> <ul style="list-style-type: none"> • Types of animals raised.. are they heat resistant? Were there any death or illness episodes? • What types of fodder is used? Was alternative fodder tried before? • Irrigation: is water sufficient? What problems do they face? Is technology used low-cost and water efficient? What suggestions do they have for improvement? • What types of crops are being grown? Is it resistant to temperature? Any new pests observed? Do they know if those changes are linked to climate? • Any changes in cultivation dates? Is it fixed or changing from year to year? • Any change in wind direction or speed in a way that affects agricultural production?
	<p>What coping mechanisms/solutions were they able to implement without outside assistance?</p>
Adaptation priorities	<p>If outside assistance were offered, what would be the three top priorities for the community?</p> <ul style="list-style-type: none"> • Better water management including laser leveling of soil; drip and sprinkler irrigation; canal lining; use of gated pipes; establishment/strengthening of water users associations. • Transfer of heat tolerant and drought tolerant varieties, that are also resistant to new pests. • New climate information • Diversification of income sources to increase resilience to climatic shocks (loan program for animals; value added from agriculture through post-harvest services and/or small scale food processing; cash crops that are tolerant to heat and drought; ...etc)
	<p>What is the number of beneficiaries from the above mentioned priority programs?</p>
	<p>Explore the economics of the above interventions from the community perspective</p>
	<p>Who will manage those community assets, financially and physically, and conduct external networking to acquire information and expertise, and market products? What are their training needs?</p>

	Who will protect the assets created under the project from security threats? What sorts of conflicts are envisioned? How do we prevent or resolve conflict in this case?
Financial services	What are the main types of financial services that are accessible to the community? Have they used different services such as micro-lending, micro-savings, guarantees, insurance on cattle or crops, deferred payments? What is their experience?
	With the current changes on the political scene in Egypt, do they expect changes in the types of financial services to be offered and demanded on the market? What sorts of changes?
	What are their main financial needs (cash, buying animals, equipment, modification of irrigation systems, agricultural finance, other)?
	Do they follow forward contracting whereby the buyer makes a down payment upfront in the agricultural process that is deducted from the final price?
Institutions and community organization	What organizations are working in the village, which play a role in managing communal assets, managing financial programs/services, and networking for information or marketing?
	Do those community organizations play their roles effectively? If not, then why? How can be it be improved?
	Is the community in need of new institutions/organizations? For what purpose?
	What governmental organizations play a key role in this field for their communities? How would their role be improved?
Information	Where do they get their information about agriculture (best crops and species to plant, agricultural practices, climate, prices, etc)?
	How do they rate the currently offered extension services?
	have demonstration farms been used in their villages before? How do they rate their effectiveness as a learning tool? If effective, is the community willing to allocate land to demonstration farms?
Food accessibility	What nutritious foods that are hard to access on the local markets because of its high price or distance to their markets? (note: ask about meats, vegetables, fruits, cereals, milk and dairy, and fats and oils).
	Are they available on the market? Where is the local market?
	What foods are produced in the home and do not need to be purchased?

Annex 3: Project Results Framework

Project Strategy					
Goal:	<i>Build diversified and resilient livelihoods for marginalized rural communities in the Southern Egypt region through transfer of technology, capacity building, and information..</i>				
	Indicator	Baseline	Target	Means of Verification	Risks and Assumptions
Objective: to build resilience of Southern Egypt farming communities in the face of climate change and variability risks to food security	Proportion of Southern Egypt farming communities that are more climate resilient through adoption of water efficient irrigation, risk reduction measures in agriculture and livestock, diversified income sources, and access to early warning systems and adaptation guidance	Over 90% of southern Egypt rural inhabitants are vulnerable to climate change and variability and demonstrate low level of knowledge of risk reduction measures	Over 50% of southern Egypt farming communities practice risk reduction measures	Baseline survey Annual progress reports on risk-reduction interventions funded through the project, and others funded through scale-up of project interventions to the whole Southern Egypt region. Final project evaluation	Assume that the universe of climate change risks to rural livelihoods is known and accounted for under the project. Risk is that new facets of climate risks emerge during the project life Risk is that rural communities suffer from other shocks during the project life, which affects their ability to adopt the proposed mechanisms

Component 1	Adaptation to climate change through technology development and transfer.				
<p>Outcome One:</p> <p>Improved adaptive capacity of the Southern region of the country in the face of anticipated climate-induced reduction in food security through asset creation, knowledge/technology transfer, and capacity/skills development.</p>	<p>Percentage of target population in Southern Egypt demonstrating knowledge of climate change and variability and means to reduce risk to their livelihoods</p> <p>Number of people adopting optimal efficiency in irrigation using low-cost technologies Such as;</p> <ul style="list-style-type: none"> • Canal lining and other surface irrigation low-cost solutions • Water user associations established and active in effective management of water resources and waterways 	<p>30% of sample interviewed as part of the baseline assessment knew about climate change with varied levels of understanding</p> <p>More than 90% of people reported doing clearing of canals.</p> <p>Less than 1% reported adopting any other measures to conserve water.</p> <p>No water associations available</p>	<p>Over 90% of target population understand climate change phenomenon, risks to livelihoods, and adaptation solutions</p> <p>Over 20,000 direct and 28000 indirect people adopting optimal efficiency in irrigation using low-cost technologies</p> <p>A minimum of 12 water user associations established and actively operating</p>	<p>Annual reports and end-of-project evaluation including a KAP survey</p>	<p>Farmers continue to collaborate together because in implementing communal adaptation solutions</p>

	Number of people adopting at least one climate risk reduction measures in agriculture and livestock	1800 people reported adopting at least one risk reduction measure in agriculture and livestock.	38,000 direct and over 100,000 indirect people adopting at least one climate risk reduction measures in agriculture and livestock	Annual reports and end-of-project evaluation	
Output 1.1 Community level mobilization and climate adaptation planning	Number of people participating in awareness sessions and mobilized to participate in project activities	Baseline value are those people who participated in the baseline survey conducted as part of project preparation, which are over 1500 people	Over 130,000 people over the project life.	WFP monitoring reports, and annual reports to the Adaptation Fund	Proper communication precedes community mobilization for transparency about the project and its smooth launching. This will be made possible through training of trainers of community pioneers.
Output 1.2 Establishment of a climate change and adaptation online application	Number of people using the system Number of people benefiting from the system with climate information, early warning and adaptation guidance	Zero because no such system is in place at the moment Zero because no such system is in place at the moment	Over 100 direct participants in Cairo and participating governorates trained to use the system Over 130,000 direct beneficiaries from the system and over one million indirect beneficiaries from the potential scale-up of system use.	System usage statistics (automatically generated) Annual reports to the Adaptation Fund End of project evaluation report	Climate stations are properly maintained by the government. Collaboration is maintained between agencies that own and run climate stations (namely Egyptian Meteorological Authority and Ministry of Agriculture)

<p>Output 1.3</p> <p>Introduction and use of water saving irrigation and other adaptation techniques</p>	<p>Number of acres benefiting from optimal irrigation efficiency using low-cost solutions</p> <p>Proportion of target communities benefiting from adequate services of water users associations</p>	<p>Less than 1% at the baseline</p> <p>Zero at the baseline because no water users associations were established in the target zone</p>	<p>Over 4000 acres directly benefiting</p> <p>All canals undergoing improved irrigation efficiency will also benefit from water user associations established and strengthened under the project.</p>	<p>Monitoring visit reports</p> <p>Progress reports by implementing entities</p> <p>Annual reports to the adaptation fund</p> <p>Final project evaluation</p>	<p>Security maintained for enhanced systems in target villages</p> <p>Farmer collaboration in the context of water user associations is ensured</p>
<p>Output 1.4</p> <p>Building resilience in agricultural production</p>	<p>Number of people from among the target population benefiting from demonstration farms, extension services, and farm-to-farm visits to enhance their resilience and reduce climate risks</p>	<p>None of the population are currently benefiting from any interventions for this purpose</p>	<p>Over 37,000 people benefit directly and over 100,000 indirectly benefiting from access to heat resistant strategic plants, as well as learn how to change sowing dates, and other soft techniques to reduce climate risks</p>	<p>Monitoring visit reports</p> <p>Progress reports by implementing entities</p> <p>Annual reports to the Adaptation Fund</p> <p>Final project evaluation</p>	<p>Farmers dedicate space for demonstration farms from among the village land, which is ensured by their strong expressed interest in this kind of interventions.</p> <p>Farmers collaborate such that each one has an equitable chance to benefit from project interventions.</p>

	Number of people engaged in income diversification strategies to reduce risks and vulnerability of food security to climate	Less than 5% of people are engaged in income diversification strategies	The above figure includes about 10,000 beneficiaries are engaged in income diversification schemes (intercropping, high value crops, and/or organic farming)		Farmers implement and sustain what they learned/acquired Farmers continue to have access to services and communal assets
Output 1.5 Building resilience through livestock and poultry production'	No. of women trained on risk reduction in raising large ruminants, small ruminants and poultry; animal nutrition and alternative fodder. Proportion of women accessing adequate vet services in their villages as it relates to climate related risks and diseases Number of women benefiting from small loans to acquire heat tolerant livestock varieties	Zero women are now trained on climate risk reduction to livestock About 98% of respondents to the baseline survey indicated inadequacy of vet services in their villages No access to specialized livestock financing schemes is currently available in target communities	Over 36,000 women will be trained on reduction techniques of climate risk to livestock Over 90% of women engaged in raising livestock will have access to proper vet services equipped to reduce climate risk 18,200 women will have access to specialized livestock revolving schemes during project life	Annual reports to the Adaptation Fund Monitoring visit reports Progress reports by implementing entities for the training Records of the community organizations running the loans program	The security situation is well-managed by communities and the local government

Component 2	Institutional capacity building at the central and local levels for scaling up climate resilience of farming communities				
<p>Outcome 2</p> <p>Government more committed to investing in – and sustaining – climate risk reduction strategies and measures</p>	<p>% increase in budget allocated to adaptation in local, regional and national plans</p> <p>Key institutions develop needed capacities to deliver services for climate risk reduction in rural communities</p>	<p>Zero</p> <p>Currently there are no programs or staff dedicated to adaptation services in key local governmental and non governmental institutions</p>	<p>A positive trend sufficient to sustain and scale-up interventions of this project</p> <p>Government programs developed to deliver:</p> <ul style="list-style-type: none"> • Climate information hubs to scale up use of systems developed under output 1.2 • Adaptation knowledge and services embedded in government extension services • Revolving funds extending beyond the project areas to benefit other communities in Southern Egypt aiming to spread water conservation technologies and heat tolerant varieties 	<p>Copies of national, regional or local plans; and/or government official communication</p>	<p>Economic situation enables government to make the necessary investments, which would be addressed through advocacy efforts to make this a priority and through leveraging of funds where appropriate</p>

			in agriculture and livestock		
Output 2.1 Training of government technical staff	Number of people trained; % of trainees that are able to properly retain message from training Number of advocacy meetings	Training programmes for government on climate risk management to benefit rural communities will still be developed. Number of people trained is zero at the baseline. 0	Software developed and launched nationally to link climate stations belonging to different government agencies together, and developing adaptation guidance for each climate scenario for use by online users nationwide 300 officials at local and central government, as well as parliament, aware of climate proofing agriculture and water management	Pre- and post-training assessment results Project monitoring reports Adaptation fund annual reports	Coordination of climate risk reduction efforts is properly done among concerned agencies
Output 2.2 Documentation of lessons learned and best practices	Number of awareness materials printed Number of online messages	No materials are produced on climate risk reduction in agriculture	One year integrated campaign including: <ul style="list-style-type: none"> One specialized TV channel adopting the cause At least 10 TV spots produced and aired 	Copies of materials produced Media reports on specialized programs	

	Number of TV spots and programs aired		<ul style="list-style-type: none"> • At least 10 radio spots produced and aired • At least five different printed products • At least 4 different press releases issued 		
Output 2.3 Sharing project results and lessons learned and mainstreaming new approaches in local and regional planning	Number of awareness and advocacy events held for new parliamentarians and policy makers	Zero at baseline	At least ten	Meeting reports Institutional experts evaluation reports of events impact	
Output 2.4 Universities integrate climate adaptation solutions into their academic curriculum	Number of students benefiting from lessons learned from project interventions		0 300 yearly from the three key universities in Southern Egypt	Midterm evaluation, final evaluation, activity reports	Change in university management , which would be guarded against by formalizing agreements with the universities before any funds are spent

Alignment of Project Objectives/Outcomes with Adaptation Fund Results Framework

Project Component 1 Objective	Project Component 1 Objective Indicator	Fund Outcome	Fund Outcome Indicator
Climate resilience of target communities in Southern Egypt farming strengthened to reduce risks to food security	Proportion of Southern Egypt farming communities that are more climate resilient through adoption of water efficient irrigation, risk reduction measures in agriculture and livestock, diversified income sources, and access to early warning systems and adaptation guidance	Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.2. Percentage of targeted population with sustained climate-resilient livelihoods
Project Component 1 Outcomes	Project Component 1 Outcome Indicators	Fund Output	Fund Output Indicator
Improved adaptive capacity of the Southern region of the country in the face of anticipated climate-induced reduction in food security through asset creation, knowledge/technology transfer, and capacity/skills development	<p>Percentage of target population in Southern Egypt demonstrating knowledge of climate change and variability and means to reduce risk to their livelihoods</p> <p>Number of people adopting optimal efficiency in irrigation using low-cost technologies Such as;</p> <ul style="list-style-type: none"> • Canal lining and other surface irrigation low-cost solutions • Water user associations established and active in effective management of water resources and waterways <p>Number of people adopting at least one climate risk reduction measures in agriculture and livestock</p>	Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1.No. and type of adaptation assets (physical as well as knowledge) created in support of individual or community-livelihood strategies

Project Component 2 Objective 2	Project Component 2 Objective Indicators	Fund Outcome	Fund Outcome Indicator
Institutional capacity built at the central and local levels for scaling up climate resilience of farming communities	Government programs developed to deliver: <ul style="list-style-type: none"> • Climate information hubs to scale up use of systems developed under output 1.2 • Adaptation knowledge and services embedded in government extension services • Revolving funds extending beyond the project areas to benefit other communities in Southern Egypt aiming to spread water conservation technologies and heat tolerant varieties in agriculture and livestock 	Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1. No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks
Project Component 2 Outcomes	Project Component 2 Outcome Indicators	Fund Output	Fund Output Indicator
Government more committed to investing in – and sustaining – climate risk reduction strategies and measures	% increase in budget allocated to adaptation in local, regional and national plans Key institutions develop needed capacities to deliver services for climate risk reduction in rural communities	Output 2.1: Strengthened capacity of national and regional centers and networks to respond rapidly to extreme weather events Output 2.2: Targeted population groups covered by adequate risk reduction systems	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events 2.1.2. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased 2.2.1. Percentage of population covered by adequate risk-reduction systems

Detailed Project Budget (Output Level)

Outcome	Outputs	Budget Description & codes	USD 2013	USD 2014	USD 2015	USD 2016	Total (USD)	
Outcome One. 137,575 direct beneficiaries are more resilient to climatic shocks and change through more available water resources, more resilient soils, more able farmers who can predict and manage climatic episodes, and enhanced rural incomes	1.1. Community level mobilization and climate adaptation planning (including awareness)	Local consultants (4300700)	8000	6000	6000		20000	
		TC/IT Equipment (6490900)	7000	7000			14000	
		Rental of facility (workshops) (7000000)	16200	12000	12000	6000	46200	
		Travel (4201700)	2700	2400	5650	11000	21750	
	Total Output 1.1.			33900	27400	23650	17000	101950
	1.2. Establishment of a climate change and food security monitoring system	International consultants (4201600)	7800		6500		14300	
		Local consultants (4300700)	6000	24000	12000	7200	49200	
		Travel (4201700)	10000	12000	10500	4000	36500	
	Total Output 1.2.			23,800	36,000	29,000	11,200	100,000
	1.3. Introduction and use of water saving irrigation and other adaptation techniques	International consultants (4201600)	3250		3250		6500	
		Local consultants (4300700)	24000	87000	54000	4000	169000	
		Project materials (bldg materials) (6590900)		304,261	304,261		608521	
		Labour costs		275,000	215,000		490000	
		Rental of facility (workshops) (7000000)	34861	34,861	34,861		104583	
		Travel (4201700)			10200	5000	54525	

			19,325	20,000				
	Total Output 1.3.		81,436	721,122	621,572	9,000	1,433,129	
Outcome One. 73,000 direct beneficiaries are more resilient to climatic shocks and change through more available water resources, more resilient soils, more able farmers who can predict and manage climatic episodes, and enhanced rural incomes	1.4. Building resilience in agricultural production	International consultants (4201600)	6,500	13,000			19,500	
		Local consultants (4300700)	64,000	85,000	74,107	64,000	287,107	
		Project materials (agric materials) (6590900)*	365,000	262,000	197,000	175,000	999,000	
		Rental of facility (workshops) (7000000)	56,000	70,000	84,000	42,000	252,000	
		Travel (4201700)	39,396	57,033	50,766	40,033	187,228	
	Total Output 1.4		530,896	487,033	405,873	321,033	1,744,835	
	1.5. Building resilience through livestock and poultry production'	International consultants (4201600)			6500			6,500
		Local consultants (4300700)		50000	64000	44000	13000	171,000
		Rental of facility (workshops) (7000000)		25410	18000	13500	11800	68,710
		Project materials (equipping vet units; demonstration milk processing units)		88667	39500			128,167
		Commercial Consultancy Services (small loan seed funds) (7119000)		268000	295333	195000		758,333
Travel (4201700)			6500	8300	5200	3500	23,500	

		Total Output 1.5	438,577	431,633	257,700	28,300	1,156,210	
Total Outcome One			1,108,609	1,703,188	1,337,795	386,533	4,536,124	
Outcome two. Government, civil society and farmers are able to make appropriate choices for interventions based on improved climate knowledge and lessons learned transferred to 5500 personnel	2.1. Training of government technical staff	International consultants (4201600)		8450	6500		14,950	
		Local consultants (4300700)	30000	30000	20000	24000	104,000	
		TC/IT Equipment (6490900)**	70000				70,000	
		Rental of facility (workshops) (7000000)	10000	14000	10000	3000	37,000	
		Travel (4201700)	13000	17500	10000	9000	49,500	
	Total Output 2.1.			123,000	69,950	46,500	36,000	275,450
	2.2. Documentation of lessons learned and best practices	International consultants (4201600)	3250	6500				9,750
		Local consultants (4300700)	6000	10000	10000	6000	32,000	
		Commercial Consultancy Services (7119000)***		70,000	130000	80000	280,000	
		Travel (4201700)	6250	9500	7000	5000	27,750	
	Total Output 2.2.			15500	96000	147000	91000	349500
	2.3. Sharing project results and lessons learned and	International consultants (4201600)			7800	6500	14,300	
		Local consultants (4300700)		32000	50000	14000	96,000	
		Labour costs			89000	89,500	178,500	

mainstreaming new approaches in local and regional planning	Rental of facility (workshops) (7000000)		10000	10000	15000	35,000
	Travel (4201700)		92000	92500	92000	276,500
Total Output 2.3.		0	134000	249300	217000	600300
2.4. Universities integrate climate adaptation solutions into their academic curriculum	International consultants (4201600)			7800		7,800
	Local consultants (4300700)		17,000	17,000	16,079	50,079
	Rental of facility (workshops) (7000000)			5000	5000	10,000
	Travel (4201700)		3000	3000	3000	9,000
Total Output 2.4.		0	20000	32800	24079	76879
Total Outcome Two		138,500	319,950	475,600	368,079	1,302,129
TOTAL IMPLEMENTATION COSTS		1,247,109	2,023,138	1,813,395	754,612	5,838,253
Project Execution Costs (9.5%)		142,037	137,766	138,266	136,566	554,634
Project Management Fee (8%)*		111,132	172,872	156,133	71,294	511,431
Grand Total		1,500,278	2,333,776	2,107,793	962,472	6,904,319

*****Project Management Fee**

Finance, Budget and Treasury Advice	127,857
Performance Management Support	102,286
Information & Telecoms Support	51,143
Audit and Inspection Support	51,143
Legal Support	51,144
Programme Support	127,857
Total	511,431

The management support component of the budget covers the costs of management services provided by WFP headquarters in support of the implementation of the proposed project. A breakdown of the specific functional areas follows:

Finance, Budget and Treasury

- General oversight, management and quality control
- Ensure conformance with WFP judiciary standards and internal control processes
- Manage, monitor and track financial transactions
- Manage all AF financial resources through a dedicated Trust Fund
- Human resource management
- Procurement and supply management
- Support in the identification of suppliers and cost efficient procurement processes

Performance Management

Provide technical support in the areas of risk management, screening of financial and

risk criteria and indicator selection

Provide guidance in establishing performance measurement processes

Technical support in methodologies, TOR validation, identification of experts, results validation, and quality assurance

Dissemination of technical findings within the country and the broader adaptation community

Information & Telecoms

Includes maintaining information management systems and specific project management databases to track and monitor project implementation

Audit and Inspection

Ensure that financial management practices comply with AF requirements and support audit actions as required

Ensure financial reporting complies with WFP and AF standards

Ensure accountability and incorporation of lessons learned

Legal

Legal advice to assure conformity with WFP legal practices and those of the country

Contract review

Program Support

Technical support, troubleshooting, and support missions as necessary

Specialized policy, programming, and implementation support services

Evaluation support

Annex 5: In-depth meetings and Focus groups checklist used in March 2012

In-Depth Meetings and Focus Groups with Local community Leaders, Community Members, NGOs executives, Agricultural officials at district and/or village Level

POINTS OF DISCUSSION CHECKLIST

1. What are the main income generation activities of the village
2. What are the main crops grown and what is the average productivity of each
3. What is the average land holdings and average land rental price
4. What is the percentages of farmers working as labor in others land
5. What are the cost items for cultivation and the average value of each
6. What are the main animals raised and how many of the houses are raising animals
7. Is the produce sold or used by Household. Where is the produce sold
8. What are the main problems of agriculture in the village
9. What are the main problems of irrigation in the village
10. Are there users organizations
11. Have there been/will be governmental initiatives to help farmers, improve irrigation, etc-what
12. Have there been externally-funded projects/programs to help develop the village- what, when, major outputs and lessons learned?
13. Will the villagers accept to grow new crops, varieties, use new chemicals?
14. Will ladies like to own an animal raising project- what animals
15. How do farmers get information about agriculture
16. Who offers extension services to farmers and how do you evaluate these services
17. Are there any entities offering financial services – who, what are their conditions and how does he evaluate them
18. Are there local NGOs- what do they offer – have they managed externally- funded projects-how well did they do their job
19. Can we grow organic and why/why not
20. Can we consolidate holdings and why/ why not
21. Is there internet access in the village- where
22. Are there marketing problems in the village-what
23. How is information passed on in the village
24. Has this area witnessed extreme weather events lately? What and is it more frequent/intense than before ? What were the impacts on crops/ animals? What other problems occurred?
25. Did farmers do anything to adapt or reduce losses. Are there adaptation mechanisms that they heard of but were not able to adopt- and why
26. Are there security problems in the area
27. Are there tribes/family segregations in the village? Are conflicts/tensions inflicted
28. Are there groups that are not able to access services, generate income, etc. Are there marginalized groups. If yes how and why?

Annex 6- Building Resilient Food Security Systems in Southern Egypt Project
Baseline Assessment and Information Gathering for Full document Development
Community members Questionnaires

A. Socio-economic information

1. Gender : Male Female
2. Age:
3. Educational status:
 - Illiterate primary schooling preparatory schooling secondary schooling
 - university or higher
4. Occupation:
 - Student Farmer Government/private sector Employee
 - Self employed Unemployed other-specify
5. If farmer, working in:
 - Owned land rented land as labour in other's land
 - subsistence farmer in owned land
6. If land owner, what is his/her land holding:
 - Less than one acre 1-2 acres 2 or more acres
7. Accessibility to basic services:
 - a. Distance to nearest primary school
 - Within villagekm away
 - Distance to nearest preparatory and secondary schools
 - Within villagekm away
 - b. Distance to nearest health care unit
 - Within villagekm away
 - c. Availability of medical staff in health unit
 - Doctor frequently available doctor rarely available
 - nurse frequently available nurse rarely available
 - d. availability/accessibility to medication
 - offered freely at unit purchased from pharmacy within village
 - purchased from pharmacy out of village usually unaffordable
 - e. Availability and accessibility of private health care providers (clinics, hospitals)
 - Available in village available out of village not affordable

- f. Distance to nearest vet unit
 Within villagekm away
- g. Availability of medical staff in vet unit
 Doctor frequently available doctor rarely available
 nurse/technician frequently available nurse/technician rarely available
 do not know
- h. Availability of necessary equipment in vet unit
 All necessary equipment available some necessary equipment missing
 nothing is available do not know
- i. availability/accessibility to vet medication
 offered freely at unit purchased from pharmacy within village
 purchased from pharmacy out of village sometimes unaffordable
 do not know
- j. Availability and accessibility of private vet service providers (clinics)
 Yes No do not know
- k. Level of satisfaction with vet services in the village
 Fully satisfied partially satisfied not satisfied
- l. Distance/ accessibility to nearest market
 Within villagekm
away

8. Which members of the family are working ?
 Father mother children none

9. Which members of the family are involved in agriculture?
 Father mother children none

10. Which members of the family are involved in animal raising
 Father mother children none

B. Agricultural information

B.1 Crop production:

1. Your land -soil composition
 Sand silt clay rocky other-specify

2. If land holder, area of owned land

- less than 1 acre 1-2 acres 2-3 acres more than 3 acres

3. If renting land, value of rental:L.E./ season

4. Current crops planted:

- a. In summer:.....
 b. Nilic:
 c. In winter:

5. Current Sowing dates of each crop:

Crop	Current sowing date

6. Sources of irrigation water:

- Groundwater canal/channel pumping station other-specify

7. current method of irrigation

- furrow drip/sprinkle lined canals others -specify

8. Presence of water users associations, agreed-upon rotations

- Yes and effective yes but not effective not available

9. Average expenditure on irrigationL.E./month

10. Problems faced in irrigation

- No problems Lack of water poor quality of water
 problems with neighbor farmers

11. What are the cost items for cultivation and the average value of each

Input	Average cost/ year
Seeds	
Fertilizers	
Pesticides	
Labor	
Equipment	
Running costs – maintenance and fuel	
Fixed costs	
Technical support	
Others- specify	

12. Do you use labour or depend on family members in cultivation?

- Rent labour cultivate solely use family members
 others-specify.....

13. Average productivity of currently grown crops

Crop	Average productivity/ acre/season

14. Marketing channels of produce

a. where is it sold/ used?

- sold in village market in neighbouring market collected by wholesalers used by household sold to neighbours/affiliates

b. Do you have transport facilities to take produce to market?

- Not needed not present not affordable have adequate transport

c. how is pricing of the produce done

- by the farmer by the wholesaler other- specify

15. Did you practice organic farming?

- Yes no do not know what it is

If yes, did you find it rewarding? Yes no –why not?

If no, why?

- Too expensive do not have know how and/or required inputs do not have markets for produce other-specify.....

16. Did you practice contract farming?

- Yes no do not know what it is

If yes, did you find it rewarding? Yes no –why not?

.....

If no, why?

- Too expensive do not have know how and/or required inputs do not have markets for produce other-specify

b.2 Animal Production

1. What are the main animals you raise?

- Cattle goats and sheep chicken ducks
 rabbits none

2. If you raise, are they raised for household consumption or sold?
 Sold consumed by household

3. What is the average number of animals raised of each type?

Type	Average number
Cattle	
Goats and sheep	
Chicken	
Ducks	
Rabbits	

4. Who is the main keeper within the household?
The Mother the Father the daughter
the son other-specify

5. Did your household receive any loans for animal raising projects?

Yes no

If yes-What was the value?.....

How was it repaid?

In cash , with the size of the installment being.....L.E./ months period over.....a-repayment period ofmonths)

offspring , returning a number ofover a period ofmonths

6. Where are the animals/ animal products (milk, eggs, offspring, etc) sold?

Market in village market outside village consumed by household

7. Where is the fodder obtained from?

Grown purchased from village purchased from outside

8. What is the average cost of fodder?L.E./ton/animal

9. Did they hear about and/or use alternative fodders?

Yes no not much

If yes, what type and what do you think of it?

.....

10. Is there animal raising advice offered in the area?

- Yes no

If yes how and by whom?

.....
.....
.....

11. Is there vet service and medication available?

- Yes No

If yes, where and at what is the average cost?

.....
.....
.....

12. Are you satisfied with the vet services?

- Very satisfied satisfied not satisfied

C. Climate Change and Weather Variability

1. Did you hear about climate change?

- Yes No

If yes, what is it?

.....
.....
.....

2. Did you notice any extreme weather events lately?

- Yes No

3. If yes, what was it?

- Heat wave chill wave unexpected rain

- lack of rain other-specify

.....

4. Have more of such events been happening lately?

- Yes No Do not know

If no or do not know, when was the last three times you saw it?

.....
.....
.....

10 or 20 years ago, when were the last three times they would have happened do you think/remember?

.....
.....
.....

5. Has the intensity of such events increased lately?
Yes No Do not know

6. Has such events affected your crops?
Yes No Not sure

If yes, how?

.....
.....
.....

7. Has such events affected your animals? If yes, how?
Yes No Not sure

If yes, how?

.....
.....
.....

8. What did you do to reduce your losses or minimize impact on crops?

.....
.....
.....

9. What did you do minimize impacts on animals?

.....
.....
.....

10. Did you hear of things that you did not try that you can do that will help minimize impacts?
Yes No

If yes, what?

.....
.....
.....

Why didn't you practice them?

orchards (pomegranate, guava, citrus in middle Egypt only)	Yes No, because..... Yes but on the condition that.....
Intercrop (eg onions with wheat)	Yes No, because..... Yes but on the condition that.....
Change sowing date	Yes No, because..... Yes but on the condition that.....
Addition of new low-cost substances that will increase your productivity and help crop/chicken tolerate heat	Yes No, because..... Yes but on the condition that.....
Take loan at 3-5% interest rate for animal raising	Yes No, because..... Yes but on the condition that.....
Raise rabbits	Yes No, because..... Yes but on the condition that.....
Raise goats	Yes No, because..... Yes but on the condition that..... If yes, how would you like to repay- in cash or offspring?
Own a bees project	Yes No, because..... Yes but on the condition that.....

Raise ducks	Yes No, because..... Yes but on the condition that..... If yes, how would you like to repay- in cash or offspring?
Other suggestions?	

If you are getting a loan for an animal (name it) raising project, what inputs will you need to help you start and run it?

- Vet services technical training technical backstopping/advice
 nothing

2. Are you willing to practice new irrigation interventions that can help you save on irrigation costs?

- Yes NO yes on the condition that

For newly reclaimed lands:

3. Would you wish to use drip or sprinkle irrigation

- Yes yes but cannot afford it no already using

If no, why?

.....

If you are offered a loan at 3% interest rate and repayment on 4 years, would you take it to change to drip or sprinkle irrigation?

- Yes no already have

If no, why?

.....

E. Information access and sharing:

1. Where do you get information about agricultural practices?

Extension workers Friends Agricultural Association

Agricultural TV Channel (which one) suppliers internet SMS Radio (which channel) nowhere seeds

others –specify

2. Where do you get information about animals raising and care?

Extension workers Agricultural Association Friends

Agricultural TV Channel (which one) Radio (which channel) vet unit
 nowhere internet others –specify

3. Which do you think is the most effective tool of the above? Rank them.

1)

2)

3)

4)

4. Do extension workers visit you?

Yes, frequently yes, but infrequently no not a farmer

5. How satisfied are you with the service they provide?

Very satisfied satisfied not satisfied

6. Does anyone have internet access in the village?

Yes No

7. Do you have an early warning system that tells you about upcoming weather shocks?

Yes No

8. If yes, what is it?.....

9. Is it effective? Yes No, why.....

10. What local means do you have to spread information in the village?

Microphones in mosques Mobile Microphones

word of mouth Friends meetings/ gatherings

11. Do you have a mobile? Yes No

If yes, would you like to receive agriculture advice/information through an SMS?

Yes No, why not?

.....

12. If a focal point is selected to receive warnings of upcoming weather shocks through the internet, where can this focal point be placed?

- In the Agriculture Association in the Village's CDA Elsewhere-specify

13. How can this focal point pass on the information?

.....

14. Who can this focal point be?

- Someone from the NGO any youth farmer
 other-specify

F. Institutional Capacity

1. Which NOGS do you know of in the village?

- Local CDA Women's Development NGO Agricultural Association
 other –specify

2. What services does each NGO provide and how satisfied are you with it providing each service?

NGO	Services provided	Level of satisfaction
		<input type="checkbox"/> do not know <input type="checkbox"/> Very satisfied <input type="checkbox"/> satisfied <input type="checkbox"/> not satisfied- specify why.....
		<input type="checkbox"/> do not know <input type="checkbox"/> Very satisfied <input type="checkbox"/> satisfied <input type="checkbox"/> not satisfied- specify why.....
		<input type="checkbox"/> do not know <input type="checkbox"/> Very satisfied <input type="checkbox"/> satisfied <input type="checkbox"/> not satisfied- specify why.....

Annex 7- Village Baseline Assessment Profiles

EL Khawaled Village
Sahel Selim District –Assuit

Basic Socioeconomic Information about the village

EL Khawaled is one of the 16 old land villages in the Sahel Seliem district in Assuit. In 2011, it had a total population of 7338 native villagers with a percentage of 51.2% females and 48.8% males and 67.2% of the population living under the national poverty line. The following figures depict the educational, age and employment constitution of the village members.

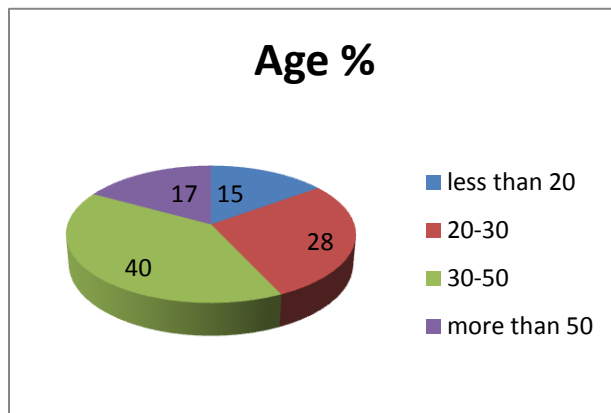


Figure 1 Age composition IN El Khawaled Village

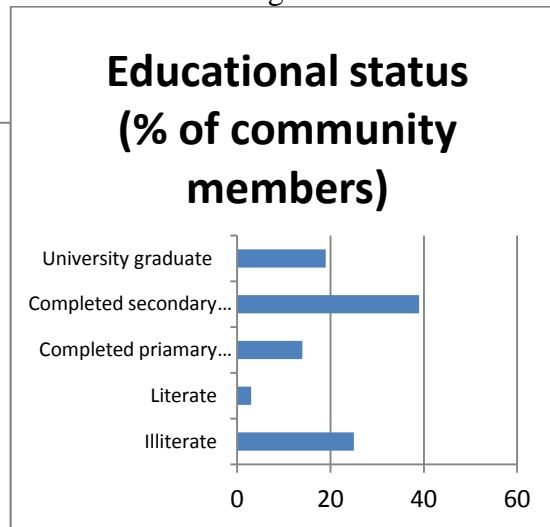


Figure 2 Educational status of Community Members in El Khawaled

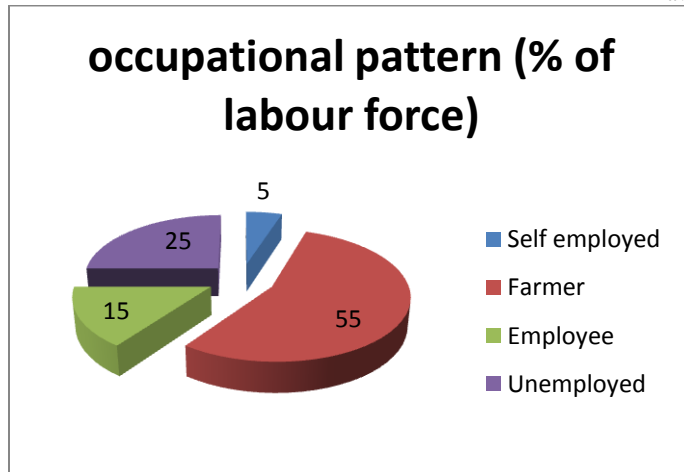


Figure 3 occupational patterns in El Khawaled Village

The village has one primary school and the nearest preparatory and secondary schools are in El Shamia mother village, 3 Km away. There is one health unit, however, as the figure below reflects, the interviewees' level of satisfaction with its services is relatively low, with the majority complaining from the frequent absence of its staff.

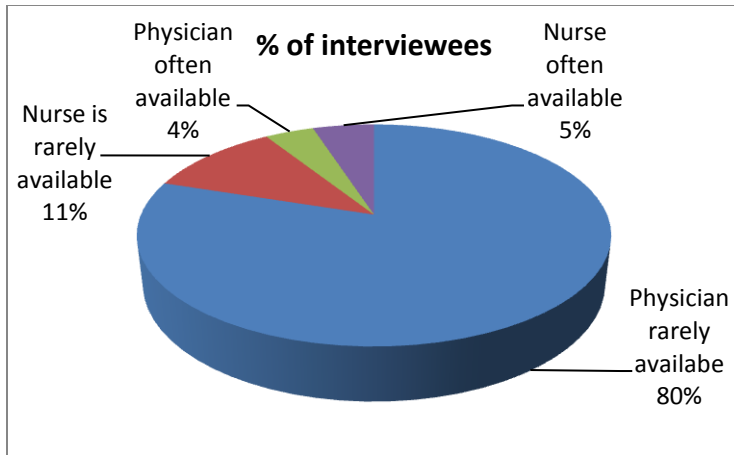


Figure 4 Availability of medical staff in health unit

72% of the population indicated that medication is available in the village pharmacy, with 10% indicating that they find medication unaffordable and 13% purchase their medicine from neighboring villages.

There is a vet. Care unit in the village. However, with 60% of the sample indicating that its medical staff is seldom available, 61 % indicating that it does not have the necessary equipment, and 81% indicating that it does not offer any medication, it can be concluded that it is performing poorly. There are also no private vet care services available in the village.

Crop production

El Khawaled has a total area of 368 acres. 55 % of the population is working in agriculture with 91% of the farmers being smallholders owning/renting less than 1 acre, 7% own/rent 2-3 acres and 2% own/rent more. Only 25% of those involved in agriculture own land, while 36% rent and 39% work as labour, with 27% of them being subsistence farmers. Land of the village is clay and the average land rental value is L.E. 4800/acre/season.

The following table presents which of their family members are involved in agriculture as expressed by the interviewees.

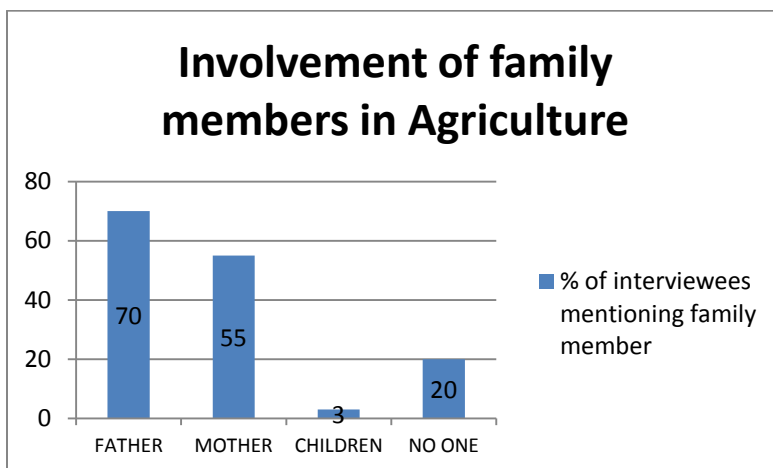


Figure 5 Involvement of members in agriculture

Several crops are cultivated in the village, with wheat, maize and sorghum being the main ones. The following figure shows the percentage of farmers cultivating each crop.

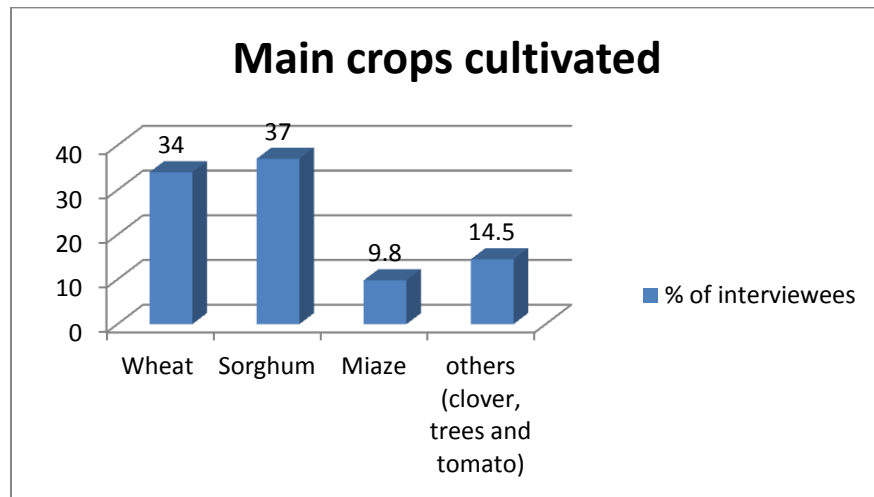


Figure 6 Crops cultivated by interviewees

The average productivity and sowing dates of the cultivated crops was reported as follows:

Crop	Productivity/acre/season (Ardab)*	Sowing date
Wheat	17	
Sorghum	16	
Maize	17	
Tomato		

*Ardab=140kg

Table 1 average crop productivity and sowing dates of cultivated crops in El Khawaled village

Average cost of cultivation has been calculated to be L.E. /year as follows:

Input	Average cost/ year
Seeds	
Fertilizers	
Pesticides	
Labor	
Equipment	
Running costs – maintenance and fuel	
Fixed costs	
Technical support	
Others- specify	

With that said, it is to be noted that 87% of the interviewees indicated that they use seasonal labour in their cultivation and 13% use family members only.

As to marketing, the village has a weekly market where crops, animals and animal products are sold. There is also a bigger market in the Shamia village, approximately 5 km away from the village. When asked about what farmers do with their crops, a majority of 76% of the sample

indicated that it is entirely or partially consumed by the household with 27% selling in the Shamia market and 12% selling locally. 72% of the sample indicated that transport to the market is readily available and affordable, while 21% indicated that they cannot financially afford it. The price of the product is usually decided by wholesalers, with only 10% of the sample indicating that they are able to determine the price of their produce.

Organic farming was found to be unpracticed, with 70% of the interviewed sample indicating that they are unaware what it was. The remaining 30% mentioned that they have heard but never practiced it with lack of technical know-how and high costs cited as reasons by 18 and 16% respectively. Similarly, 82% of the sample indicated that they have never practiced contract farming, while the remaining of the sample indicated they are not sure what contract farming is.

Irrigation:

Groundwater and surface canals are the two sources of irrigation water in the village, providing for 41% and 59% of the land respectively. Furrow irrigation is the only practiced mechanism and no improved water management techniques or structures such as water users associations or irrigation scheduling are in place. On average, irrigating an acre once costs L.E. 120.

Farmers have mentioned several problems of irrigation, as depicted in the figure below:

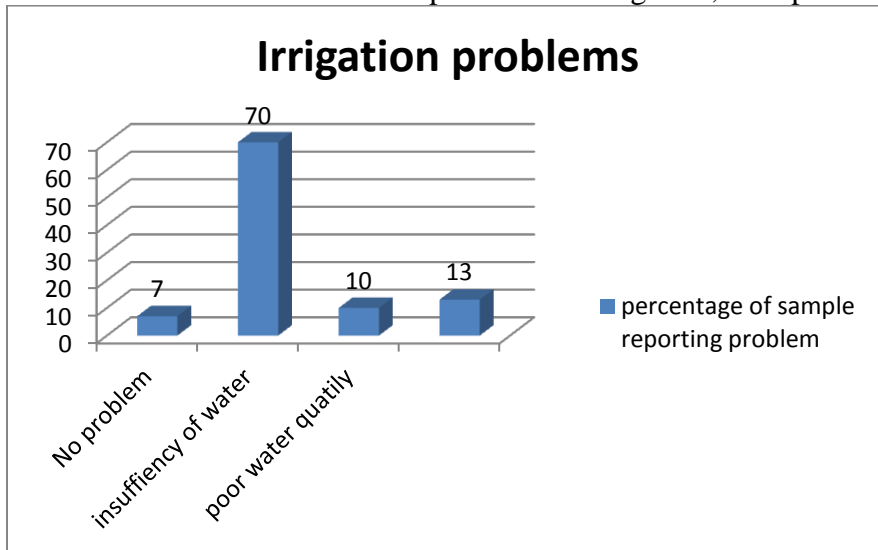


Figure 7 Problems of Irrigation in El Khawaled village

Irrigation services in the area were mentioned to be canal cleaning and general maintenance of main canals, both performed by the Ministry of Water Resources and Irrigation. As depicted by the chart below, these services are apparently poor.

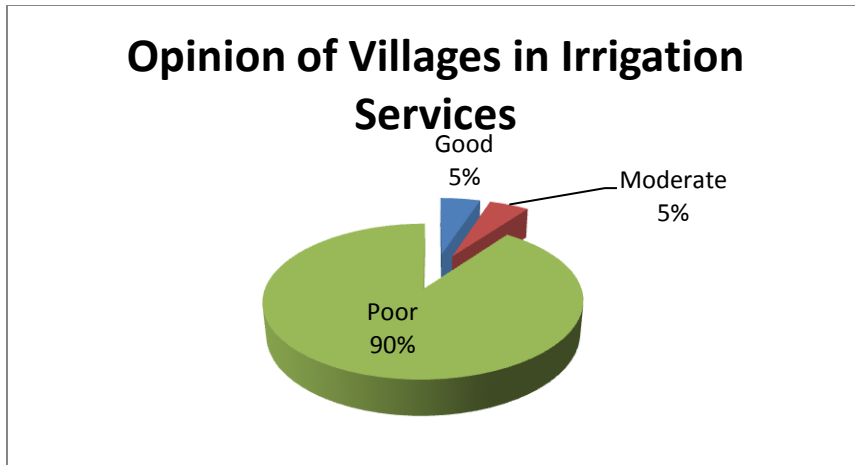


Figure 8 Community Opinions about Irrigation Services In El Khawaled

Animal Production

Villagers in El Khawaled are raising cows and buffalos, goats and sheep, poultry and rabbits.

The figure below indicates the percentage of community members growing each type.

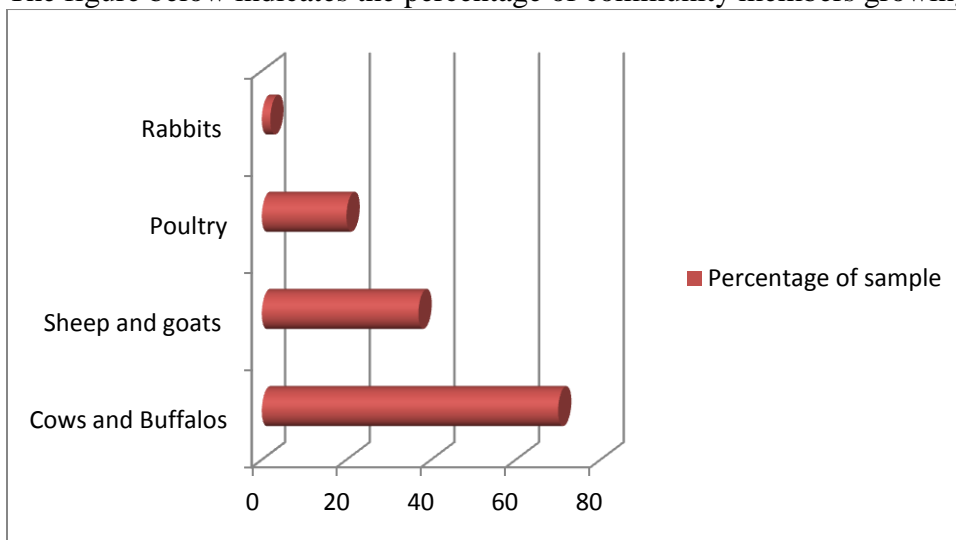


Figure 9 Animals Raised in El Khawaled Village

As to its purpose, 79% of the sample indicated that they raise animals for the sale of its offspring and products, while 21% indicated that it is for their household consumption. 88% of those selling animals or animal products are doing so in the village market, while 12 % are selling it in El Shamia market.

Animal fodder is mainly grown in El Khawled, with 91% of the sample indicating they grow it and 5% and 4% indicating they purchase it from the village market and from El Shamia Markets respectively. Alternative fodder was found to be mainly unknown, with only 9% indicating they have ever heard of it.

Animal keeping was found to be the responsibility of the female members of the household as the figure below suggests.

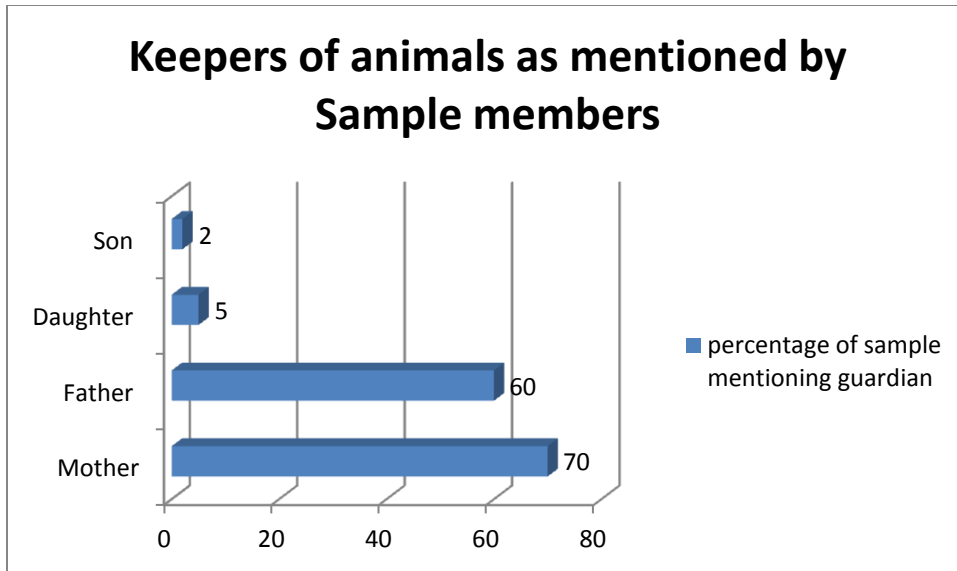


Figure 10 Guardians of animals in El Khawalid village
Loans for animal raising projects have not been previously offered in El Khawaled.

Climate Change and Weather Variability

Knowledge about climate change and weather variability was found to be good, with 77% of the sample indicating that they are aware of climate change and 62% mentioning that they have witnessed increasing frequency and intensity of extreme weather events. Heat and chill waves and unexpected drizzles have been mentioned as example of such events. As to their impacts, 72% of the sample indicated that it has negatively affected their crops, while 66% indicated it had negative impacts on their animals.

Adoption of adaptation mechanisms seems to be fairly weak with 76% of the sample indicated that they have not practiced any adaptation mechanisms, while 24% have. Reasons given for why adaptation was not practiced are depicted below.

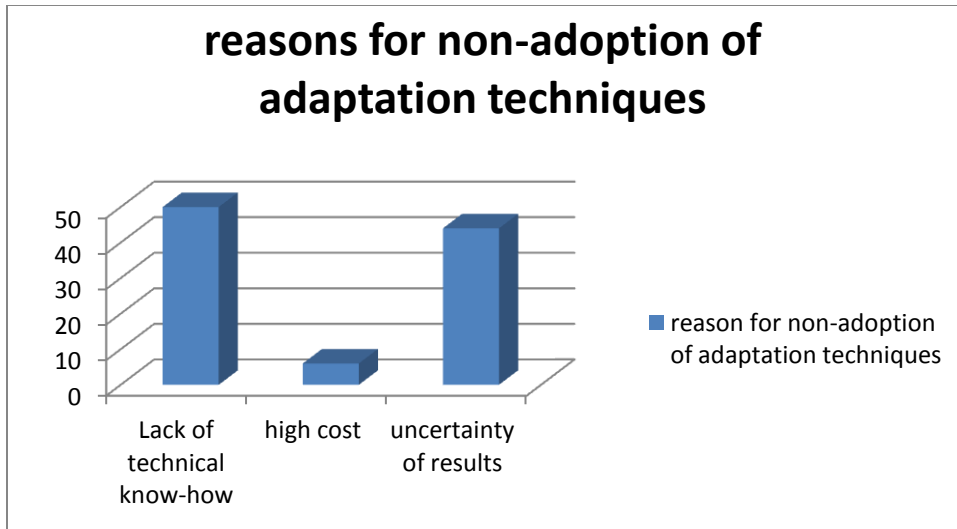


Figure 14 Reasons for non adoption of adaptation techniques in El Khawaled Village.

Among the adoption techniques mechanisms mentioned by the sample were.....

Access and Dissemination of Information

Farmers were found to access information about agriculture through several channels including extension workers, the agricultural cooperative, the television, among others. The followings figure presents these channels and the extent to which farmers rely on each.

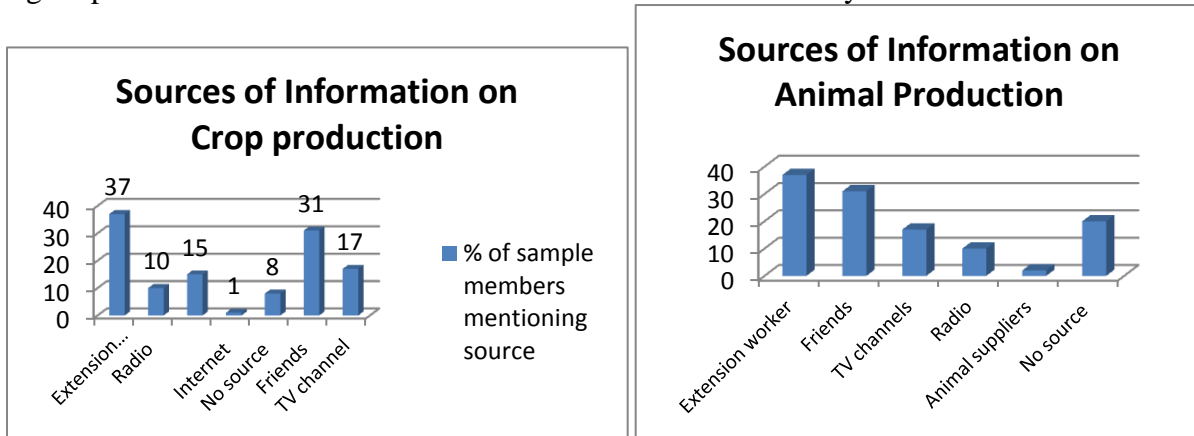


Figure 11 Sources of on crop production in El Khawaled Figure 12 Sources of information on animal production

Villagers indicated that there is no early warning system to help them forecast and prepare for extreme events. They were also not aware of the existence on-line systems that can help notify them of such events, and were very welcoming to the idea of making use of such systems.

Several means for information dissemination in the village were mentioned, including microphones of mosques, mobile microphones and awareness sessions. Some villagers also mentioned the possibility of receiving messages in SMSs through their cellular telephones. To identify where it is best to house an online early warning system for weather extreme events, a majority of 45% mentioned the agricultural cooperative and 41% mentioning a local NGO/CDA.

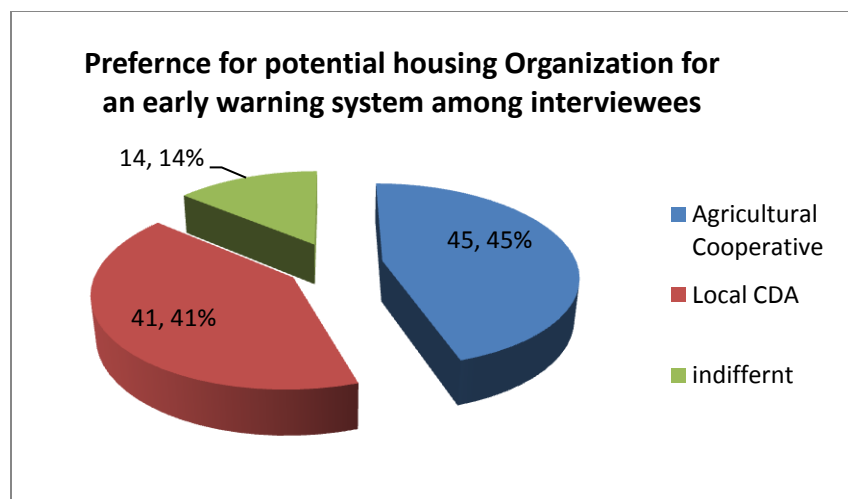


Figure 13 Preference for potential housing Organization for an early warning system among villagers in El Khawaled

As to the village focal point for this system, a majority of 49% of the sample indicated that they would prefer it be someone from the local NGO/CDA or the agricultural cooperative, with 10% indicating it has to be a farmer and 41% indifferent about this issue.

Acceptability of Suggested Adaptation interventions

The following table summarizes the results obtained on the level of acceptance of the suggested interventions among the sample.

Crop /technique	Acceptability (%of sample)
Medicinal and aromatic plants	No, because of its high costs – 6% Yes but on the condition that technical support is provided – 73% Yes on the condition that marketing support is provided- 21%
Organically	Yes – 10% Yes but on the condition that technical support is provided – 51% Yes on the condition that marketing support is provided- 29% Yes on the condition that financial support is provided- 10%
High value crops –strawberry, polmengrate	Yes – 10% No because of its high costs- 23% Yes but on the condition that technical support is provided – 67%
Heat tolerant varieties –wheat tomato and maize (sorghum)	Yes – 63% Yes but on the condition that technical support is provided – 6%

	Yes on the condition that financial support is provided-26%
orchards (pomegranate, guava, citrus in middle Egypt only)	Yes – 85% Yes on the condition that financial support is provided-15%
Intercrop (eg onions with wheat)	Yes – 35% No because not sure of results- 35% Yes but on the condition that technical support is provided – 15% Yes on the condition that financial support is provided-15%
Change sowing date	Yes – 100%
Addition of new low-cost substances that will increase your productivity and help crop/chicken tolerate heat	Yes – 30% No because of high costs- 15% Yes but on the condition that technical support is provided – 20% Yes on the condition that financial support is provided-35%
Take loan at 3-6% interest rate for animal raising	Yes – 100%
Raise rabbits	Yes – 65% No because of its high costs- 12% Yes but on the condition that technical support is provided – 9% Yes on the condition that marketing support is provided-2% Yes on the condition that financial loans are provided- 12%
Raise goats	Yes – 65% Yes on the condition that financial loans are provided- 35%
Own a bees project	Yes – 29% No because of its high costs- 30% Yes but on the condition that technical support is provided – 15% Yes on the condition that financial loans are provided- 20%
Raise ducks	Yes – 90% Yes on the condition that financial loans are provided- 10%
Use alternative fodder	Yes – 63%

	Yes on the condition that technical assistance is provided- 37%
Have an agro-processing project	No because of its high costs- 25% Yes but on the condition that technical support is provided – 55% Yes on the condition that financial loans are provided- 20%
Practice irrigation management schemes	Yes – 14% Yes on the condition that technical assistance is provided- 51% Yes provided it does not impose additional financial burdens-35%

Institutional Capacity

Apart from the agricultural cooperative, El Khawaled does not have a community development association or developmental NGO. However, El Shamia CDA in the mother village of Shamia has long been offering developmental services in the village under several projects and was found to be popular among villagers.

Other considerations

No security/ conflict issues or other risks were reported about El Khawaled. The village has also been receiving charity aid that includes monthly food rations to ultra poor families through national funding sources- as Misr El Kheir Foundation the Egyptian Food Bank.

Key conclusions :

- Climate change and resulting weather shocks are known among villagers. They are also aware of how it impacts crop and animal production and have voiced a need for support in building resilience and reducing losses.
- Knowledge and practice of adaptation mechanisms were not very strong. Lack of technical knowhow, high costs and uncertainty of results have been reported as the main reasons.
- There are no systems for early warning to help reduce climate-induced losses in place.
- All the suggested interventions were welcomed by the beneficiaries, including those that they were unaware of such as organic farming and linkage to on-line weather forecasting systems.
- The project's offering of an integrated package of technical and marketing support, demonstration fields and financial loans responds to concerns and requirements mentioned by villagers to adopt the interventions
- With females being the key guardians of animals in the village, the animal raising loans are expected to have a positive impact on women's advancement.
- The proposed water management interventions will help increase irrigation efficiency, directly addressing the main irrigation problem in the village, being insufficiency in water.
- With the evident weakness of the existing services in the village, enhancement of vet. care is needed to complement the animal raising loans.

- Villagers get information about agricultural production from many sources including extension workers, radio and TV, seeds suppliers and friends. Means of mass communication in the village include microphones, both in mosques and mobile. The project will use these channels in reaching beneficiaries and disseminating information.
- Fodder is mainly grown in the village, with the majority of the farmers using significant portions of their land to cultivate it. Production of alternative fodder is thus expected to have profound impacts, allowing them to make better usage of the land in cultivation of other crops.
- With most of the land cultivated for household consumption farmers will be allocating small areas of their plots for cultivation of newly introduced crops. Support for collective marketing of produce of these small areas is thus imperative for the success of these cultivations.
- Although the village does not have a CDA/NGO, the Shamia CDA could be used to extend the needed services.

EL Awana Village
Sahel Selim District –Assuit

Basic Socioeconomic Information about the village

EL Awana is one of the 16 old land villages in the Sahel Seliem district in Assuit. In 2011, it had a total population of 12057 native villagers with a percentage of 48.9% females and 51.1% males and 66.81% of the population living under the national poverty line. The following figures depict the educational, age and employment constitution of the village members.

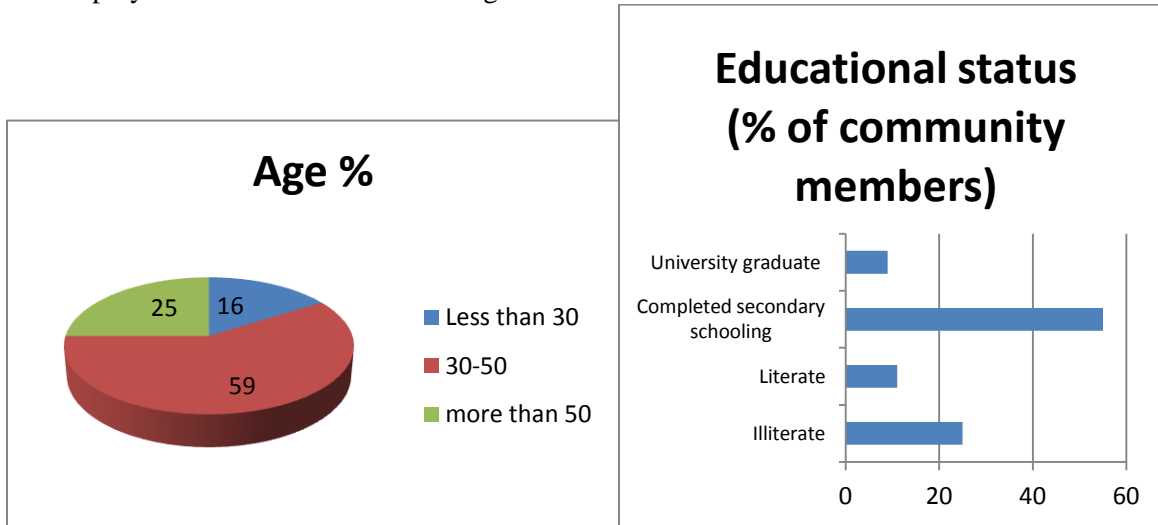


Figure 1 Age composition of sample IN El Awana Village

Figure 2 Educational status of Community Members in El Awana

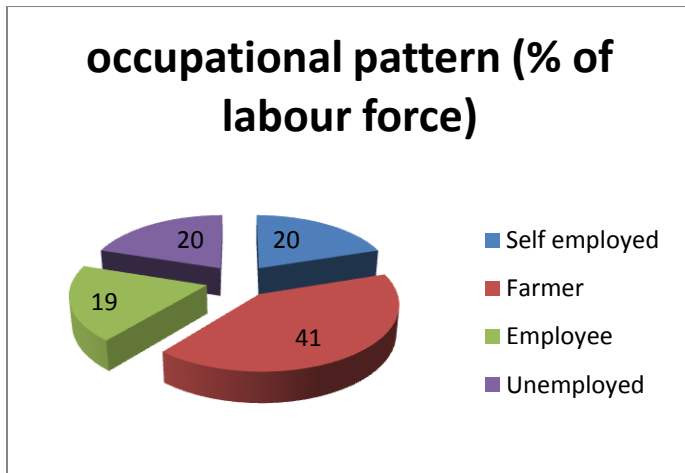


Figure 3 occupational patterns in El Awana Village

The village has a primary, preparatory and secondary schools. There is one health unit, however, as the figure below reflects, the interviewees' level of satisfaction with its services is relatively low, with the majority complaining from the frequent absence of its staff.

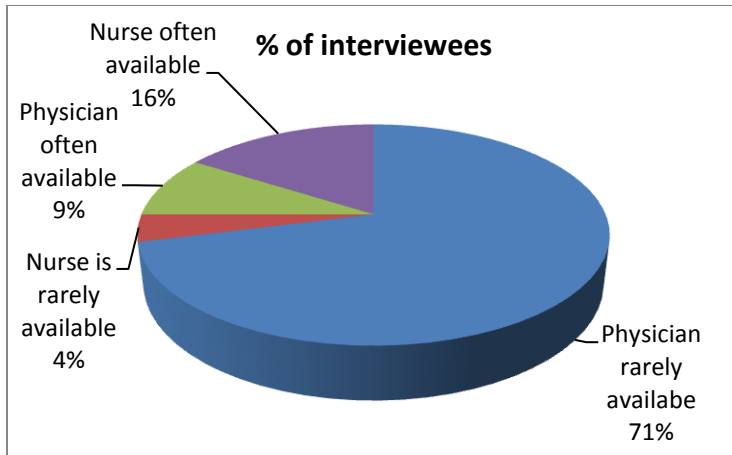


Figure 4 Availability of medical staff in health unit

52% of the population indicated that medication is available in the village pharmacy, with 42% indicating that they find medication unaffordable and 6% purchase their medicine from neighboring villages.

There is a vet. Care unit in the village. However, with 85% of the sample indicating that its medical staff is seldom available, 56 % indicating that it does not have the necessary equipment, and 70% indicating that it does not offer any medication, it can be concluded that it is performing poorly. There are also no private vet care services available in the village.

Crop production

El Awana has a total area of 1963 acres. 68 % of the population is working in agriculture with 88% of the farmers being smallholders owning/renting less than 1 acre, 12% own/rent 1-3 acres. Only 23% of those involved in agriculture own land, while 41% rent and 36% work as labour, with 32% being subsistence farmers. Land of the village is clay and the average land rental value is L.E. 4800/acre/season.

The following table presents which of their family members are involved in agriculture as expressed by the interviewees.

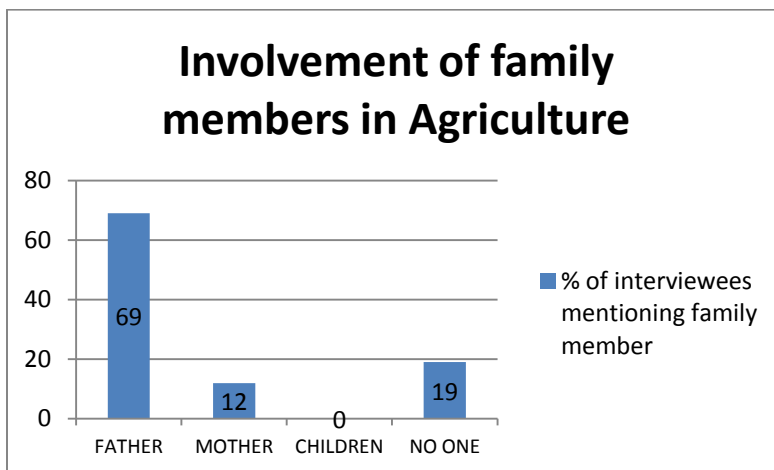


Figure 5 Involvement of members in agriculture

Several crops are cultivated in the village with wheat, clover, maize and corn being the main ones. Banana and orange are also cultivated on small scales.

The average productivity and sowing dates of the cultivated crops was reported as follows:

The average productivity and sowing dates of the main cultivated crops was reported as follows:

Crop	Productivity/acre/season (ton)	Sowing date
Wheat	2.2	Late December
Clover	89	Late December
Banana	18	-
Orange	68	-
Maize and Sorghum	1.9	Mid April

Table 1 average crop productivity and sowing dates of cultivated crops in the village

Average cost of cultivation has been reported as follows:

Table 2 Average costs of cultivation of One Acre in L.E

Crop	Soil Machineries	seeds	Fertilizers	Irrigation	Workers	Total
Wheat	140	215	220	400	240	1215
Clover	130	100	100	400	240	1000
Maize and corn	140	250	280	400	260	1330

With that said, it is to be noted that 70% of the interviewees indicated that they use seasonal labour in their cultivation and 30% use family members only.

As to marketing, the village has a weekly market where crops, animals and animal products are sold. When asked about what farmers do with their crops, a majority of 80% of the sample indicated that it is entirely or partially consumed by the household with 5% selling in a nearby market and 15% selling locally. 86% of the sample indicated that transport to the market is readily available and affordable, while 3% indicated that they cannot financially afford it. The price of the product is usually decided by wholesalers, with only 12% of the sample indicating that they are able to determine the price of their produce.

Organic farming was found to be unpracticed, with 50% of the interviewed sample indicating that they are unaware what it was. The remaining 50% mentioned that they have heard but never practiced it with lack of technical know-how and high costs cited as reasons by 50 and 50% respectively. Similarly, all of the sample indicated that they have never practiced contract farming.

Irrigation:

Groundwater and surface canals are the two sources of irrigation water in the village, providing for 33% and 67% of the land respectively. Furrow irrigation is the only practiced mechanism and no improved water management techniques or structures such as water users associations or irrigation scheduling are in place. On average, irrigating an acre once costs L.E. 48

Farmers have mentioned several problems of irrigation, as depicted in the figure below:

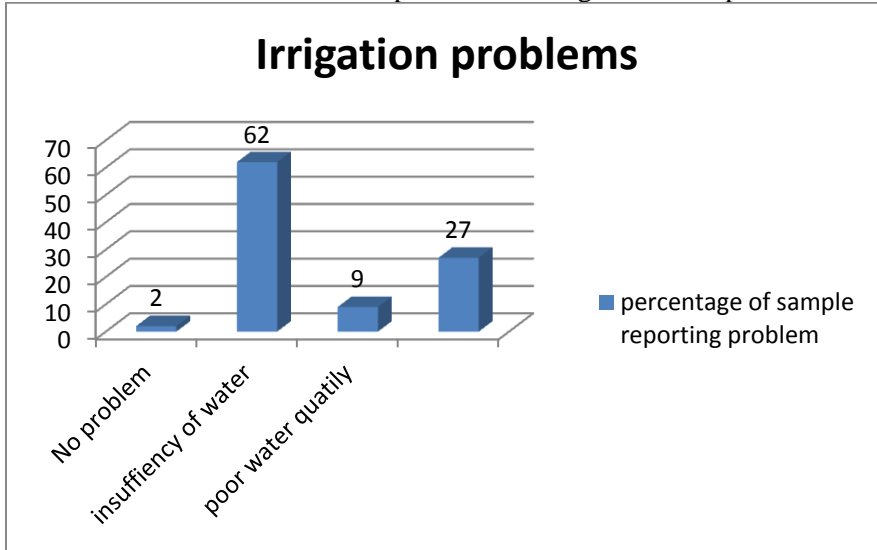


Figure 7 Problems of Irrigation in El Awana village

Irrigation services in the area were mentioned to be canal cleaning and general maintenance of main canals, both performed by the Ministry of Water Resources and Irrigation. As depicted by the chart below, the level of satisfaction with these services is fairly moderate/

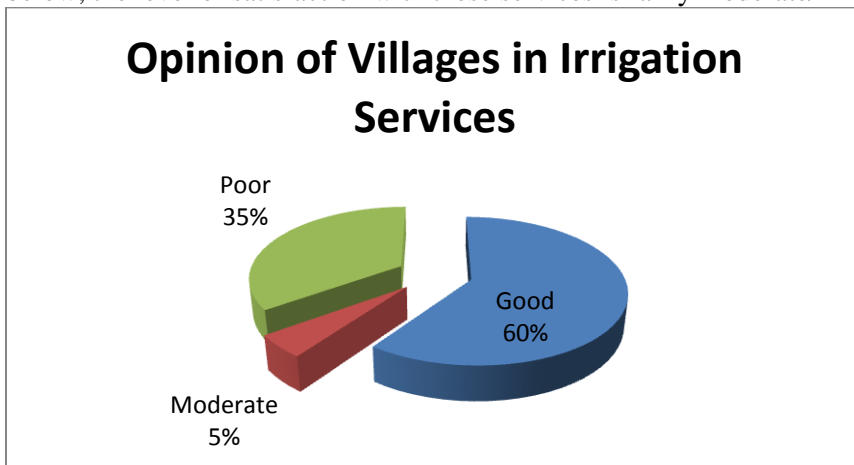


Figure 8 Community Opinions about Irrigation Services In El Awana

Animal Production

Villagers in El Awana are raising cows and buffalos, goats and sheep, poultry and rabbits.

The figure below indicates the percentage of community members growing each type.

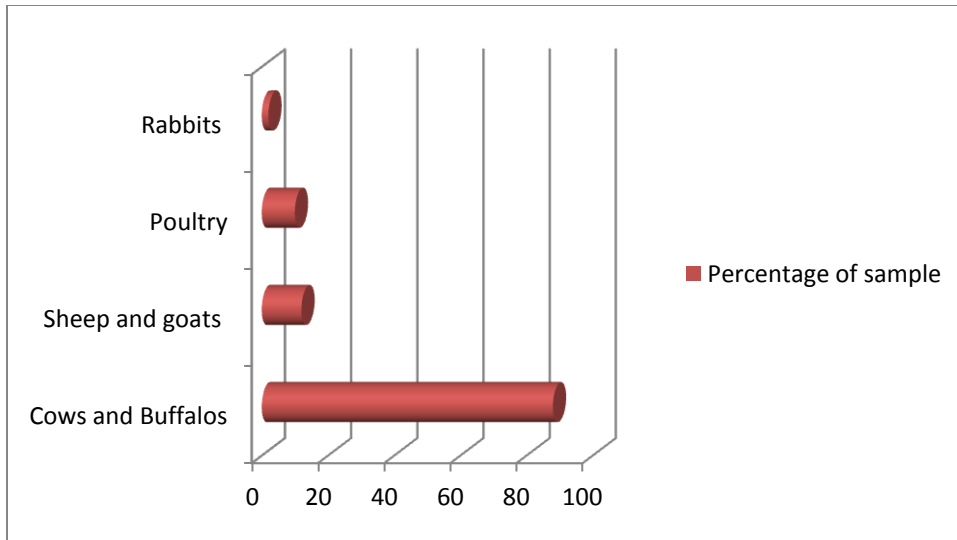


Figure 9 Animals Raised in El Awana Village

As to its purpose, 75% of the sample indicated that they raise animals for the sale of its offspring and products, while 35% indicated that it is for their household consumption. 12% of those selling animals or animal products are doing so in the village market, while 12 % are selling it in the market of the neighboring village.

Animal fodder is mainly grown in El Awana, with 75% of the sample indicating they grow it and 25% indicating they purchase it from the village market. Alternative fodder was found to be unknown, with 100% of the sample indicating they have never heard of it.

Animal keeping was found to be the responsibility of the female members of the household as the figure below suggests.

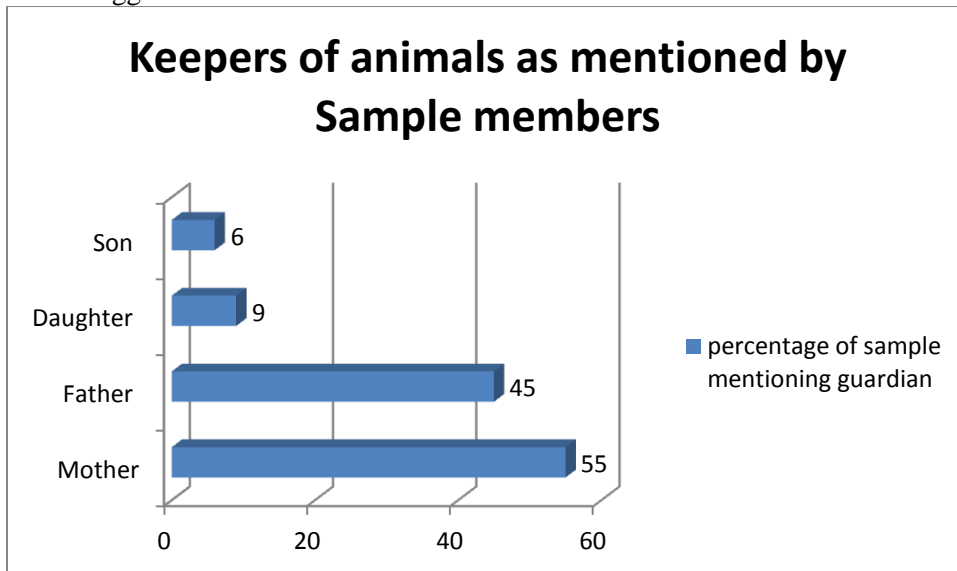


Figure 10 Guardians of animals in El Awana village

Loans for animal raising projects have not been previously offered in El Awana.

Climate Change and Weather Variability

Knowledge about climate change and weather variability was found to be good, with 71% of the sample indicating that they are aware of climate change and 51% mentioning that they have witnessed increasing

frequency and intensity of extreme weather events. Heat and chill waves and unexpected drizzles have been mentioned as example of such events. As to their impacts, 100% indicated that it has negatively affected their crops, while 56% indicated it had negative impacts on their animals. The interviewees, however were not able to quantify such losses.

Adoption of adaptation mechanisms seems to be fairly weak, although 80% indicated that they have heard of possible adaptation solutions. 76% of the sample indicated that they have not practiced any adaptation mechanisms. Reasons given for why adaptation was not practiced are depicted below.

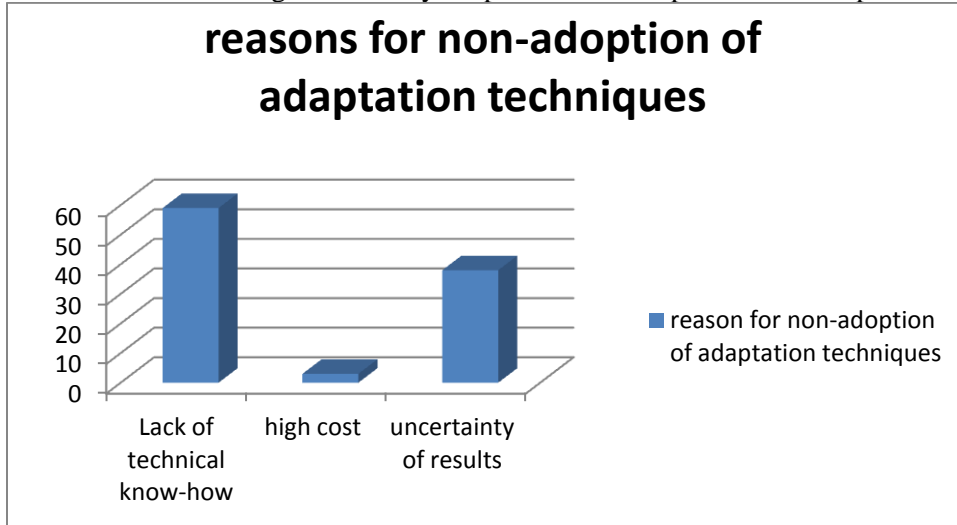


Figure 14 Reasons for non adoption of adaptation techniques in El Awana Village.

Among the adoption techniques mechanisms mentioned by the sample were putting fans in animal barns and increasing the hours of irrigation of crops to improve heat tolerance.

Access and Dissemination of Information

Farmers were found to access information about agriculture through several channels including extension workers, the agricultural cooperative, the television, among others. The followings figure presents these channels and the extent to which farmers rely on each.

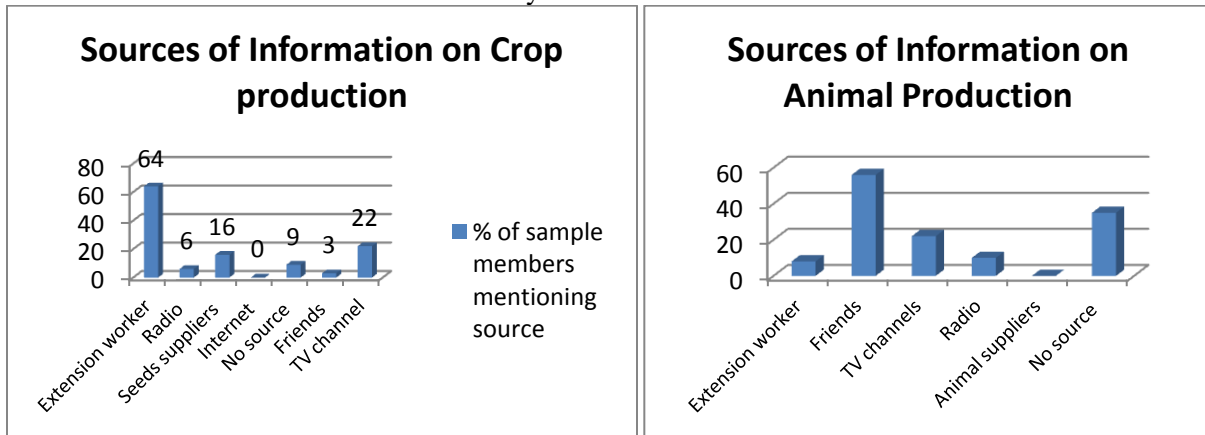


Figure 11 Sources of on crop production in El Awana Figure 12 Sources of information on animal production

All villagers interviewed indicated that there is no early warning system to help them forecast and prepare for extreme events.

Several means for information dissemination in the village were mentioned, including microphones of mosques, mobile microphones and awareness sessions. Some villagers also mentioned the possibility of receiving messages in SMSs through their cellular telephones.

To identify where it is best to house an online early warning system for weather extreme events, a majority of 85% mentioned the agricultural cooperative 10% mentioning a local NGO/CDA, and 15% mentioned the local unit.

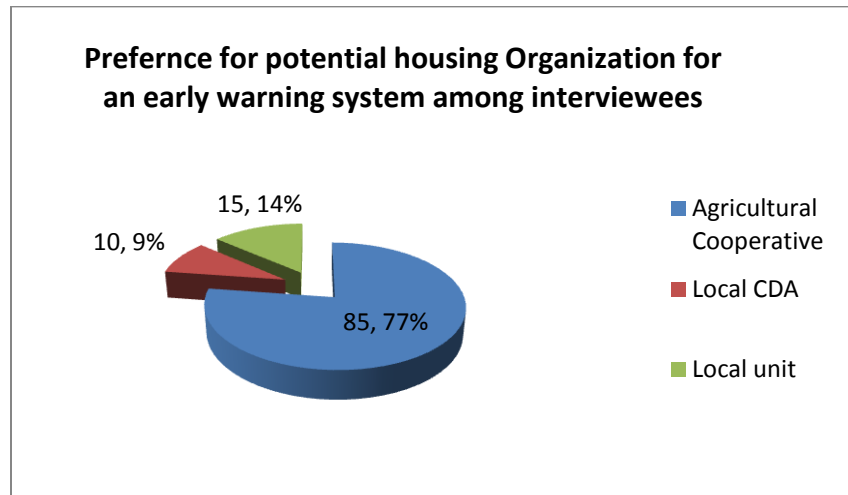


Figure 13 Preference for potential housing Organization for an early warning system among villagers in El Awana

As to the village focal point for this system, a majority of 95% of the sample indicated that they would prefer it be someone from the local NGO/CDA or the agricultural cooperative, with 60% indicating it has to be a farmer and 20% indifferent about this issue.

Acceptability of Suggested Adaptation interventions

The following table summarizes the results obtained on the level of acceptance of the suggested interventions among the sample.

Crop /technique	Acceptability (%of sample)
Medicinal and aromatic plants	No, because of its high costs – 8% Yes- 6% Yes but on the condition that technical support is provided – 24% Yes on the condition that marketing support is provided- 19% Yes but on the condition that financial support is provided – 23%
Organically	Yes – 23% Yes but on the condition that technical support is provided – 70% Yes on the condition that financial support is provided- 7%
High value crops –strawberry, polmengrate	No, because of its high costs – 8% Yes- 6% Yes but on the condition that technical support is provided – 24% Yes on the condition that marketing support is provided- 19%

	Yes but on the condition that financial support is provided – 23%
Heat tolerant varieties –wheat tomato and maize (sorghum)	Yes – 63%
orchards (pomegranate, guava, citrus in middle Egypt only)	Yes – 100%
Intercrop (eg onions with wheat)	Yes – 30% No because not sure of results- 62% Yes but on the condition that technical support is provided – 6% Yes on the condition that financial support is provided- 2%
Change sowing date	Yes – 85% Yes but on the condition that technical support is provided – 15%
Addition of new low-cost substances that will increase your productivity and help crop/chicken tolerate heat	Yes – 55% No because of high costs- 15% Yes but on the condition that technical support is provided – 7% Yes on the condition that financial support is provided- 23%
Take loan at 3-6% interest rate for animal raising	Yes – 100%
Raise rabbits	Yes – 70% Yes on the condition that financial loans are provided- 30%
Raise goats	Yes – 100%
Own a bees project	Yes – 69% No because of its high costs- 5% Yes but on the condition that technical support is provided – 10% Yes on the condition that financial loans are provided- 11% Yes on the condition that marketing support is provided-5%
Raise ducks	Yes – 86% Yes on the condition that financial loans are provided- 14%
Use alternative fodder	Yes – 71% Yes on the condition that technical assistance is provided- 29%
Have an agro-processing project	Yes- 12%

	No because of its high costs- 20%
	Yes but on the condition that technical support is provided – 50%
	Yes on the condition that marketing support is provided- 18%
Practice irrigation management schemes	Yes – 10%
	Yes on the condition that technical assistance is provided- 52%
	Yes provided it does not impose additional financial burdens-38%

Institutional Capacity

Apart from the agricultural cooperative, El Awana has a weak NGO that cannot be entrusted with the management of the project loans or overlooking sustainability of activities. However, El Loqa CDA in the neighboring village of El Loqa has long been offering developmental services in the village under several projects and can extend services to the village under the project.

Other considerations

No security/ conflict issues or other risks were reported about El Awana. In-depth meetings and focus group discussions also confirmed the findings of the survey with regards to the acceptance of suggested interventions and conditions for their success.

Key findings and conclusions.

- Climate change and resulting weather shocks are known among villagers. They are also aware of how it impacts crop and animal production and have voiced a need for support in building resilience and reducing losses.
- Although some simple adaptation techniques were mentioned, knowledge and practice of adaptation mechanisms were generally not very strong. Lack of technical knowhow and uncertainty of results have been reported as the main reasons.
- There are no systems for early warning to help reduce climate-induced losses in place.
- All the suggested interventions were welcomed by the beneficiaries, including those that they were unaware of such as organic farming and linkage to on-line weather forecasting systems. The introduction of guava as a new high value crop was voiced by the farmers, with a willingness to adapt more new crops that can have similar impacts in building their resilience. Building resilience of banana and orange trees by vitamin E was also found to be very responsive to their need to improve tolerance of these plantations to weather shocks.
- The project’s offering of an integrated package of technical and marketing support, demonstration fields and financial loans responds to concerns and requirements mentioned by villagers to adopt the interventions
- With females being the key guardians of animals in the village, farmers are expecting the animal raising loans to have a positive impact on women’s advancement.
- With the evident weakness of existing services in the village, enhancement of vet. care is needed to complement the animal raising loans.
- Villagers get information about agricultural production from many sources including extension workers, radio and TV, seeds suppliers and friends. Means of mass communication

in the village include microphones, both in mosques and mobile. The project will use these channels in reaching beneficiaries and disseminating information.

- With most of the land cultivated for household consumption farmers will be allocating small areas of their plots for cultivation of newly introduced crops. Support for collective marketing of produce of these small areas is thus imperative for the success of these cultivations.

EL Loqa Village
Sahel Selim District –Assuit

Basic Socioeconomic Information about the village

EL Loqa is one of the 16 old land villages in the Sahel Seliem district in Assuit. In 2011, it had a total population of 3867 native villagers with a percentage of 53.2% females and 46.7% males and 65.96% of the population living under the national poverty line. The following figures depict the educational, age and employment constitution of the village members.

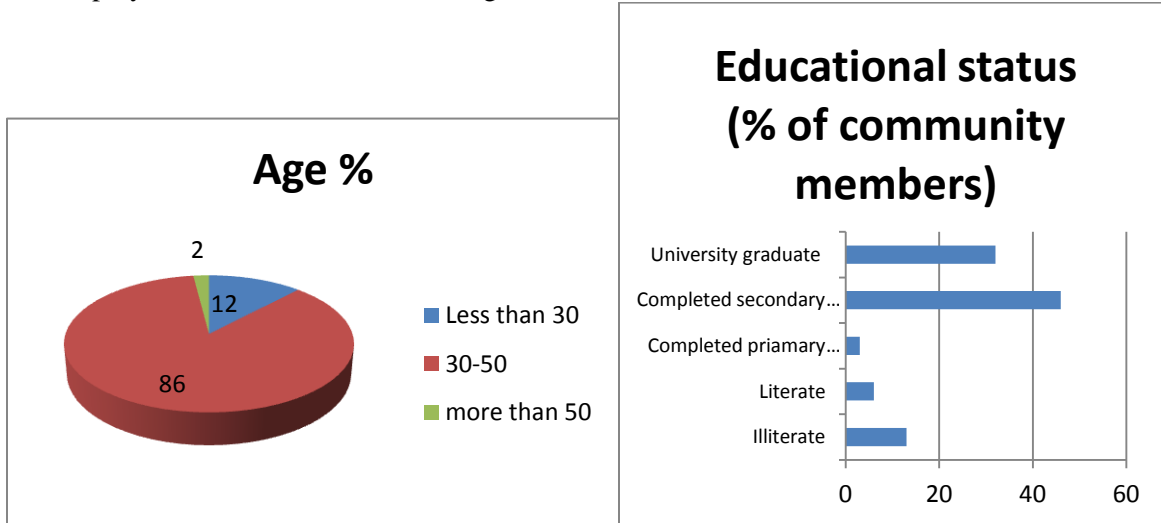


Figure 1 Age composition of sample IN El Loqa Village

Figure 2 Educational status of Community Members in El Loqa

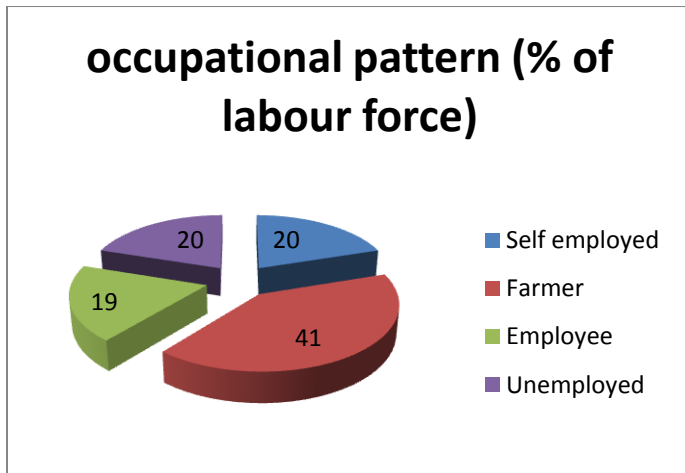


Figure 3 occupational patterns in El Loqa Village

The village has 2 primary and one preparatory schools and the nearest secondary school is in the nearest mother village, 4 Km away. There is no health unit in the village and the nearest one is in the neighboring village, 6 km away.

52% of the population indicated that medication is available in the village pharmacy, with 18% indicating that they find medication unaffordable and 30% purchase their medicine from neighboring villages.

There is no a vet. Care unit in the village, and the nearest one is 7 Km away. Level of satisfaction with this unit is relatively low- with 58% of the sample indicating that its medical staff is seldom available, 56 % indicating that it does not have the necessary equipment, and 85% indicating that it does not offer any medication, it can be concluded that it is performing poorly. There are also no private vet care services available in the village.

Crop production

El Loqa has a total area of 337 acres. 41 % of the population is working in agriculture with 83% of the farmers being smallholders owning/renting less than 1 acre, 17% own/rent 1-3 acres. Only 19% of those involved in agriculture own land, while 43% rent and 38% work as labour, with 27% being subsistence farmers. Land of the village is clay and the average land rental value is L.E. 4800/acre/season. The following table presents which of their family members are involved in agriculture as expressed by the interviewees.

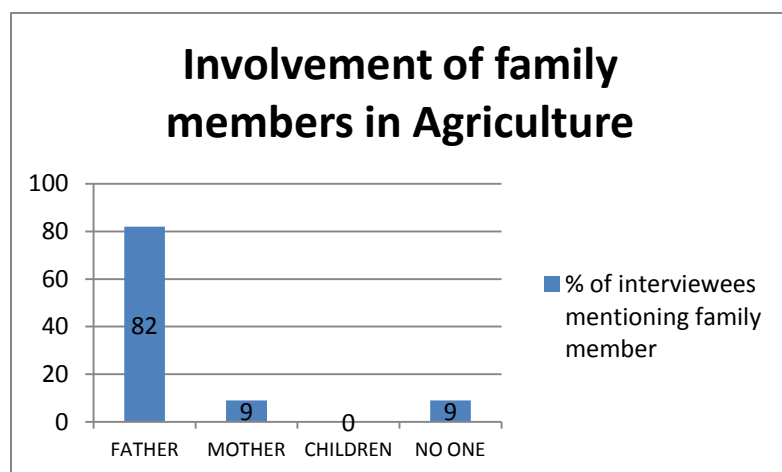


Figure 5 Involvement of members in agriculture

Several crops are cultivated in the village, with wheat, clover maize and sorghum being the main ones. Mango and orange are also cultivated on small scale.

The average productivity and sowing dates of the main cultivated crops was reported as follows:

Crop	Productivity/acre/season (ton)	Sowing date
Wheat	1.8	Late December
Clover	87	Late December
Mango	19	-
Orange	67	-
Maize and Sorghum	2.2	Mid April

Table 1 average crop productivity and sowing dates of cultivated crops in the village

Average cost of cultivation has been reported as follows:

Table 2 Average costs of cultivation of One Acre in L.E

Crop	Soil Machinery	seeds	Fertilizers	Irrigation	Workers	Total
Wheat	145	215	210	500	240	1310
Clover	140	100	105	500	240	1085
Maize and corn	140	250	280	500	240	1410

With that said, it is to be noted that 80% of the interviewees indicated that they use seasonal labour in their cultivation and 20% use family members only.

As to marketing, the village has a weekly market where crops, animals and animal products are sold. When asked about what farmers do with their crops, a majority of 95% of the sample indicated that it is entirely or partially consumed by the household with 2% selling in a nearby market and 3% selling locally. 88% of the sample indicated that transport to the market is readily available and affordable, while 4% indicated that they cannot financially afford it. The price of the product is usually decided by wholesalers, with none of the sample indicating that they are able to determine the price of their produce.

Organic farming was found to be unpracticed, with 56% of the interviewed sample indicating that they are unaware what it was. The remaining 44% mentioned that they have heard but never practiced it with lack of technical know-how and high costs cited as reasons by 67 and 33% respectively. Similarly, all of the sample indicated that they have never practiced contract farming, with 10% indicating they are not aware what it was.

Irrigation:

Groundwater and surface canals are the two sources of irrigation water in the village, providing for 22% and 78% of the land respectively. Furrow irrigation is the only practiced mechanism and no improved water management techniques or structures such as water users associations or irrigation scheduling are in place. On average, irrigating an acre once costs L.E. 96. Farmers have mentioned several problems of irrigation, as depicted in the figure below:

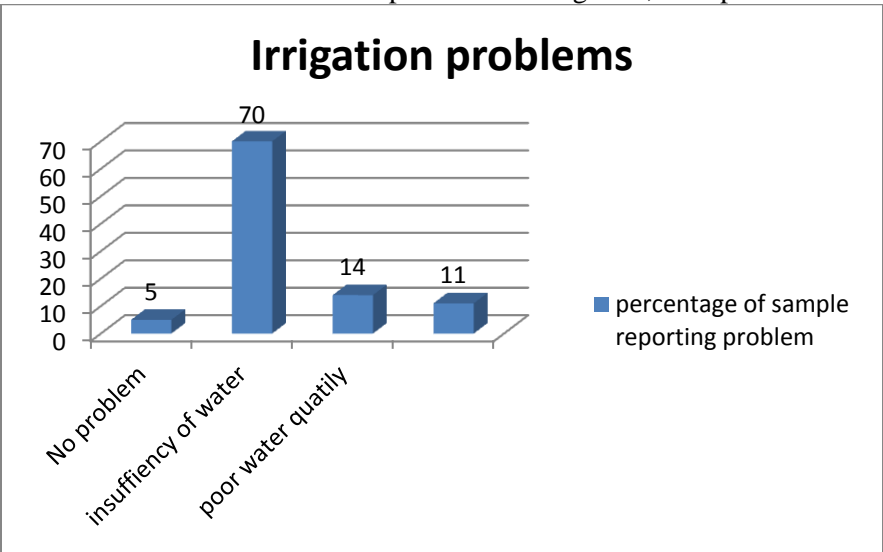


Figure 7 Problems of Irrigation in El Loqa village

Irrigation services in the area were mentioned to be canal cleaning and general maintenance of main canals, both performed by the Ministry of Water Resources and Irrigation. As depicted by the chart below, the level of satisfaction with these services is fairly high.

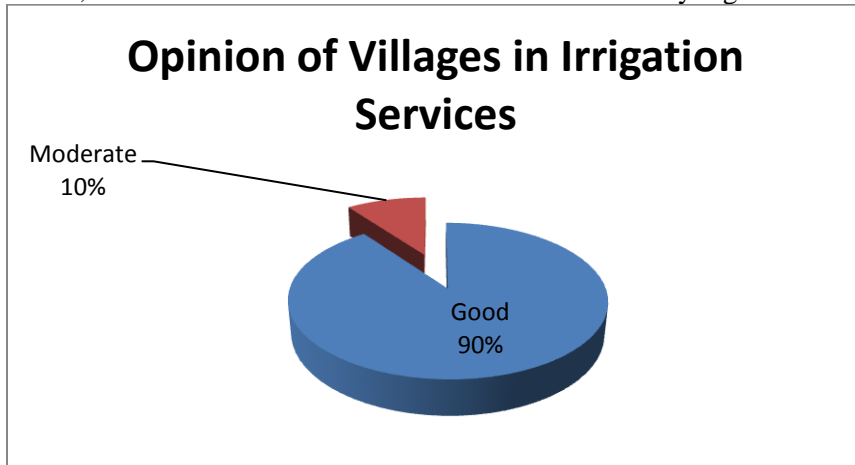


Figure 8 Community Opinions about Irrigation Services In El Loqa

Animal Production

Villagers in El Loqa are raising cows and buffalos, goats and sheep, and poultry. .

The figure below indicates the percentage of community members growing each type.

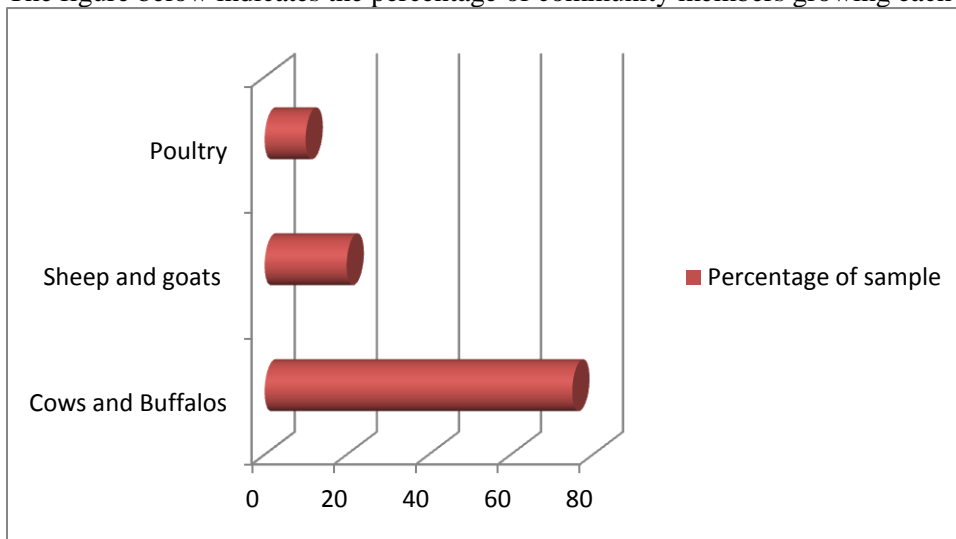


Figure 9 Animals Raised in El Loqa Village

As to its purpose, 69% of the sample indicated that they raise animals for the sale of its offspring and products, while 41% indicated that it is for their household consumption. 9% of those selling animals or animal products are doing so in the village market, while 15 % are selling it in the market of the neighboring village.

Animal fodder is mainly grown in El Loqa, with 70% of the sample indicating they grow it, 20% indicating they purchase it from the village market and 10% purchase it from outside the village. Alternative fodder was found to be unknown, with 99% of the sample indicating they have never heard of it.

Animal keeping was found to be the responsibility of the female members of the household as the figure below suggests.

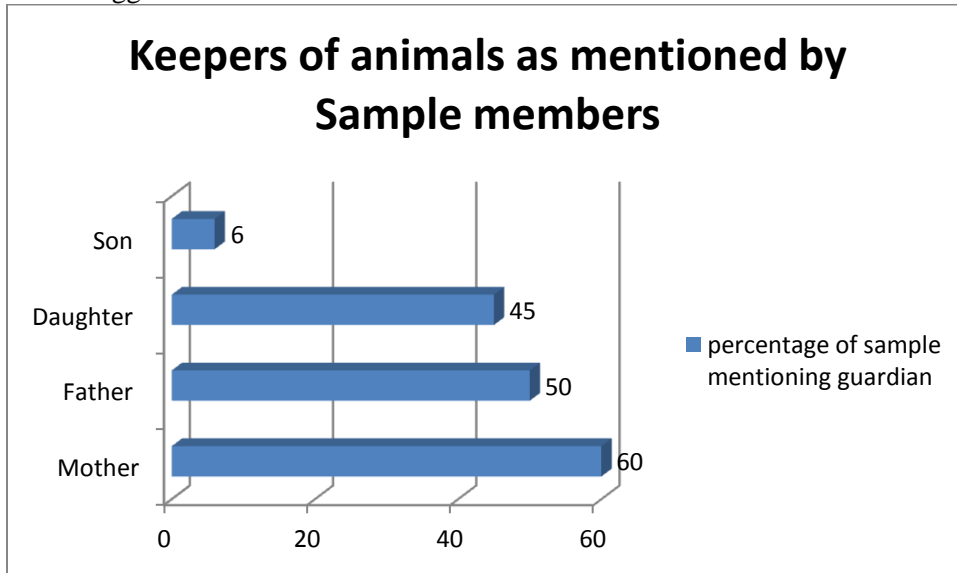


Figure 10 Guardians of animals in El Loqa village
Loans for animal raising projects have not been previously offered in El Loqa.

Climate Change and Weather Variability

Knowledge about climate change and weather variability was found to be fairly good, with 65% of the sample indicating that they are aware of climate change and 64% mentioning that they have witnessed increasing frequency and intensity of extreme weather events. Heat and chill waves have been mentioned as example of such events. As to their impacts, 59% indicated that it has negatively affected their crops, while 50% indicated it had negative impacts on their animals. The interviewees, however were not able to quantify such losses.

Adoption of adaptation mechanisms seems to be fairly weak, although 59% indicated that they have heard of possible adaptation solutions. 100% of the sample indicated that they have not practiced any adaptation mechanisms. Reasons given for why adaptation was not practiced are depicted below.

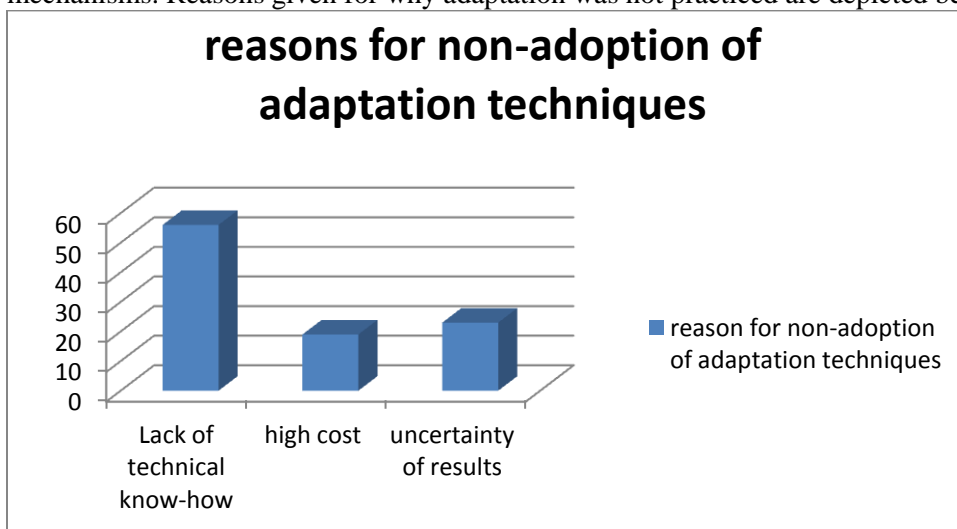


Figure 14 Reasons for non adoption of adaptation techniques in El Loqa Village.

Access and Dissemination of Information

Farmers were found to access information about agriculture through several channels including extension workers, the agricultural cooperative, the television, among others. The following figure presents these channels and the extent to which farmers rely on each.

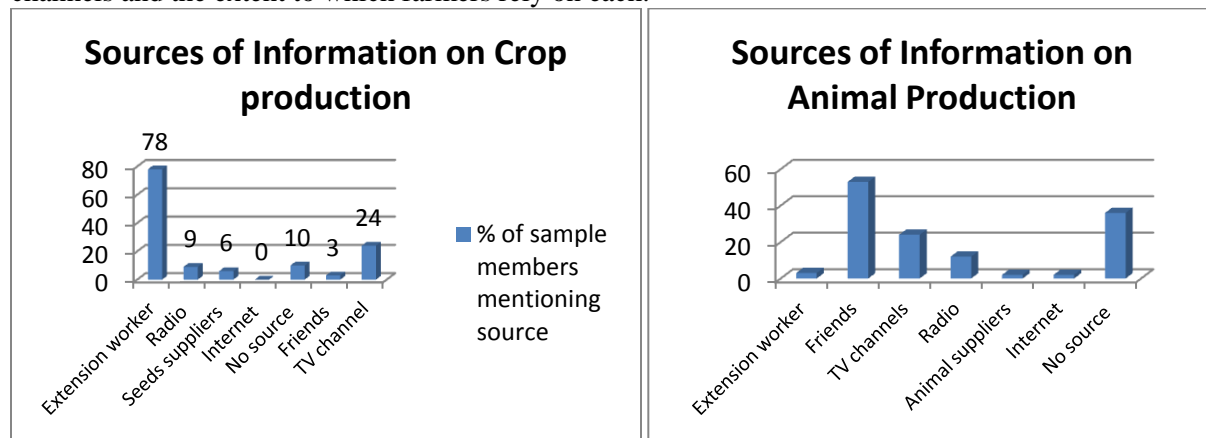


Figure 11 Sources of on crop production in El Loqa Figure 12 Sources of information on animal production

All villagers interviewed indicated that there is no early warning system to help them forecast and prepare for extreme events.

Several means for information dissemination in the village were mentioned, including microphones of mosques, mobile microphones and awareness sessions. Some villagers also mentioned the possibility of receiving messages in SMSs through their cellular telephones.

To identify where it is best to house an online early warning system for weather extreme events, a majority of 10% mentioned the agricultural cooperative of the nearest village, 63% mentioning a local NGO/CDA, and 27% mentioned the local unit.

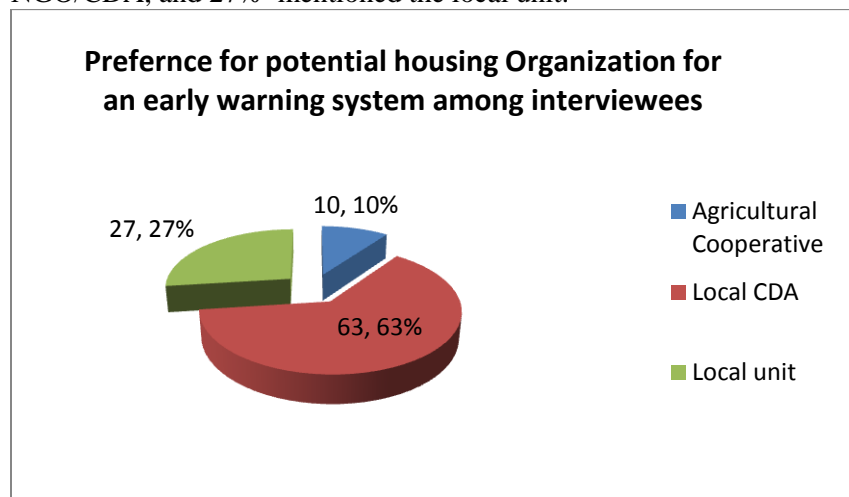


Figure 13 Preference for potential housing Organization for an early warning system among villagers in El Loqa

As to the village focal point for this system, a majority of 20% of the sample indicated that they would prefer it be someone from the local NGO/CDA or the agricultural cooperative, with 62% indicating it has to be a farmer and 18% indifferent about this issue.

Acceptability of Suggested Adaptation interventions

The following table summarizes the results obtained on the level of acceptance of the suggested interventions among the sample.

Crop /technique	Acceptability (%of sample)
Medicinal and aromatic plants	No, because of its high costs – 10% Yes- 9% Yes but on the condition that technical support is provided – 20% Yes on the condition that marketing support is provided- 22% Yes but on the condition that financial support is provided – 39%
Organically	Yes – 7% Yes but on the condition that technical support is provided – 62% Yes on the condition that financial support is provided- 2% Yes on the condition that marketing support is provided-19% No- because of its high costs-10%
High value crops –e. g. strawberry,	No, because of its high costs – 10% Yes- 19% Yes but on the condition that technical support is provided – 20% Yes on the condition that marketing support is provided- 22% Yes but on the condition that financial support is provided – 24%
Heat tolerant varieties –wheat tomato and maize (sorghum)	No- 2% Yes – 86% Yes on the condition that technical support is provided- 2% Yes provided financial support is provided- 9%
orchards (pomegranate, guava, citrus in middle Egypt only)	Yes –67% Yes provided financial support is provided- 33%
Intercrop (eg onions with wheat)	Yes – 66%

	<p>No because not sure of results- 33%</p> <p>Yes but on the condition that technical support is provided – 1%</p>
Change sowing date	<p>Yes – 93%</p> <p>Yes but on the condition that technical support is provided – 7%</p>
Addition of new low-cost substances that will increase your productivity and help crop/chicken tolerate heat	Yes – 100%
Take loan at 3-6% interest rate for animal raising	Yes – 100%
Raise rabbits	<p>Yes – 82%</p> <p>Yes on the condition that financial loans are provided- 18%</p>
Raise goats	Yes on the condition that financial loans are provided – 100%
Own a bees project	<p>Yes -77%</p> <p>No because of its high costs- 1%</p> <p>Yes but on the condition that technical support is provided – 2%</p> <p>Yes on the condition that financial loans are provided- 2%</p> <p>yes on the condition that marketing support is provided-2%</p>
Raise ducks	<p>Yes – 88%</p> <p>Yes on the condition that financial loans are provided- 12%</p>
Use alternative fodder	<p>Yes – 71%</p> <p>Yes on the condition that technical assistance is provided- 29%</p>
Have an agro-processing project	<p>Yes- 9%</p> <p>No because of its high costs- 25%</p> <p>Yes but on the condition that technical support is provided – 15%</p> <p>Yes- on the condition that financial support is provided- 30%</p> <p>Yes on the condition that marketing support is provided- 21%</p>
Practice irrigation management schemes	<p>Yes – 69%</p> <p>No- 31%</p>

Institutional Capacity

There is no agricultural cooperative in El Loqa, however there are two local NGOs. The institutional assessment exercise concluded that only one can be entrusted with the management of the project loans or overlooking sustainability of activities.

Other considerations

No security/ conflict issues or other risks were reported about El Loqa. In-depth meetings and focus group discussions also confirmed the findings of the survey with regards to the acceptance of suggested interventions and conditions for their success.

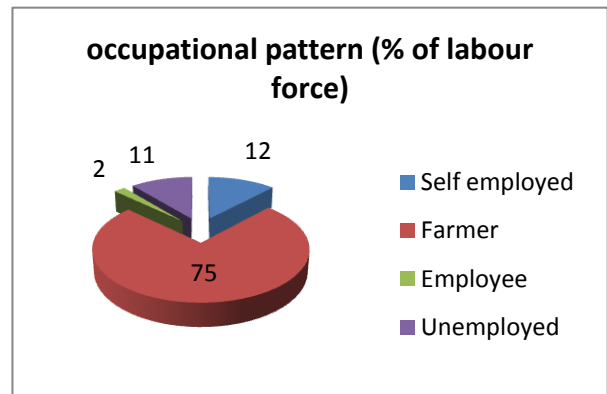
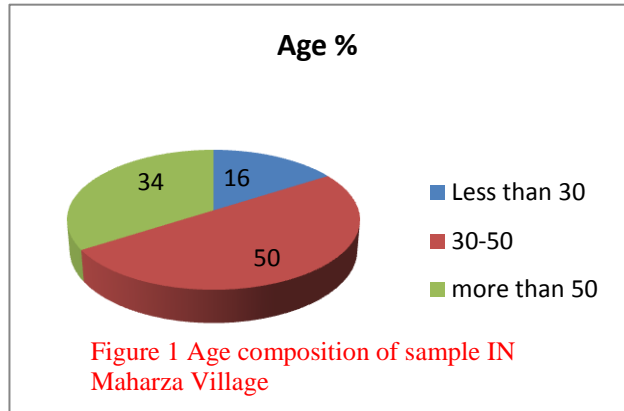
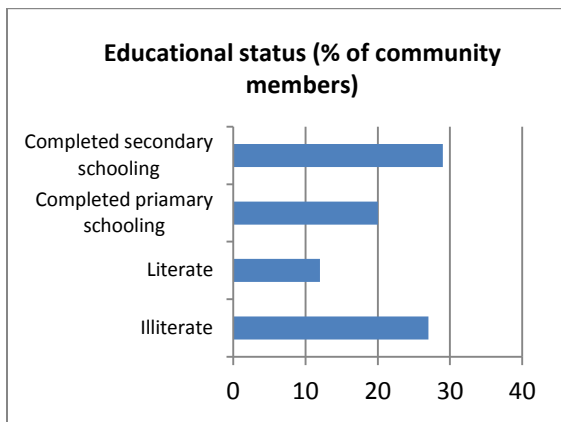
Key findings and conclusions :

- Climate change and resulting weather shocks are known among villagers. They are also aware of how it impacts crop and animal production and have voiced a need for support in building resilience and reducing losses.
- Knowledge and practice of adaptation mechanisms were generally not very strong. Lack of technical knowhow, high costs and uncertainty of results have been reported as the main reasons.
- There are no systems for early warning to help reduce climate-induced losses in place.
- All the suggested interventions were welcomed by the beneficiaries, including those that they were unaware of such as organic farming and linkage to on-line weather forecasting systems. The introduction of pomegranate as a new high value crop was voiced by the farmers, with a willingness to adapt more new crops that can have similar impacts in building their resilience. Building resilience of trees by vitamin E was likewise found to be very responsive to their need to improve tolerance of these plantations to weather shocks.
- The project's offering of an integrated package of technical and marketing support, demonstration fields and financial loans responds to concerns and requirements mentioned by villagers to adopt the interventions
- With females being the key guardians of animals in the village, farmers are expecting the animal raising loans to have a positive impact on women's advancement.
- With the evident weakness of existing services in the village, enhancement of vet. care is needed to complement the animal raising loans.
- Fodder is mainly grown in the village, with the majority of the farmers using significant portions of their land to cultivate it. Production of alternative fodder is thus expected to have profound impacts, allowing them to make better usage of the land in cultivation of other crops.
- With most of the land cultivated for household consumption farmers will be allocating small areas of their plots for cultivation of newly introduced crops. Support for collective marketing of produce of these small areas is thus imperative for the success of these cultivations.

Maharza Village
Abu Tisht District- Qena

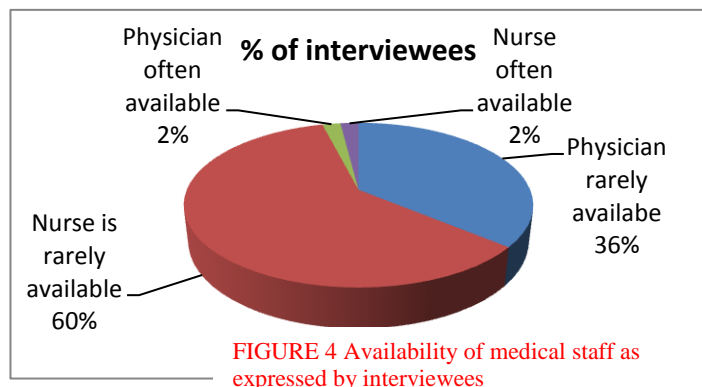
Basic Socioeconomic Information about the village

Maharza is one of the 32 villages in the Abu Tisht district in Qena. In 2011, it had a total population of 15910 native villagers with a percentage of 52.3% females and 47.6% males and 46.85% of the population living under the national poverty line. The following figures depict the educational, age and employment constitution of the village members.



The village has 3 primary, 3 preparatory and 2 secondary schools. There is a health unit but as the figures below indicate, it is poorly performing.

There is no veterinarian unit in the village and the nearest one is 19 Km away. The level of satisfaction with this unit is relatively low- with 59% of the sample indicating that they find its medical staff seldom available, 89 % indicating that it does not have the necessary equipment, it can be concluded that it is performing poorly. There are also no private vet care services available in the village.

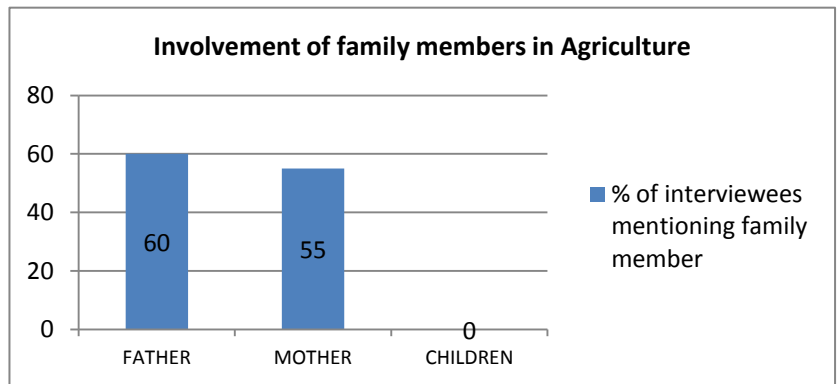


Crop production

Maharza has a total area of 1342 acres. 75 % of the population is working in agriculture with 69% of the farmers being smallholders owning/renting less than 1 acre, 31% own/rent 1-3 acres. Only 26% of those involved in agriculture own land, while 36% rent and 38% work as labour, with 22% being subsistence farmers. The land of the village is clay and the average land rental value is L.E. 4000/acre/season.

The following table presents which of their family members are involved in agriculture as expressed by the interviewees.

Several crops are cultivated in the village, with wheat, maize and sorghum, sugar cane and clover being the main ones. Tomato is also grown, but on a smaller scale.



The average productivity and sowing dates of the cultivated crops was reported as follows:

Crop	Productivity/acre/season (ton)	Sowing date
Wheat	2.1	Late December
Sugar Cane	32	Beginning of April
Clover	60	Late December
Maize and Sorghum	2.3	Mid April

Table 1 average crop productivity and sowing dates of cultivated crops in El Maharza village

Average cost of cultivation has been reported as follows:

Crop	Soil Machinery	Seeds	Fertilizers	Irrigation	Workers	Total
Wheat	150	200	200	500	250	1300
Maize	150	300	300	500	250	1500
Sugar cane	200	1500	400	600	1000	3700
Sorghum	150	150	200	500	250	1250
Clover	150	100	100	500	250	1100

Table 2 Average costs of cultivation of One Acre in L.E

With that said, it is to be noted that 74% of the interviewees indicated that they use seasonal labour in their cultivation and 26% use family members only.

As to marketing, the village has a weekly market where crops, animals and animal products are sold. When asked about what farmers do with their crops, a majority of 75% of the sample indicated that it is entirely or partially consumed by the household with 25% selling in a nearby market. 20% of the sample indicated that transport to the market is readily available and affordable, 14% said they don't need transport, while 56% indicated that they cannot financially afford it. The price of the product is usually decided by wholesalers, with only 14% of the sample indicating that they are able to determine the price of their produce.

Organic farming was found to be unpracticed, with 50% indicating that they are unaware what it was. The remaining 50% mentioned that they have heard but never practiced it with lack of technical know-how and high costs cited as reasons by 88 and 12% respectively. None of the sample has practiced contract farming.

Irrigation:

Groundwater and surface canals are the two sources of irrigation water in the village, providing for 25% and 75% of the land respectively. Furrow irrigation is the only practiced mechanism and no improved water management techniques or structures such as water users associations or irrigation scheduling are in place. On average, irrigating an acre once costs L.E. 72

Farmers have mentioned several problems of irrigation, as depicted in the figure below:

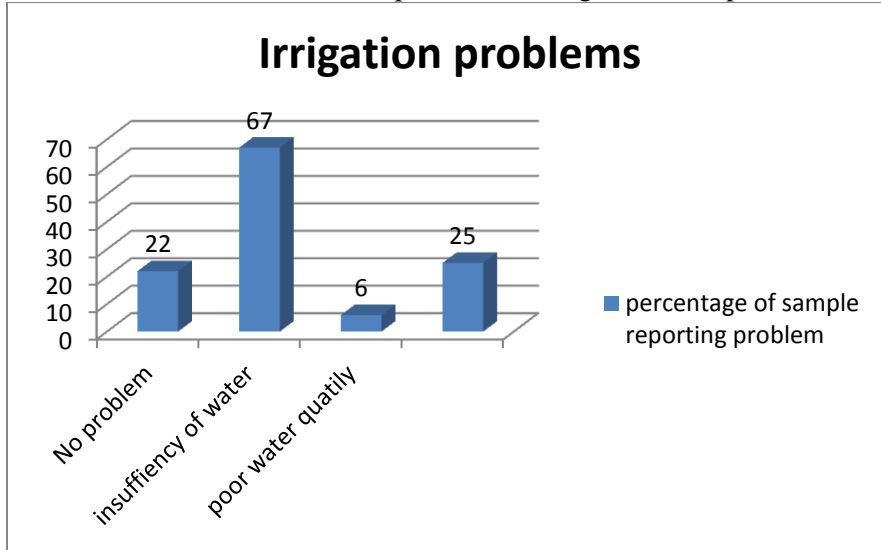


Figure 7 Problems of Irrigation in Maharza

Irrigation services in the area were mentioned to be canal cleaning and general maintenance of main canals, both performed by the Ministry of Water Resources and Irrigation. As depicted by the chart below, the level of satisfaction with these services is fairly high.

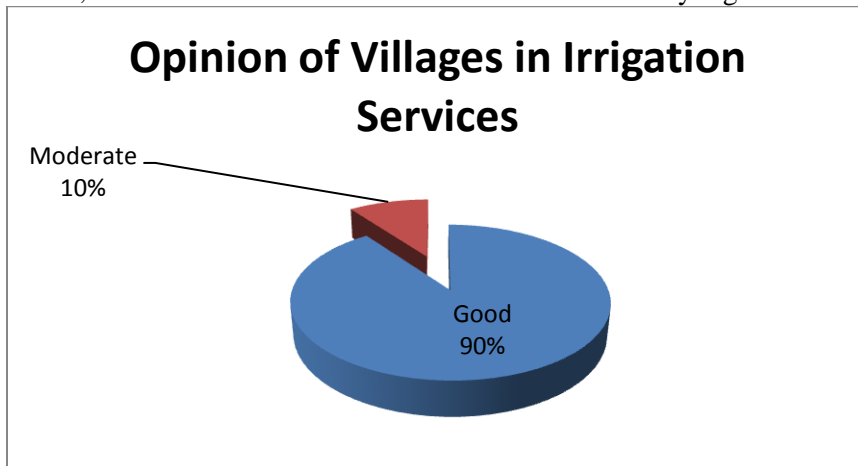


Figure 8 Community Opinions about Irrigation Services in Maharza

Animal Production

Villagers in Maharza are raising cows and buffalos, goats and sheep and poultry.

The figure below indicates the percentage of community members growing each type.

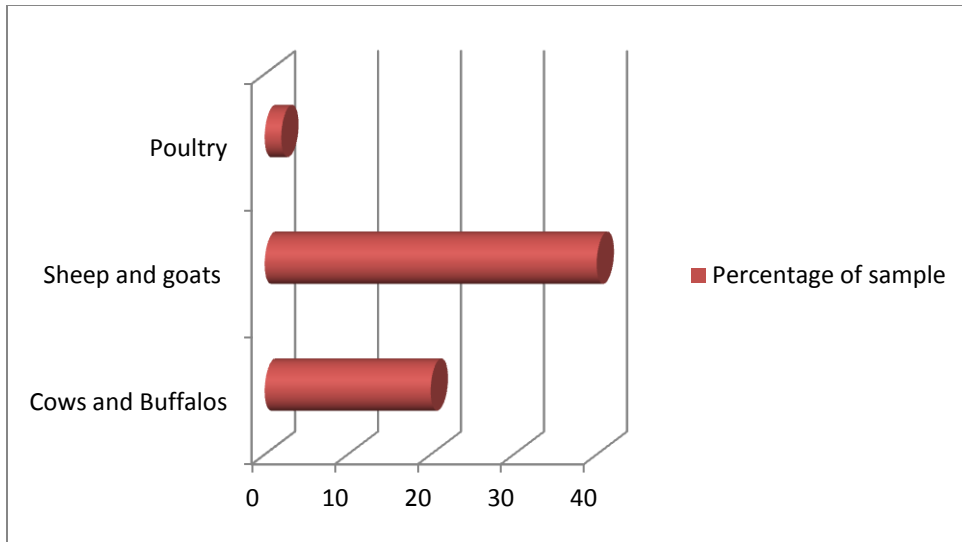


Figure 9 Animals Raised in Maharza

As to its purpose, 59% of the sample indicated that they raise animals for the sale of its offspring while 41% indicated that it is for their household consumption. 90% of the sample is consuming their animal products within the household, will 10% are selling animal products in the village market.

Animal fodder is mainly grown in Maharza, with 90% of the sample indicating they grow it, 10% indicating they purchase it from the village market. Alternative fodder was found to be unknown, with 99% of the sample indicating they have never heard of it.

Animal keeping was found to be the responsibility of the female members of the household as the figure below suggests.

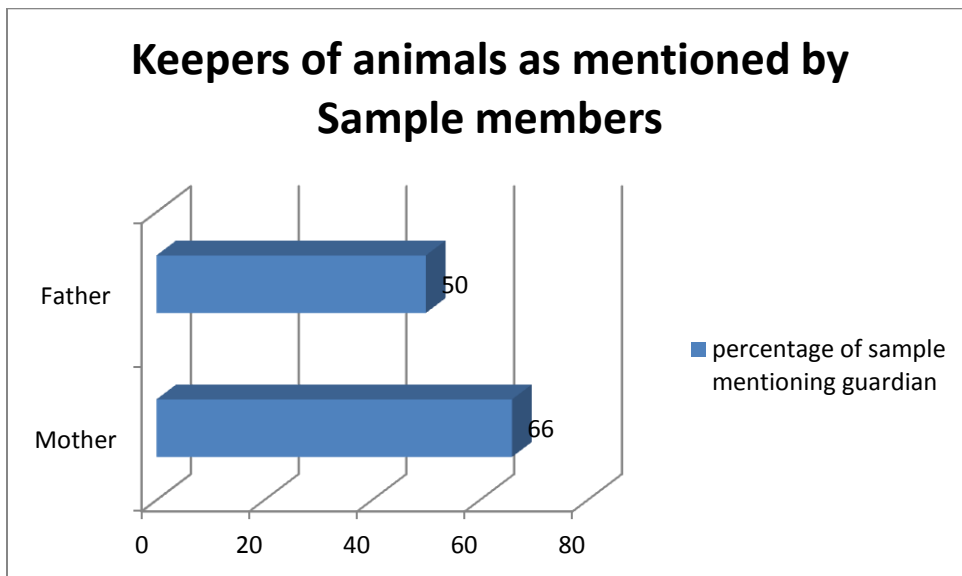


Figure 10 Guardians of animals in Maharza

Loans for animal raising projects have not been previously offered in Maharza.

Climate Change and Weather Variability

Knowledge about climate change and weather variability was found to be relatively weak with 80% of the sample indicating that they are not aware what climate change exactly is. However, 62% mentioned that they have witnessed increasing frequency and intensity of extreme weather events. Heat and chill waves have been mentioned as example of such events. As to their impacts, 68% indicated that it has negatively affected their crops, while 65% indicated it had negative impacts on their animals. The interviewees, however were not able to quantify such losses.

Adoption of adaptation mechanisms seems to be fairly weak. Although 30% indicated that they have heard of possible adaptation solutions, no one mentioned adopting any of them. Reasons given for why adaptation was not practiced are depicted below.

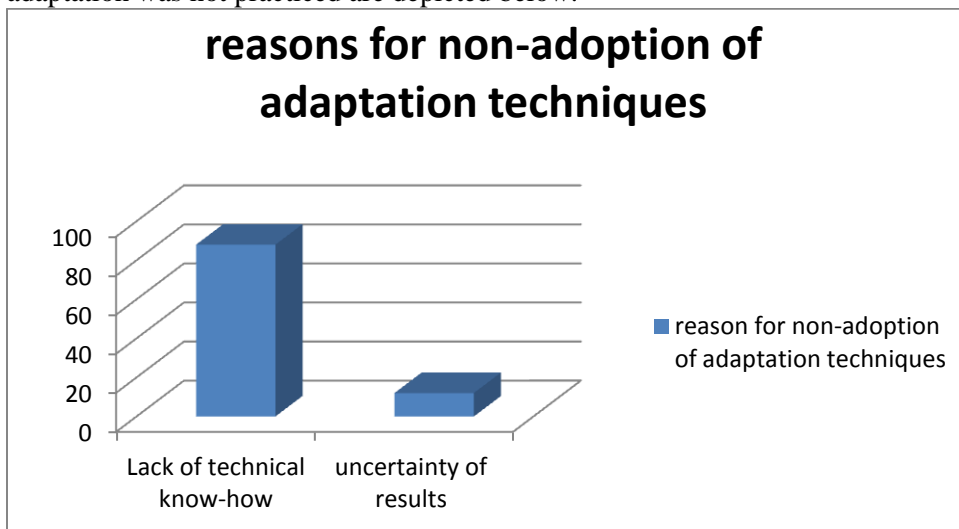


Figure 14 Reasons for non adoption of adaptation techniques in Maharza.

Access and Dissemination of Information

Farmers were found to access information about agriculture through several channels including extension workers, the agricultural cooperative, the television, among others. The followings figure presents these channels and the extent to which farmers rely on each.

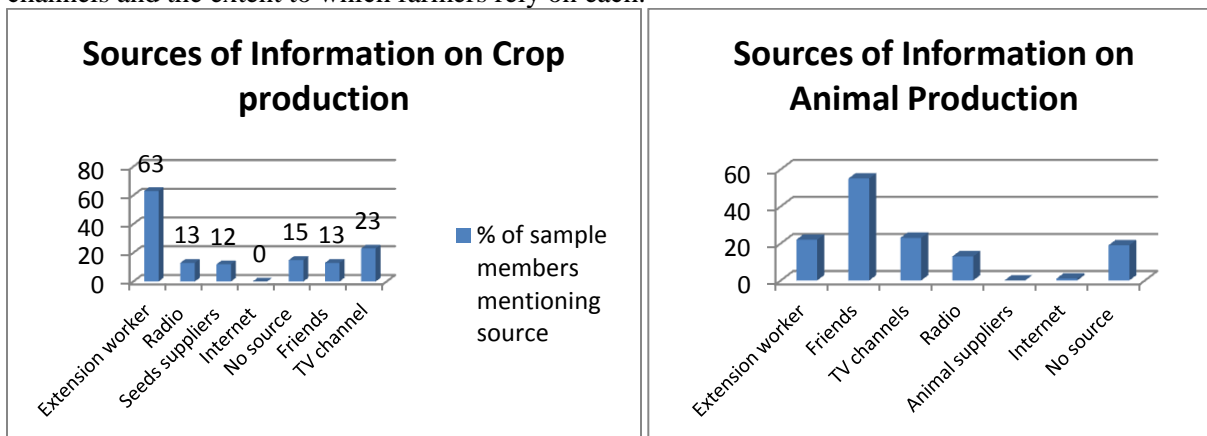


Figure 11 Sources of on crop production in Maharza Figure 12 Sources of information on animal production

All villagers interviewed indicated that there is no early warning system to help them forecast and prepare for extreme events.

Several means for information dissemination in the village were mentioned including microphones of mosques and mobile microphones and awareness campaigns. Some villagers also mentioned the possibility of receiving messages in SMSs through their cellular telephones.

To identify where it is best to house an online early warning system for weather extreme events, a majority of 39% mentioned the agricultural cooperative of the nearest village, 61% mentioning a local NGO/CDA.

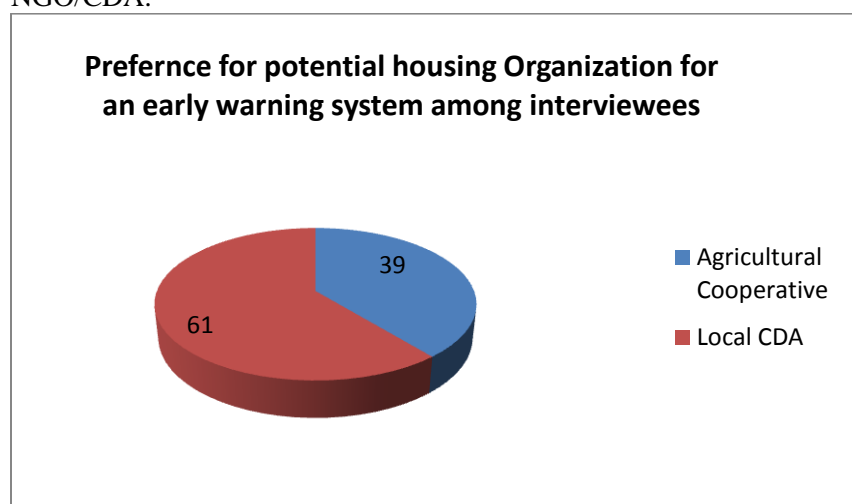


Figure 13 Preference for potential housing Organization for an early warning system among villagers in Maharza

As to the village focal point for this system, a majority of 12% of the sample indicated that they would prefer it be someone from the local NGO/CDA or the agricultural cooperative, with 69% indicating it has to be a farmer and 19% indifferent about this issue.

Preference regarding Suggested Adaptation interventions

The following table summarizes the results obtained on the level of acceptance of the suggested interventions among the sample.

Crop /technique	Acceptability (%of sample)
Medicinal and aromatic plants	Yes- 12% Yes but on the condition that technical support is provided – 10% Yes on the condition that marketing support is provided- 33% Yes but on the condition that financial support is provided – 39% No, because of its high costs – 6%
Organic farming	Yes- 16% Yes but on the condition that technical support is provided – 32% Yes on the condition that marketing support is provided- 31%

	<p>Yes but on the condition that financial support is provided – 1%</p> <p>No, because of its high costs – 20%</p>
High value crops –e.g. strawberry	<p>Yes- 18%</p> <p>Yes but on the condition that technical support is provided – 20%</p> <p>Yes on the condition that marketing support is provided- 7%</p> <p>Yes but on the condition that financial support is provided – 30%</p> <p>No, because of its high costs – 25%</p>
Heat tolerant varieties –wheat tomato and maize (sorghum)	<p>Yes- 80%</p> <p>Yes but on the condition that technical support is provided – 9%</p> <p>Yes but on the condition that financial support is provided – 11%</p>
orchards (pomegranate, guava, citrus in middle Egypt only)	<p>Yes- 16%</p> <p>Yes but on the condition that technical support is provided – 11%</p> <p>Yes on the condition that marketing support is provided- 14%</p> <p>Yes but on the condition that financial support is provided – 43%</p> <p>No, because of its high costs – 16%</p>
Intercrop (eg. onions with wheat)	<p>Yes- 40%</p> <p>Yes but on the condition that technical support is provided – 4%</p> <p>No, because of uncertainty of results– 56%</p>
Change sowing date	<p>Yes- 65%</p> <p>Yes but on the condition that technical support is provided – 35%</p>
Addition of new low-cost substances that will increase your productivity and help crop/chicken tolerate heat	<p>Yes- 90%</p> <p>Yes but on the condition that technical support is provided – 10%</p>
Take loan at 3-6% interest rate for animal raising	<p>Yes- 74%</p> <p>No, because of its high costs – 26%</p>
Raise rabbits	<p>Yes- 19%</p>

	Yes but on the condition that technical support is provided – 2% No, because of the hot weather – 79%
Raise goats	Yes- 64% Yes but on the condition that financial support is provided – 36%
Own a bees project	Yes- 33% Yes but on the condition that financial support is provided – 30% No, because of unspecified reasons – 37%
Raise ducks	Yes- 93% Yes but on the condition that financial support is provided – 7%
Use alternative fodder	Yes- 72% Yes but on the condition that technical support is provided – 28%
Have an agro-processing project	Yes- 31% Yes but on the condition that technical support is provided – 56% Yes but on the condition that financial support is provided – 13%
Practice irrigation management schemes	Yes- 96% No, because of its high costs – 4%

Institutional Capacity

There is no strong local NGO that can be entrusted with the management of the project loans or overlooking sustainability of activities. However, there is a strong NGO in the neighboring village of Samhoud that has been extending services to the village and that can be used in the project.

Other considerations

No security/ conflict issues or other risks were reported about Maharza. In-depth meetings and focus group discussions also confirmed the findings of the survey with regards to the acceptance of suggested interventions and conditions for their success.

Key conclusions :

- A majority of the villagers mentioned that they have noticed a rise in frequency and intensity of weather shocks over the last years. They are also aware that their crop and animal productivity have been affected and voiced a need for support in avoiding or reducing resulting losses. However, attempts to perceive such changes in relation to global climate changes seem to be non-existent. This might be driven by a lack of interest in global issues

in general, with their main focus in life being on meeting their day-to-day household needs as well as local issues that might affect their abilities to meet such needs in any manner.

- Knowledge and practice of adaptation mechanisms were not very strong. Lack of technical knowhow and uncertainty of results have been reported as the main reasons.
- There are no systems for early warning to help reduce climate-induced losses in place. The need for connection to any system that would help in this respect was strongly voiced.
- The need for support in reducing losses in wheat, maize, sugar cane and clover were strongly expressed. Farmers of tomato expressed a similar. In addition, villagers expressed a need for financial and technical support to diversify their means of income generation as a tool to help in compensating for climate-induced losses.
- In this respect, rabbit raising was not welcomed by the beneficiaries because of their poor tolerance to high weather temperatures in the village.
- The project's offering of an integrated package of technical and marketing support, demonstration fields and financial loans responds to concerns and requirements mentioned by villagers to adopt the interventions
- With females being the key guardians of animals in the village, the animal raising loans are expected to have a positive impact on women's advancement.
- The proposed water management interventions will help increase irrigation efficiency, directly addressing the main irrigation problem in the village, being insufficiency in water.
- With the evident weakness of the existing services in the village, enhancement of vet. care is needed to complement the animal raising loans.
- Villagers get information about agricultural production from many sources including extension workers, radio and TV, seeds suppliers and friends. Means of mass communication in the village include microphones, both in mosques and mobile. The project will use these channels in reaching beneficiaries and disseminating information.
- Fodder is mainly grown in the village, with the majority of the farmers using significant portions of their land to cultivate it. The farmers believe that alternative fodder will thus have profound impacts, allowing them to make better usage of the land in cultivation of other crops.
- With most of the land cultivated for household consumption farmers will be allocating small areas of their plots for cultivation of newly introduced crops. Support for collective marketing of produce of these small areas is thus imperative for the success of these cultivations.
- Although the village does not have a CDA/NGO, the Samhoud CDA could be used to extend the needed services.

Samhoud Village
Abou Tisht- Qena

Basic Socioeconomic Information about the village

Samhoud is one of the 32 villages in the Abu Tisht district in Qena. In 2011, it had a total population of 20652 native villagers with a percentage of 51.3% males and 48.7% % females and 44.95% of the population living under the national poverty line. The following figures depict the educational, age and employment constitution of the village members.

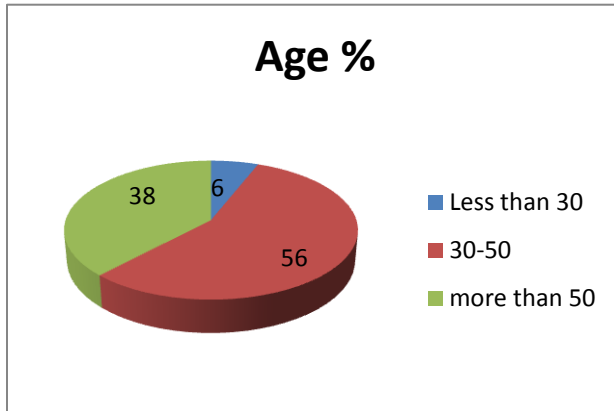


Figure 1 Age composition of sample

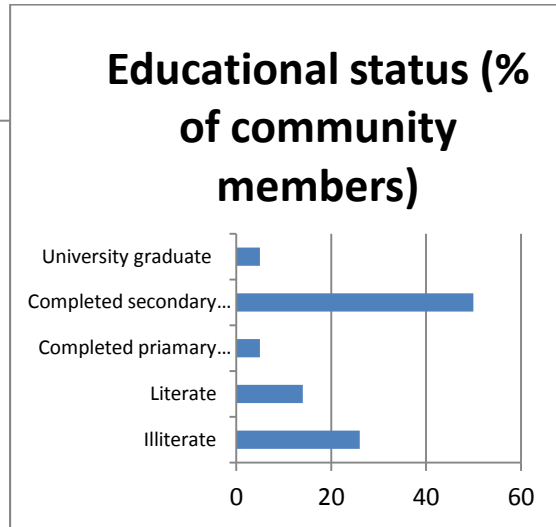


Figure 2 Educational status of Community members

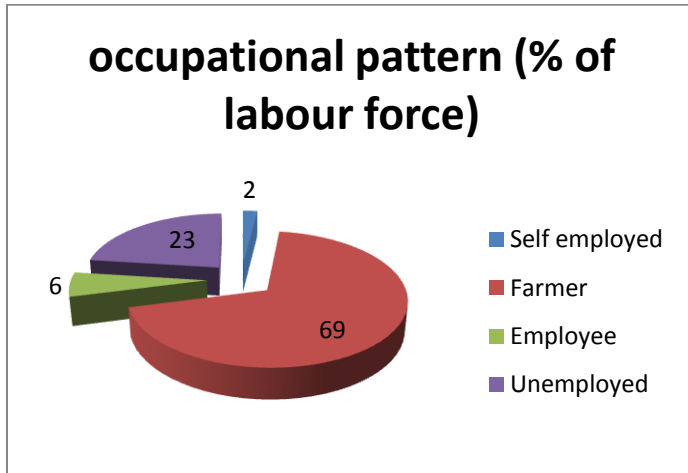


Figure 3 occupational patterns

The village has 4 primary, 3 preparatory and no secondary schools. There is a health unit in the village but with a majority of 97% complaining that the medical staff is rarely available, it can be concluded that it is performing poorly.

There is a vet. Care unit in the village however, the level of satisfaction with this unit is relatively low- with 78% of the sample indicating that its medical staff is seldom available, 69% indicating that it does not have the necessary equipment, and 68% indicating it does not offer medication it can be concluded that it is performing poorly. There are also no private vet care services available in the village.

Crop production

Samhoud has a total area of 2343 acres. 69 % of the population is working in agriculture with 85% of the farmers being smallholders owning/renting less than 1 acre, 15% own/rent 1-3 acres. Only 20% of those involved in agriculture own land, while 42% rent and 38% work as labour, with 25% being subsistence farmers. 100% of the land of the village is sand and the average land rental value is L.E. 3600/acre/season.

The following table presents which of their family members are involved in agriculture as expressed by the interviewees.

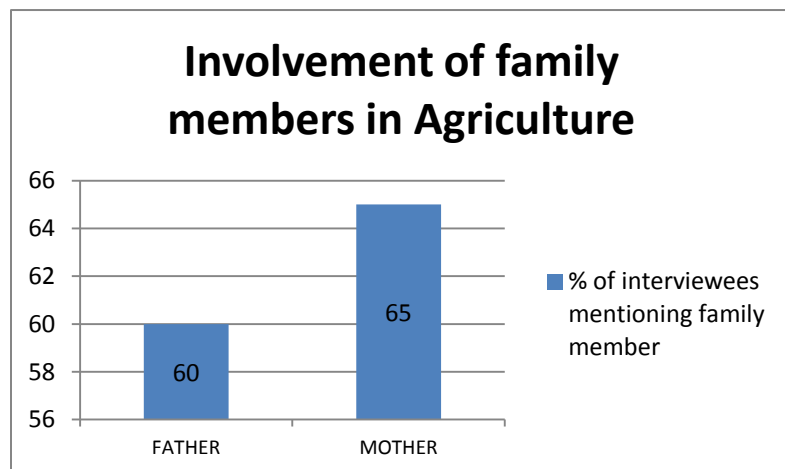


Figure 5 Involvement of members in agriculture

Several crops are cultivated in the village, with wheat, maize and sorghum being the main ones. The average productivity and sowing dates of the cultivated crops was reported as follows:

Crop	Productivity/acre/season (ton)	Sowing date
Wheat	2.2	Late December
Sugar Cane	32.5	Beginning of April
Clover	59	Late December
Maize and Sorghum	2.1	Mid April

Table 1 average crop productivity and sowing dates of cultivated crops in Samhoud village

Average cost of cultivation has been reported as follows:

Table 2 Average costs of cultivation of One Acre in L.E

Crop	Soil Machineries	seeds	Fertilizers	Irrigation	Workers	Total
Wheat	150	210	200	600	240	1400
Maize	150	295	270	600	270	1585
Sugar cane	250	1500	350	700	950	3750
Sorghum	140	140	180	550	240	1250
Clover	140	100	100	550	240	1130

With that said, it is to be noted that 94% of the interviewees indicated that they use seasonal labour in their cultivation and 4% use family members only.

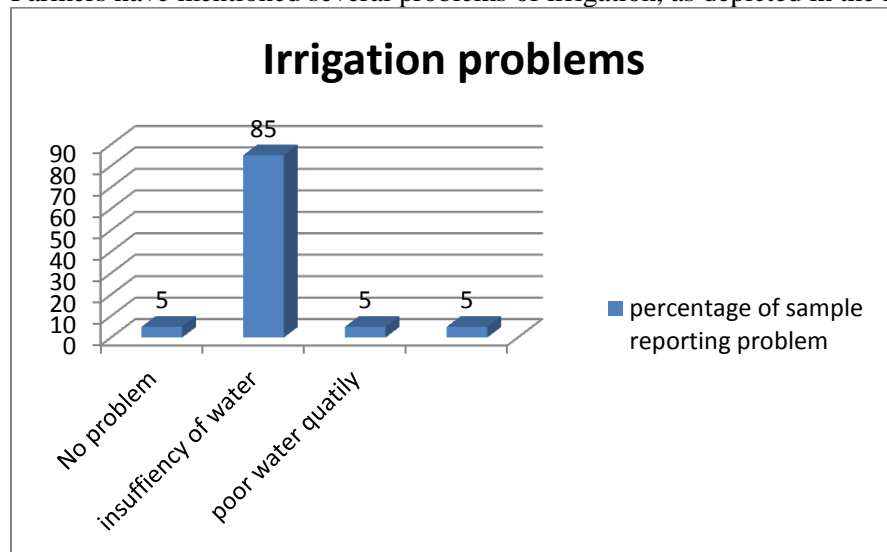
As to marketing, the village has a weekly market where crops, animals and animal products are sold. When asked about what farmers do with their crops, 89% of the sample indicated that it is entirely or partially consumed by the household with 1% selling in a nearby market and 10% selling locally. 55% of the sample indicated that transport to the market is readily available and affordable, while 23% indicated that they cannot financially afford it. The price of the product is usually decided by wholesalers, with only 4% of the sample indicating that they are able to determine the price of their produce.

Organic farming was found to have been unpracticed, with only 45% indicating that they have heard but never practiced it poor knowledge about market channels being the reason why they haven't cultivated organically. Only 2% of the sample has practiced contract farming, with all of them indicating that they have found it profitable. 88% of the sample indicated that they have never practiced contract farming, and 10% indicating they are not aware what it was.

Irrigation:

Groundwater and surface canals are the sources of irrigation water in the village, providing for 25% and 7% of the land respectively. 100 of the land is uses furrow irrigation and there are no improved water management techniques or structures such as water users associations or irrigation scheduling are in place. On average, irrigating an acre once costs L.E. 120

Farmers have mentioned several problems of irrigation, as depicted in the figure below:



Irrigation services in the area were mentioned to be canal cleaning and general maintenance of main canals, both performed by the Ministry of Water Resources and Irrigation. As depicted by the chart below, the level of satisfaction with these services is fairly high.

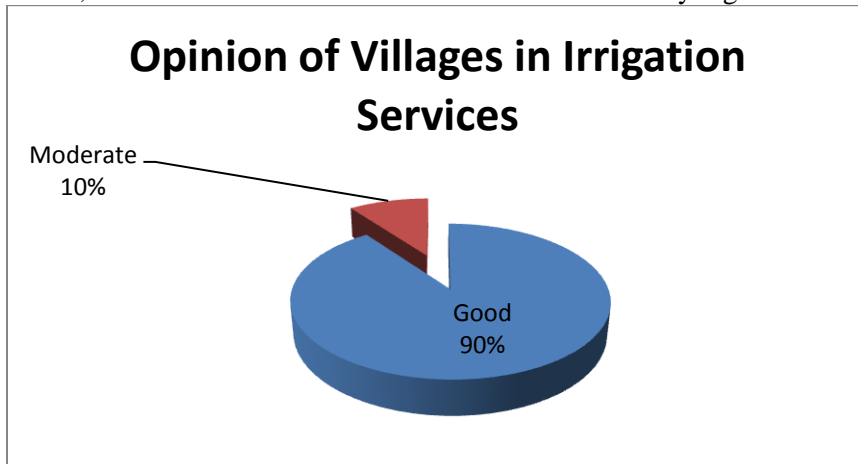


Figure 8 Community Opinions about Irrigation Services

Animal Production

Villagers in Samhoud are raising cows and buffalos, goats and sheep and poultry.

The figure below indicates the percentage of community members growing each type.

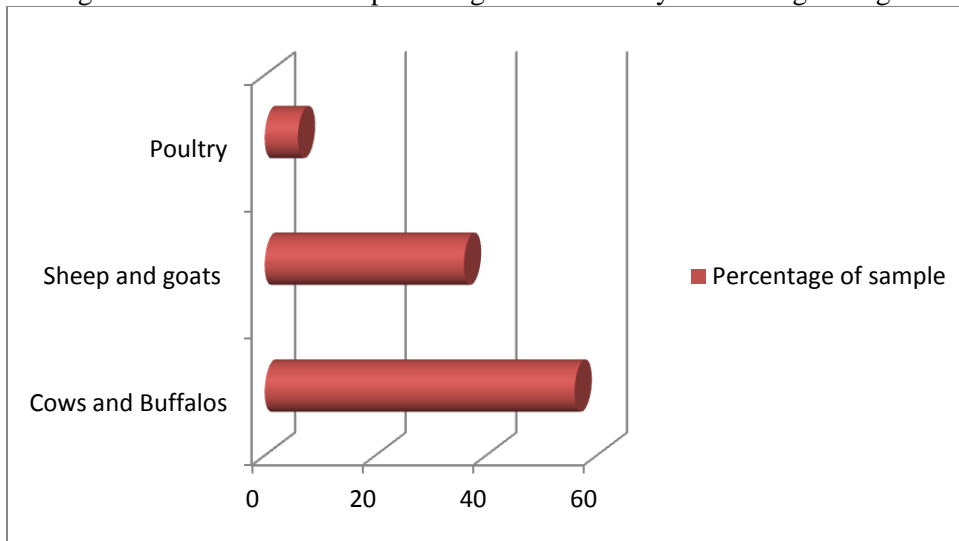


Figure 9 Animals Raised in Samhoud

As to its purpose, 59% of the sample indicated that they raise animals for the sale of it of it/its offspring, while 41% indicated that it is for their household consumption. 80% of the products is consumed in the household while 6% of those selling animal products are doing so in the village market, 14 % are selling it in the market of the neighboring village.

Animal fodder is mainly grown in Samhoud, with 86% of the sample indicating they grow it, 4% indicating they purchase it from the village market and 10% purchase it from outside the village. Alternative fodder was found to be unused, with only 14% of the sample indicating they have heard of it. Animal keeping was found to be the responsibility of the female members of the household as the figure below suggests.

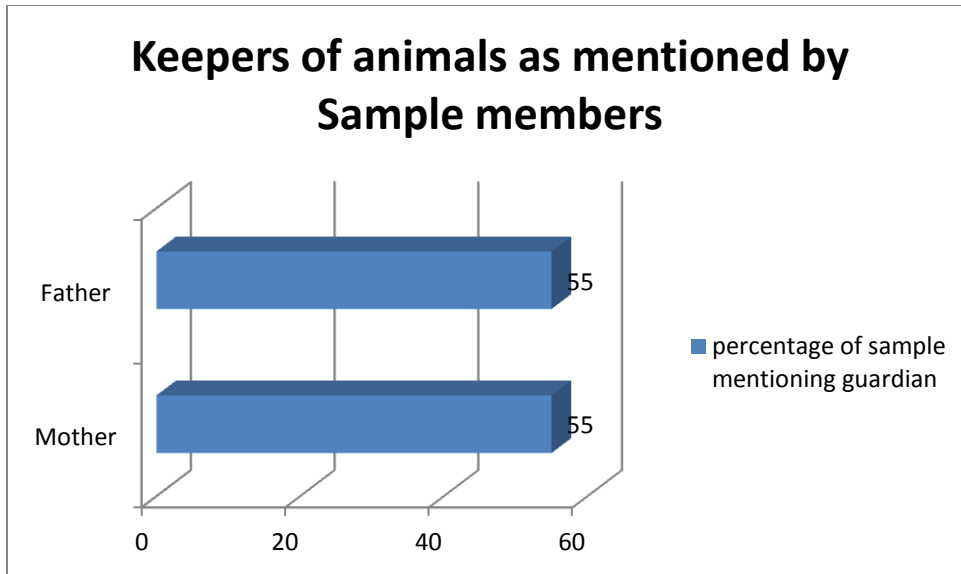


Figure 10 Guardians of animals

Loans for animal raising projects have not been previously offered in Samhoud

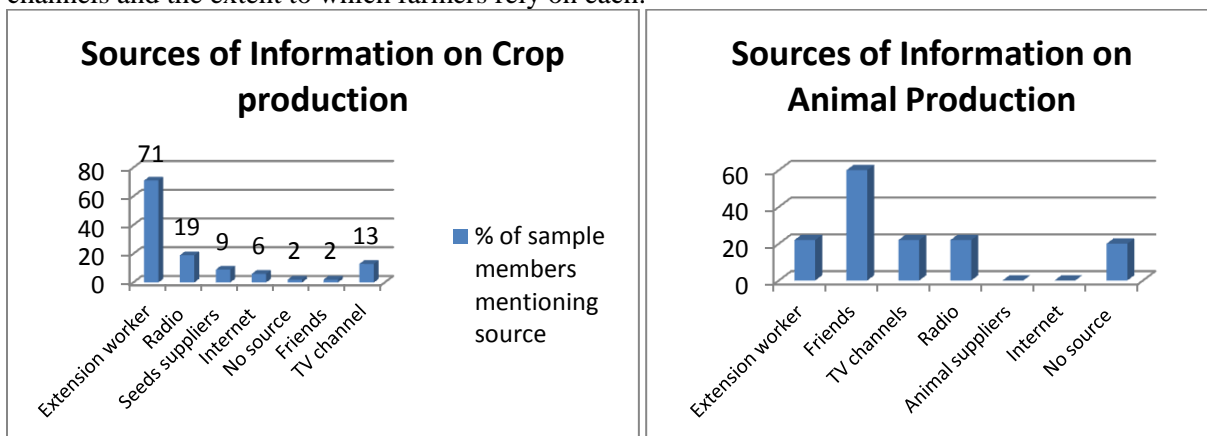
Climate Change and Weather Variability

Knowledge about climate change and weather variability was found to be very poor, with 78% of the sample indicating that they know what climate change is. However, 56% mentioned that they have witnessed increasing frequency and intensity of extreme weather events. Heat and chill waves have been mentioned as example of such events. As to their impacts, 65% indicated that it has negatively affected their crops, while 45% indicated it had negative impacts on their animals. The interviewees, however were not able to quantify such losses.

Adoption of adaptation mechanisms seems to be non-existing, with none of the sample indicating that they have heard of possible adaptation solutions.

Access and Dissemination of Information

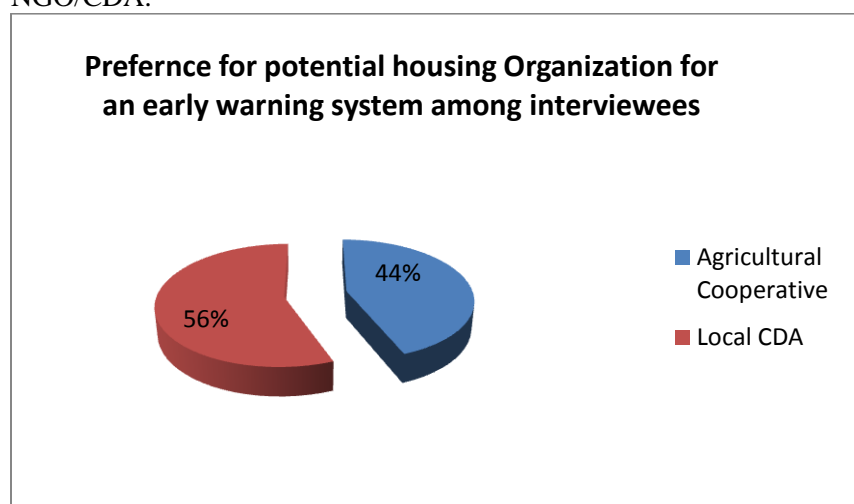
Farmers were found to access information about agriculture through several channels including extension workers, the agricultural cooperative, the television, among others. The followings figure presents these channels and the extent to which farmers rely on each.



All villagers interviewed indicated that there is no early warning system to help them forecast and prepare for extreme events.

Several means for information dissemination in the village were mentioned, including microphones of mosques, awareness sessions and mobile microphones. Some villagers also mentioned the possibility of receiving messages in SMSs through their cellular telephones.

To identify where it is best to house an online early warning system for weather extreme events, a majority of 44% mentioned the agricultural cooperative of the nearest village, 56% mentioning a local NGO/CDA.



As to the village focal point for this system, a majority of 6% of the sample indicated that they would prefer it be someone from the local NGO/CDA or the agricultural cooperative, with 74% indicating it has to be a farmer and 20% indifferent about this issue.

Acceptability of Suggested Adaptation interventions

The following table summarizes the results obtained on the level of acceptance of the suggested interventions among the sample.

Crop /technique	Acceptability (%of sample)
Medicinal and aromatic plants	Yes- 19% Yes but on the condition that technical support is provided – 19% Yes on the condition that marketing support is provided- 25% Yes but on the condition that financial support is provided – 15% No, because of its high costs – 22%
Organically	Yes – 13% Yes but on the condition that technical support is provided – 7% Yes on the condition that financial support is provided- 12% Yes on the condition that marketing support is provided-48%

	No- because of its high costs-20%
High value crops –e.g. strawberry	No, because of its high costs – 25% Yes-45% Yes but on the condition that technical support is provided – 5% Yes on the condition that marketing support is provided- 0% Yes but on the condition that financial support is provided – 25%
Heat tolerant varieties –wheat tomato and maize (sorghum)	No because of its high cost- 1% Yes – 69% Yes on the condition that financial support is provided- 20% Yes- on the condition that technical support is provided 9% Yes- provided marketing support is provided-1%
orchards (e.g. pomegranate, guava, citrus in middle Egypt only)	Yes –50% Yes- on the condition that technical support is provided 11% Yes- provided marketing support is provided-0% Yes provided financial support is provided- 24% No because of high costs-15%
Intercrop (eg. onions with wheat)	Yes - 70% Yes- on the condition that financial support is provided- 2% No- because uncertain of results- 11%
Change sowing date	Yes – 73% Yes but on the condition that technical support is provided – 27%
Addition of new low-cost substances that will increase your productivity and help crop/chicken tolerate heat	Yes – 82% Yes- on the condition that technical support is provided- 10% Yes- on the condition that financial support is provided- 8%
Take loan at 3-6% interest rate for animal raising	Yes – 62 % Yes- on the condition that financial support is provided- 38%
Raise rabbits	Yes – 40% Yes on the condition that financial loans are provided- 3% No- because of weathet-57%

Raise goats	Yes on the condition that financial loans are provided – 45% Yes-55%
Raise ducks	Yes -100%
Own a bees project	Yes – 15% Yes on the condition that technical assistance is provided-34% Yes on the condition that marketing assistance is provided-7% Yes on the condition that financial loans are provided- 27% No – with no reason given -15%
Use alternative fodder	Yes – 78% Yes on the condition that technical assistance is provided-22%
Have an agro-processing project	Yes- 29% Yes on the condition that technical assistance is provided-23% Yes on the condition that technical assistance is provided- 5% Yes- on the condition that financial support is provided- 33% No- 10%
Practice irrigation management schemes	Yes – 85% No-15%

Institutional Capacity

There is a very strong local CDA in Samhoud that can be entrusted with the management of the project loans or overlooking sustainability of activities.

Other considerations

No security/ conflict issues or other risks were reported about Samhoud. In-depth meetings and focus group discussions also confirmed the findings of the survey with regards to the acceptance of suggested interventions and conditions for their success.

Key conclusions:

- Like in other villages, the majority of the villagers mentioned that they have noticed a rise in frequency and intensity of weather shocks over the last years. They are also aware that their crop and animal productivity have been affected and voiced a need for support in avoiding or reducing resulting losses. However, attempts to perceive such changes in relation to global climate changes seem to be non-existent. This might be driven by a lack of interest in global issues in general. Like in other rural communities, villagers' main focus in life seems to be on meeting their day-to-day household needs and local issues that might affect their abilities

to meet such needs in any manner. Little attention is generally paid to wider considerations and issues that they think would not directly affect them.

- Knowledge, and consequently, practice of adaptation mechanisms does not exist in Samhoud. However, the need for introducing means for reducing climate-induced losses in their main crops was strongly expressed by all those interviewed. In addition, villagers expressed a need for financial and technical support to diversify their means of income generation as a tool to help in compensating for climate-induced losses. Introduction of new high-value crops particularly aromatic plants, animal loans, and agro-processing were perceived by villagers to be good tools to meet these demands.
- There are no systems for early warning to help reduce climate-induced losses in place. The need for connection to any system that would help in this respect was strongly voiced.
- Rabbit raising was not welcomed by the beneficiaries because of their poor tolerance to high weather temperatures in the village.
- Besides helping families augment their income in the face of climate-induced crop productivity reductions, the animal raising loans are expected to have a positive impact on women's advancement, with females being the key guardians of animals in the village.
- Enhancement of vet. care was expressed as need to complement the animal raising loans in light of the evident weakness of the existing services in the village.
- The project's offering of an integrated package of technical and marketing support, demonstration fields and financial loans responds to concerns and requirements mentioned by villagers to adopt the interventions
- The proposed water management interventions will help increase irrigation efficiency, directly addressing the main irrigation problem in the village, being insufficiency in water. The farmers were particularly enthusiastic about this because of the relatively high costs of irrigation in the village.
- Villagers get information about agricultural production from many sources including extension workers, radio and TV, seeds suppliers and friends. Means of mass communication in the village include microphones, both in mosques and mobile. The project will use these channels in reaching beneficiaries and disseminating information.
- Fodder is mainly grown in the village, with the majority of the farmers using significant portions of their land to cultivate it. The farmers believe that alternative fodder will thus have profound impacts, allowing them to make better usage of the land in cultivation of other crops.
- With most of the land cultivated for household consumption farmers will be allocating small areas of their plots for cultivation of newly introduced crops. Support for collective marketing of produce of these small areas is thus imperative for the success of these cultivations.

Ali Ibn Abi Taleb Village
Gehina District- Sohag

Basic Socioeconomic Information about the village

Nazlet Ali is one of the 13 villages in the Gehina district in Sohag. In 2011, it had a total population of 11074 native villagers with a percentage of 50.6% females and 49.4 males and 62.9% of the population living under the national poverty line. The following figures depict the educational, age and employment constitution of the village members.

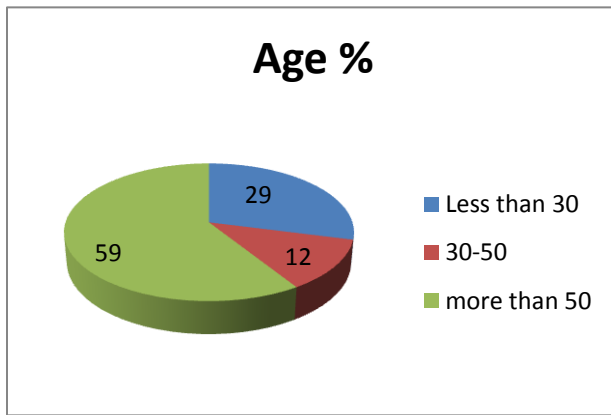


Figure 1 Age composition of sample IN Nazlet Ali Village

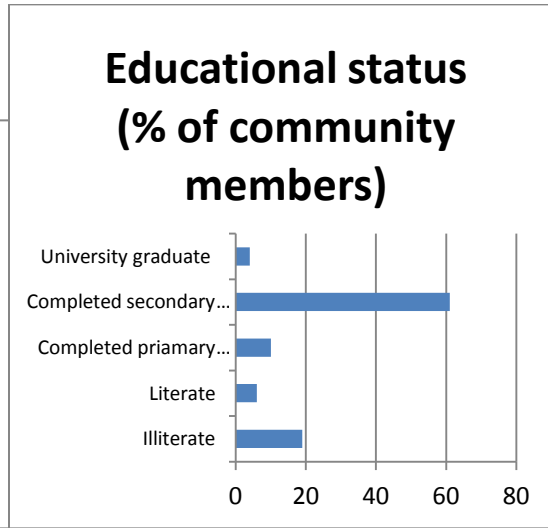


Figure 2 Educational status of Community Members in Nazlet Ali

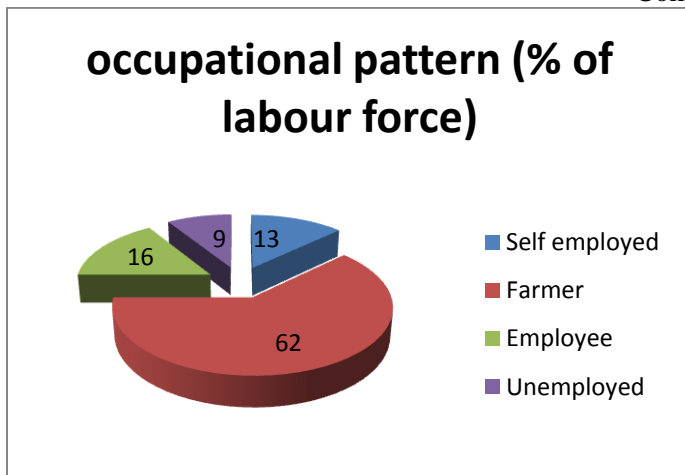


Figure 3 occupational patterns in Nazlet Ali Village

The village has a primary and a preparatory schools and the nearest secondary school is in the nearest mother village, 3 Km away. There is no health unit in the village and the nearest one is in the neighboring village, 9 km away.

9% of the population indicated that medication is available in the village pharmacy, with 10% indicating that they find medication unaffordable and 67% purchase their medicine from neighboring villages.

There is a vet. Care unit in the village however, the level of satisfaction with this unit is relatively low- with 95% of the sample indicating that its medical staff is seldom available, 77 % indicating that it does not have the necessary equipment, it can be concluded that it is performing poorly. There are also no private vet care services available in the village.

Crop production

Nazlet Ali has a total area of 1288 acres. 68 % of the population is working in agriculture with 19% of the farmers being smallholders owning/renting less than 1 acre, 79% own/rent 1-3 feddans and 2% owning/renting more. Only 26% of those involved in agriculture own land, while 30% rent and 44% work as labour, with 29% being subsistence farmers. 70% of the land of the village is sand and 30% is clay and the average land rental value is L.E. 2640/acre/season.

The following table presents which of their family members are involved in agriculture as expressed by the interviewees.

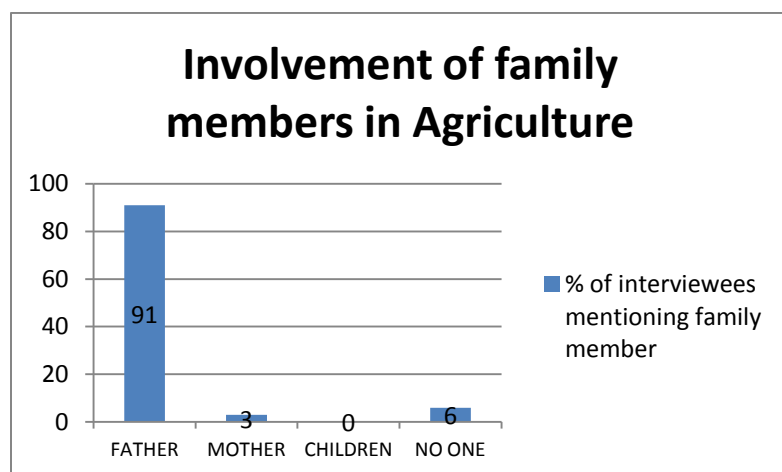


Figure 5 Involvement of members in agriculture

Several crops are cultivated in the village, with wheat, maize and sorghum being the main ones. The following figure shows the percentage of farmers cultivating each crop.

The average productivity and sowing dates of the main cultivated crops was reported as follows:

Crop	Productivity/acre/season (ton)	Sowing date
Wheat	2.2	Late December
Clover	86	Late December
Maize and Sorghum	2.1	Mid April

Table 1 average crop productivity and sowing dates of cultivated crops in the village

Average cost of cultivation of main crops has been reported as follows:

Table 2 Average costs of cultivation of One Acre in L.E

Crop	Soil Machineries	seeds	Fertilizers	Irrigation	Workers	Total
Wheat	130	200	220	500	250	1300
Maize and sorghum	130	260	260	500	250	1670
Clover	130	100	110	500	250	1090

With that said, it is to be noted that 97% of the interviewees indicated that they use seasonal labour in their cultivation and 3% use family members only.

As to marketing, the village has a weekly market where crops, animals and animal products are sold. When asked about what farmers do with their crops, a majority of 88% of the sample indicated that it is entirely or partially consumed by the household with 2% selling in a nearby market and 10% selling locally. 91% of the sample indicated that transport to the market is readily available and affordable, while 2% indicated that they cannot financially afford it. The price of the product is usually decided by wholesalers, with none of the sample indicating that they are able to determine the price of their produce.

Organic farming was found to be unpracticed, with 14% indicating that they are unaware what it was. The remaining 86% mentioned that they have heard but never practiced it with lack of technical know-how and high costs cited as reasons by 50 and 50% respectively. None of the sample has practiced contract farming, with 44% indicating they are not aware what it was.

Irrigation:

Groundwater and surface canals are the two sources of irrigation water in the village, providing for 22% and 78% of the land respectively. Furrow irrigation is the only practiced mechanism and no improved water management techniques or structures such as water users associations or irrigation scheduling are in place. On average, irrigating an acre once costs L.E. 72

Farmers have mentioned several problems of irrigation, as depicted in the figure below:

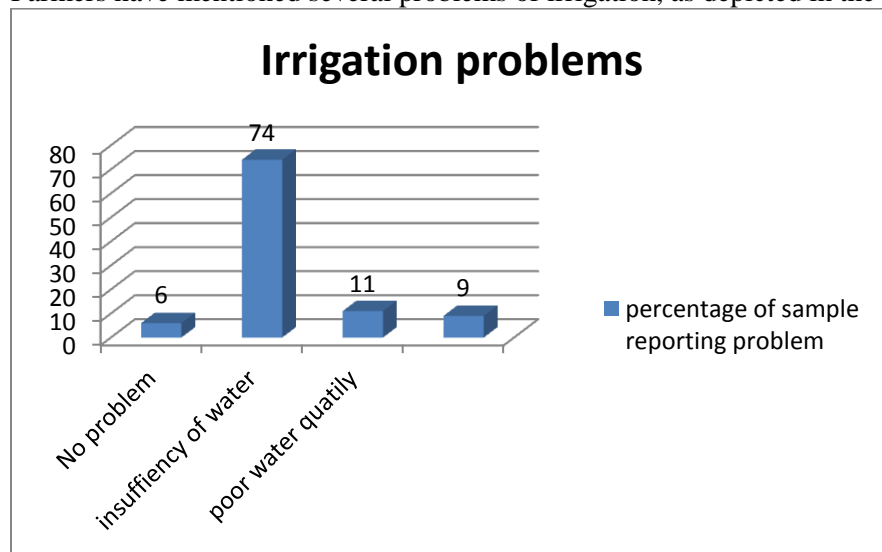


Figure 7 Problems of Irrigation in Nazlet Ali village

Irrigation services in the area were mentioned to be canal cleaning and general maintenance of main canals, both performed by the Ministry of Water Resources and Irrigation. As depicted by the chart below, the level of satisfaction with these services is fairly high.

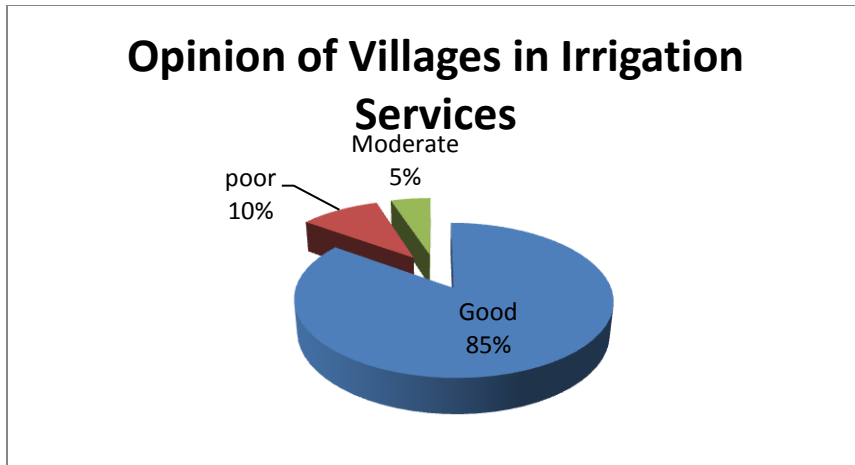


Figure 8 Community Opinions about Irrigation Services In Nazlet Ali

Animal Production

Villagers in Nazlet Ali are raising cows and buffalos, goats and sheep, poultry and rabbits.

The figure below indicates the percentage of community members growing each type.

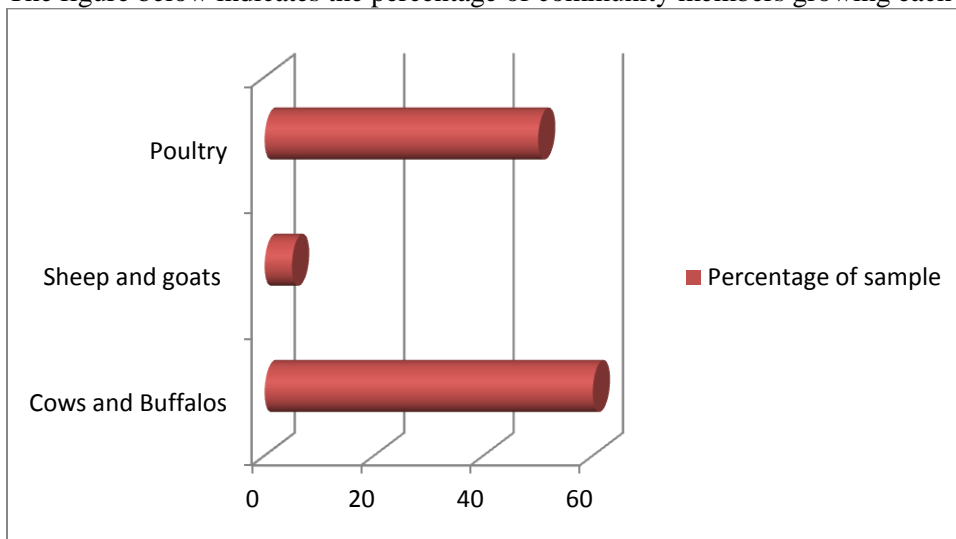


Figure 9 Animals Raised in Nazlet Ali Village

As to its purpose, 80% of the sample indicated that they raise animals for the sale of its offspring and products, while 20% indicated that it is for their household consumption. 20% of those selling animals or animal products are doing so in the village market, while 11 % are selling it in the market of the neighboring village.

Animal fodder is mainly grown in Nazlet Ali, with 69% of the sample indicating they grow it, 11% indicating they purchase it from the village market and 20% purchase it from outside the village.

Alternative fodder was found to be unknown, with 80% of the sample indicating they have never heard of it.

Animal keeping was found to be the responsibility of the female members of the household as the figure below suggests.

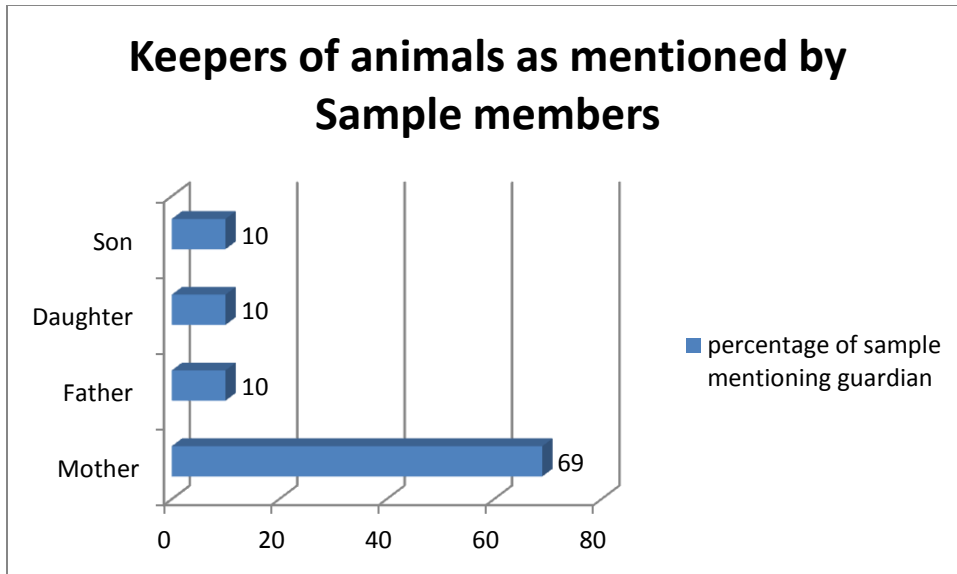


Figure 10 Guardians of animals in Nazlet Ali village
Loans for animal raising projects have not been previously offered in El Loqa.

Climate Change and Weather Variability

Knowledge about climate change and weather variability was found to be fair, with 59% of the sample indicating that they are aware of climate change and 50% mentioning that they have witnessed increasing frequency and intensity of extreme weather events. Heat and chill waves have been mentioned as example of such events. As to their impacts, 56% indicated that it has negatively affected their crops, while 10% indicated it had negative impacts on their animals. The interviewees, however were not able to quantify such losses.

Adoption of adaptation mechanisms seems to be fairly weak, although 69% indicated that they have heard of possible adaptation solutions. Only 2% of the sample indicated that they have practiced simple adaptation mechanisms such as use of additional fertilizer in cases of unexpected temperature decreases. Apart from that, reasons given for why adaptation was not practiced are depicted below.

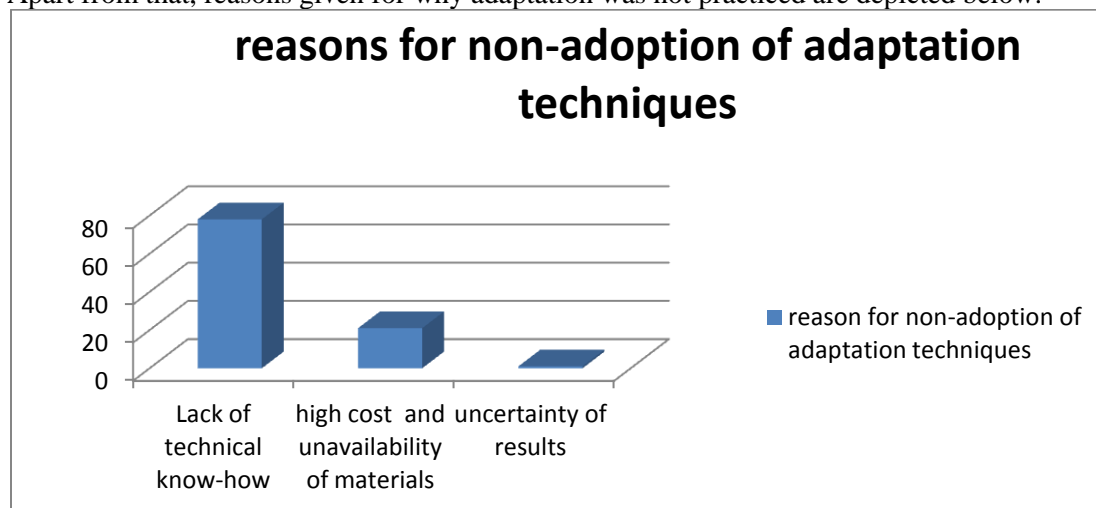


Figure 14 Reasons for non adoption of adaptation techniques in Nazlet AliVillage.

Access and Dissemination of Information

Farmers were found to access information about agriculture through several channels including extension workers, the agricultural cooperative, the television, among others. The followings figure presents these channels and the extent to which farmers rely on each.

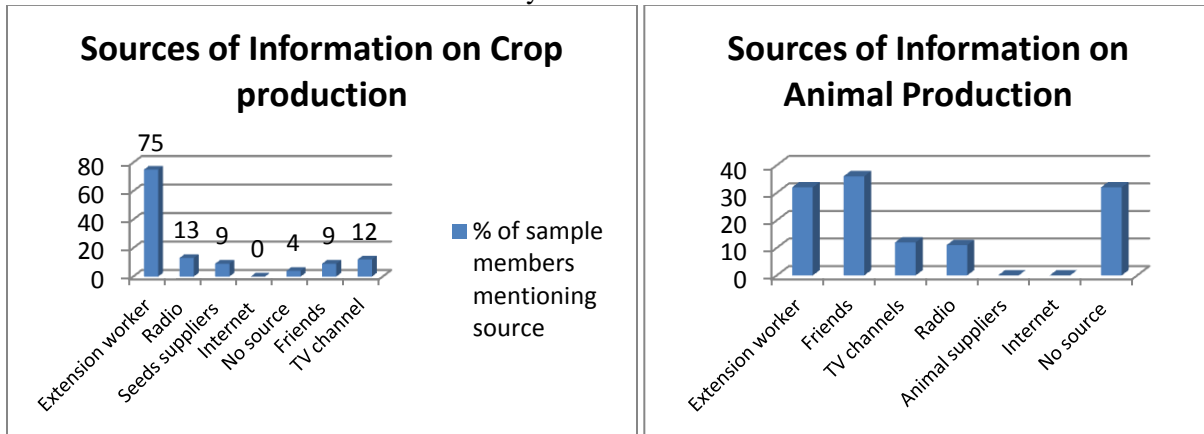


Figure 11 Sources of on crop production in Nazlet Ali Figure 12 Sources of information on animal production

All villagers interviewed indicated that there is no early warning system to help them forecast and prepare for extreme events.

Two means for information dissemination in the village were mentioned, namely microphones of mosques and mobile microphones. Some villagers also mentioned the possibility of receiving messages in SMSs through their cellular telephones.

To identify where it is best to house an online early warning system for weather extreme events, 25% mentioned the agricultural cooperative of the nearest village, 66% mentioning a local NGO/CDA, and 9% mentioned the local unit.

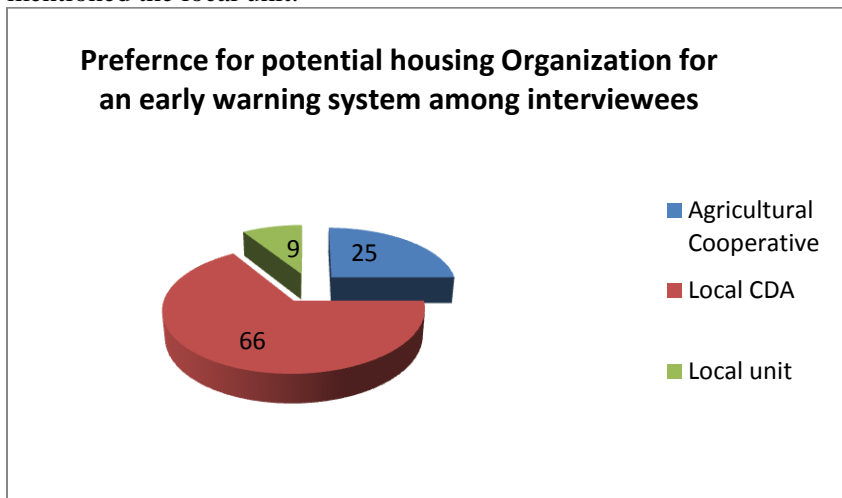


Figure 13 Preference for potential housing Organization for an early warning system among villagers in Nazlet Ali

As to the village focal point for this system, a majority of 61% of the sample indicated that they would prefer it be someone from the local NGO/CDA or the agricultural cooperative, with 5% indicating it has to be a farmer and 34% indifferent about this issue.

Acceptability of Suggested Adaptation interventions

The following table summarizes the results obtained on the level of acceptance of the suggested interventions among the sample.

Crop /technique	Acceptability (%of sample)
Medicinal and aromatic plants	No, because of its high costs – 10% Yes- 19% Yes but on the condition that technical support is provided – 22% Yes on the condition that marketing support is provided- 25% Yes but on the condition that financial support is provided –24%
Organically	Yes – 5% Yes but on the condition that technical support is provided – 81% Yes on the condition that financial support is provided- 2% Yes on the condition that marketing support is provided-12% No- because of its high costs-2%
High value crops –e.g. strawberry	No, because of its high costs – 10% Yes-1 9% Yes but on the condition that technical support is provided – 22% Yes on the condition that marketing support is provided- 25% Yes but on the condition that financial support is provided – 24%
Heat tolerant varieties –wheat tomato and maize (sorghum)	No because of its high cost- 2% Yes – 73% Yes on the condition that technical support is provided- 1% Yes provided financial support is provided- 24%
orchards (pomegranate, guava, citrus in middle Egypt only)	Yes –25% Yes provided financial support is provided- 47% Yes on the condition that technical support is provided- 14% Yes on the condition that marketing support is provided- 13% No because of its high cost – 1%
Intercrop (eg. onions with wheat)	Yes - 90% No because not sure of results- 10%

Change sowing date	Yes – 90% Yes but on the condition that technical support is provided – 10%
Addition of new low-cost substances that will increase your productivity and help crop/chicken tolerate heat	Yes – 60% Yes Provided technical support is provided- 33% No because of its high costs- 2% Yes on the condition that financial support is provided- 5%
Take loan at 3-6% interest rate for animal raising	Yes – 100%
Raise rabbits	Yes – 90% Yes on the condition that financial loans are provided- 9% Yes on the condition that marketing support is provided- 1%
Raise goats	Yes on the condition that financial loans are provided – 86% Yes-14%
Own a bees project	Yes -63% No because of its high costs- 2% Yes but on the condition that technical support is provided – 18% Yes on the condition that financial loans are provided- 10% yes on the condition that marketing support is provided-17%
Raise ducks	Yes – 84% Yes on the condition that financial loans are provided- 16%
Use alternative fodder	Yes – 81% Yes on the condition that technical assistance is provided- 19%
Have an agro-processing project	Yes- 23% No because of its high costs- 10% Yes but on the condition that technical support is provided – 30% Yes- on the condition that financial support is provided- 11% Yes on the condition that marketing support is provided- 26%
Practice irrigation management schemes	Yes – 73% No-27%

Institutional Capacity

There is an agricultural cooperative in Nazlet Ali but there is no strong local NGO that can be entrusted with the management of the project loans or overlooking sustainability of activities. However, there is a strong NGO in the neighboring village of Ali Ibn Abi Taleb that has been extending services to the village and that can be used in the project.

Other considerations

No security/ conflict issues or other risks were reported about Nezlet Ali. In-depth meetings and focus group discussions also confirmed the findings of the survey with regards to the acceptance of suggested interventions and conditions for their success.

Key findings and conclusions :

- Climate change and resulting weather shocks are known among villagers. They are also aware of how it impacts crop and animal production and have voiced a need for support in building resilience and reducing losses.
- Knowledge and practice of adaptation mechanisms were not very strong. Very few have practiced simple adaptation and the majority unaware of possible options for adaptation. However, lack of technical knowhow, high costs and uncertainty of results have been reported as the main reasons why adaptation alternatives have not been widely adopted.
- There are no systems for early warning to help reduce climate-induced losses in place.
- All the suggested interventions were welcomed by the beneficiaries, including those that they were unaware of such as organic farming and linkage to on-line weather forecasting systems. The introduction of green beans has been voiced as a new high value crop was voiced by the farmers, with a willingness to adapt more new crops that can have similar impacts in building their resilience
- The project's offering of an integrated package of technical and marketing support, demonstration fields and financial loans responds to concerns and requirements mentioned by villagers to adopt the interventions
- With the evident weakness of the existing services in the village, enhancement of vet. care is needed to complement the animal raising loans.
- Villagers get information about agricultural production from many sources including extension workers, radio and TV, seeds suppliers and friends. Means of mass communication in the village include microphones, both in mosques and mobile. The project will use these channels in reaching beneficiaries and disseminating information.
- Fodder is mainly grown in the village, with the majority of the farmers using significant portions of their land to cultivate it. Production of alternative fodder is thus expected to have profound impacts, allowing them to make better usage of the land in cultivation of other crops.
- With most of the land cultivated for household consumption farmers will be allocating small areas of their plots for cultivation of newly introduced crops. Support for collective marketing of produce of these small areas is thus imperative for the success of these cultivations.

Ali Ibn Abi Taleb Village
Gehina District- Sohag

Basic Socioeconomic Information about the village

Ali Ibn Abi Taleb is one of the 13 villages in the Gehina district in Sohag. In 2011, it had a total population of 4401 native villagers with a percentage of 52.5% males and 47.5 % females and 61.55% of the population living under the national poverty line. The following figures depict the educational, age and employment constitution of the village members.

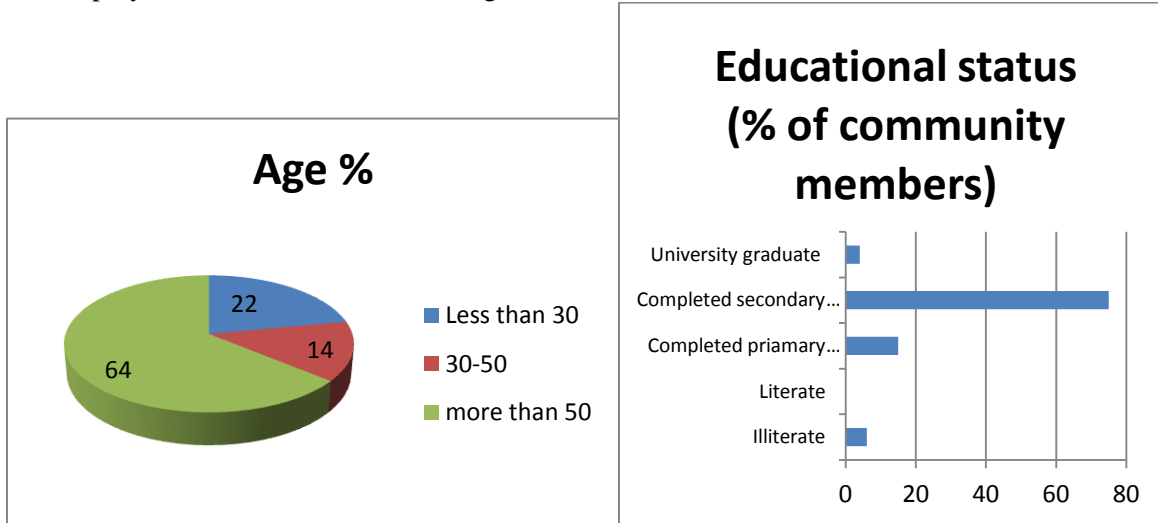


Figure 1 Age composition of sample IN Ali Ibn Abi Taleb Village

Figure 2 Educational status of Community Members in Ali Ibn Abi Taleb

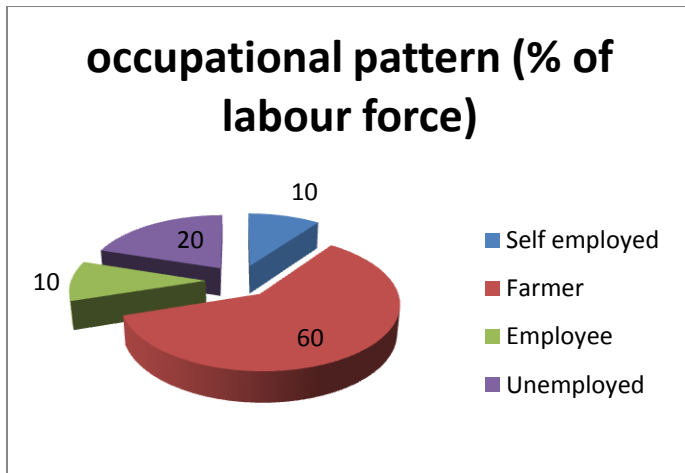


Figure 3 occupational patterns in Ali Ibn Abi Taleb Village

The village has a primary and a preparatory and a secondary schools. There is a health unit in the village.

41% of the population indicated that medication is available in the village pharmacy, with 16% indicating that they find medication unaffordable and 40% purchase their medicine from neighboring villages.

There is a vet. Care unit in the village however, the level of satisfaction with this unit is relatively low- with 76% of the sample indicating that its medical staff is seldom available, 60 % indicating that it does

not have the necessary equipment, it can be concluded that it is performing poorly. There are also no private vet care services available in the village.

Crop production

Ali Ibn Abi Taleb has a total area of 948 acres. 60 % of the population is working in agriculture with 1% of the farmers being smallholders owning/renting less than 1 acre, 99% own/rent 1-3 acres. Only 31% of those involved in agriculture own land, while 30% rent and 39% work as labour, with 28% being subsistence farmers. 100% of the land of the village is sand and the average land rental value is L.E. 2880/acre/season.

The following table presents which of their family members are involved in agriculture as expressed by the interviewees.

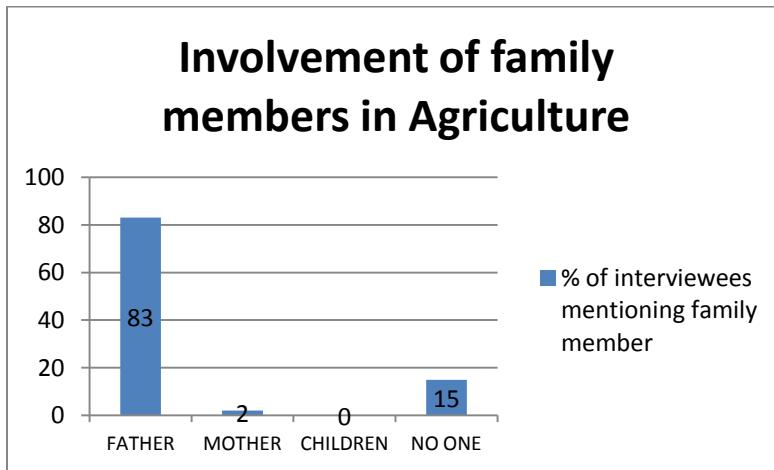


Figure 5 Involvement of members in agriculture

Several crops are cultivated in the village, with wheat, maize and sorghum being the main ones.

The average productivity and sowing dates of the cultivated crops was reported as follows:

Crop	Productivity/acre/season (ton)	Sowing date
Wheat	2.2	Late December
Clover	86	Late December
Maize and sorghum	2.1	Mid April

Table 1 average crop productivity and sowing dates of cultivated crops in the village

Average cost of cultivation of main crops has been reported as follows:

Table 2 Average costs of cultivation of One Acre in L.E

Crop	Soil Machineries	seeds	Fertilizers	Irrigation	Workers	Total
Wheat	140	220	220	500	250	1370
Maize and corn	140	250	260	500	250	1400
Clover	140	100	110	500	250	1100

With that said, it is to be noted that 79% of the interviewees indicated that they use seasonal labour in their cultivation and 21% use family members only.

As to marketing, the village has a weekly market where crops, animals and animal products are sold. When asked about what farmers do with their crops, 10% of the sample indicated that it is entirely or partially consumed by the household with 11% selling in a nearby market and 70% selling locally. 66% of the sample indicated that transport to the market is readily available and affordable, while 7% indicated that they cannot financially afford it. The price of the product is usually decided by wholesalers, with none of the sample indicating that they are able to determine the price of their produce.

Organic farming was found to have been practiced, with 25% indicating that they have practiced it and 91% of them indicating that they found it profitable. 65% mentioned that they have heard but never practiced it with lack of technical know-how, poor knowledge about markets and high costs cited as reasons by 10, 61 and 29% respectively. 27% of the sample has practiced contract farming, with 81% of them indicating that they have found it profitable. 56% of the sample indicated that they have never practiced contract farming, and 44% indicating they are not aware what it was.

Irrigation:

Pumped water, groundwater and surface canals are the sources of irrigation water in the village, providing for 59, 33% and 8% of the land respectively. 91% of the land is uses furrow irrigation, while 9% have lined canals. Apart from that, no improved water management techniques or structures such as water users associations or irrigation scheduling are in place. On average, irrigating an acre once costs L.E. 72. Farmers have mentioned several problems of irrigation, as depicted in the figure below:

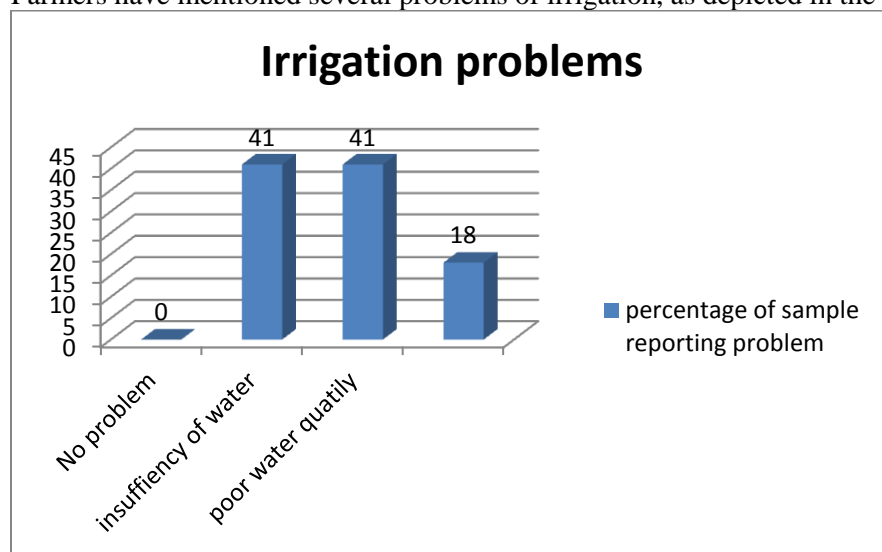


Figure 7 Problems of Irrigation in Ali Ibn Abi Taleb village

Irrigation services in the area were mentioned to be canal cleaning and general maintenance of main canals, both performed by the Ministry of Water Resources and Irrigation. As depicted by the chart below, the level of satisfaction with these services is fairly high.

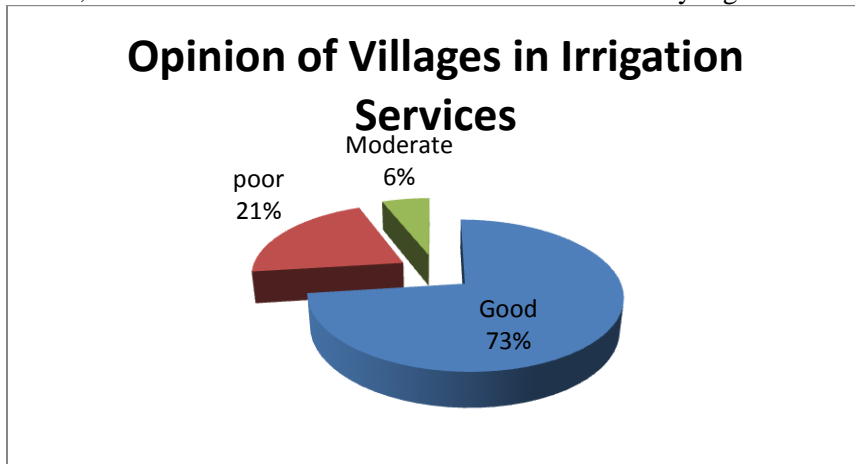


Figure 8 Community Opinions about Irrigation Services In Ali Ibn Abi Taleb

Animal Production

Villagers in Ali Ibn Abi Taleb are raising cows and buffalos, goats and sheep, and poultry.

The figure below indicates the percentage of community members growing each type.

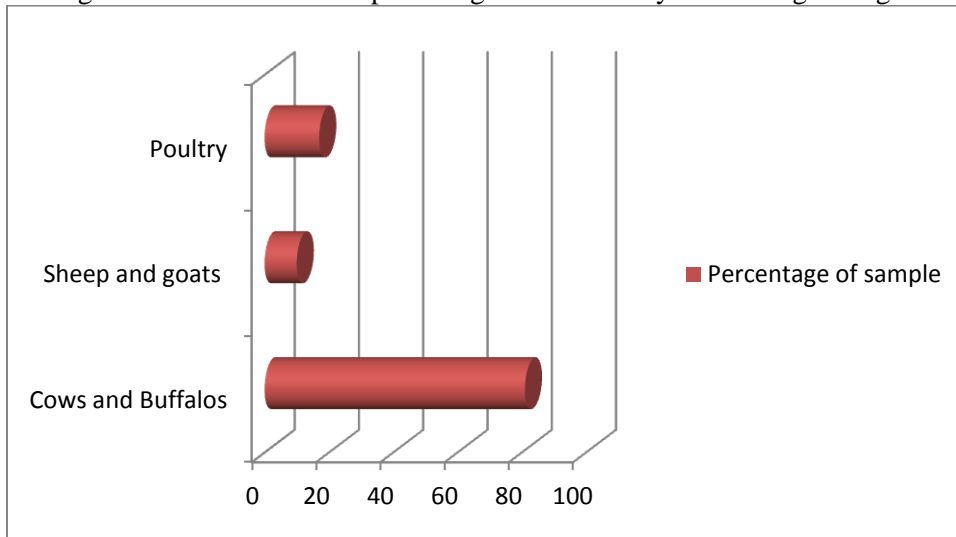


Figure 9 Animals Raised in Ali Ibn Abi Taleb

As to its purpose, 90% of the sample indicated that they raise animals for the sale of its offspring and products, while 10% indicated that it is for their household consumption. 90% of those selling animals or animal products are doing so in the village market, while 10% are selling it in the market of the neighboring village.

Animal fodder is mainly grown in Ali Ibn Abi Taleb, with 72% of the sample indicating they grow it, 10% indicating they purchase it from the village market and 18% purchase it from outside the village. Alternative fodder was found to be heard of, with 36% of the sample indicating they have heard of it. Animal keeping was found to be the responsibility of the female members of the household as the figure below suggests.

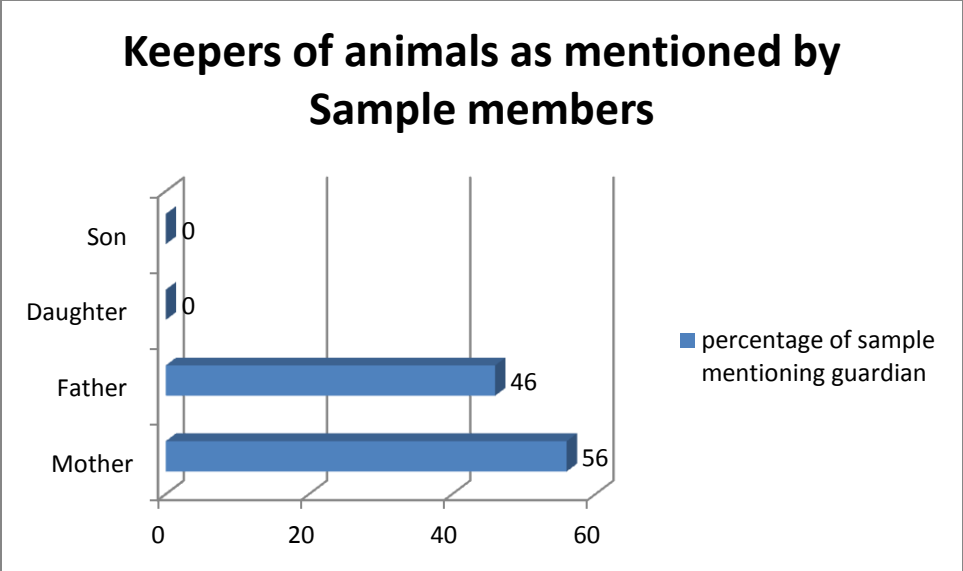


Figure 10 Guardians of animals in Ali Ibn Abi Taleb
 Loans for animal raising projects have not been previously offered in Ali Ibn Abi Taleb

Climate Change and Weather Variability

Knowledge about climate change and weather variability was found to be very poor, with 19% of the sample indicating that they are aware what climate change is. However, 80% mentioning that they have witnessed increasing frequency and intensity of extreme weather events. Heat and chill waves have been mentioned as example of such events. As to their impacts, 90% indicated that it has negatively affected their crops, while 20% indicated it had negative impacts on their animals. The interviewees, however were not able to quantify such losses.

Adoption of adaptation mechanisms seems to be fairly weak, with 89% indicated that they have never heard of possible adaptation solutions. None of the sample indicated that they have practiced adaptation mechanisms. Reasons given for why adaptation was not practiced are depicted below.

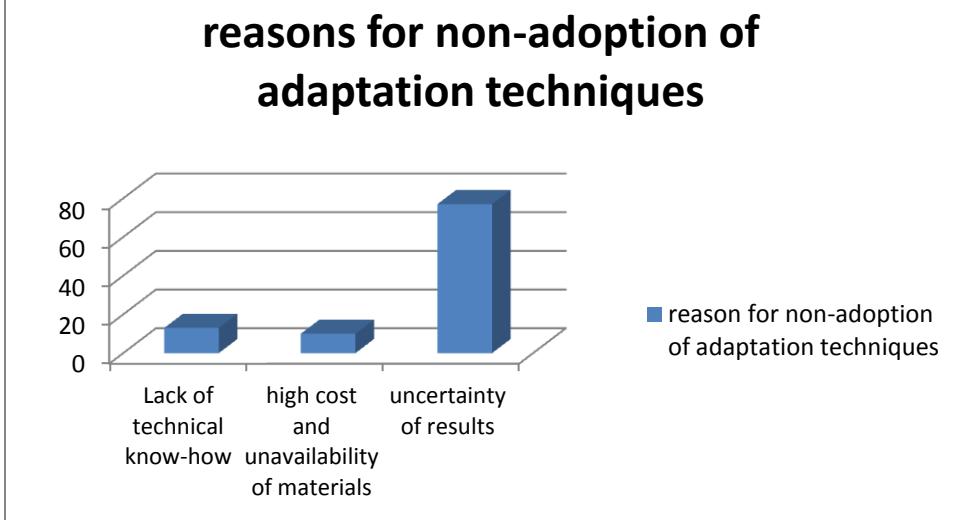


Figure 14 Reasons for non adoption of adaptation techniques in Ali Ibn Abi Taleb.

Access and Dissemination of Information

Farmers were found to access information about agriculture through several channels including extension workers, the agricultural cooperative, the television, among others. The followings figure presents these channels and the extent to which farmers rely on each.

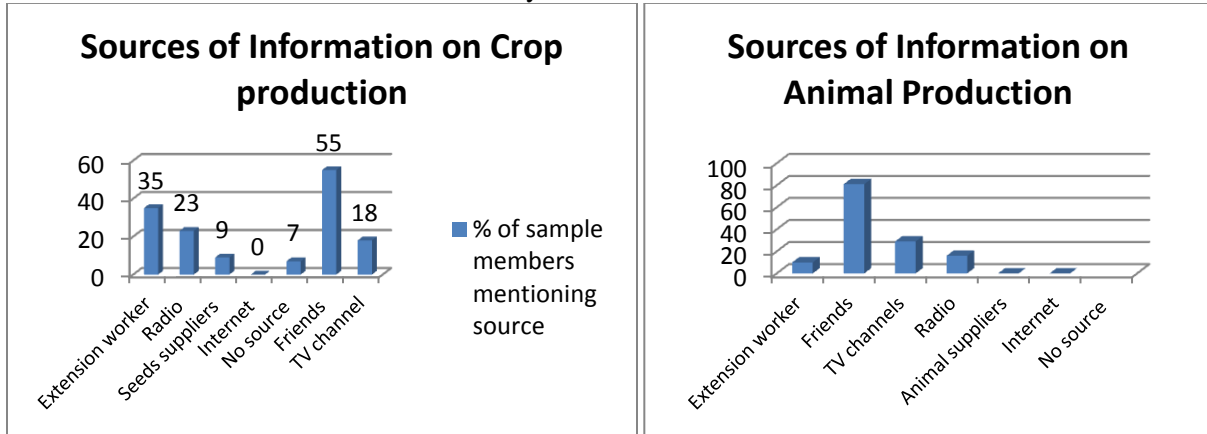


Figure 11 Sources of on crop production in Ali Ibn abi taleb Figure 12 Sources of information on animal production

All villagers interviewed indicated that there is no early warning system to help them forecast and prepare for extreme events.

Several means for information dissemination in the village were mentioned, including microphones of mosques, awareness sessions and mobile microphones. Some villagers also mentioned the possibility of receiving messages in SMSs through their cellular telephones.

To identify where it is best to house an online early warning system for weather extreme events, 12% mentioned the agricultural cooperative, 50% mentioning a local NGO/CDA, and 38% mentioned the local unit.

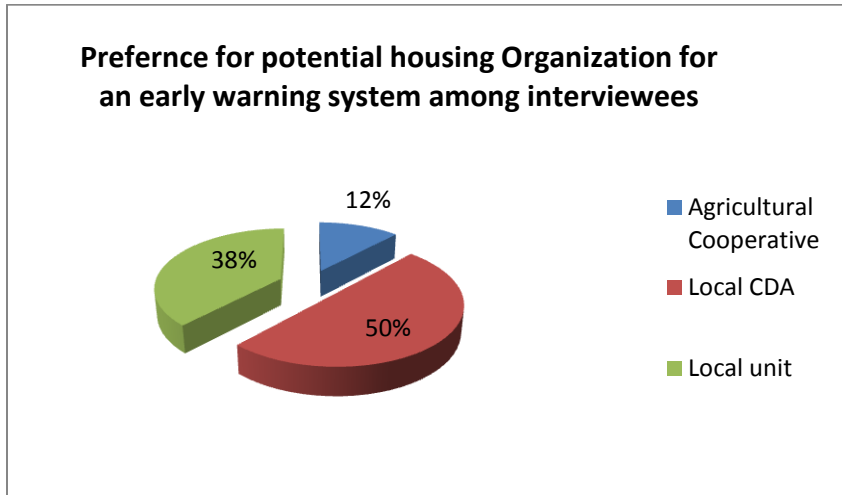


Figure 13 Preference for potential housing Organization for an early warning system among villagers in Ali Ibn Abi Taleb

As to the village focal point for this system, 20% of the sample indicated that they would prefer it be someone from the local NGO/CDA or the agricultural cooperative, with 41% indicating it has to be a farmer and 39% indifferent about this issue.

Acceptability of Suggested Adaptation interventions

The following table summarizes the results obtained on the level of acceptance of the suggested interventions among the sample.

Crop /technique	Acceptability (%of sample)
Medicinal and aromatic plants	No, because of its high costs – 10% Yes- 71% Yes but on the condition that technical support is provided – 2% Yes on the condition that marketing support is provided- 13% Yes but on the condition that financial support is provided –9%
Organically	Yes – 28% Yes but on the condition that technical support is provided – 22% Yes on the condition that financial support is provided- 1% Yes on the condition that marketing support is provided-37% No- because of its high costs-12%
High value crops –e.g. strawberry	No, because of its high costs – 12% Yes-9% Yes but on the condition that technical support is provided – 54% Yes on the condition that marketing support is provided- 10% Yes but on the condition that financial support is provided –15%
Heat tolerant varieties –wheat tomato and maize (sorghum)	No because of its high cost- 9% Yes – 81% Yes on the condition that financial support is provided- 10%
orchards (pomegranate, guava, citrus in middle Egypt only)	Yes –21% Yes provided financial support is provided- 79%
Intercrop (eg. onions with wheat)	Yes - 40% Yes provided technical support is provided- 47% Yes- on the condition that financial support is provided- 13%
Change sowing date	Yes – 81% Yes but on the condition that technical support is provided – 19%
Addition of new low-cost substances	Yes – 73%

that will increase your productivity and help crop/chicken tolerate heat	No because of its high costs- 15% Yes on the condition that financial support is provided- 12%
Take loan at 3-6% interest rate for animal raising	Yes – 80% No – because of the associated risk- 20%
Raise rabbits	Yes – 33% Yes on the condition that financial loans are provided- 14% Yes provided that technical support is offered- 9 No- 44%
Raise goats	Yes on the condition that financial loans are provided – 90% Yes-10%
Own a bees project	Yes -33% No because of its high costs- 17% Yes but on the condition that technical support is provided – 30% Yes on the condition that financial loans are provided- 20%
Raise ducks	Yes – 48% Yes on the condition that financial loans are provided- 52%
Use alternative fodder	Yes – 75% Yes on the condition that technical assistance is provided- 25%
Have an agro-processing project	Yes- 62% Yes- on the condition that financial support is provided- 38%
Practice irrigation management schemes	Yes – 90% No-10%

Institutional Capacity

There is a very strong local CDA in Ali Abu Taleb that can be entrusted with the management of the project loans or overlooking sustainability of activities.

Other considerations

No security/ conflict issues or other risks were reported about Ali Abu Taleb . In-depth meetings and focus group discussions also confirmed the findings of the survey with regards to the acceptance of suggested interventions and conditions for their success.

Key findings and conclusions :

- Like in other villages, the majority of the villagers mentioned that they have noticed a rise in frequency and intensity of weather shocks over the last years. They are also aware that their crop and animal productivity have been affected and voiced a need for support in avoiding or reducing resulting losses. However, attempts to perceive such changes in relation to global climate changes seem to be non-existent. This might be driven by a lack of interest in global issues in general. Like in other rural communities, villagers' main focus in life seems to be on meeting their day-to-day household needs and local issues that might affect their abilities to meet such needs in any manner. Little attention is generally paid to wider considerations and issues that they think would not directly affect them.
- Knowledge and practice of adaptation mechanisms were generally not very strong. Lack of technical knowhow, high costs and uncertainty of results have been reported as the main reasons.
- There are no systems for early warning to help reduce climate-induced losses in place.
- All the suggested interventions were welcomed by the beneficiaries, including those that they were unaware of such as organic farming and linkage to on-line weather forecasting systems. Adopting of organic farming and the introduction of beans as a new high value crop was voiced by the farmers, with a willingness to adopt more new crops that can have similar impacts in building their resilience.
- The project's offering of an integrated package of technical and marketing support, demonstration fields and financial loans responds to concerns and requirements mentioned by villagers to adopt the interventions
- The proposed water management interventions will help increase irrigation efficiency, directly addressing the main irrigation problem in the village, being insufficiency in water.
- With the evident weakness of existing services in the village, enhancement of vet. care is needed to complement the animal raising loans.
- Villagers get information about agricultural production from many sources including extension workers, radio and TV, seeds suppliers and friends. Means of mass communication in the village include microphones, both in mosques and mobile. The project will use these channels in reaching beneficiaries and disseminating information.
- Fodder is mainly grown in the village, with the majority of the farmers using significant portions of their land to cultivate it. Production of alternative fodder is thus expected to have profound impacts, allowing them to make better usage of the land in cultivation of other crops.
- With most of the land cultivated for household consumption farmers will be allocating small areas of their plots for cultivation of newly introduced crops. Support for collective marketing of produce of these small areas is thus imperative for the success of these cultivations.

El Naza El Baharia Village
Gehina District- Sohag

Basic Socioeconomic Information about the village

El Naza is one of the 13 villages in the Gehina district in Sohag. In 2011, it had a total population of 9613 native villagers with a percentage of 48.5% females and 51.4% males and 57.4% of the population living under the national poverty line. The following figures depict the educational, age and employment constitution of the village members.

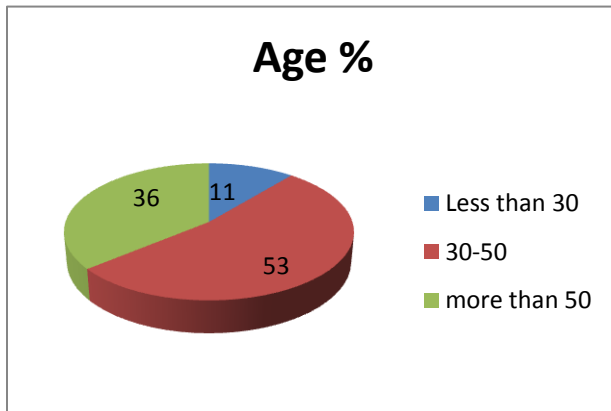


Figure 1 Age composition of sample IN El Naza El Baharia Village

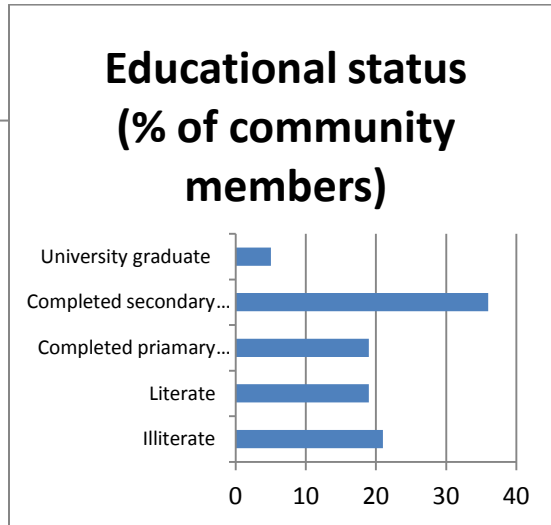


Figure 2 Educational status of Community Members in El Naza El Baharia

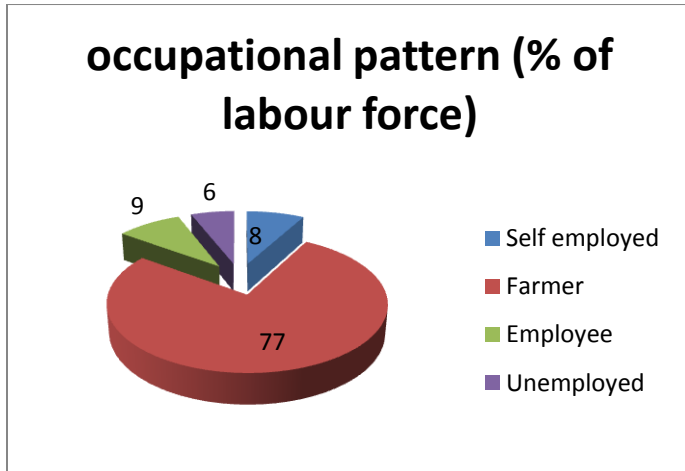


Figure 3 occupational patterns in Al Naza El Bahria Village

The village has a primary and a preparatory schools and the nearest secondary school is in the nearest mother village, 4 Km away. There is a health unit in the village.

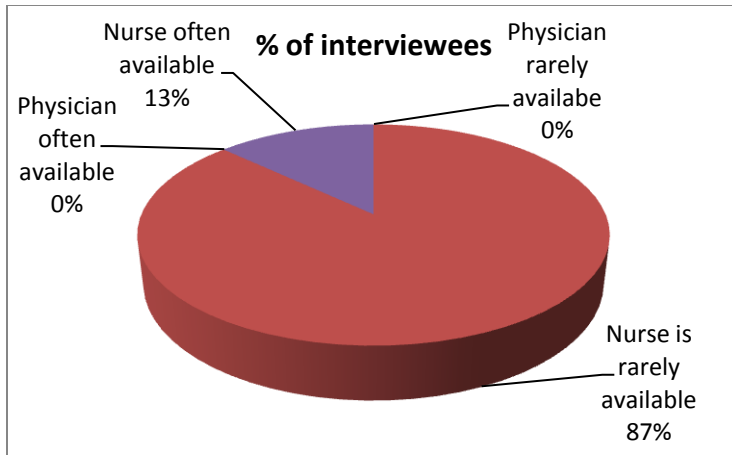


Figure 4- Satisfaction with Health care services.

52% of the population indicated that medication is available in the village pharmacy, with 18% indicating that they find medication unaffordable and 28% purchase their medicine from neighboring villages.

There is no vet. Care unit in the village and the nearest one is 9 Km away. The level of satisfaction with this unit is relatively low- with 89% of the sample indicating that its medical staff is seldom available, 75 % indicating that it does not have the necessary equipment, it can be concluded that it is performing poorly. There are also no private vet care services available in the village.

Crop production

El Naza El Baharia has a total area of 1979 acres. Approximately 70 % of the population is involved in agriculture with 50% of the farmers being smallholders owning/renting less than 1 acre and 50% own/rent 1-3 feddans. Only 21% of those involved in agriculture own land, while 33% rent and 46% work as labour, with 37% being subsistence farmers. 100% of the land of the village is clay and the average land rental value is L.E. 2640/acre/season.

The following table presents which of their family members are involved in agriculture as expressed by the interviewees.

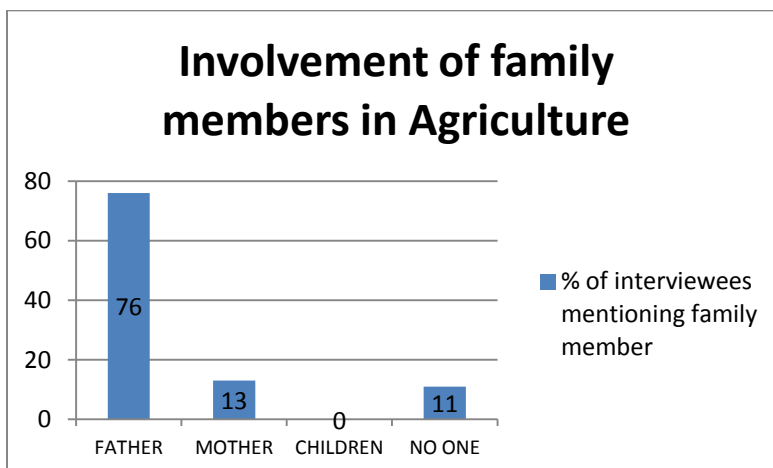


Figure 5 Involvement of members in agriculture

Several crops are cultivated in the village, with wheat, clover, maize and sorghum being the main ones.

The average productivity and sowing dates of the cultivated crops was reported as follows:

Crop	Productivity/acre/season (ton)	Sowing date
Wheat	1.9	Late December
Clover	87	Late December
Maize and sorghum	2	Mid April

Table 1 average crop productivity and sowing dates of cultivated crops in the village

Average cost of cultivation has been reported as follows:

Crop	Soil Machineries	seeds	Fertilizers	Irrigation	Workers	Total
Wheat	150	220	220	500	250	1340
Maize and sorghum	150	280	260	500	250	1440
Clover	150	100	110	500	250	1100

Table 2 Average costs of cultivation of One Acre in L.E

With that said, it is to be noted that 77% of the interviewees indicated that they use seasonal labour in their cultivation and 23% use family members only.

As to marketing, the village has a weekly market where crops, animals and animal products are sold. When asked about what farmers do with their crops, a majority of 90% of the sample indicated that it is entirely or partially consumed by the household and 10% selling locally. The entire sample indicated that transport to the market is readily available and affordable. The price of the product is usually decided by wholesalers, with none of the sample indicating that they are able to determine the price of their produce.

Organic farming was found to be unpracticed, with 81% indicating that they are unaware what it was. The remaining 19% mentioned that they have heard but never practiced it with lack of technical know-how and marketing channels and high costs cited as reasons by 20, 20 and 60% respectively. None of the sample members has practiced contract farming, 20% indicating they are not aware what it was.

Irrigation:

Groundwater and surface canals are the two sources of irrigation water in the village, providing for 20% and 80% of the land respectively. Furrow irrigation is the only practiced mechanism and no improved water management techniques or structures such as water users associations or irrigation scheduling are in place. On average, irrigating an acre once costs L.E. 72

Farmers have mentioned several problems of irrigation, as depicted in the figure below:

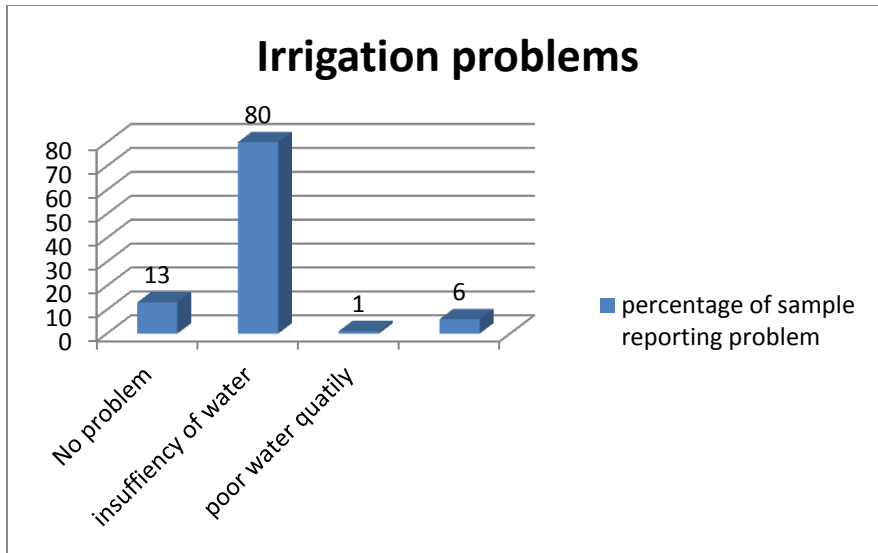


Figure 7 Problems of Irrigation in El Naza El Baharia

Irrigation services in the area were mentioned to be canal cleaning and general maintenance of main canals, both performed by the Ministry of Water Resources and Irrigation. As depicted by the chart below, the level of satisfaction with these services is fairly high.

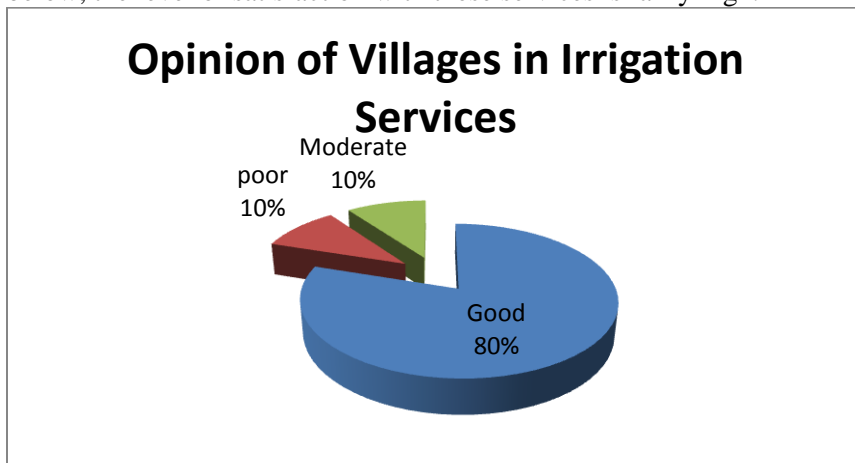


Figure 8 Community Opinions about Irrigation Services In El Naza El Bahria

Animal Production

Villagers in Nazlet Ali are raising cows and buffalos, goats and sheep, poultry and rabbits.

The figure below indicates the percentage of community members growing each type.

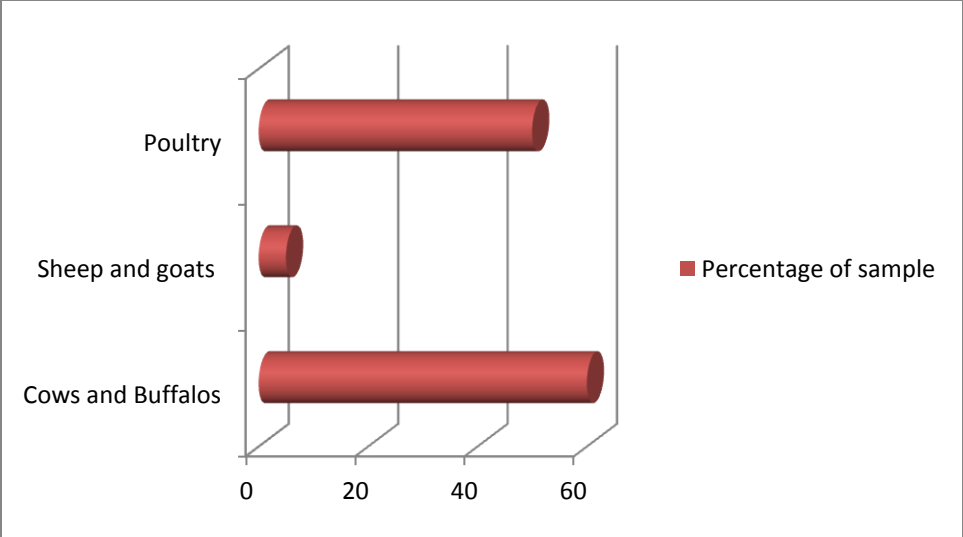


Figure 9 Animals Raised in Nazlet Ali Village

As to its purpose, 80% of the sample indicated that they raise animals for the sale of its offspring, while 20% indicated that it is for their household consumption. 20% of those selling animal products are doing so in the village market, while 11 % are selling it in the market of the neighboring village.

Animal fodder is mainly grown in Nazlet Ali, with 69% of the sample indicating they grow it, 11% indicating they purchase it from the village market and 20% purchase it from outside the village.

Alternative fodder was found to be unknown, with 80% of the sample indicating they have never heard of it.

Animal keeping was found to be the responsibility of the female members of the household as the figure below suggests.

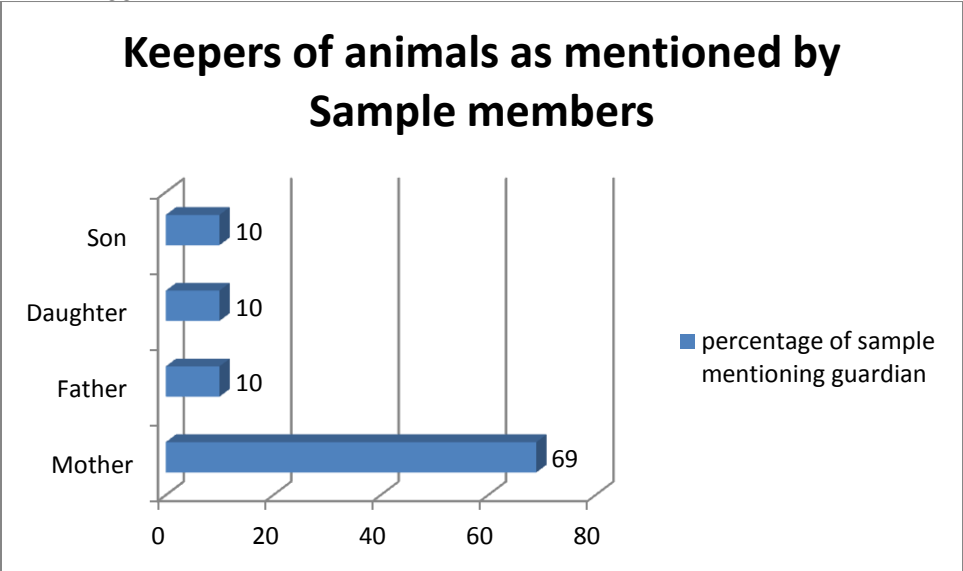


Figure 10 Guardians of animals in Nazlet Ali village

Loans for animal raising projects have not been previously offered in the village.

Climate Change and Weather Variability

Knowledge about climate change and weather variability was found to be fair, with 59% of the sample indicating that they are aware of climate change and 50% mentioning that they have witnessed increasing frequency and intensity of extreme weather events. Heat and chill waves have been mentioned as example of such events. As to their impacts, 56% indicated that it has negatively affected their crops, while 10% indicated it had negative impacts on their animals. The interviewees, however were not able to quantify such losses.

Adoption of adaptation mechanisms seems to be fairly weak, although 69% indicated that they have heard of possible adaptation solutions. Only 2% of the sample indicated that they have practiced adaptation mechanisms. Reasons given for why adaptation was not practiced are depicted below.

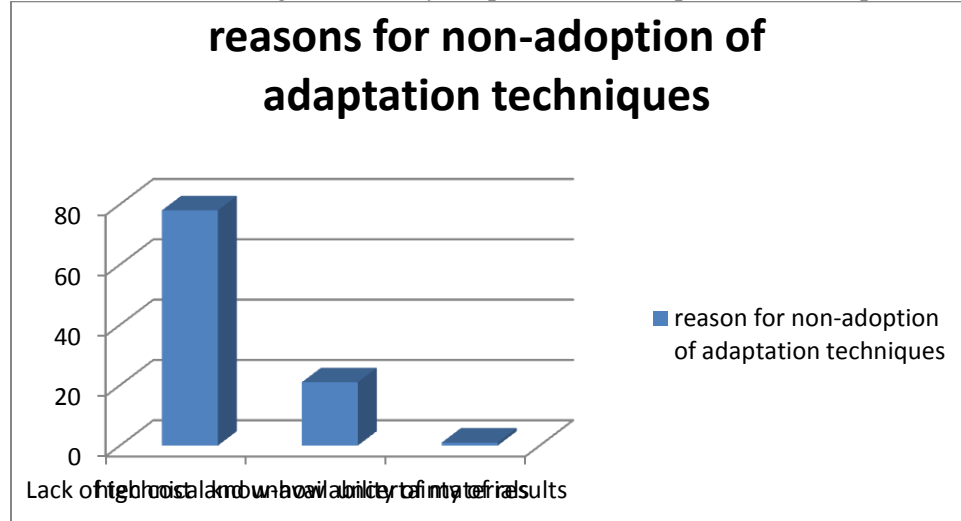


Figure 14 Reasons for non adoption of adaptation techniques in Nazlet Ali Village.

Access and Dissemination of Information

Farmers were found to access information about agriculture through several channels including extension workers, the agricultural cooperative, the television, among others. The followings figure presents these channels and the extent to which farmers rely on each.

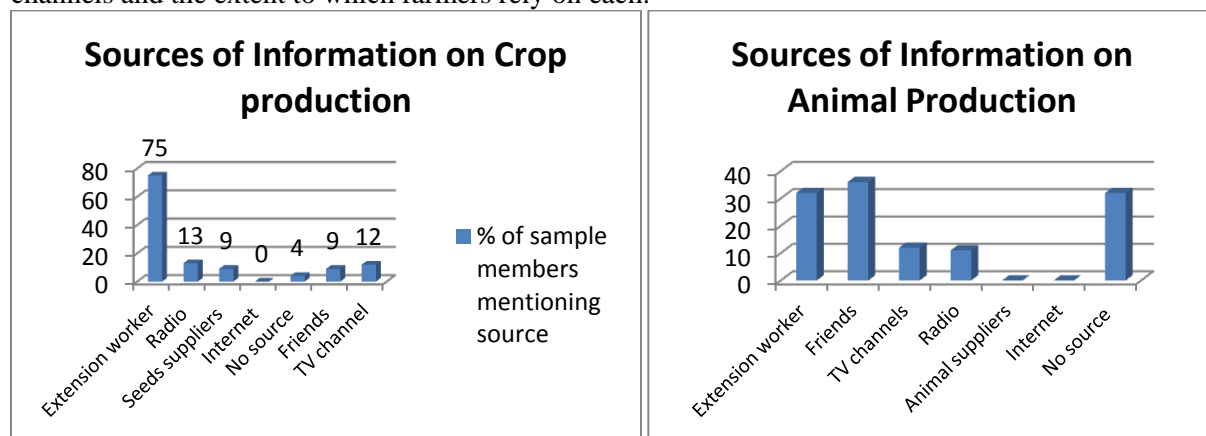


Figure 11 Sources of on crop production in Nazlet Ali Figure 12 Sources of information on animal production

All villagers interviewed indicated that there is no early warning system to help them forecast and prepare for extreme events.

Two means for information dissemination in the village were mentioned, namely microphones of mosques and mobile microphones. Some villagers also mentioned the possibility of receiving messages in SMSs through their cellular telephones.

To identify where it is best to house an online early warning system for weather extreme events, 25% mentioned the agricultural cooperative, 66% mentioning a local NGO/CDA, and 9% mentioned the local unit.

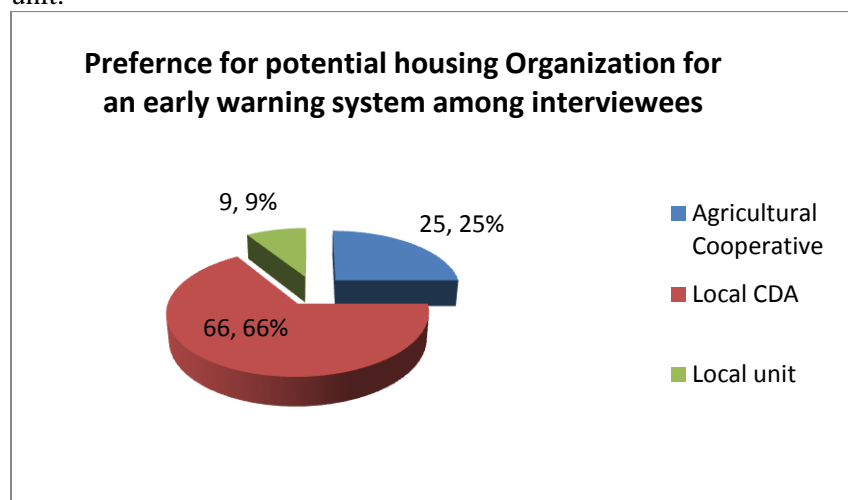


Figure 13 Preference for potential housing Organization for an early warning system among villagers in Nazlet Ali

As to the village focal point for this system, a majority of 61% of the sample indicated that they would prefer it be someone from the local NGO/CDA or the agricultural cooperative, with 5% indicating it has to be a farmer and 34% indifferent about this issue.

Acceptability of Suggested Adaptation interventions

The following table summarizes the results obtained on the level of acceptance of the suggested interventions among the sample.

Crop /technique	Acceptability (%of sample)
Medicinal and aromatic plants	No, because of its high costs – 10% Yes- 19% Yes but on the condition that technical support is provided – 22% Yes on the condition that marketing support is provided- 25% Yes but on the condition that financial support is provided – 24%
Organically	Yes – 5% Yes but on the condition that technical support is provided – 81% Yes on the condition that financial support is provided- 2% Yes on the condition that marketing support is provided-12%

	No- because of its high costs-2%
High value crops –e.g. strawberry	No, because of its high costs – 10% Yes-1 9% Yes but on the condition that technical support is provided – 22% Yes on the condition that marketing support is provided- 25% Yes but on the condition that financial support is provided – 24%
Heat tolerant varieties –wheat tomato and maize (sorghum)	No because of its high cost- 2% Yes – 73% Yes on the condition that technical support is provided- 1% Yes provided financial support is provided- 24%
orchards (pomegranate, guava, citrus in middle Egypt only)	Yes –25% Yes provided financial support is provided- 47% Yes on the condition that technical support is provided- 14% Yes on the condition that marketing support is provided- 13% No because of its high cost – 1%
Intercrop (eg. onions with wheat)	Yes - 90% No because not sure of results- 10%
Change sowing date	Yes – 90% Yes but on the condition that technical support is provided – 10%
Addition of new low-cost substances that will increase your productivity and help crop/chicken tolerate heat	Yes – 60% Yes Provided technical support is provided- 33% No because of its high costs- 2% Yes on the condition that financial support is provided- 5%
Take loan at 3-6% interest rate for animal raising	Yes – 100%
Raise rabbits	Yes – 90% Yes on the condition that financial loans are provided- 9% Yes on the condition that marketing support is provided- 1%

Raise goats	Yes on the condition that financial loans are provided – 86% Yes-14%
Own a bees project	Yes -63% No because of its high costs- 2% Yes but on the condition that technical support is provided – 18% Yes on the condition that financial loans are provided- 10% yes on the condition that marketing support is provided-17%
Raise ducks	Yes – 84% Yes on the condition that financial loans are provided- 16%
Use alternative fodder	Yes – 81% Yes on the condition that technical assistance is provided- 19%
Have an agro-processing project	Yes- 23% No because of its high costs- 10% Yes but on the condition that technical support is provided – 30% Yes- on the condition that financial support is provided- 11% Yes on the condition that marketing support is provided- 26%
Practice irrigation management schemes	Yes – 73% No-27%

Institutional Capacity

There is no agricultural cooperative in El Loqa, however there are two local NGOs. The institutional assessment exercise concluded that only one can be entrusted with the management of the project loans or overlooking sustainability of activities.

Other considerations

No security/ conflict issues or other risks were reported about Nezlet Ali . In-depth meetings and focus group discussions also confirmed the findings of the survey with regards to the acceptance of suggested interventions and conditions for their success.

Key findings and conclusions :

- Climate change and resulting weather shocks are known among villagers. They are also aware of how it impacts crop and animal production and have voiced a need for support in building resilience and reducing losses.
- Knowledge and practice of adaptation mechanisms were not very strong. Lack of technical knowhow, high costs and uncertainty of results have been reported as the main reasons.
- There are no systems for early warning to help reduce climate-induced losses in place.

- All the suggested interventions were welcomed by the beneficiaries, including those that they were unaware of such as organic farming and linkage to on-line weather forecasting systems. Plantation of okra and beans as new high value crops has been expressed by farmers as good adaptation, with a willingness to adapt more new crops that can have similar impacts in building their resilience.
- The project's offering of an integrated package of technical and marketing support, demonstration fields and financial loans responds to concerns and requirements mentioned by villagers to adopt the interventions
- With females being the key guardians of animals in the village, the villagers are expecting animal raising loans to have a positive impact on women's advancement.
- With the evident weakness of the existing services in the village, enhancement of vet. care is needed to complement the animal raising loans.
- Fodder is mainly grown in the village, with the majority of the farmers using significant portions of their land to cultivate it. Production of alternative fodder is thus expected to have profound impacts, allowing them to make better usage of the land in cultivation of other crops.
- With most of the land cultivated for household consumption farmers will be allocating small areas of their plots for cultivation of newly introduced crops. Support for collective marketing of produce of these small areas is thus imperative for the success of these cultivations.

Kommier Village
Esna District- Luxor

Basic Socioeconomic Information about the village

Kommier is one of the 25 villages in Esna district in Luxor. In 2011, it had a total population of 10422 villagers with a percentage of 52% females and 48% males and 50.67% of the population living under the national poverty line. The following figures depict the educational, age and employment constitution of the village members.

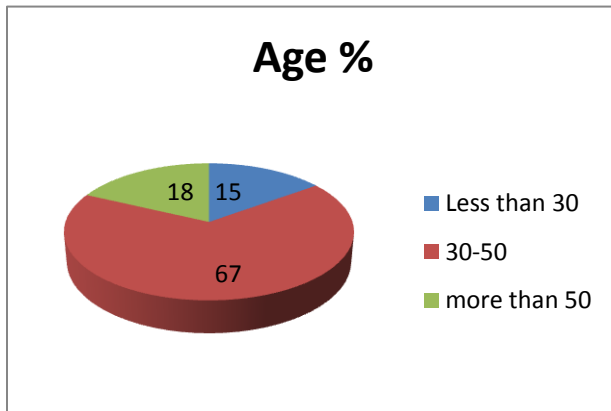


Figure 1 Age composition of sample

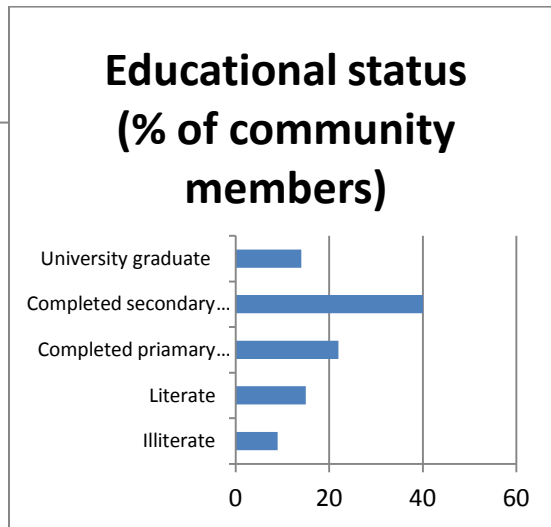


Figure 2 Educational status of Community members

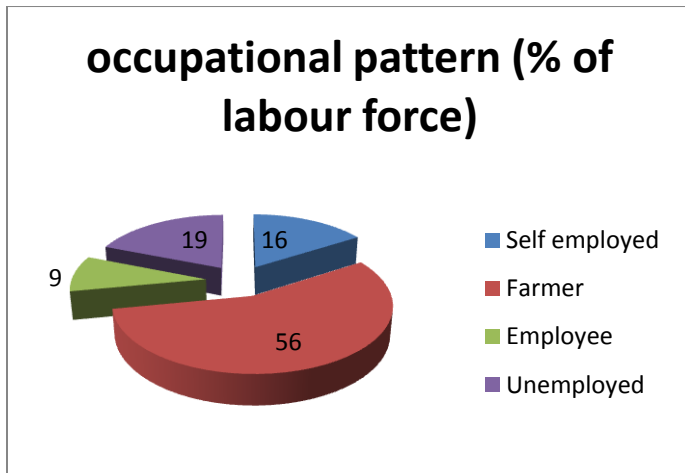


Figure 3 occupational patterns

The village has a primary and a preparatory schools and the nearest secondary school is in the nearest mother village, 6 Km away. There is a health unit in the village, but with 64% of the sample complaining that the medical staff is rarely available, it can be concluded that it is performing poorly.

36% of the population indicated that medication is available in the village pharmacy, with 8% indicating that they find medication unaffordable and 56% purchase their medicine from neighboring villages.

There is no vet. Care unit in the village and the nearest one is 15 km away. The level of satisfaction with this unit is relatively low- with 91% of the sample indicating that its medical staff is seldom available, 52% indicating that it does not have the necessary equipment and 64% indicating that does not offer them medication, it can be concluded that it is performing poorly. There are also no private vet care services available in the village.

Crop production

Kommier has a total area of 2559 acres. 56 % of the population is working in agriculture with 85% of the farmers being smallholders owning/renting less than 1 acre, 15% own/rent 1-3 acres and none owning/renting more. 61% of those involved in agriculture own land, while 22% rent with 17% being subsistence farmers. The land of the village is clay and the average land rental value is L.E. 2400/acre/season.

The following table presents which of their family members are involved in agriculture as expressed by the interviewees.

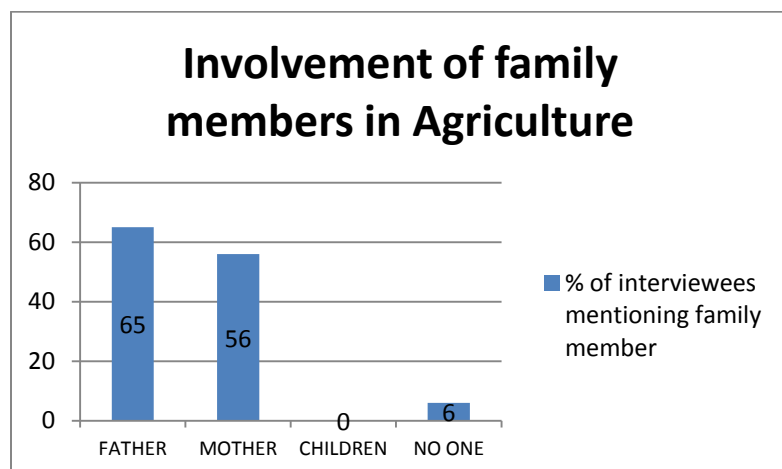


Figure 5 Involvement of members in agriculture

Several crops are cultivated in the village, with wheat, sugar cane, maize and sorghum being the main ones. The following figure shows the percentage of farmers cultivating each crop.

The average productivity and sowing dates of the cultivated crops was reported as follows:

Crop	Productivity/acre/season (ton)	Sowing date
Wheat	2	beginning December
Sugar Cane	36	Beginning of April
Clover	71	Late December
Maize and Sorghum	2.3	Mid April

Table 1 average crop productivity and sowing dates of cultivated crops in Kommier village

Average cost of cultivation has been reported as follows:

Table 2 Average costs of cultivation of One Acre in L.E

Crop	Soil Machineries	seeds	Fertilizers	Irrigation	Workers	Total
Wheat	150	260	220	500	250	1380
Maize	155	310	265	540	250	1520
Sugar cane	300	1600	350	600	950	3800
Sorghum	155	160	170	500	240	1225
Clover	150	110	100	500	240	1100

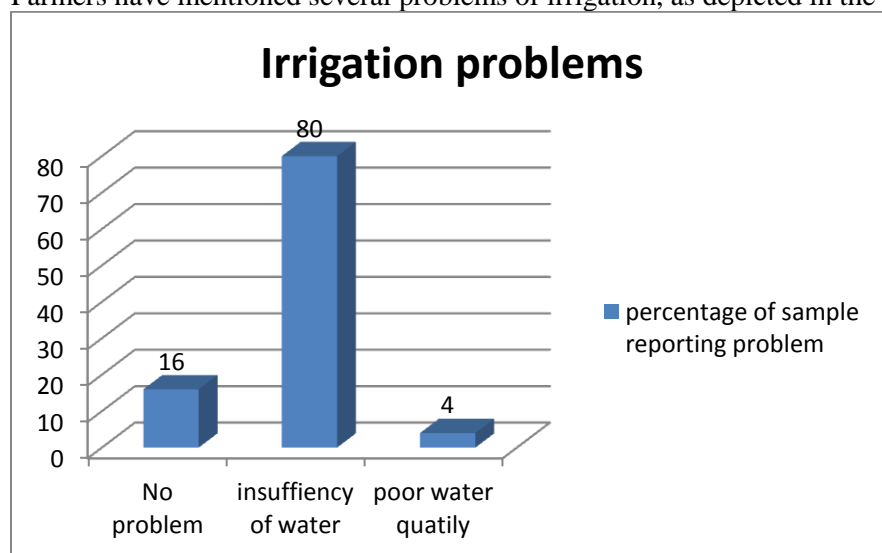
As to marketing, the village has a weekly market where crops, animals and animal products are sold. When asked about what farmers do with their crops, a majority of 86% of the sample indicated that it is entirely or partially consumed by the household with 2% selling in a nearby market and 12% selling locally. 55% of the sample indicated that transport to the market is readily available and affordable, while 25% indicated that they cannot financially afford it. The price of the product is usually decided by wholesalers, with only 12% of the sample indicating that they are able to determine the price of their produce.

Organic farming was found to be unpracticed, with 14% indicating that they are unaware what it was. The remaining 86% mentioned that they have heard but never practiced it with lack of technical know-how, poor marketing abilities and high costs cited as reasons by 55, 45 and 5% respectively. 14% of the sample has practiced contract farming, with all of them indicating that they found it profitable.

Irrigation:

Groundwater and surface canals are the two sources of irrigation water in the village, providing for 10% and 90% of the land respectively. Furrow irrigation is the only practiced mechanism and no improved water management techniques or structures such as water users associations or irrigation scheduling are in place. On average, irrigating an acre once costs L.E. 72

Farmers have mentioned several problems of irrigation, as depicted in the figure below:



Irrigation services in the area were mentioned to be canal cleaning and general maintenance of main canals, both performed by the Ministry of Water Resources and Irrigation. As depicted by the chart below, the level of satisfaction with these services is fairly low.

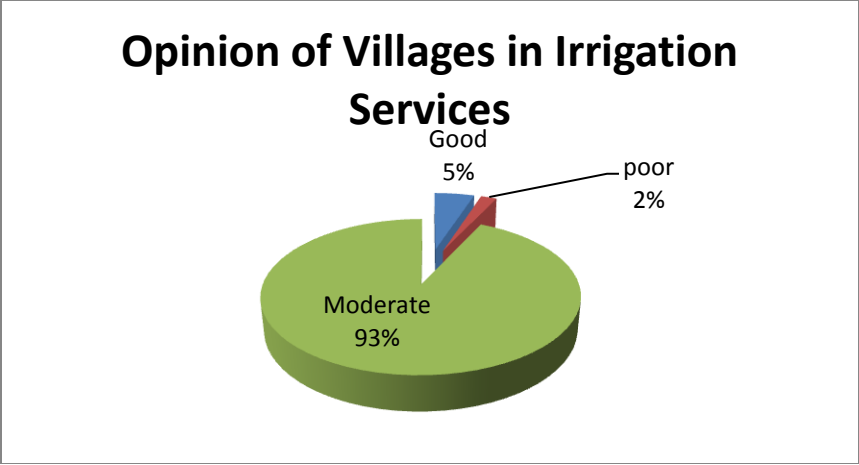


Figure 8 Community Opinions about Irrigation Services In kommier

Animal Production

Villagers in Kommier are raising cows and buffalos, goats and sheep and poultry.

The figure below indicates the percentage of community members growing each type.

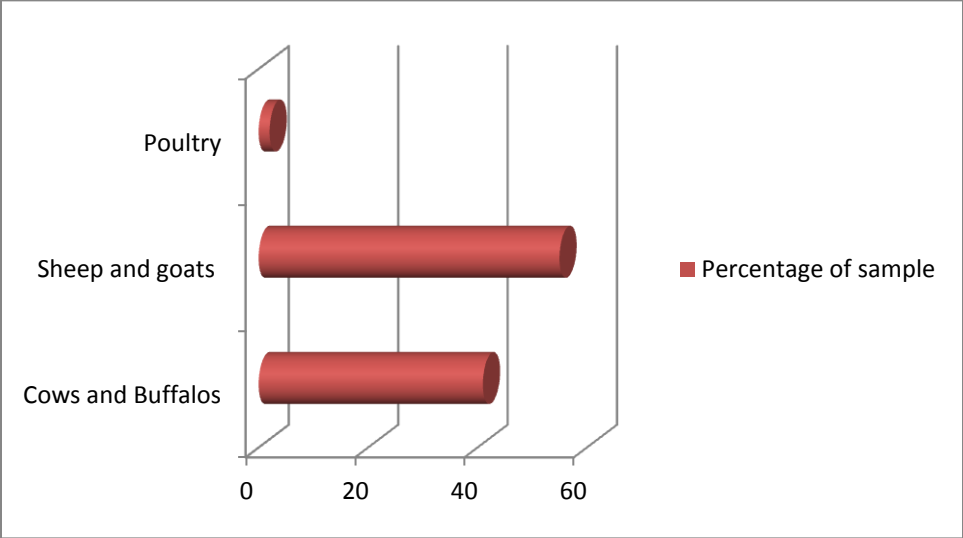


Figure 9 Animals Raised in Kommier

As to its purpose, 69% of the sample indicated that they raise animals for the sale of its offspring while 31% indicated that it is for their household consumption. 70% of the sample consume animal products in the household, with 15% of those selling animal products are doing so in the village market, and 15 % are selling it in the market of the neighboring village.

Animal fodder is mainly grown in the village, with 80% of the sample indicating they grow it, 14% indicating they purchase it from the village market and 6% purchase it from outside the village.

Alternative fodder was found to be unknown, with 91% of the sample indicating they have never heard of it.

Animal keeping was found to be the responsibility of the female members of the household as the figure below suggests.

Climate Change and Weather Variability

Knowledge about climate change and weather variability was found to be poor, with 94% of the sample indicating that they do not know what it is. However, 57% mentioned that they have witnessed increasing frequency and intensity of extreme weather events. Heat waves have been mentioned as example of such events. As to their impacts, 86% indicated that it has negatively affected their crops, while 40% indicated it had negative impacts on their animals. The interviewees, however were not able to quantify such losses.

Adoption of adaptation mechanisms seems to be fairly weak, with only 11% indicating that they have heard of possible adaptation solutions, including the use of new heat tolerant wheat and maize varieties. However, adaptation was not practiced in the village, is with reasons given for this depicted below.

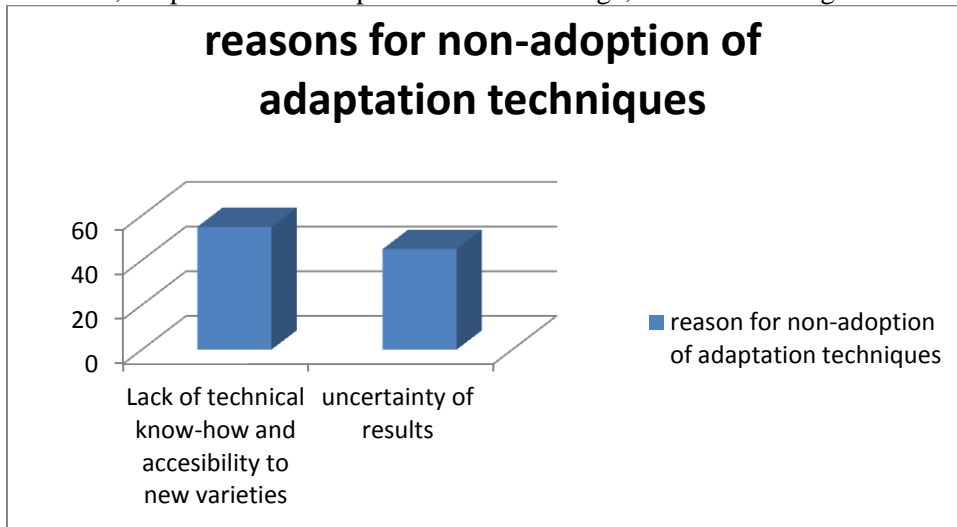
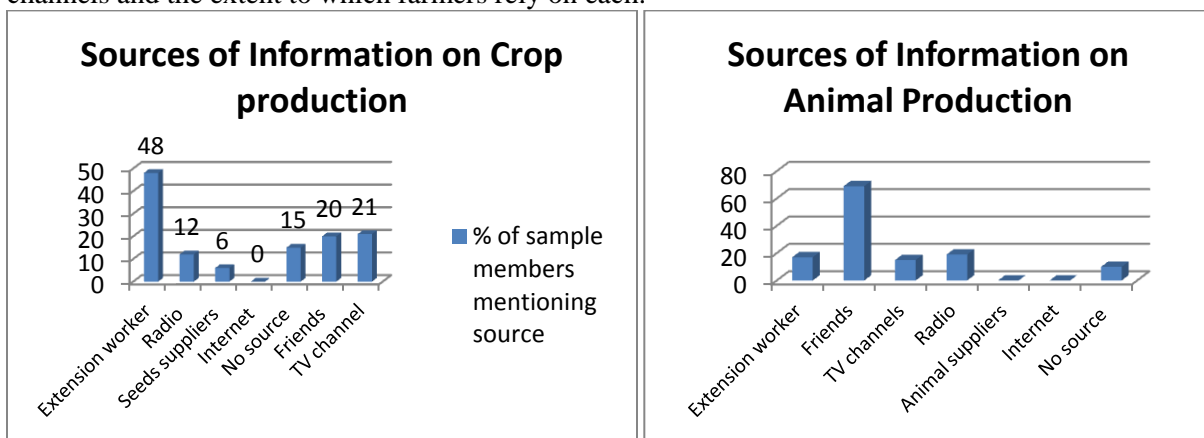


Figure 14 Reasons for non adoption of adaptation techniques.

Access and Dissemination of Information

Farmers were found to access information about agriculture through several channels including extension workers, the agricultural cooperative, the television, among others. The followings figure presents these channels and the extent to which farmers rely on each.



All villagers interviewed indicated that there is no early warning system to help them forecast and prepare for extreme events.

Two means for information dissemination in the village were mentioned, namely microphones of mosques and mobile microphones. Some villagers also mentioned the possibility of receiving messages in SMSs through their cellular telephones.

To identify where it is best to house an online early warning system for weather extreme events, 41% mentioned the agricultural cooperative of the nearest village, 59% mentioning a local NGO/CDA.

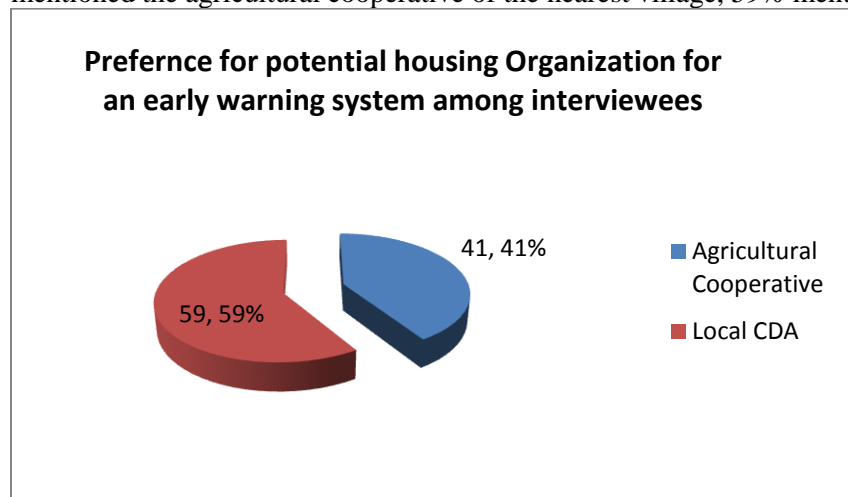


Figure 13 Preference for potential housing Organization for an early warning system

As to the village focal point for this system, a majority of 15% of the sample indicated that they would prefer it be someone from the local NGO/CDA or the agricultural cooperative, with 5% indicating it has to be a farmer and 80% indifferent about this issue.

Acceptability of Suggested Adaptation interventions

The following table summarizes the results obtained on the level of acceptance of the suggested interventions among the sample.

Crop /technique	Acceptability (%of sample)
Medicinal and aromatic plants	Yes- 25% Yes but on the condition that technical support is provided – 19% Yes on the condition that marketing support is provided- 30% Yes but on the condition that financial support is provided –26% No, because of its high costs – 0%
Organically	Yes- 6% Yes but on the condition that technical support is provided – 12% Yes on the condition that marketing support is provided- 32% Yes but on the condition that financial support is provided –30% No, because of its high costs – 20%
High value crops –e.g. strawberry	Yes- 19% Yes but on the condition that technical support is provided – 16% Yes on the condition that marketing support is provided- 20%

	Yes but on the condition that financial support is provided –0% No, because of its high costs – 45%
Heat tolerant varieties –wheat tomato and maize (sorghum)	Yes- 87% Yes but on the condition that technical support is provided – 1% Yes but on the condition that financial support is provided –11% No-1%
orchards (pomegranate, guava, citrus in middle Egypt only)	Yes- 29% Yes but on the condition that technical support is provided – 2% Yes on the condition that marketing support is provided- 2% Yes but on the condition that financial support is provided -65% No, because of its high costs – 2%
Intercrop (eg. onions with wheat)	Yes- 60% No, because of uncertain of results– 40%
Change sowing date	Yes- 73% Yes but on the condition that technical support is provided –27%
Addition of new low-cost substances that will increase your productivity and help crop/chicken tolerate heat	Yes- 56% Yes but on the condition that technical support is provided – 9% Yes on the condition that marketing support is provided- 0% Yes but on the condition that financial support is provided -25% No, because of its high costs – 10%
Take loan at 3-6% interest rate for animal raising	Yes- 100%
Raise rabbits	Yes- 19% Yes but on the condition that technical support is provided – 2% No, because of the hot weather – 79%
Raise goats	Yes- 13% Yes-on the condition that technical support is provided-1% Yes but on the condition that financial support is provided –86%
Own a bees project	Yes- 25% Yes but on the condition that technical support is provided-20 Yes but on the condition that marketing support is provided-21 Yes but on the condition that financial support is provided –31% No, because of unspecified reasons – 2%

Raise ducks	Yes- 29% Yes but on the condition that financial support is provided –61% No-10%
Use alternative fodder	Yes- 69% Yes but on the condition that technical support is provided – 31%
Have an agro-processing project	Yes- 11% Yes but on the condition that technical support is provided – 33% Yes- but on the condition that marketing support is provided- 37 Yes but on the condition that financial support is provided –10% No-9%
Practice irrigation management schemes	Yes- 52% Yes but on the condition that technical support is provided- 40 No, because of its high costs – 8%

Institutional Capacity

There is no agricultural cooperative in Kommier but there is a strong local NGO that can be entrusted with the management of the project loans or overlooking sustainability of activities.

Other considerations

No security/ conflict issues or other risks were reported about Kommier. In-depth meetings and focus group discussions also confirmed the findings of the survey with regards to the acceptance of suggested interventions and conditions for their success.

Key findings and conclusions:

- Like in other villages, the majority of the villagers mentioned that they have noticed a rise in frequency and intensity of weather shocks over the last years. They are also aware that their crop and animal productivity have been affected and voiced a need for support in avoiding or reducing resulting losses. However, attempts to perceive such changes in relation to global climate changes seem to be non-existent. This might be driven by a lack of interest in global issues in general. Like in other rural communities, villagers' main focus in life seems to be on meeting their day-to-day household needs and local issues that might affect their abilities to meet such needs in any manner. Little attention is generally paid to wider considerations and issues that they think would not directly affect their livelihoods.
- There are no systems for early warning to help reduce climate-induced losses in place. The need for connection to any system that would help in this respect was strongly voiced.
- Some farmers indicated that they have heard of new wheat and maize varieties that can withstand heat waves. However, they did not know how these could be accessed and will no knowledge on the recommended cultivation practices of such varieties, they did not use them.

- The need for introducing means for reducing climate-induced losses in their main crops was strongly expressed by all those interviewed. In addition, those aware of the development of wheat and maize tolerant varieties mentioned a strong desire to use these varieties.
- Villagers expressed a need for financial and technical support to diversify their means of income generation as a tool to help in compensating for climate-induced losses. Loans for ducks, goats and bee keeping projects, intercropping, introduction of new aromatic plants and agro-processing were perceived by villagers to be good tools to meet these demands.
- Besides helping families augment their income in the face of climate-induced crop productivity reductions, the animal raising loans are expected to have a positive impact on women's advancement, with females being the key guardians of animals in the village.
- Enhancement of vet. care was expressed as need to complement the animal raising loans in light of the evident weakness of the existing services in the village.
- The project's offering of an integrated package of technical and marketing support, demonstration fields and financial loans responds to concerns and requirements mentioned by villagers to adopt the interventions
- The proposed water management interventions will help increase irrigation efficiency, directly addressing the main irrigation problem in the village, being insufficiency in water.
- Villagers get information about agricultural production from many sources including extension workers, radio and TV, seeds suppliers and friends. Means of mass communication in the village include microphones, both in mosques and mobile. The project will use these channels in reaching beneficiaries and disseminating information.
- Fodder is mainly grown in the village, with the majority of the farmers using significant portions of their land to cultivate it. The farmers believe that alternative fodder will thus have profound impacts, allowing them to make better usage of the land in cultivation of other crops. They also expressed it will help them in meeting the expected rise in demand for fodder with goats projects initiated in the village.
- With most of the land cultivated for household consumption farmers will be allocating small areas of their plots for cultivation of newly introduced crops. Support for collective marketing of produce of these small areas is thus imperative for the success of these cultivations.

Halfa 3 Village
Esna District- Luxor

Basic Socioeconomic Information about the village

Halfa is one of the 25 villages in Esna district in Qena. In 2011, it had a total population of 3910 villagers with a percentage of 51.3% males and 48.7 % females and 49.39%% of the population living under the national poverty line. The following figures depict the educational, age and employment constitution of the village members.

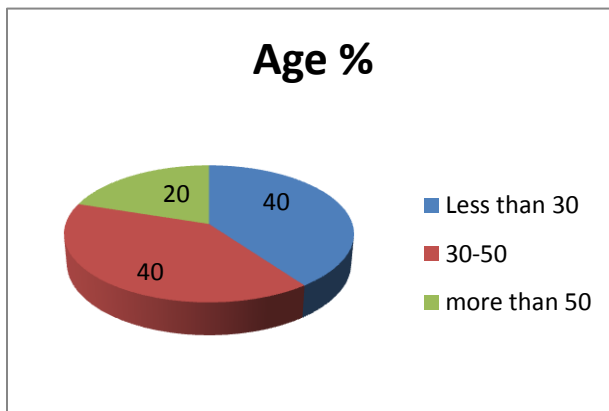


Figure 1 Age composition of sample

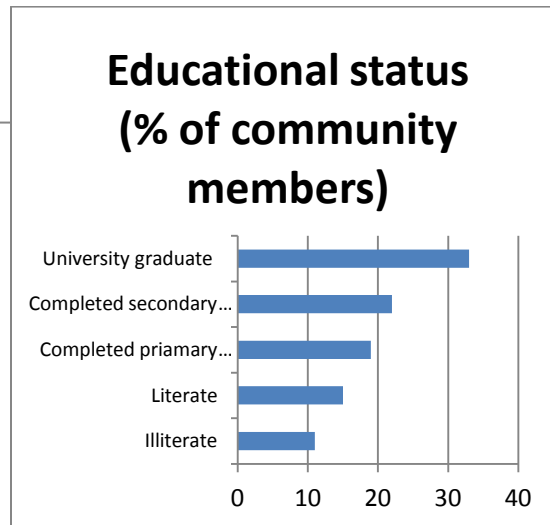


Figure 2 Educational status of Community Members

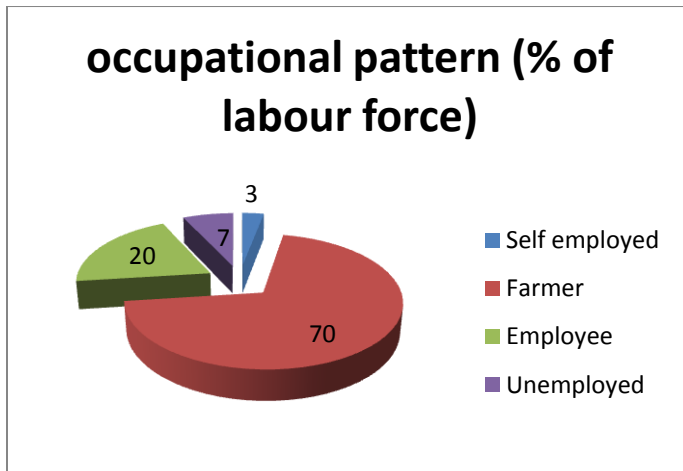


Figure 3 occupational patterns

The village has one primary and one preparatory schools. There is a health unit in the village, however, with 80% of the sample complaining that the medical staff of the unit are rarely available, it can be concluded that it is performing poorly.

33% of the population indicated that medication is available in the village pharmacy and 67% purchase their medicine from neighboring villages.

There is no vet. Care unit in the village and the nearest one is 20 Km away. The level of satisfaction with this unit is relatively low- with all of the sample indicating that its medical staff is seldom available, 81% indicating that it does not have the necessary equipment, and 80% indicating that it does not offer medication, it can be concluded that it is performing poorly. There are also no private vet care services available in the village.

Crop production

Halfa 3 has a total area of 948acres. 70 % of the population is working in agriculture with 38% of the farmers being smallholders owning/renting less than 1 acre, 62% own/rent 1-3 acres. Only 46% of those involved in agriculture own land, while 19% rent and 35% work as labour, with 26% being subsistence farmers. 88% of the land of the village is sand and 12% is clay and the average land rental value is L.E. 2400/acre/season.

The following table presents which of their family members are involved in agriculture as expressed by the interviewees.

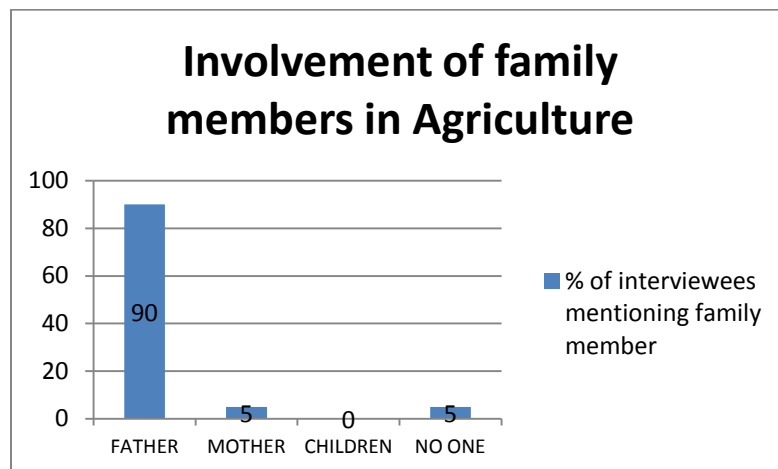


Figure 5 Involvement of members in agriculture

Several crops are cultivated in the village, with wheat, sugar cane, maize and sorghum being the main ones. Tomato is also grown on smaller scales.

Average productivity and sowing dates of the cultivated crops was reported as follows:

Crop	Productivity/acre/season (ton)	Sowing date
Wheat	1.9	Beginning of December
Sugar Cane	40	Beginning of April
Clover	72	Late December
Maize and Sorghum	2	Mid April

Table 1 average crop productivity and sowing dates of cultivated crops in Halfa 3.

Average cost of cultivation has been reported as follows:

Table 2 Average costs of cultivation of One Acre in L.E

Crop	Soil Machineries	seeds	Fertilizers	Irrigation	Workers	Total
Wheat	160	250	220	500	200	1330
Maize	160	300	265	540	250	1515
Sugar cane	300	1600	350	600	850	3700
Sorghum	150	150	170	500	200	1170
Clover	150	100	100	500	200	1050

With that said, it is to be noted that 46% of the interviewees indicated that they use seasonal labour in their cultivation and 54% use family members only.

As to marketing, the village has a weekly market where crops, animals and animal products are sold. When asked about what farmers do with their crops, 27% of the sample indicated that it is entirely or partially consumed by the household with 13% selling in a nearby market and 60% selling locally. 55% of the sample indicated that transport to the market is readily available and affordable, while 25% indicated that they cannot financially afford it. The price of the product is usually decided by wholesalers, with 5% of the sample indicating that they are able to determine the price of their produce.

Organic farming was found to have been practiced with 100% mentioned that they have never heard of it. 85% of the sample has practiced contract farming, with 90% of them indicating that they have found it profitable.

Irrigation:

Pumped water, groundwater and surface canals are the sources of irrigation water in the village, providing for 70, 25% and 5% of the land respectively. Furrow irrigation is the only type used with no improved water management techniques or structures such as water users associations or irrigation scheduling in place. On average, irrigating an acre once costs L.E. 96.

Farmers have mentioned several problems of irrigation, as depicted in the figure below:

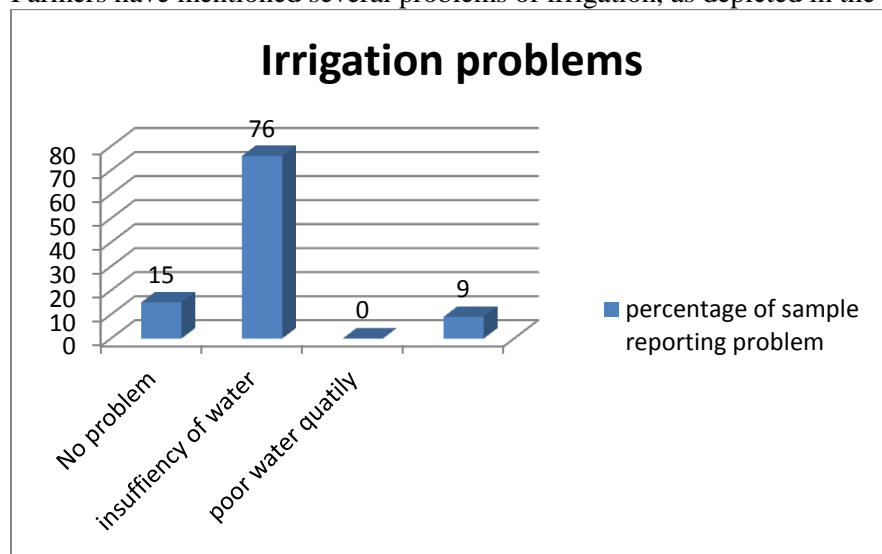


Figure 7 Problems of Irrigation

Irrigation services in the area were mentioned to be canal cleaning and general maintenance of main canals, both performed by the Ministry of Water Resources and Irrigation. With 100% of the sample indicating that the service is good, the level of satisfaction with these services is high.

Animal Production

Villagers in Halfa 3 are raising cows and buffalos, goats and sheep and poultry.

The figure below indicates the percentage of community members growing each type.

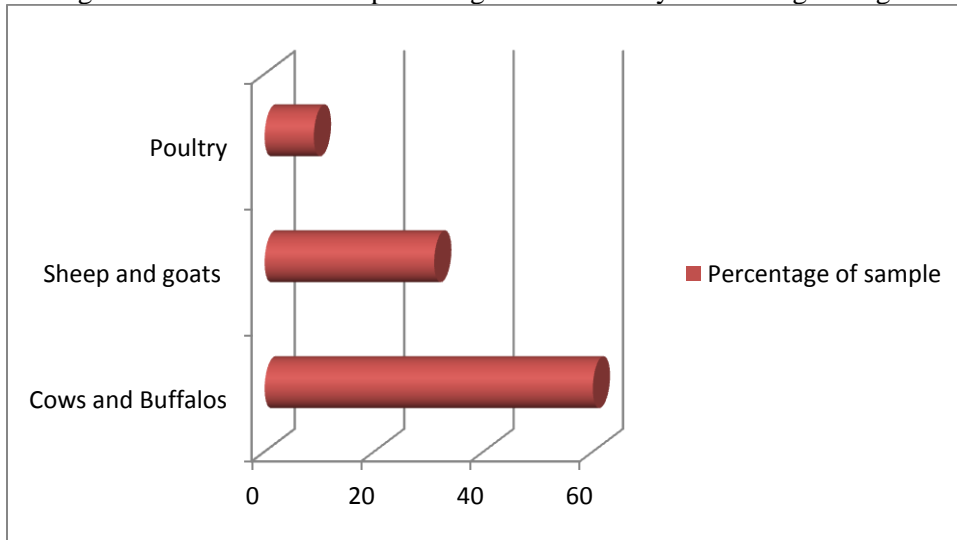


Figure 9 Animals Raised

As to its purpose, 80% of the sample indicated that they raise animals for the sale of its offspring, while 15% indicated that it is for their household consumption. 30% of those selling animals or animal products are doing so in the village market, while 70% are selling it in the market of the neighboring village. Animal fodder is mainly grown in the village, with 77% of the sample indicating they grow it, 10% indicating they purchase it from the village market and 13% purchase it from outside the village. Alternative fodder was found to be heard of, with 11% of the sample indicating they have heard of it. Animal keeping was found to be the responsibility of the female members of the household as the figure below suggests.

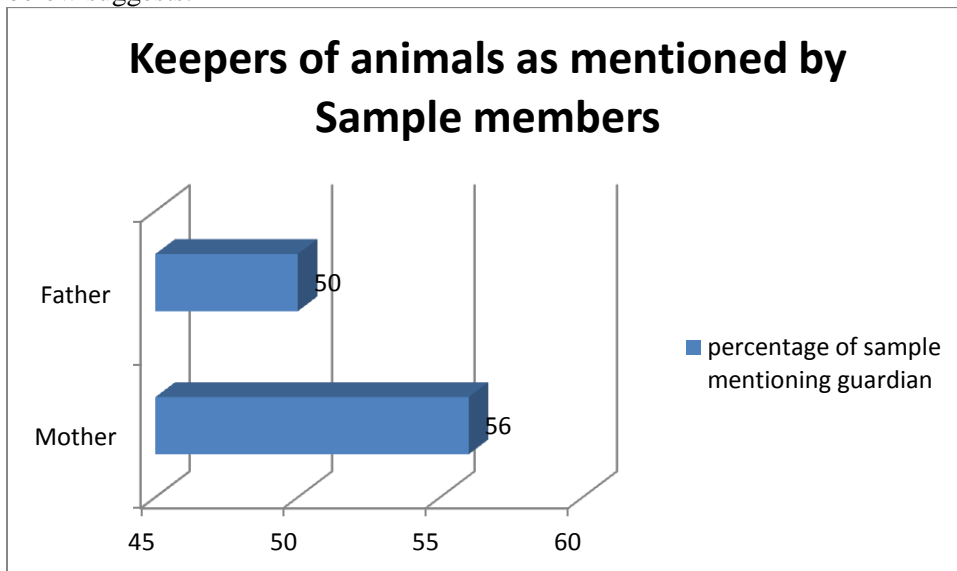


Figure 10 Guardians of animals

Loans for animal raising projects have not been previously offered in Halfa 3.

Climate Change and Weather Variability

Knowledge about climate change and weather variability was found to be very poor, with 10% of the sample indicating that they are aware what climate change is. However, 55% mentioning that they have witnessed increasing frequency and intensity of extreme weather events. Heat and chill waves have been mentioned as example of such events. As to their impacts, 70% indicated that it has negatively affected their crops, while 40% indicated it had negative impacts on their animals. The interviewees, however were not able to quantify such losses.

Adoption of adaptation mechanisms seems to be fairly weak, with 85% indicated that they have never heard of possible adaptation solutions. 15% mentioned that they have heard that changing in the irrigation schedules of crops might help plants survive extreme weather waves, but were not sure how this works or how to apply it. Accordingly, none of the sample indicated that they have practiced adaptation mechanisms with reasons given for why adaptation was not practiced depicted below.

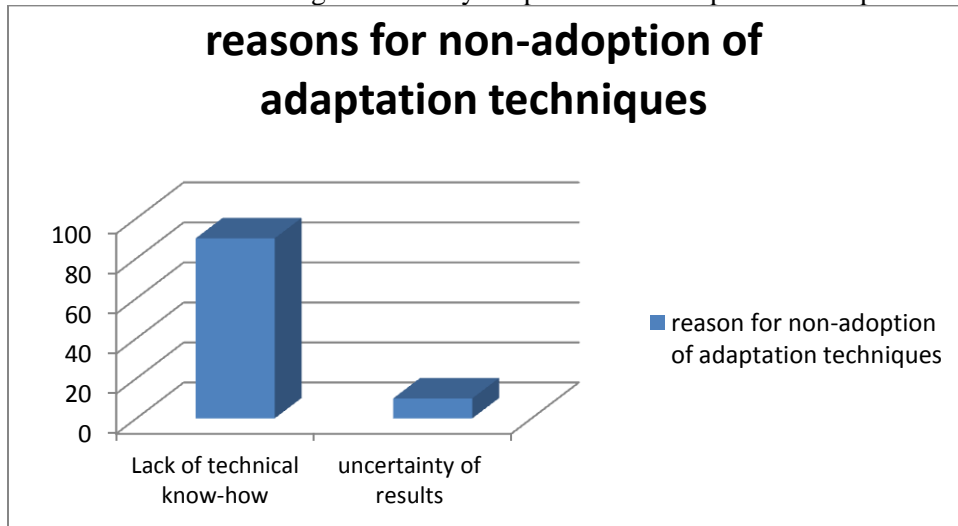


Figure 14 Reasons for non adoption of adaptation techniques

Access and Dissemination of Information

Farmers were found to access information about agriculture through several channels including extension workers, the agricultural cooperative, the television, among others. The followings figure presents these channels and the extent to which farmers rely on each.

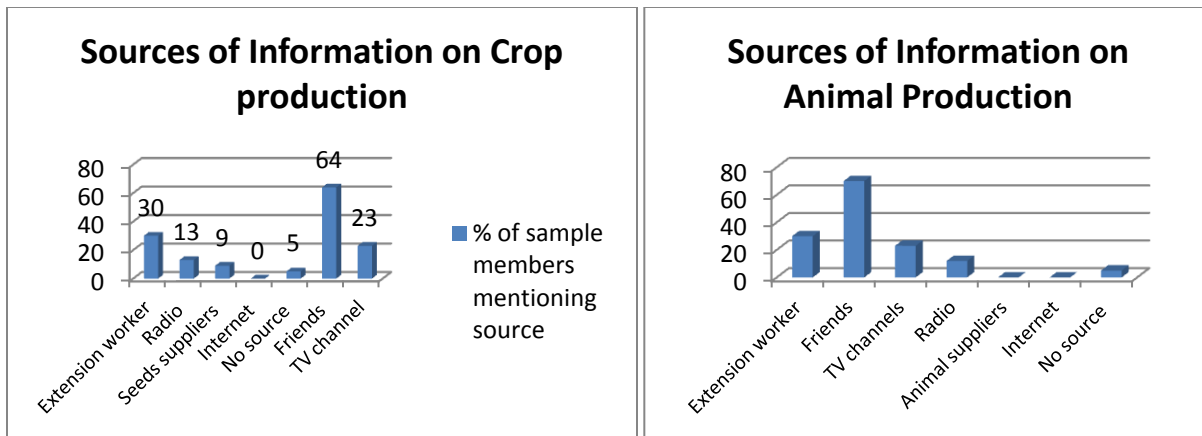


Figure 11 Sources of on crop production

Figure 12 Sources of information on animal

All villagers interviewed indicated that there is no early warning system to help them forecast and prepare for extreme events.

Several means for information dissemination in the village were mentioned, including microphones of mosques and mobile microphones. Some villagers also mentioned the possibility of receiving messages in SMSs through their cellular telephones.

To identify where it is best to house an online early warning system for weather extreme events, 10% mentioned the agricultural cooperative of the nearest village, 90% mentioning a local NGO/CDA.

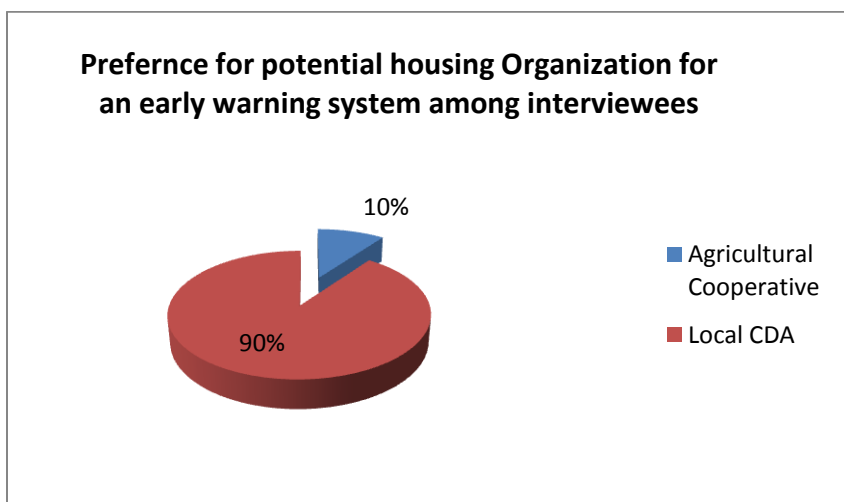


Figure 13 Preference for potential housing Organization for an early warning system among villagers

As to the village focal point for this system, 20% of the sample indicated that they would prefer it be someone from the local NGO/CDA or the agricultural cooperative, with 60% indicating it has to be a farmer and 20% indifferent about this issue.

Acceptability of Suggested Adaptation interventions

The following table summarizes the results obtained on the level of acceptance of the suggested interventions among the sample.

Crop /technique	Acceptability (%of sample)
Medicinal and aromatic plants	Yes- 59% Yes but on the condition that technical support is provided – 9% Yes on the condition that marketing support is provided- 6% Yes but on the condition that financial support is provided –14% No, because of its high costs –12%
Organically	Yes- 36% Yes but on the condition that technical support is provided – 43% Yes on the condition that marketing support is provided- 12% Yes but on the condition that financial support is provided –0% No, because of its high costs – 9%
High value crops –e.g. strawberry	Yes- 21% Yes but on the condition that technical support is provided – 42% Yes on the condition that marketing support is provided- 0% Yes but on the condition that financial support is provided –25% No, because of its high costs –12%
Heat tolerant varieties –wheat tomato and maize (sorghum)	Yes- 90% Yes but on the condition that financial support is provided –10%
orchards (pomegranate, guava, citrus in middle Egypt only)	Yes- 21% Yes but on the condition that technical support is provided – 15% Yes on the condition that marketing support is provided- 0% Yes but on the condition that financial support is provided -46% No- unspecified reasons– 18%
Intercrop (eg. onions with wheat)	Yes- 41% Yes- on the condition that technical support is provided 8% Yes- on the condition that financial support is given – 11% No, because uncertain of results– 40%
Change sowing date	Yes- 95% Yes but on the condition that financial support is provided –5%

Addition of new low-cost substances that will increase your productivity and help crop/chicken tolerate heat	<p>Yes- 74%</p> <p>Yes but on the condition that technical support is provided –2%</p> <p>Yes on the condition that marketing support is provided- 1%</p> <p>Yes but on the condition that financial support is provided -22%</p> <p>No, because of its high costs – 1%</p>
Take loan at 3-6% interest rate for animal raising	Yes- 100%
Raise rabbits	<p>Yes- 13%</p> <p>Yes but on the condition that marketing support is provided – 0%</p> <p>No, because of the hot weather – 73%</p>
Raise goats	<p>Yes- 90%</p> <p>Yes but on the condition that financial support is provided –10%</p>
Own a bees project	<p>Yes- 23%</p> <p>Yes but on the condition that technical support is provided-25%</p> <p>Yes but on the condition that marketing support is provided-28%</p> <p>Yes but on the condition that financial support is provided –12%</p> <p>No, because of unspecified reasons –12%</p>
Raise ducks	<p>Yes- 35%</p> <p>Yes but on the condition that technical support is provided-2%</p> <p>Yes but on the condition that marketing support is provided-2%</p> <p>Yes but on the condition that financial support is provided –52%</p> <p>No-9%</p>
Use alternative fodder	<p>Yes- 71%</p> <p>Yes but on the condition that technical support is provided – 29%</p>
Have an agro-processing project	<p>Yes- 20%</p> <p>Yes but on the condition that technical support is provided – 21%</p> <p>Yes- but on the condition that marketing support is provided-20%</p> <p>Yes but on the condition that financial support is provided –21%</p> <p>No-18%</p>

Practice irrigation management schemes	Yes- 49%
	Yes but on the condition that financial support is provided- 41%
	No, because of its high costs – 10%

Institutional Capacity

There is a strong local CDA in HELFA 3 that can be entrusted with the management of the project loans or overlooking sustainability of activities.

Other considerations

No security/ conflict issues or other risks were reported about the village. In-depth meetings and focus group discussions also confirmed the findings of the survey with regards to the acceptance of suggested interventions and conditions for their success.

Key conclusions:

- Like in other villages, the majority of the villagers mentioned that they have noticed a rise in frequency and intensity of weather shocks over the last years. They are also aware that their crop and animal productivity have been affected and voiced a need for support in avoiding or reducing resulting losses. However, attempts to perceive such changes in relation to global climate changes seem to be non-existent. This might be driven by a lack of interest in global issues in general. Like in other rural communities, villagers' main focus in life seems to be on meeting their day-to-day household needs and local issues that might affect their abilities to meet such needs in any manner. Little attention is generally paid to wider considerations and issues that they think would not directly affect on their livelihoods.
- There are no systems for early warning to help reduce climate-induced losses in place. The need for connection to any system that would help in this respect was strongly voiced.
- Few farmers indicated they have heard that it is possible to increase tolerance of plants to weather shocks through irrigation. However, they did not apply such techniques because they do not know how and were not sure of the results.
- The need for introducing means for reducing climate-induced losses in their main crops was strongly expressed by all those interviewed. In addition, those aware of the adaptive means through irrigation mentioned a strong desire to use these means. Heat tolerant tomato is also highly desirable.
- Villagers expressed a need for financial and technical support to diversify their means of income generation as a tool to help in compensating for climate-induced losses. Loans for ducks, goats and bee keeping projects, introduction of new aromatic plants and agro-processing were perceived by villagers to be good tools to meet these needs. Rabbits were not welcomed due to the hot weather in the village.
- Besides helping families augment their income in the face of climate-induced crop productivity reductions, the animal raising loans are expected to have a positive impact on women's advancement, with females being the key guardians of animals in the village.
- Enhancement of vet. care was expressed as need to complement the animal raising loans in light of the evident weakness of the existing services in the village.

- The project's offering of an integrated package of technical and marketing support, demonstration fields and financial loans responds to concerns and requirements mentioned by villagers to adopt the interventions
- The proposed water management interventions will help increase irrigation efficiency, directly addressing the main irrigation problem in the village, being insufficiency in water.
- Villagers get information about agricultural production from many sources including extension workers, radio and TV, seeds suppliers and friends. Means of mass communication in the village include microphones, both in mosques and mobile. The project will use these channels in reaching beneficiaries and disseminating information.
- Fodder is mainly grown in the village, with the majority of the farmers using significant portions of their land to cultivate it. The farmers believe that alternative fodder will thus have profound impacts, allowing them to make better usage of the land in cultivation of other crops. They also expressed it will help them in meeting the expected rise in demand for fodder with goats projects initiated in the village.
- With most of the land cultivated for household consumption farmers will be allocating small areas of their plots for cultivation of newly introduced crops. Support for collective marketing of produce of these small areas is thus imperative for the success of these cultivations.

El Negou Kebly Village
Esna District- Qena

Basic Socioeconomic Information about the village

El Negou Kebly is one of the 25 villages in Esna district in Qena. In 2011, it had a total population of 10028 villagers with a percentage of 57.8% females and 42.2% males and 51.66% of the population living under the national poverty line. The following figures depict the educational, age and employment constitution of the village members.

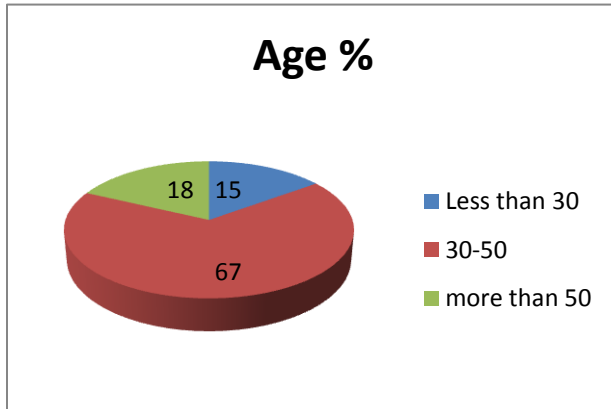


Figure 1 Age composition of sample

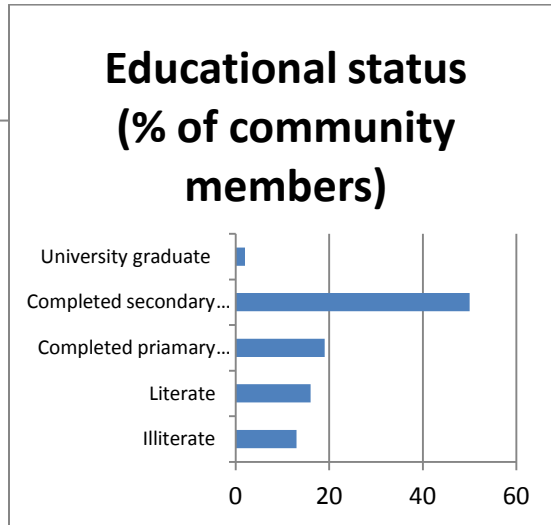


Figure 2 Educational status of Community Members

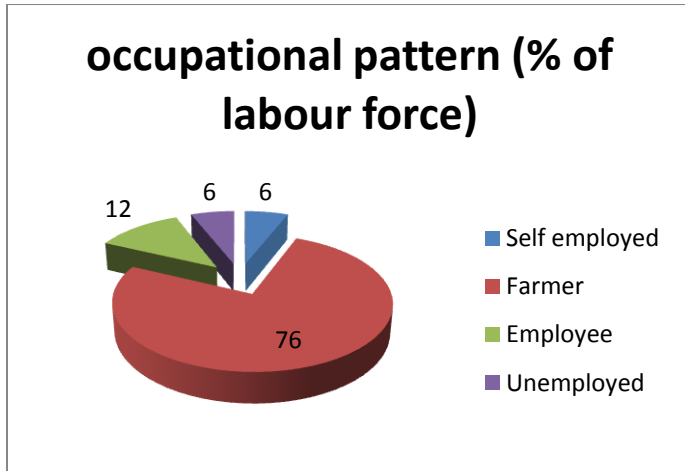


Figure 3 occupational patterns

The village has a primary and preparatory school and the nearest secondary school is in the nearest mother village 6 Km away. There is a health unit in the village, but with 24% of the sample indicating that the physician is rarely available and 61% of the sample indicating that the nurse is only available the satisfaction with its service is relatively low.

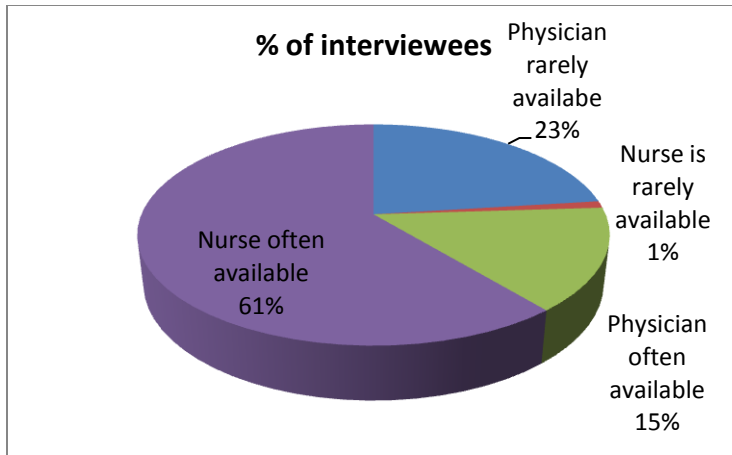


Figure 4- Satisfaction with Health care services.

32% of the population indicated that medication is available in the village pharmacy, with 16% indicating that they find medication unaffordable and 50% purchase their medicine from neighboring villages.

There is no vet. Care unit in the village and the nearest one is 16 Km away. The level of satisfaction with this unit is relatively low- with 83% of the sample indicating that its medical staff is seldom available, 75 % indicating that it does not have the necessary equipment, it can be concluded that it is performing poorly. There are also no private vet care services available in the village.

Crop production

El Negou has a total area of 2050 acres. Approximately 76 % of the population is involved in agriculture with 69% of the farmers being smallholders owning/renting less than 1 acre, 21% own/rent 1-3 feddans and 10% own/rent more. Only 22% of those involved in agriculture own land, while 23% rent and 55% work as labour, with 39% being subsistence farmers. The land of the village is clay and the average land rental value is L.E. 2400/acre/season.

The following table presents which of their family members are involved in agriculture as expressed by the interviewees.

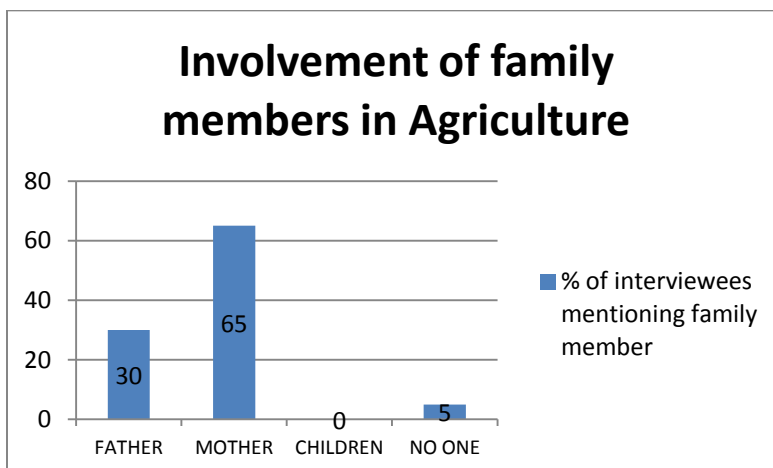


Figure 5 Involvement of members in agriculture

Several crops are cultivated in the village, with wheat, sugar cane, maize and sorghum being the main ones. Tomato and mango were also cultivated but on smaller scales.

Average productivity and sowing dates of the main cultivated crops was reported as follows:

Crop	Productivity/acre/season (ton)	Sowing date
Wheat	1.9	Beginning December
Sugar Cane	39	Beginning of April
Clover	70	Late December
Maize and Sorghum	2	Mid April

Table 1 average crop productivity and sowing dates of cultivated crops in the village

Average cost of cultivation has been reported as follows:

Crop	Soil Machineries	seeds	Fertilizers	Irrigation	Workers	Total
Wheat	150	250	220	540	250	1470
Maize	150	300	260	540	250	1500
Sugar cane	200	1500	350	600	1000	3650
Sorghum	150	130	160	500	250	1190
Clover	150	120	110	500	250	1130

Table 2 Average costs of cultivation of One Acre in L.E

With that said, it is to be noted that 63% of the interviewees indicated that they use seasonal labour in their cultivation.

As to marketing, the village has a weekly market where crops, animals and animal products are sold. When asked about what farmers do with their crops, 80% sample indicated that it is entirely or partially consumed by the household. Organic farming was found to be unpracticed, with 76% indicating that they are unaware what it was. The remaining 13% mentioned that they have heard but never practiced it with lack of marketing expertise and high costs cited as reasons by 11% and 13% respectively. None of the sample members has practiced contract farming.

Irrigation:

Groundwater and surface canals are the two sources of irrigation water in the village, providing for 22% and 78% of the land respectively. Furrow irrigation is the only practiced mechanism and no improved water management techniques or structures such as water users associations or irrigation scheduling are in place. On average, irrigating an acre once costs L.E. 72

Farmers have mentioned several problems of irrigation, as depicted in the figure below:

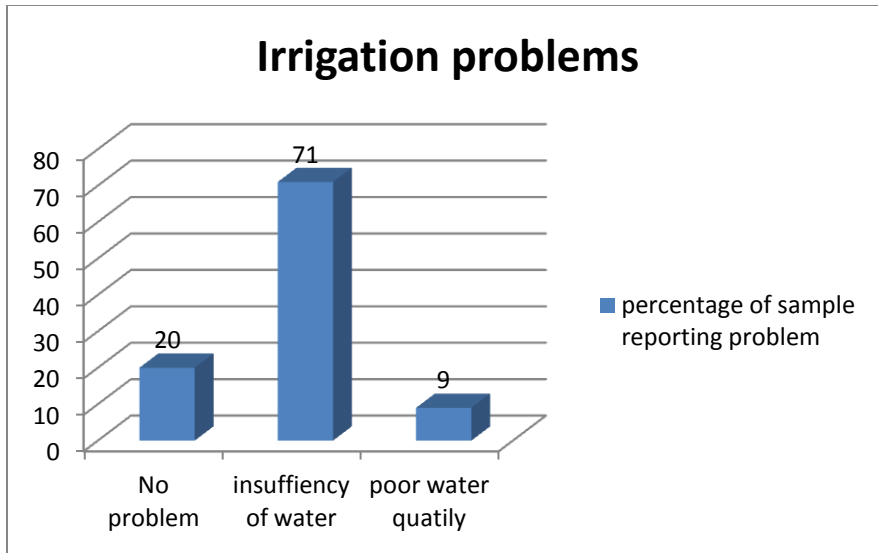


Figure 7 Problems of Irrigation

Irrigation services in the area were mentioned to be canal cleaning and general maintenance of main canals, both performed by the Ministry of Water Resources and Irrigation. As depicted by the chart below, the level of satisfaction with these services is fairly poor.

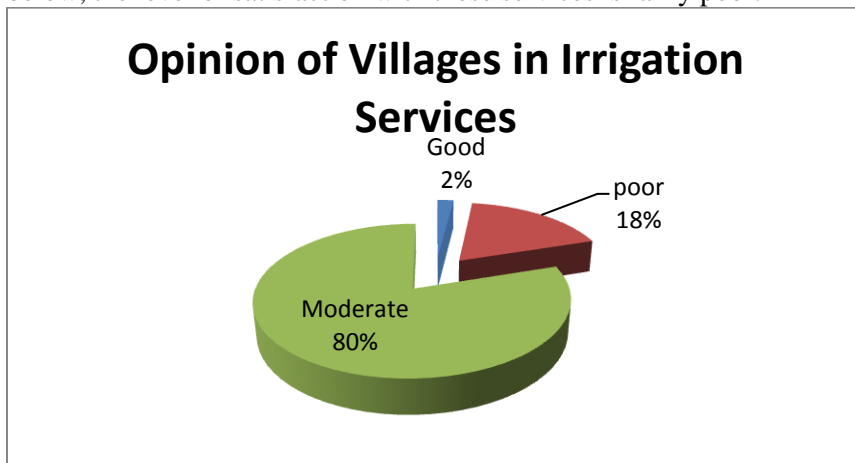


Figure 8 Community Opinions about Irrigation Services

Animal Production

Villagers in the village are raising cows and buffalos, goats and sheep, poultry.

The figure below indicates the percentage of community members growing each type.

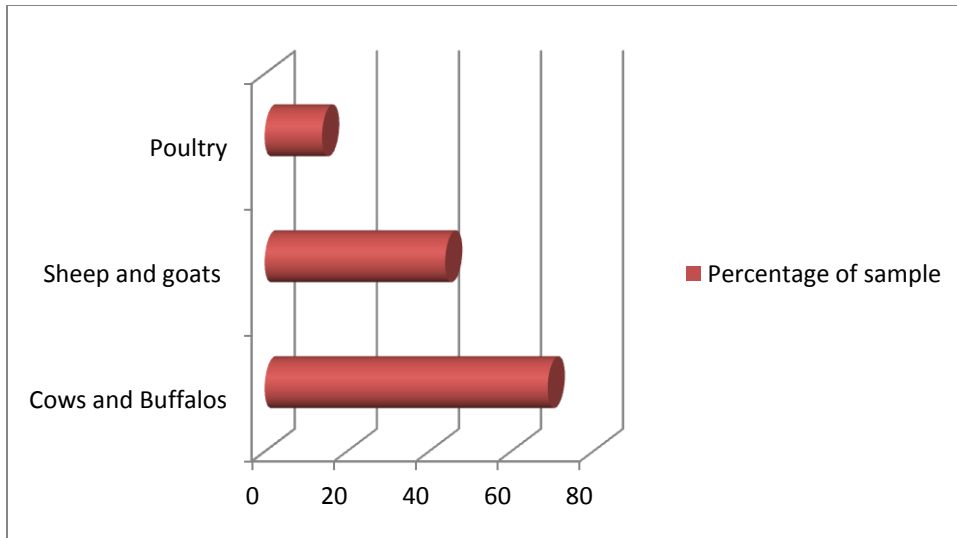


Figure 9 Animals Raised in Nego' Kebly

As to its purpose, 86% of the sample indicated that they raise animals for the sale of its offspring while 14% indicated that it is for their household consumption. 3% of those selling animal products are doing so in the village market, while 16 % are selling it in the market of the neighboring village and 81% use it in household consumption.

Animal fodder is mainly grown in Nazlet Ali, with 99% of the sample indicating they grow it, 1% indicating they purchase it from the village market. Alternative fodder was found to be unknown, with 94% of the sample indicating they have never heard of it.

Animal keeping was found to be the responsibility of the female members of the household as the figure below suggests.

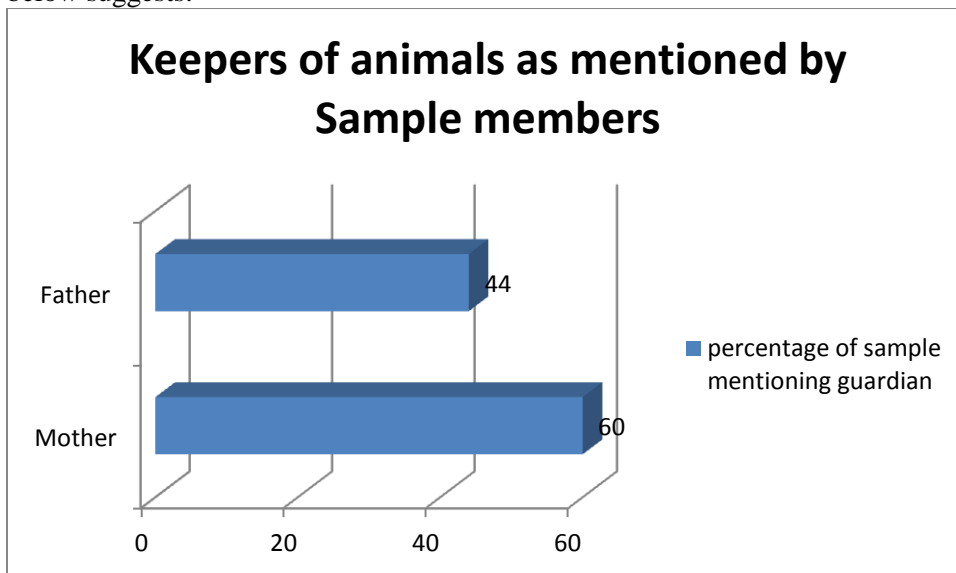


Figure 10 Guardians of animals

Loans for animal raising projects have not been previously offered in the village.

Climate Change and Weather Variability

Knowledge about climate change and weather variability was found to be fairly poor, with 15% of the sample indicating that they are aware what climate change is. However, 62% mentioned that they have witnessed increasing frequency and intensity of extreme weather events. Heat and chill waves have been mentioned as example of such events. As to their impacts, 80% indicated that it has negatively affected their crops, while 40% indicated it had negative impacts on their animals. The interviewees, however were not able to quantify such losses.

Adoption of adaptation mechanisms seems to be fairly weak, with 6% indicated that they have heard of possible adaptation solutions. None of them has practiced adaptation mechanisms with the lack of technical knowledge given as the reason.

Access and Dissemination of Information

Farmers were found to access information about agriculture through several channels including extension workers, the agricultural cooperative, the television, among others. The followings figure presents these channels and the extent to which farmers rely on each.

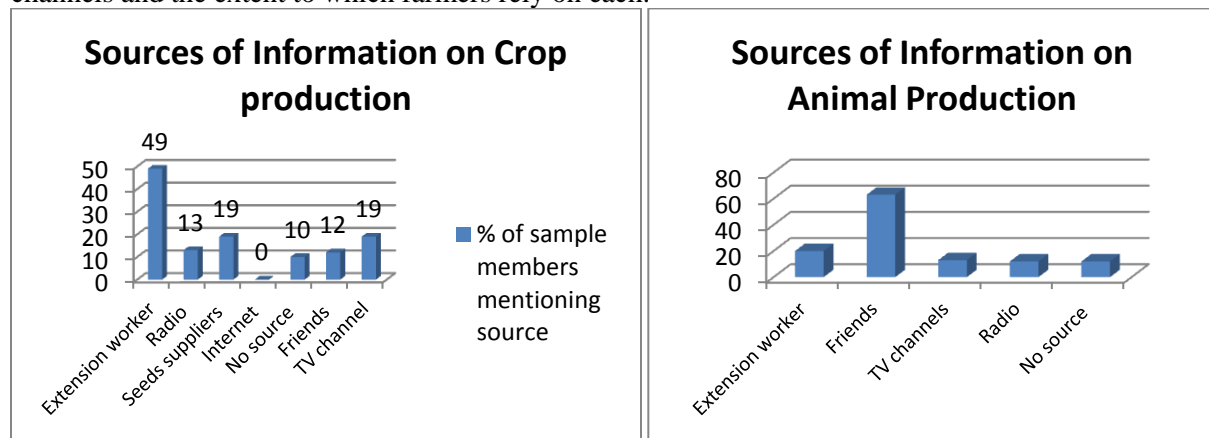


Figure 11 Sources of on crop production

Figure 12 Sources of information on animal

All villagers interviewed indicated that there is no early warning system to help them forecast and prepare for extreme events.

Two means for information dissemination in the village were mentioned, namely microphones of mosques and mobile microphones. Some villagers also mentioned the possibility of receiving messages in SMSs through their cellular telephones.

To identify where it is best to house an online early warning system for weather extreme events, 33% mentioned the agricultural cooperative of the nearest village, 67% mentioning a local NGO/CDA.

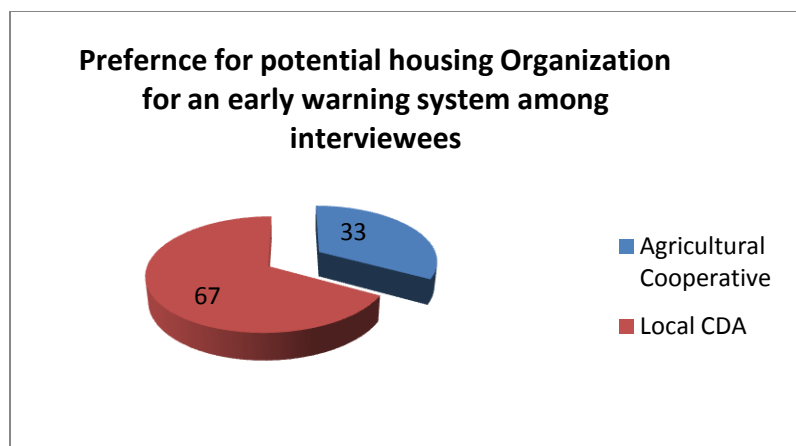


Figure 13 Preference for potential housing Organization for an early warning system among villagers

As to the village focal point for this system, a majority of 80% of the sample indicated that they would prefer it be someone from the local NGO/CDA or the agricultural cooperative, with 10% indicating it has to be a farmer and 10% indifferent about this issue.

Acceptability of Suggested Adaptation interventions

The following table summarizes the results obtained on the level of acceptance of the suggested interventions among the sample.

Crop /technique	Acceptability (%of sample)
Medicinal and aromatic plants	Yes- 8% Yes but on the condition that technical support is provided – 12% Yes on the condition that marketing support is provided- 17% Yes but on the condition that financial support is provided –63%
Organically	Yes but on the condition that technical support is provided – 12% Yes on the condition that marketing support is provided- 18% Yes but on the condition that financial support is provided –40% No, because of its high costs – 30%
High value crops –e.g. strawberry	Yes- 25% Yes but on the condition that technical support is provided – 20% Yes on the condition that marketing support is provided- 16% No, because of its high costs –39%
Heat tolerant varieties –wheat tomato and maize (sorghum)	Yes- 59% Yes but on the condition that technical support is provided – 22% Yes on the condition that marketing support is provided- 7% Yes on the condition that financial support is provided- 4% No, because of its high costs –8%

orchards (pomegranate, guava, citrus in middle Egypt only)	<p>Yes- 36%</p> <p>Yes but on the condition that technical support is provided – 4%</p> <p>Yes on the condition that marketing support is provided- 3%</p> <p>Yes but on the condition that financial support is provided -52%</p> <p>No- unspecified reasons– 5%</p>
Intercrop (eg. onions with wheat)	<p>Yes- 51%</p> <p>Yes- on the condition that financial support is given – 16%</p> <p>No, because uncertain of results– 33%</p>
Change sowing date	<p>Yes- 81%</p> <p>Yes but on the condition that financial support is provided –19%</p>
Addition of new low-cost substances that will increase your productivity and help crop/chicken tolerate heat	<p>Yes- 50%</p> <p>Yes but on the condition that technical support is provided –21%</p> <p>Yes but on the condition that financial support is provided -19%</p> <p>No, because of its high costs – 10%</p>
Take loan at 3-6% interest rate for animal raising	<p>Yes- 80%</p> <p>Yes on the condition that loan repayment period is more- 20%</p>
Raise rabbits	<p>Yes- 10%</p> <p>Yes but on the condition that financial support is provided –3 0%</p> <p>No, because of the hot weather – 60%</p>
Raise goats	<p>Yes- 100%</p>
Own a bees project	<p>Yes- 20%</p> <p>Yes but on the condition that technical support is provided-25%</p> <p>Yes but on the condition that financial support is provided –20%</p> <p>No, because of unspecified reasons –35%</p>
Raise ducks	<p>Yes- 65%</p> <p>Yes but on the condition that marketing support is provided-35%</p>
Use alternative fodder	<p>Yes- 74%</p> <p>Yes but on the condition that technical support is provided – 26%</p>
Have an agro-processing project	<p>Yes- 56%</p> <p>Yes but on the condition that technical support is provided –2%</p> <p>Yes but on the condition that financial support is provided –22%</p>

Institutional Capacity

There is a local NGO in the village. The institutional assessment exercise concluded that it can be entrusted with the management of the project loans and overlooking sustainability of activities.

Other considerations

No security/ conflict issues or other risks were reported about the village. In-depth meetings and focus group discussions also confirmed the findings of the survey with regards to the acceptance of suggested interventions and conditions for their success.

Key conclusions:

- Like in other villages, the majority of the villagers mentioned that they have noticed a rise in frequency and intensity of weather shocks over the last years. They are also aware that their crop and animal productivity have been affected and voiced a need for support in avoiding or reducing resulting losses. However, attempts to perceive such changes in relation to global climate changes seem to be non-existent. This might be driven by a lack of interest in global issues in general. Like in other rural communities, villagers' main focus in life seems to be on meeting their day-to-day household needs and local issues that might affect their abilities to meet such needs in any manner. Little attention is generally paid to wider considerations and issues that they think would not directly affect them.
- There are no systems for early warning to help reduce climate-induced losses in place. The need for connection to any system that would help in this respect was strongly voiced.
- The need for introducing means for reducing climate-induced losses in their main crops was strongly expressed by all those interviewed. Heat tolerant varieties and new agricultural practices of wheat, maize, sorghum and tomato were found to be very responsive to these needs.
- Villagers expressed a need for financial and technical support to diversify their means of income generation as a tool to help in compensating for climate-induced losses. Loans for ducks, goats and bee keeping projects, introduction of new aromatic plants and agro-processing were perceived by villagers to be good tools to meet these needs.
- Besides helping families augment their income in the face of climate-induced crop productivity reductions, the animal raising loans are expected to have a positive impact on women's advancement, with females being the key guardians of animals in the village.
- Enhancement of vet. care was expressed as need to complement the animal raising loans in light of the evident weakness of the existing services in the village.
- The project's offering of an integrated package of technical and marketing support, demonstration fields and financial loans responds to concerns and requirements mentioned by villagers to adopt the interventions
- The proposed water management interventions will help increase irrigation efficiency, directly addressing the main irrigation problem in the village, being insufficiency in water.
- Villagers get information about agricultural production from many sources including extension workers, radio and TV, seeds suppliers and friends. Means of mass communication in the village include microphones, both in mosques and mobile. The project will use these channels in reaching beneficiaries and disseminating information.

- Fodder is mainly grown in the village, with the majority of the farmers using significant portions of their land to cultivate it. The farmers believe that alternative fodder will thus have profound impacts, allowing them to make better usage of the land in cultivation of other crops. They also expressed it will help them in meeting the expected rise in demand for fodder with goats projects initiated in the village.
- With most of the land cultivated for household consumption farmers will be allocating small areas of their plots for cultivation of newly introduced crops. Support for collective marketing of produce of these small areas is thus imperative for the success of these cultivations.

Mansouria Village
Daraw District- Aswan

Basic Socioeconomic Information about the village

Mansouria is one of the villages in Daraw district in Aswan. In 2011, it had a total population of 3665 native villagers with a percentage of 49.9% females and 50.1% males and 63% of the population living under the national poverty line. The following figures depict the educational, age and employment constitution of the village members.

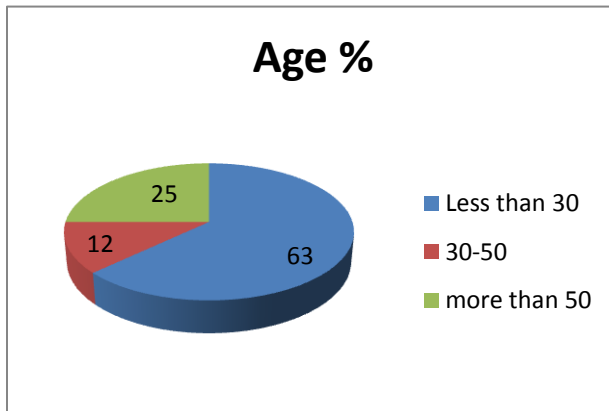


Figure 1 Age composition of sample

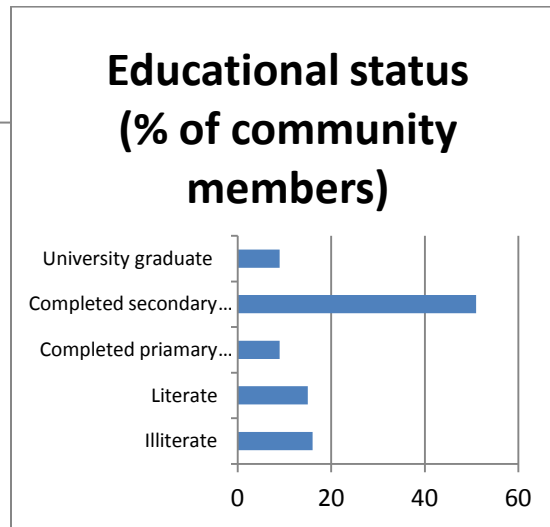


Figure 2 Educational status of Community members

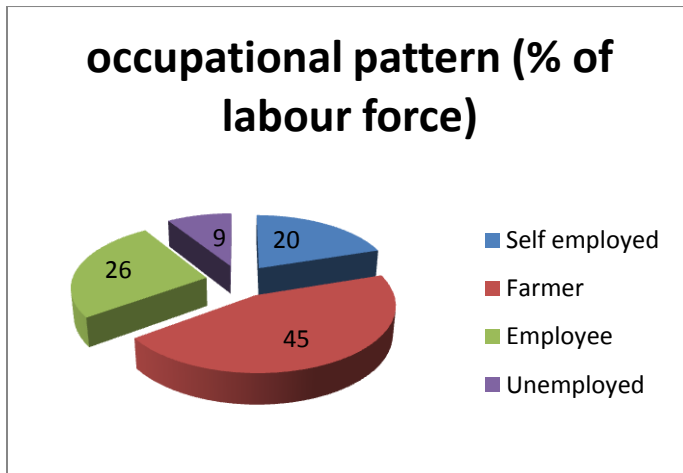


Figure 3 occupational patterns

The village has 3 primary, and 2 preparatory schools and the nearest secondary school is in the nearest mother village, 7 Km away. There is a health unit in the village, but with 79% of the sample complaining that the medical staff is rarely available, it can be concluded that it is performing poorly.

25% of the population indicated that medication is available in the village pharmacy, with 10% indicating that they find medication unaffordable and 65% purchase their medicine from neighboring villages.

There is a vet. Care unit in the village , however, the level of satisfaction with this unit is relatively low- with 87% of the sample indicating that its medical staff is seldom available, 90% indicating that it does not have the necessary equipment and 77% indicating that does not offer them medication, it can be concluded that it is performing poorly. There are also no private vet care services available in the village.

Crop production

Mansouria has a total area of 912 acres. 45 % of the population is working in agriculture with 63% of the farmers being smallholders owning/renting less than 1 acre, 28% own/rent 1-3 acres and 3% owning/renting more. 29% of those involved in agriculture own land, while 30% rent and 41% are labour with 35% being subsistence farmers. The land of the village is clay and the average land rental value is L.E. 3600/acre/season.

The following table presents which of their family members are involved in agriculture as expressed by the interviewees.

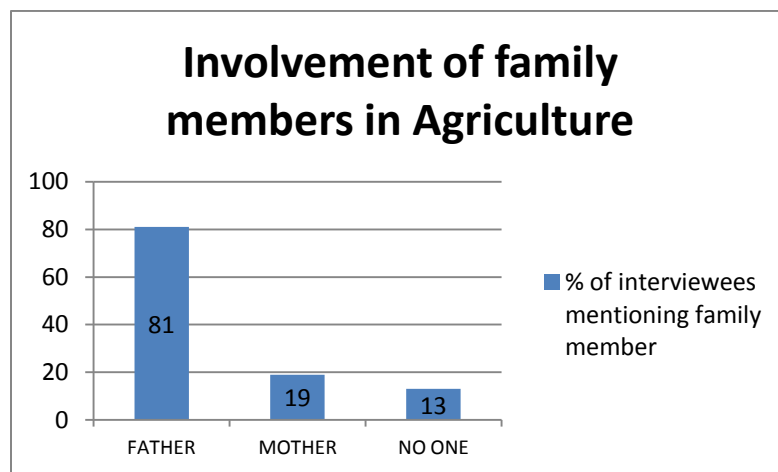


Figure 5 Involvement of members in agriculture

Several crops are cultivated in the village, with wheat, maize and sugar cane being the main ones. Palm trees are also grown on large scales.

The average productivity and sowing dates of the cultivated crops was reported as follows:

Crop	Productivity/acre/season (ton)	Sowing date
Wheat	1.8	Beginning of December
Sugar Cane	39	Mid of April
Clover	70	Late December
Maize	1.9	Mid April

Table 1 average crop productivity and sowing dates of cultivated crops

Average cost of cultivation has been reported as follows:

Table 2 Average costs of cultivation of One Acre in L.E

Crop	Soil Machineries	seeds	Fertilizers	Irrigation	Workers	Total
Wheat	130	260	220	500	300	1410
Maize	135	310	265	500	300	1510
Sugar cane	290	1600	350	600	1100	3940
Clover	150	110	100	500	280	1140

As to marketing, the village has a weekly market where crops, animals and animal products are sold. When asked about what farmers do with their crops, a majority of 61% of the sample indicated that it is entirely or partially consumed by the household with 26% selling in a nearby market and 13% selling locally. 36% of the sample indicated that transport to the market is readily available and affordable, while 6% indicated that they cannot financially afford it and 58% does not need it. The price of the product is usually decided by wholesalers, with only none of the sample indicating that they are able to determine the price of their produce.

Organic farming was found to be unpracticed, with 100% indicating that they are unaware what it was. 90% of the sample has practiced contract farming, with 82% indicating that they found it profitable.

Irrigation:

Surface canals are the two sources of irrigation water in the village, providing all of the land. Furrow irrigation is the only practiced mechanism and no improved water management techniques or structures such as water users associations or irrigation scheduling are in place. On average, irrigating an acre once costs L.E. 72

Farmers have mentioned several problems of irrigation, as depicted in the figure below:

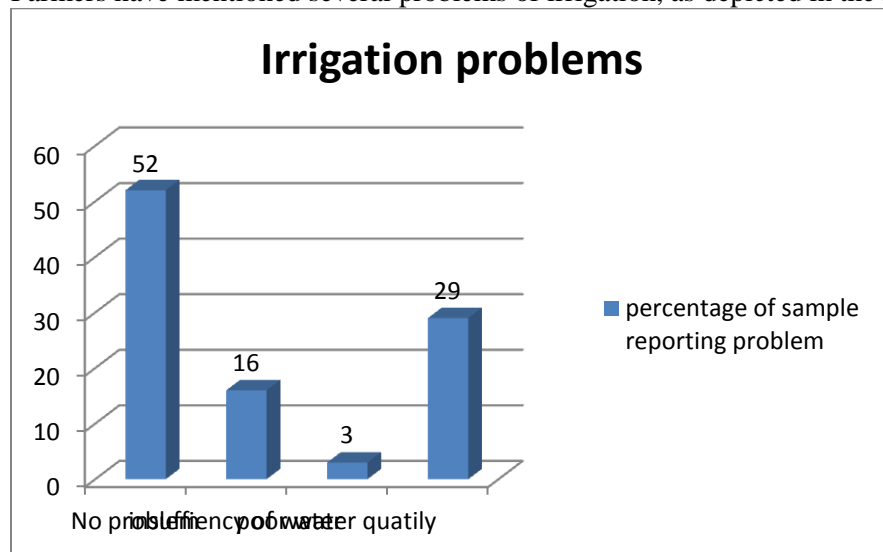


Figure 7 Problems of Irrigation

Irrigation services in the area were mentioned to be canal cleaning and general maintenance of main canals, both performed by the Ministry of Water Resources and Irrigation. As depicted by the chart below, the level of satisfaction with these services is fairly high.

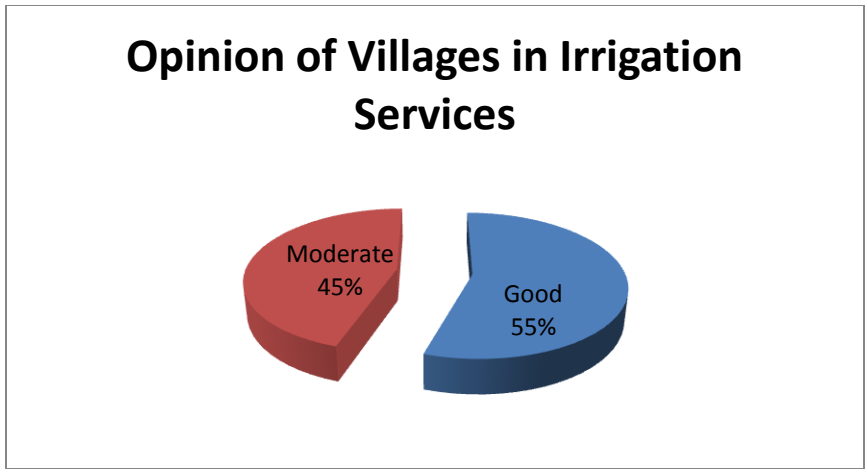


Figure 8 Community Opinions about Irrigation Services

Animal Production

Villagers are raising cows and buffalos, goats and sheep, and poultry.

The figure below indicates the percentage of community members growing each type.

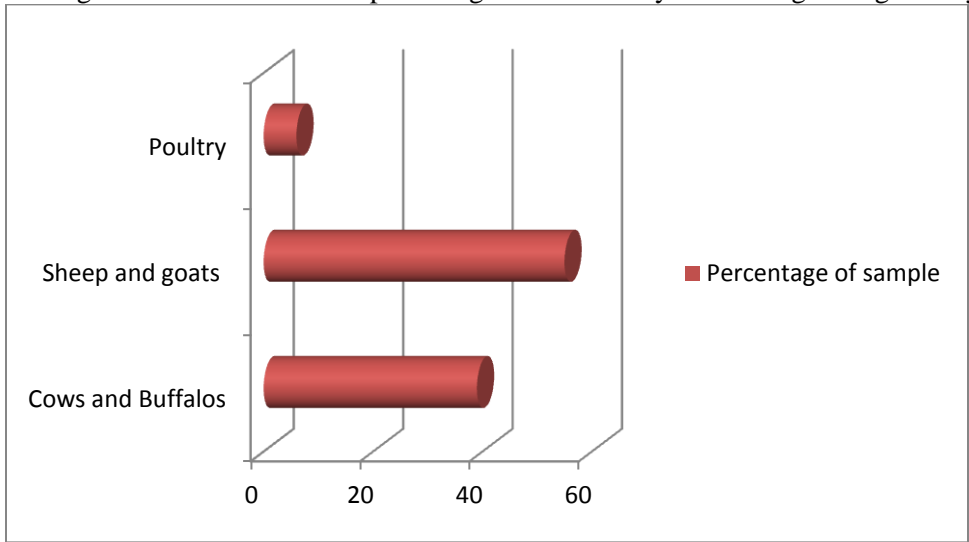


Figure 9 Animals Raised

As to its purpose, 88% of the sample indicated that they raise animals for the sale of its offspring while 12% indicated that it is for their household consumption. 100% of the sample consume animal products in the household.

Animal fodder is mainly grown in the village, with 100% of the sample indicating they grow it, Alternative fodder was found to be unknown, with the entire sample indicating they have never heard of it.

Animal keeping was found to be the responsibility of the female members of the household as the figure below suggests.

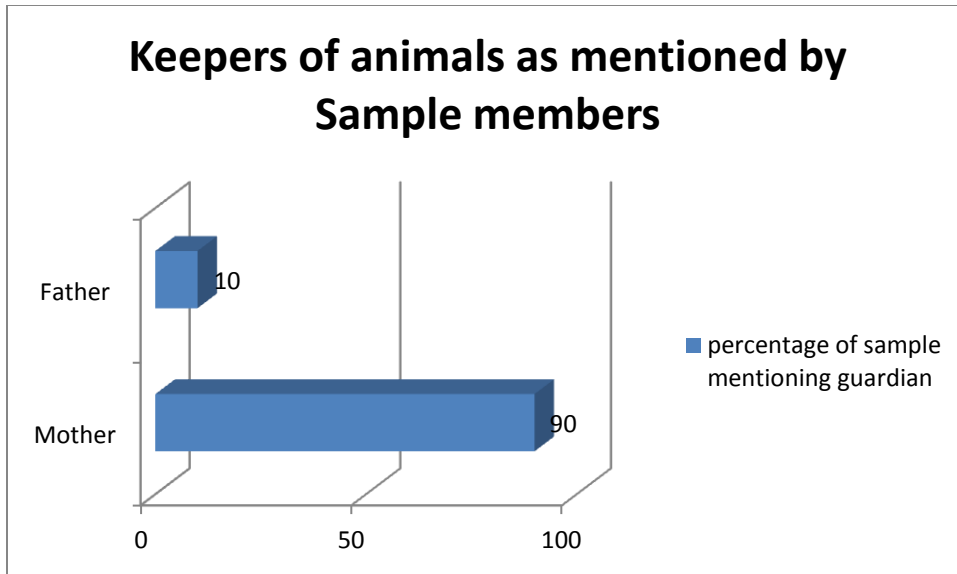


Figure 10 Guardians of animals

Loans for animal raising projects have not been previously offered in the village.

Climate Change and Weather Variability

Knowledge about climate change and weather variability was found to be poor, with 86% of the sample indicating that they do not know what it is. However, 79% mentioned that they have witnessed increasing frequency and intensity of extreme weather events. Heat waves have been mentioned as example of such events. As to their impacts, 72% indicated that it has negatively affected their crops, while 45% indicated it had negative impacts on their animals. The interviewees, however were not able to quantify such losses.

Adoption of adaptation mechanisms seems to be fairly weak. Although 96% indicating that they have heard of possible adaptation solutions, none of them applied any these techniques, with lack of technical knowhow cited as the reason.

Access and Dissemination of Information

Farmers were found to access information about agriculture through several channels including extension workers, the agricultural cooperative, the television, among others. The followings figure presents these channels and the extent to which farmers rely on each.

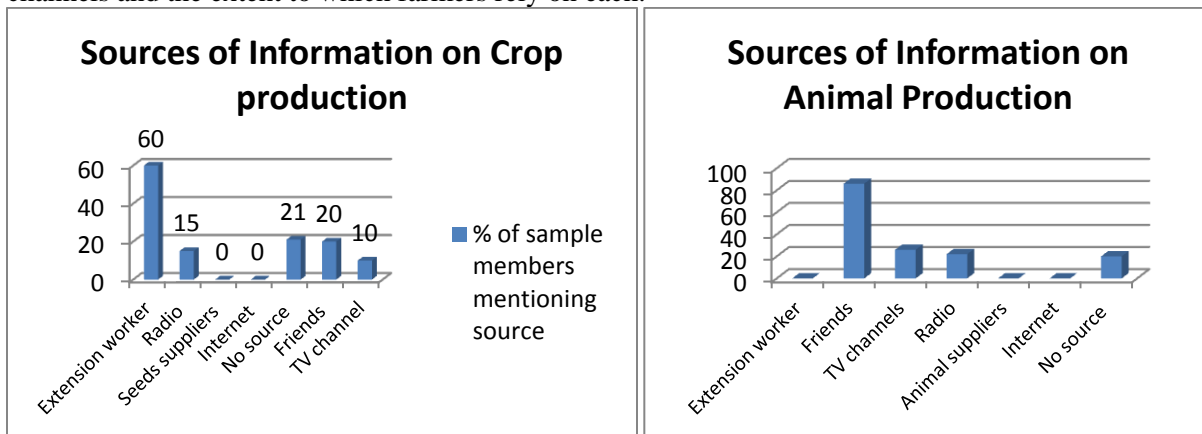


Figure 11 Sources of on crop production

Figure 12 Sources of information on animal production

All villagers interviewed indicated that there is no early warning system to help them forecast and prepare for extreme events.

Two means for information dissemination in the village were mentioned, namely microphones of mosques and mobile microphones. Some villagers also mentioned the possibility of receiving messages in SMSs through their cellular telephones.

To identify where it is best to house an online early warning system for weather extreme events, 50% mentioned the agricultural cooperative of the nearest village, 50% mentioning a local NGO/CDA.

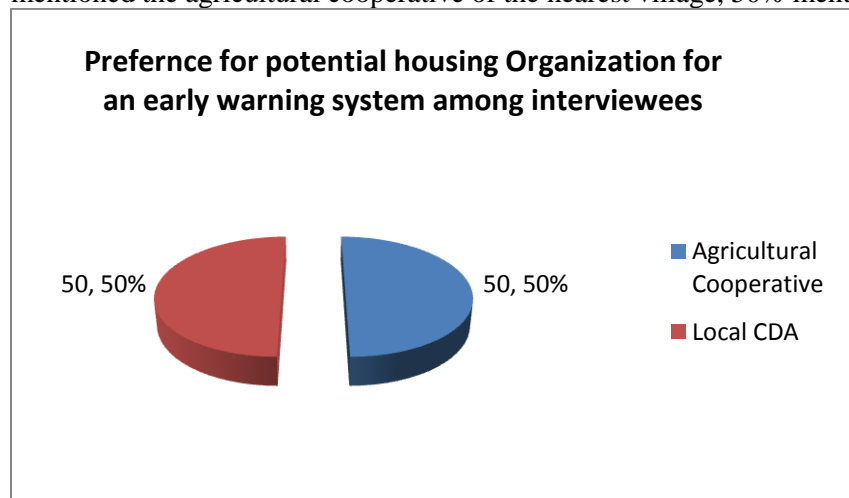


Figure 13 Preference for potential housing Organization for an early warning system

As to the village focal point for this system, a majority of 18% of the sample indicated that they would prefer it be someone from the local NGO/CDA or the agricultural cooperative, with 69% indicating it has to be a farmer and 13% indifferent about this issue.

Acceptability of Suggested Adaptation interventions

The following table summarizes the results obtained on the level of acceptance of the suggested interventions among the sample.

Crop /technique	Acceptability (%of sample)
Medicinal and aromatic plants	Yes- 10% Yes but on the condition that technical support is provided – 0% Yes on the condition that marketing support is provided- 10% Yes but on the condition that financial support is provided –80%
Organically	Yes- 40% Yes but on the condition that technical support is provided – 12% Yes on the condition that marketing support is provided- 34% Yes but on the condition that financial support is provided –8% No, because of its high costs – 6%

High value crops –e.g. strawberry	<p>Yes- 20%</p> <p>Yes but on the condition that technical support is provided – 15%</p> <p>Yes on the condition that marketing support is provided- 20%</p> <p>Yes but on the condition that financial support is provided –10%</p> <p>No, because of its high costs – 29%</p>
Heat tolerant varieties –wheat tomato and maize (sorghum)	<p>Yes- 65%</p> <p>Yes but on the condition that technical support is provided – 7%</p> <p>Yes on the condition that marketing support is provided-1%</p> <p>Yes but on the condition that financial support is provided –19%</p> <p>No-8%</p>
orchards (pomegranate, guava, citrus in middle Egypt only)	<p>Yes- 16%</p> <p>Yes but on the condition that technical support is provided – 11%</p> <p>Yes on the condition that marketing support is provided- 2%</p> <p>Yes but on the condition that financial support is provided -8%</p> <p>No, because of its high costs – 63%</p>
Intercrop (eg. onions with wheat)	<p>Yes- 50%</p> <p>Yes provided that technical support is provided-25%</p> <p>No, because of uncertain of results– 25%</p>
Change sowing date	<p>Yes- 85%</p> <p>Yes but on the condition that technical support is provided – 15%</p>
Addition of new low-cost substances that will increase your productivity and help crop/chicken tolerate heat	<p>Yes- 53%</p> <p>Yes but on the condition that technical support is provided – 24%</p> <p>Yes on the condition that marketing support is provided- 0%</p> <p>Yes but on the condition that financial support is provided -20%</p> <p>No, because of its high costs – 3%</p>
Take loan at 3-6% interest rate for animal raising	<p>Yes- 100%</p>
Raise rabbits	<p>Yes- 17%</p> <p>No, because of the hot weather – 83%</p>

Raise goats	Yes but on the condition that financial support is provided – 100%
Own a bees project	Yes- 15% Yes but on the condition that technical support is provided-20% No, because of wasps –652%
Raise ducks	Yes but on the condition that financial support is provided – 100%
Use alternative fodder	Yes- 59% Yes but on the condition that technical support is provided – 41%
Have an agro-processing project	Yes- 15% Yes but on the condition that technical support is provided – 20% Yes- but on the condition that marketing support is provided- 2 Yes but on the condition that financial support is provided –61% No-2%
Practice irrigation management schemes	Yes- 64% No, because of its high costs – 36%

Institutional Capacity

There is an agricultural cooperative in the village and there is a strong local NGO that can be entrusted with the management of the project loans or overlooking sustainability of activities.

Other considerations

No security/ conflict issues or other risks were reported about the village. In-depth meetings and focus group discussions also confirmed the findings of the survey with regards to the acceptance of suggested interventions and conditions for their success.

Key findings and conclusions:

- Like in other villages, the majority of the villagers mentioned that they have noticed a rise in frequency and intensity of weather shocks over the last years. They are also aware that their crop and animal productivity have been affected and voiced a need for support in avoiding or reducing resulting losses. However, attempts to perceive such changes in relation to global climate changes seem to be non-existent. This might be driven by a lack of interest in global issues in general. Like in other rural communities, villagers’ main focus in life seems to be on meeting their day-to -day household needs and local issues that might affect their abilities to meet such needs in any manner. Little attention is generally paid to wider considerations and issues that they think would not have a direct affect on their livelihoods.
- There are no systems for early warning to help reduce climate-induced losses in place. The need for connection to any system that would help in this respect was strongly voiced.

- The need for introducing means for reducing climate-induced losses in their main crops was strongly expressed by all those interviewed. Villagers expressed a need for financial and technical support to diversify their means of income generation as a tool to help in compensating for climate-induced losses. Loans for ducks and goats projects, introduction of new aromatic plants such as basil and agro-processing were perceived by villagers to be good tools to meet these demands.
- Rabbits raising loans were not accepted due to the hot climate of the village. Similarly, bee keeping was not acceptable due to Palm wasps threatening the bees. The village was also found to have dense populations of birds, making sorghum plantation a very risky adaptation intervention.
- Besides helping families augment their income in the face of climate-induced crop productivity reductions, the animal raising loans are expected to have a positive impact on women's advancement, with females being the key guardians of animals in the village.
- Enhancement of vet. care was expressed as need to complement the animal raising loans in light of the evident weakness of the existing services in the village.
- The project's offering of an integrated package of technical and marketing support, demonstration fields and financial loans responds to concerns and requirements mentioned by villagers to adopt the interventions
- Villagers get information about agricultural production from many sources including extension workers, radio and TV, seeds suppliers and friends. Means of mass communication in the village include microphones, both in mosques and mobile. The project will use these channels in reaching beneficiaries and disseminating information.
- Fodder is mainly grown in the village, with the majority of the farmers using significant portions of their land to cultivate it. The farmers believe that alternative fodder will thus have profound impacts, allowing them to make better usage of the land in cultivation of other crops. They also expressed it will help them in meeting the expected rise in demand for fodder with goats projects initiated in the village.
- With most of the land cultivated for household consumption farmers will be allocating small areas of their plots for cultivation of newly introduced crops. Support for collective marketing of produce of these small areas is thus imperative for the success of these cultivations.

Benban Bahary Village
Daraw District- Aswan

Basic Socioeconomic Information about the village

Benban Bahary is one of the villages in Daraw district in Aswan. In 2011, it had a total population of 14663 villagers with a percentage of 49% males and 51 % females and 65% % of the population living under the national poverty line. The following figures depict the educational, age and employment constitution of the village members.

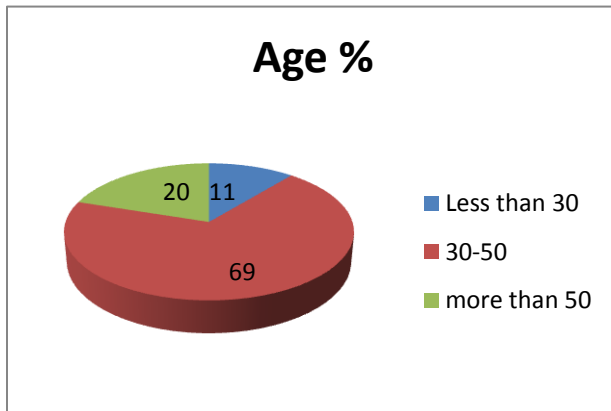


Figure 1 Age composition of sample

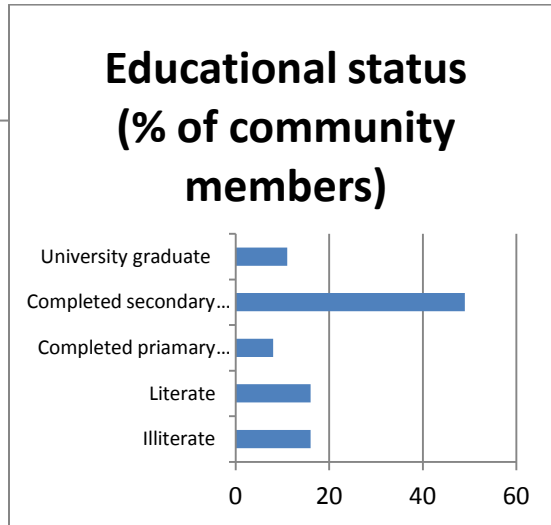


Figure 2 Educational status of Community Members

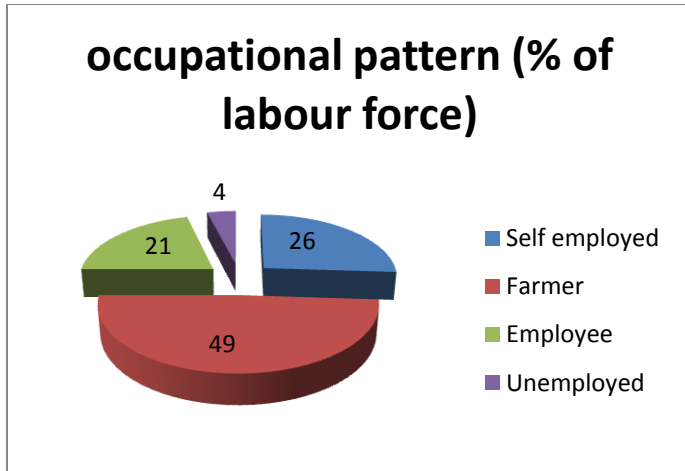


Figure 3 occupational patterns

The village has 2 primary and 2 preparatory schools. There is a health unit in the village, however, with 79% of the sample complaining that the medical staff of the unit are rarely available, it can be concluded that it is performing poorly.

67% of the population indicated that medication is available in the village pharmacy and 33% purchase their medicine from neighboring villages.

There is a vet. Care unit in the village. However, the level of satisfaction with this unit is relatively low- with 87% of the sample indicating that its medical staff is seldom available, 90% indicating that it does not have the necessary equipment, and 77% indicating that it does not offer medication, it can be concluded that it is performing poorly. There are also no private vet care services available in the village.

Crop production

Benban Bahary has a total area of 2498 acres. 50 % of the population is working in agriculture with 69% of the farmers being smallholders owning/renting less than 1 acre, 27% own/rent 1-3 feddans and 9% with more than 3 feddans. Only 39% of those involved in agriculture own land, while 9% rent and 52% work as labour, with 33% being subsistence farmers. The land of the village is clay and the average land rental value is L.E. 4000/acre/season.

The following table presents which of their family members are involved in agriculture as expressed by the interviewees.

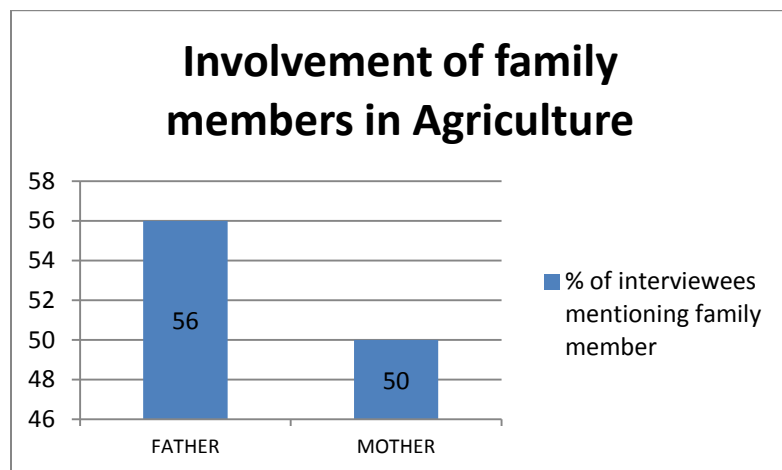


Figure 5 Involvement of members in agriculture

Several crops are cultivated in the village, with wheat, maize and sugar cane being the main ones. Palm and Doom trees are also grown on large scales.

The average productivity and sowing dates of the cultivated crops was reported as follows:

Crop	Productivity/acre/season (ton)	Sowing date
Wheat	1.9	Beginning of December
Sugar Cane	38	Mid of April
Clover	72	Late December
Maize	1.8	Mid April

Table 1 average crop productivity and sowing dates of cultivated crops

Average cost of cultivation has been reported as follows:

Table 2 Average costs of cultivation of One Acre in L.E

Crop	Soil Machineries	seeds	Fertilizers	Irrigation	Workers	Total
Wheat	120	250	210	500	300	1380
Maize	125	300	250	500	300	1475
Sugar cane	290	1500	300	600	1000	3590
Clover	130	110	100	500	300	1140

With that said, it is to be noted that 88% of the interviewees indicated that they use seasonal labour in their cultivation and 12% use family members only.

As to marketing, the village has a weekly market where crops, animals and animal products are sold. When asked about what farmers do with their crops, 55% of the sample indicated that it is entirely or partially consumed by the household with 9% selling in a nearby market and 40% selling locally. 9% of the sample indicated that transport to the market is readily available and affordable, while 35% indicated that they cannot financially afford it and 56% mentioned they do not need transport. The price of the product is usually decided by wholesalers, with 20% of the sample indicating that they are able to determine the price of their produce.

Organic farming was found to have been practiced with 100% mentioned that they have never heard of it. 90% of the sample has practiced contract farming, with 70% of them indicating that they have found it profitable.

Irrigation:

Surface canals are the sources of irrigation water in the village, providing for all the land. Furrow irrigation is the only type used with no improved water management techniques or structures such as water users associations or irrigation scheduling in place. On average, irrigating an acre once costs L.E. 72.

Farmers have mentioned several problems of irrigation, as depicted in the figure below:

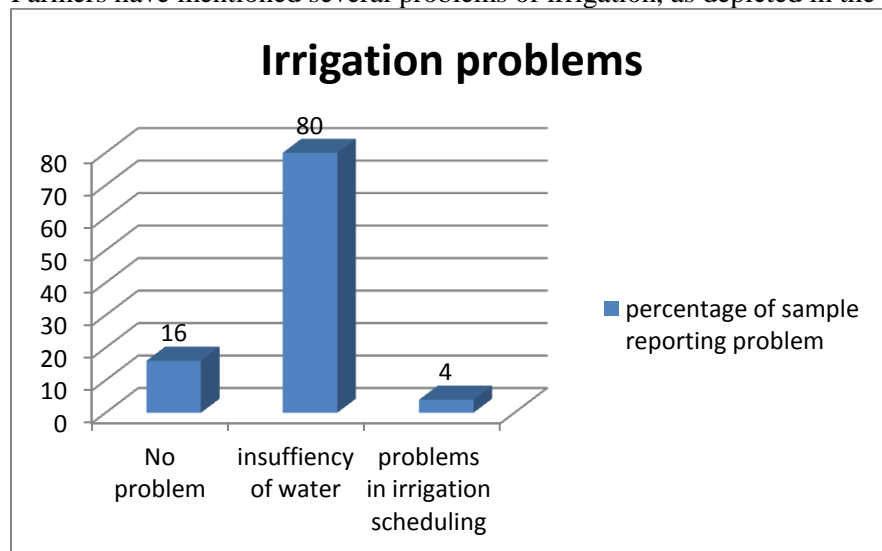


Figure 7 Problems of Irrigation

Irrigation services in the area were mentioned to be canal cleaning and general maintenance of main canals, both performed by the Ministry of Water Resources and Irrigation. With 60% of the sample

indicating that the service is poor, 20% finding it moderate and 20% finding it good, the level of satisfaction with these services is fairly low.

Animal Production

Villagers in Benban Bahary are raising cows and buffalos, goats and sheep and poultry.

The figure below indicates the percentage of community members growing each type.

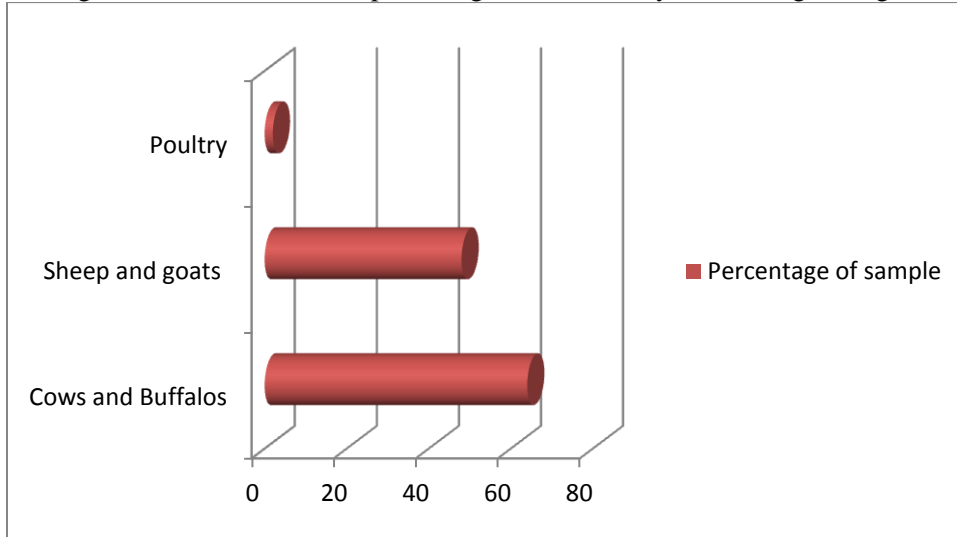


Figure 9 Animals Raised

As to its purpose, 69% of the sample indicated that they raise animals for the sale of its offspring, while 31% indicated that it is for their household consumption. 100% of the sample is using animal products in the household.

Animal fodder is mainly grown in the village, with the entire sample indicating they grow it. Alternative fodder was found to be heard of, with none of the sample indicating they have heard of it.

Animal keeping was found to be the responsibility of the female members of the household as the figure below suggests.

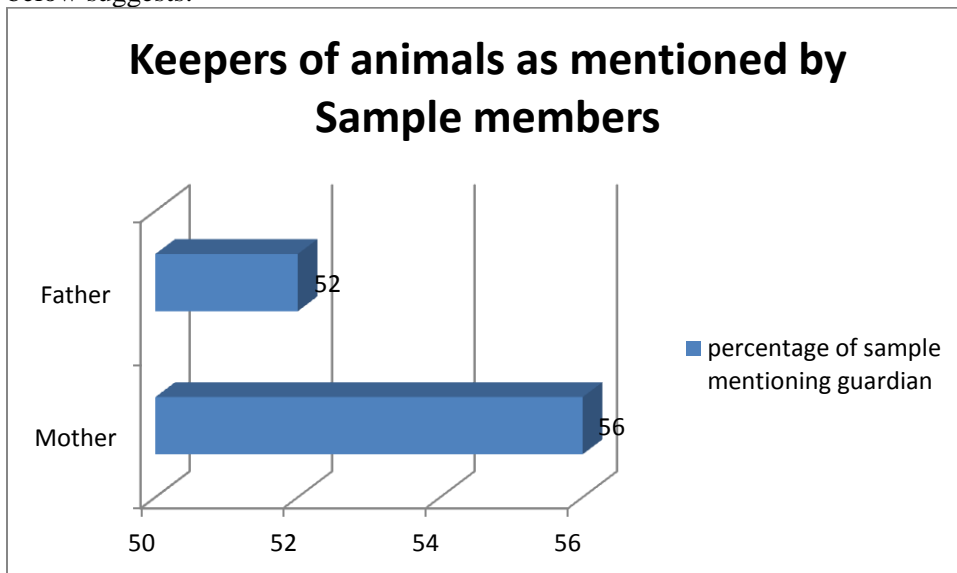


Figure 10 Guardians of animals

Loans for animal raising projects have not been previously offered in Benban Bahary.

Climate Change and Weather Variability

Knowledge about climate change and weather variability was found to be very poor, with 18% of the sample indicating that they are aware what climate change is. However, 72% mentioning that they have witnessed increasing frequency and intensity of extreme weather events. Heat waves have been mentioned as example of such events. As to their impacts, 65% indicated that it has negatively affected their crops, while 40% indicated it had negative impacts on their animals. The interviewees, however were not able to quantify such losses.

Adoption of adaptation mechanisms seems to be fairly weak, with 97% indicated that they have never heard of possible adaptation solutions. None of the sample indicated that they have practiced adaptation mechanisms. Reasons given for why adaptation was not practiced are depicted below.

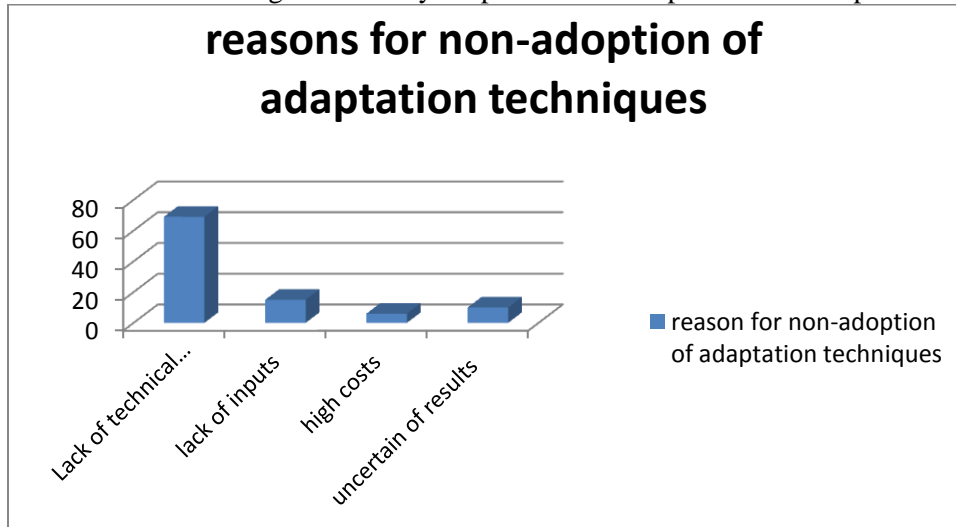


Figure 14 Reasons for non adoption of adaptation techniques

Access and Dissemination of Information

Farmers were found to access information about agriculture through several channels including extension workers, the agricultural cooperative, the television, among others. The followings figure presents these channels and the extent to which farmers rely on each.

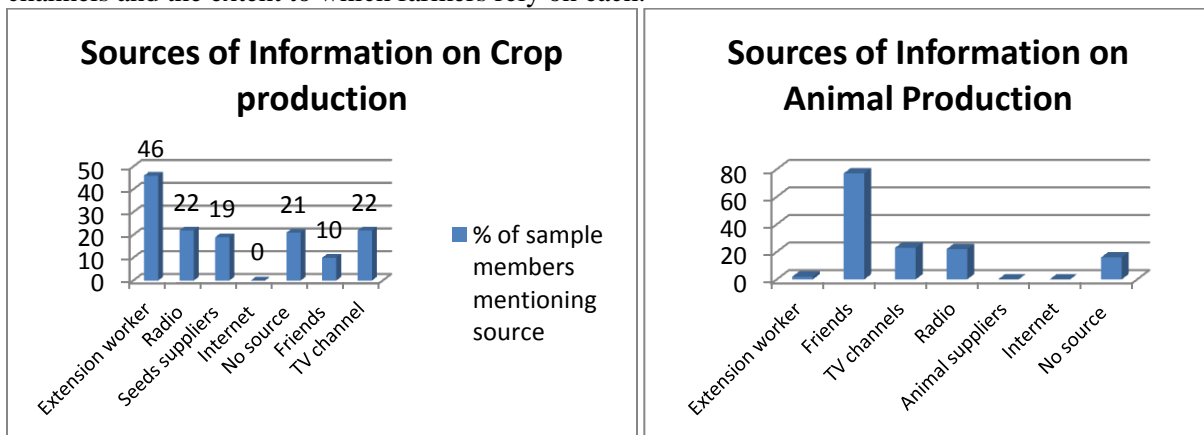


Figure 11 Sources of on crop production

Figure 12 Sources of information on animal production

All villagers interviewed indicated that there is no early warning system to help them forecast and prepare for extreme events.

Several means for information dissemination in the village were mentioned, including microphones of mosques and mobile microphones. Some villagers also mentioned the possibility of receiving messages in SMSs through their cellular telephones.

To identify where it is best to house an online early warning system for weather extreme events, 37% mentioned the agricultural cooperative of the nearest village, 63% mentioning a local NGO/CDA.

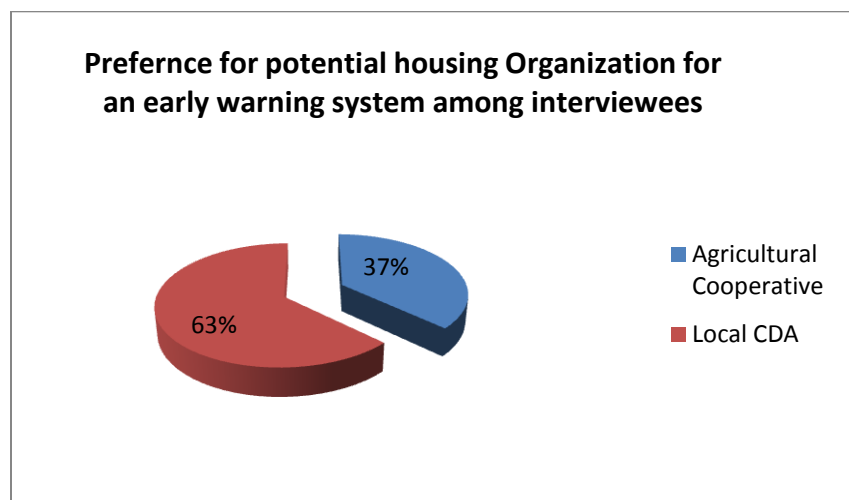


Figure 13 Preference for potential housing Organization for an early warning system among villagers

As to the village focal point for this system, 20% of the sample indicated that they would prefer it be someone from the local NGO/CDA or the agricultural cooperative, with 60% indicating it has to be a farmer and 20% indifferent about this issue.

Acceptability of Suggested Adaptation interventions

The following table summarizes the results obtained on the level of acceptance of the suggested interventions among the sample.

Crop /technique	Acceptability (%of sample)
Medicinal and aromatic plants	Yes- 69% Yes but on the condition that technical support is provided – 3% Yes on the condition that marketing support is provided- 0% Yes but on the condition that financial support is provided – 19% No, because of its high costs –9%
Organically	Yes- 63% Yes but on the condition that technical support is provided – 7% Yes on the condition that marketing support is provided-

	<p>19%</p> <p>Yes but on the condition that financial support is provided – 6%</p> <p>No, because of its high costs – 5%</p>
High value crops –e.g. strawberry	<p>Yes- 30%</p> <p>Yes but on the condition that technical support is provided – 18%</p> <p>Yes on the condition that marketing support is provided- 20%</p> <p>Yes but on the condition that financial support is provided – 0%</p> <p>No, because of its high costs –32%</p>
Heat tolerant varieties –wheat tomato and maize (sorghum)	<p>Yes- 90%</p> <p>Yes but on the condition that financial support is provided – 10%</p>
orchards (pomegranate, guava, citrus in middle Egypt only)	<p>Yes- 13%</p> <p>Yes but on the condition that technical support is provided – 25%</p> <p>Yes on the condition that marketing support is provided- 2%</p> <p>Yes but on the condition that financial support is provided - 23%</p> <p>No- unspecified reasons– 37%</p>
Intercrop (eg. onions with wheat)	<p>Yes- 60%</p> <p>Yes- on the condition that financial support is given – 8%</p> <p>No, because uncertain of results– 32%</p>
Change sowing date	<p>Yes-82%</p> <p>Yes but on the condition that financial support is provided – 18%</p>
Addition of new low-cost substances that will increase your productivity and help crop/chicken tolerate heat	<p>Yes- 59%</p> <p>Yes but on the condition that technical support is provided –27%</p> <p>Yes but on the condition that financial support is provided - 4%</p> <p>No, because of its high costs – 10%</p>
Take loan at 3-6% interest rate for animal raising	<p>Yes- 92%</p> <p>No- because the interest rate is high-8%</p>

Raise rabbits	Yes- 25% No, because of the hot weather – 75%
Raise goats	Yes- 50% Yes but on the condition that financial support is provided – 50%
Own a bees project	Yes- 6% Yes but on the condition that financial support is provided – 15% No, because of wasps –79%
Raise ducks	Yes but on the condition that financial support is provided – 100%
Use alternative fodder	Yes- 62% Yes but on the condition that technical support is provided – 38%
Have an agro-processing project	Yes- 11% Yes but on the condition that technical support is provided –36% Yes- but on the condition that marketing support is provided- 4% Yes but on the condition that financial support is provided – 40% No-9%
Practice irrigation management schemes	Yes- 69% No, because of its high costs – 31%

Institutional Capacity

There is a strong local CDA in Benban Bahary that can be entrusted with the management of the project loans or overlooking sustainability of activities.

Other considerations

No security/ conflict issues or other risks were reported about the village . In-depth meetings and focus group discussions also confirmed the findings of the survey with regards to the acceptance of suggested interventions and conditions for their success.

Key findings and conclusions:

- Like in other villages, the majority of the villagers mentioned that they have noticed a rise in frequency and intensity of weather shocks over the last years. They are also aware that their crop and animal productivity have been affected and voiced a need for support in avoiding or reducing resulting losses. However, attempts to perceive such changes in relation to global

climate changes seem to be non-existent. This might be driven by a lack of interest in global issues in general. Like in other rural communities, villagers' main focus in life seems to be on meeting their day-to-day household needs and local issues that might affect their abilities to meet such needs in any manner. Little attention is generally paid to wider considerations and issues that they think would not directly affect them.

- There are no systems for early warning to help reduce climate-induced losses in place. The need for connection to any system that would help in this respect was strongly voiced.
- The need for introducing means for reducing climate-induced losses in their main crops was strongly expressed by all those interviewed. Villagers expressed a need for financial and technical support to diversify their means of income generation as a tool to help in compensating for climate-induced losses. Loans for ducks and goats projects, introduction of new aromatic plants such as mint and agro-processing were perceived by villagers to be good tools to meet these needs
- Rabbits raising loans were not accepted due to the hot climate of the village. Similarly, bee keeping was not acceptable due to Palm wasps threatening the bees. The village was also found to have dense populations of birds, making sorghum plantation a very risky adaptation intervention.
- Fodder is mainly grown in the village, with the majority of the farmers using significant portions of their land to cultivate it. The farmers believe that alternative fodder will thus have profound impacts, allowing them to make better usage of the land in cultivation of other crops.
- Besides helping families augment their income in the face of climate-induced crop productivity reductions, the animal raising loans are expected to have a positive impact on women's advancement, with females being the key guardians of animals in the village.
- Enhancement of vet. care was expressed as need to complement the animal raising loans in light of the evident weakness of the existing services in the village.
- The project's offering of an integrated package of technical and marketing support, demonstration fields and financial loans responds to concerns and requirements mentioned by villagers to adopt the interventions
- Villagers get information about agricultural production from many sources including extension workers, radio and TV, seeds suppliers and friends. Means of mass communication in the village include microphones, both in mosques and mobile. The project will use these channels in reaching beneficiaries and disseminating information.
- With most of the land cultivated for household consumption farmers will be allocating small areas of their plots for cultivation of newly introduced crops. Support for collective marketing of produce of these small areas is thus imperative for the success of these cultivations.

Annex 8- **NGO/CDA Financial and Internal Control Evaluation Checklist**

Several methods are to be used in gathering the information for this checklist including in-depth meetings with board and general assembly members, observation and review of all available registers, books, journal, minutes of meetings, reports, etc.

Name of the NGO:..... NGO Type
:.....
District:.....
Village:..... Governorate:.....
.....
Questionnaire was filled by:.....
Date of the Assessment:
.....

1. General Information about the NGO

- a. Name of the NGO:
.....
- b. Date of registration and registration number
.....
- c. Address
.....
.....
- d. Name of Board Chairman
.....
.....
- e. Name of treasurer
.....
.....
- f. Number of Board
Members:.....
.....
- g. Number of members in the general assembly

In 2009	In 2010	In 2011
---------	---------	---------
- h. Date of last general assembly meeting
.....
- i. Date of last financial audit
.....
- j. Name of Auditor/auditing office of last
audit.....

Comments:

2. Internal Regulations in the NGO/CDA

This section is to assess the knowledge of the Board members of the basic internal regulations and governing by-laws in the NGO and the extent to which these are effectuated.

	Question	Yes	No
2a.	Does the NGO/CDA have and abide by basic by-laws (declared to the Ministry of Social Affairs)		
2b.	Does the NGO/CDA have and abide by internal by-laws		
2c.	Does the NGO have and abide by cash-advance regulations		

Evaluation:

Good	Average	Weak
------	---------	------

Comments:

3. Financial Management

This section evaluates the legality, effectiveness and efficiency of the financial system in the NGO and the basic elements that it should encompass (manuals, bylaws, documents, records and books) and to what extent it complies with the Egyptian NGO laws.

The section also evaluates the NGO's ability to secure financial sustainability.

	Issue	Yes	No	comments
3a	Does the NGO have documented manuals, regulations and/or codes for fund management?			
3b	Does the NGO have sufficient capacity to manage expenditures?			
3c	Does the NGO have an effective accounting system? Are all transactions recorded? Is there a daily update of accounts?			

3d	Does the NGO deal with a bank?			
3e	Does the NGO have a separate bank account for each project?			
3f	Does the finance officer of the NGO have a degree in finance?			
3g	Are there separate financial records for each project?			
3h	Are there end-of year accounts for the last two years?			
3i	Are there comments/ financial irregularities recorded from the Ministry of Social Affairs- as the supervising authority?			
3j	Did the NGO rectify/ address these comments			
3k	Are there financial audits done for years when account balances exceeded L.E. 20,000 ¹			

Evaluation:

Good	Fair	Poor
------	------	------

Comments

4. **Book Keeping and Records**

This section is to evaluate the available records and bookkeeping systems in the NGO and their adequacy and compliance with legal requirements of the NGOs Law of Egypt.

It also evaluates the documentation processes and how efficient it is in documenting the financial and controlling procedures.

Record/book/Minutes	Existing	Complete	Accurate	Assessment (good. Fair, poor)	Comments
Revenue and Expenditures Book					

¹ Requirement of the Egyptian NGOs law

Bank Register					
Procurement documents					
Daily Journals					
Voucher Journal					
Cash Advance and settlement regulations					
Bank Statements					
Bank reconciliation documents					
Bank deposit receipts					
Membership and subscription fees registers					
Minutes of Board Meetings					
Minutes of general assembly meetings					
Receipts and paid registers					
Cash flow registers					
Balance Sheets					

Evaluation

Good	Fair	Poor
------	------	------

Comments

5. Internal Control

This section is to evaluate the ability of the board to undertake compliant procurement, cash flow control, bank's check book control, filing etc

Issue	Existing	Complete	Accurate	Evaluation (good, fair, poor)	Comments
Serialized checks in Bank's register					
Receipts book					
Bank deposit receipts					
Procurement committee minutes					
Purchase orders					
Inspection and Receipt reports					
Asset Receipt voucher number 112 a.g. for inclusion of item in inventory					
Asset account voucher number 118 a.g.					
annual Stocktaking reports					
Minutes of treasury accounting					

Evaluation

Good	Fair	Poor
------	------	------

Comments

6. Segregation of authority and Duties

This section is to evaluate how duties are segregated within the NGO/CDA to achieve accountability and optimal internal control.

Duty/ issue	Chairman of Board	Treasurer	Others	Comments
Issuance of payment request				
Approval of payment request				
Issuance of check				
Signature on check				
Check recording in register				
Custody of checks register				
Preparation of monthly financial report				
Preparation of end-of year financial accounts				

Evaluation

Good	Fair	Poor
------	------	------

Comments

7. Loans registry

This section is to evaluate the NGO's capacity in loan management and documentation

Resister	Existing	Complete	accurate	Evaluation Good-fair-poor	Comments
Loans daily register					
Loans monthly register					

Bank's book					
Project's revenue and expenditure book					
Loanee's files (one for each including contract, copies of payment receipts and ID, etc.)					
Waiting list for potential loanees					
Register of loan payments receipts					
Loan repayment report (MONTHLY)					

Evaluation

Good	Fair	Poor
------	------	------

Comments

8. **Closure Accounts:**

This section is to evaluate the NGOs ability to prepare legally compliant end of year accounts including reporting and valuation of assets, financial balance in 31 December including cash in the treasure and amounts in bank accounts, loans capital, depreciation of assets, balance from activities, etc. According to the Egyptian Law for NGOs, if the balance of funds in the NGO is 20,000 L.E. or more, accounts are to be reviewed and approved by an independent accounting office. Otherwise, the end-of-year accounts are approved reviewed and approved by the NGOs department of the Ministry of Social Affairs.

Year	Accounts accurately prepared	Approved (by Ministry of Social Affairs or External Accounting Office)
2009		
2010		
2011		

Annex 9: NGO/CDA technical Institutional Assessment Checklist

Tools used in assessment: Focus group discussion, In-depth Interviews, Review of available documents including reports, books, minutes of meetings, registers and physical assets

Name of NGO/CDA:

Date and Number of Registration in Ministry of Social Affairs:

Village:

Governorate:

1. Objectivity and Clearance of Mission:

- Does the NGO have a written Mission/objective?
- Did the General Assembly approve the Mission?
- Are the general public aware of the NGO’s mission?

2. Decision making mechanism

- Does the Board have a minimum of 7 seven members?
- Does the Board meet on a monthly basis?
- Are decisions made by voting?
- Are the voting results documented in the boards’ meeting minutes- with mentioning of approving and disapproving members?
- Does the NGO have a general assembly of a minimum 50 people?
- Does the general assembly meet regularly- at least once/year?
- Is the annual plan/financial budget of the NGO/CDA approved by the general assembly?

3. Committees:

- Does the Board have a minimum of 2 active committees that have met at least once in the last 2 months and are working in different fields?
- Do the committees have at least 2 members that are not on the Board?

4. Gender Consideration

- What is the percentage of females in the General Assembly?

More than 25% between 10-25% Less than 10%

- Is one or more of the committees chaired by a female?
- Is one or more of the board members a female?
- What is the percentage of females working (as employees or volunteers) in the NGO?

More than 25% between 10-25% Less than 10%

5. Accountability and transparency:

- Does the NGO prepare regular progress reports?

Monthly Quarterly Semi-annual Annual none

- Are the reports presented to the board? If yes, how frequently?
- Are the reports presented to the General Assembly? If yes, how frequently?
- Did the NGO/CDA undertake any survey to measure how satisfied the community members are with its services?
 - Is there an increase in the General Assembly membership over the last three years?
 - Does the NGO notify the general assembly/ general public of its decisions? How?
 - Does the NGO undertake any form of appraisal to identify local needs and justify prioritization?
 - Does the NGO undertake annual/semi annual meetings with the general public to discuss their needs and what the NGO needs to do?

6. Representation

- How are the board members selected?
- When was the last time board members were selected?
- Are there clear documented procedures for replacement of inactive board members?
- Are the roles and duties of the different board members documented?

7. Planning, strategy development and utilization

- Does the NGO develop an annual plan?
- Does the NGO have a 3-5 year strategy ?
- Who develops and who approves the plans and strategies?

- Does the NGO compare its actual progress against that planned? How often?
- Does the NGO review/revise its plan periodically? How often?

8.Human resources

- Does the NGO have a documented organizational chart?
- Does the NGO have a documented job description for each employee/ volunteer?
- Does the NGO have a documented employee performance evaluation system?
- Does the NGO have an employee development program?

9. Computer usage

- Does the NGO have a computer?
- Is the computer used in preparation of the reports?
- Is the computer used in keeping records of beneficiaries and/or potential beneficiaries?
- Does the NGO have a computerized information management officer/focal point?

10. Past experience in programming and program management

- Did the NGO manage programmes/projects?
- What field (s) were these projects in?
- What was the budget of the largest of these projects/programmes?
- Which donors did the NGO/ CDA deal with?
- Which project/ programme was the most successful?
- Did the NGO/CDA have a focal point/ coordinator for each of the projects/programmes?
- Did the NGO estimate the cost of its service delivery?
- Did the NGO administer loans? What was their magnitude?

11. Networking and partnership building

- Is the NGO a member of any network?
- Did the NGO cooperate with other NGOs/CDAs in the implementation of activities?
- Did the NGGO cooperate with a governmental authority in the implementation of activities?
- Did the NGO cooperate with /attract fund from individuals/private sector?

Annex 10- NGO assessment reports

Name of NGO: Community Development Association in Mansoria, Daraw, Aswan

Results of the Institutional Assessment:

1. Points of strengths:

- The NGO has documented bylaws
- The NGO has clear objectives and documented fields of operations that were approved by the general assembly
- The NGO has a board of 9 members that meets monthly
- The board is elected every three years and elections for 1/3 of the members are done every 2 years
- The NGO has documented procedures for replacement of its inactive board members in its by-laws
- The NGO has a general assembly of 352 members in 2011 and meets annually
- The number of members in the general assembly has not decreased over the last three years
- The NGO reports to the general assembly on an annual basis. This includes reporting of actual against planned progress
- Decisions in the Board and the General Assembly are made by voting and the general assembly has an effective role in approving the NGOs operations
- The General Assembly approves the annual budget forecast for the upcoming year
- The NGO has three committees to work in different fields
- The NGO has attracted funds from national and international donors
- The NGO has successfully managed a revolving loans portfolio of L.E. 400, 000 over a period of 7 years. The loan capital and accrued interest was returned to the donor agency upon completion of the project.
- The NGO has a comprehensive and complete bookkeeping system
- The NGO has a sound accounting system
- The NGO finance system is competent and effective
- The NGO end-of year accounts have been regularly audited by external auditors and no comments/irregularities were recorded. The audit reports have been approved by the supervising Authority.
- The NGO has been successfully using the donor's reporting formats to produce monthly and annual reports
- The NGO has good working relations with Government authorities and is a member of the Regional Union for NGOs
- The NGO has organizational charts and job descriptions for employees in its projects
- The NGO has separate a bank account, financial administrative registers for each of its projects
- The NGO has mad adequate consideration for gender issues
- The NGO has undertaken surveys to identify beneficiaries for their project services
- The NGO uses the computer to save beneficiaries information and issue reports
- The NGO had a coordinator/ focal point for each of its services
- The NGO has estimated the cost of its service delivery for the different projects

2. Points of weaknesses:

- Apart from the projects reporting templates, the NGO does not have its own technical reporting formats.
- Apart from its board and general assembly meetings and a kindergarten project, the NGO has not been very active since the completion of its last project in 2010
- The NGO does not have a clear strategy for fund raising and financially sustaining its operations beyond projects completions
- The NGO relies on its general assembly, rather than surveys, to identify community needs and priorities
- Apart from project staff, the NGO does not have paid employees. All functions of the NGO are undertaken by non-paid volunteers (board members, accountant and general assembly)
- Apart from the project's HR policies and regulations, the NGO does not have by-laws for employees' development or management.
- The NGO has not undertaken any survey to assess community member's level of satisfaction with its services/ performance
- The NGO has not cooperated with other NGOs or governmental bodies in the implementation of activities
- Apart from the project's documented and well-observed means and arrangements of implementation, the NGO does not manuals for project management
- The general public is aware that the NGO is to help in developing their community in general. However, awareness of all its possible fields of operations, as stipulated in its by-laws is limited among community members.
- The NGOs computer dates back to 2001.

3. Capacity Building Needs:

- Training on usage of the project reporting format
- Orientation with the project's loan objectives and management system including beneficiaries' eligibility criteria, loan sizes, interest rates, repayment installments amounts, etc.
- Awareness raising on climate change, its impacts in the village, how to identify vulnerable groups, and how income augmentation and diversification projects can help build resilience of these groups.
- Administrative support through provision of assets (computer and furniture)

NGO assessment report

Name of NGO: Community Development Association in Benban Bahary, Daraw, Aswan

Results of the Institutional Assessment:

1. Points of strengths:

- The NGO has documented bylaws
- The NGO has clear objectives and documented fields of operations.
- The NGO has a board of 9 members that meets monthly
- The board is elected every three years and elections for 1/3 of the members are done every 2 years
- The NGO has documented procedures for replacement of its inactive board members in its by-laws. 2 inactive board members have been replaced in 2007.
- The NGO has a general assembly of 137 members in 2011 and meets annually
- The NGO has been able to attract more community members to join its general assembly over the last three years
- The NGO reports to the general assembly on an annual basis. This includes reporting of actual against planned financial progress
- Decisions in the Board and the General Assembly are made by voting
- The General Assembly approves the annual budget forecast for the upcoming year
- The NGO has six committees to work in different fields
- The NGO has attracted funds from international donors and successfully implemented grants projects of up to L.E. 760,000 in several domains
- The NGO has a fairly intermediate bookkeeping system
- The NGO has an accounting system
- The NGO projects finance system is competent and effective
- The NGO end-of year accounts have been regularly audited by external auditors and no comments/irregularities were recorded. The audit reports have been approved by the supervising Authority.
- The NGO has been successfully using the donor's reporting formats to produce quarterly and annual reports
- The NGO has good working relations with Government authorities and is a member of the Regional Union for NGOs
- The NGO has organizational charts and job descriptions for employees in its projects
- The NGO has separate a bank account, financial administrative registers for each of its projects
- The NGO has made adequate consideration for gender issues
- The NGO has undertaken surveys to identify beneficiaries for their project services
- The NGO uses the computer to save beneficiaries information and issue reports
- The NGO had a coordinator/ focal point for each of its services
- The NGO has estimated the cost of its service delivery for the different projects
- The NGO has on-going fundraising initiatives

2. Points of weaknesses:

- The NGO objectives and field of operations were not approved by the general assembly and/or community members

- There was no evidence that the general assembly has an effective role in developing the NGO strategy/plan of action
- Apart from the project reporting templates, the NGO does not have its own technical reporting formats.
- Apart from its board and general assembly meetings and a kindergarten project, the NGO has not been very active since the completion of its last project in 2009
- The NGO relies on its general assembly, rather than surveys, to identify community needs and priorities
- Apart from project staff, the NGO does not have paid employees. All functions of the NGO are undertaken by non-paid volunteers (board members, accountant and general assembly)
- Apart from the project's HR policies and regulations, the NGO does not have by-laws for employees' development or management.
- The NGO has not undertaken any survey to assess community member's level of satisfaction with its services/ performance
- The NGO has not cooperated with other NGOs or governmental bodies in the implementation of activities
- Apart from the project's documented and well-observed means and arrangements of implementation, the NGO does not have manuals for project management
- The general public is aware that the NGO is to help in developing their community in general. However, awareness of all its possible fields of operations, as stipulated in its by-laws is limited among community members.
- The NGO's computer dates back to 2000

3. Capacity Building Needs:

- Training on usage of the project reporting format
- Training on project's loan management including application of beneficiaries' eligibility criteria, documents needed for loan approval, calculation of interest rates and repayment scheduling, loan repayment registration, loan bookkeeping, etc.

- Awareness raising on climate change, its impacts in the village, how to identify vulnerable groups, and how income augmentation and diversification projects can help build resilience of these groups.

- Administrative support through provision of assets (computer and furniture)

NGO assessment report

Name of NGO: Community Development Association in Halfa 3, Luxor

Results of the Institutional Assessment:

1. Points of strengths:

- The NGO has documented bylaws
- The NGO has a mission, clear objectives and documented fields of operations that have been developed by the board of directors and approved by the general assembly.
- The NGO has a board of 7 members that meets monthly
- The board is elected every three years and elections for 1/3 of the members are done every 2 years. The current board has been re-elected for 2 rounds.
- The NGO has documented procedures for replacement of its inactive board members in its by-laws.
- The NGO had a general assembly of 125 members in 2011 and meets annually
- The NGO reports to the general assembly on an annual basis. This includes reporting of actual against planned financial progress
- Decisions in the Board and the General Assembly are made by voting
- The General Assembly approves the annual budget forecast for the upcoming year
- The NGO has 4 committees to work in different fields
- The NGO has attracted funds from national donors and successfully implemented grants projects of up to L.E. 18000 in several domains
- The NGO has a fairly simple but updated bookkeeping system. There is room to make the system more comprehensive.
- The NGO has basic accounting and administrative systems
- The NGO projects finance system is competent and effective
- The NGO end-of year accounts have been regularly audited by the ministry of Social Affairs- as the supervising authority- and no comments/irregularities were recorded.
- The NGO has been successfully using the donor's reporting formats to produce monthly and annual reports
- The NGO has good working relations with Government authorities and is a member of the Regional Union for NGOs
- The NGO has cooperated with other NGOs in implementation of activities
- The NGO has descriptions for employees in its projects
- The NGO has separate a bank account, financial administrative registers for each of its projects
- The NGO has made adequate consideration for gender issues
- The NGO has undertaken surveys to identify beneficiaries for their project services
- The NGO had a coordinator/ focal point for each of its services
- The NGO has estimated the cost of its service delivery for the different projects
- The NGO has done a survey to identify community needs and priorities and developed projects accordingly
- The NGO has on-going fundraising initiatives
- The general public is aware that the NGO is to help in developing their community and are also aware of the different ways/fields it can do that.

2. Points of weaknesses:

- The NGO has not been able to attract more community members to join its general assembly over the last three years
- Apart from the projects reporting templates, the NGO does not have its own technical reporting formats.
- Apart from project staff, the NGO does not have paid employees. All functions of the NGO are undertaken by non-paid volunteers (board members, accountant and general assembly)
- Apart from the project's HR policies and regulations, the NGO does not have by-laws for employees' development or management.
- The NGO has not undertaken any survey to assess community member's level of satisfaction with its services/ performance
- Apart from the project's documented and well-observed means and arrangements of implementation, the NGO does not manuals for project management
- The NGO has no computer. Beneficiaries' information is recorded manually and board members use their personal computers to type reports.

3. Capacity Building Needs:

- Training on usage of the project reporting format
- Training on project's loan management including application of beneficiaries' eligibility criteria, documents needed for loan approval, calculation of interest rates and repayment scheduling, loan repayment registration, loan bookkeeping, etc.
- Training on contents of comprehensive bookkeeping and registry procedures
- Awareness raising on climate change, its impacts in the village, how to identify vulnerable groups, and how income augmentation and diversification projects can help build resilience of these groups.
- Administrative support through provision of assets (computer and furniture)

NGO assessment report

Name of NGO: Women Development Association in Nego'e Kebly, Luxor

Results of the Institutional Assessment:

1. Points of strengths:

- The NGO has documented bylaws
- The NGO is currently drafting internal by-laws that includes grant management procedures, human resources management, etc.
- The NGO has a mission, clear objectives and documented fields of operations that have been developed by the board of directors and approved by the general assembly.
- The NGO has a board of 9 members that meets every 15 days
- The board is elected every three years and elections for 1/3 of the members are done every 2 years. The current board chairman has been re-elected for 3 rounds.
- The NGO has documented procedures for replacement of its inactive board members in its by-laws.
- The NGO had a general assembly of 52 members in 2011 and meets annually
- The NGO reports to the general assembly on an annual basis. This includes reporting of actual against planned financial progress
- Decisions in the Board and the General Assembly are made by voting
- The General Assembly approves the annual budget forecast for the upcoming year
- The NGO has 6 committees to work in different fields
- The NGO has attracted funds from international and national donors and successfully implemented grants projects of up to L.E. 63,000 in several domains
- The NGO has a comprehensive and complete bookkeeping system. However, due to shortage in filing cabinets, most of the registers and journals are kept in cartons.
- The NGO has competent accounting and administrative systems
- The NGO projects finance system is competent and effective
- The end-of year accounts have been regularly audited by an external auditor and approved by the ministry of Social Affairs- as the supervising authority. No comments/irregularities were recorded.
- The NGO has been successfully using the donor's reporting formats to produce monthly and annual reports
- The NGO has good working relations with Government authorities and is a member of the Regional Union for NGOs
- The NGO has cooperated with other NGOs in implementation of activities
- The NGO has been able to attract substantial private sector donations
- The NGO has descriptions for employees in its projects
- The NGO has separate a bank account, financial administrative registers for each of its projects
- The NGO has made adequate consideration for gender issues.
- The NGO has undertaken a survey to identify community needs and priority as well as beneficiaries for their project services
- The NGO has undertaken a survey to assess the community's level of satisfaction with its services. The results were very positive.
- The NGO had a coordinator/ focal point for each of its services
- The NGO has estimated the cost of its service delivery for the different projects

- The NGO has on-going fundraising initiatives
- The general public is aware that the NGO is to help in developing their community and are also aware of the different ways/fields it can do that.
- The NGO uses a computer to save information about beneficiaries and issue reports

2. Points of weaknesses:

- The NGO has not been able to attract more community members to join its general assembly over the last three years
- Apart from the projects reporting templates, the NGO does not have its own technical reporting formats.
- Apart from project and kindergarten staff, the NGO does not have paid employees. All functions of the NGO are undertaken by non-paid volunteers (board members, accountant and general assembly)
- Apart from the project's documented and well-observed means and arrangements of implementation, the NGO does not manuals for project management
- The NGO has a shortage in physical assets (filing cabinets, desks, chairs, etc.) Its computer dates back to 2005.

3. Capacity Building Needs:

- Training on usage of the project reporting format
- Training on project's loan management including application of beneficiaries' eligibility criteria, documents needed for loan approval, calculation of interest rates and repayment scheduling, loan repayment registration, loan bookkeeping, etc.
- Awareness raising on climate change, its impacts in the village, how to identify vulnerable groups, and how income augmentation and diversification projects can help build resilience of these groups.
- Administrative support through provision of assets (computer and furniture)

NGO assessment report

Name of NGO: Community Development Association in Kommeir, Luxor

Results of the Institutional Assessment:

1. Points of strengths:

- The NGO has documented bylaws
- The NGO has clear objectives and documented fields of operations that have been developed by the board of directors.
- The NGO has a board of 9 members that meets monthly
- The board is elected every three years and elections for 1/3 of the members are done every 2 years.
- The NGO has documented procedures for replacement of its inactive board members in its by-laws.
- The NGO had a general assembly of 92 members in 2011 and meets annually
- The NGO reports to the general assembly on an annual basis. This includes reporting of actual against planned financial progress
- Decisions in the Board and the General Assembly are made by voting
- The General Assembly approves the annual budget forecast for the upcoming year
- The NGO has 6 committees to work in different fields
- The NGO has attracted funds from international and national donors and successfully implemented grants projects of up to L.E. 90,000 in several domains
- The NGO has a strong bookkeeping system.
- The NGO has competent accounting and administrative systems. However, inventory control can be improved.
- The NGO projects finance system is competent and effective
- The end-of year accounts have been regularly audited by an external auditor and approved by the ministry of Social Affairs- as the supervising authority. No comments/irregularities were recorded.
- The NGO has been successfully using the donor's reporting formats to produce monthly and annual reports
- The NGO has good working relations with Government authorities and is a member of the Regional Union for NGOs
- The NGO has cooperated with other NGOs in implementation of activities
- The NGO has descriptions for employees in its projects
- The NGO has a separate bank account, financial administrative registers for each of its projects
- The NGO has made adequate consideration for gender issues.
- The NGO had a coordinator/ focal point for each of its services
- The NGO has estimated the cost of its service delivery for the different projects
- The NGO has on-going fundraising initiatives
- The NGO has done surveys to identify beneficiaries of its activities
- The general public is aware that the NGO is to help in developing their community and are also aware of the different ways/fields it can do that.
- The NGO uses a computer to save information about beneficiaries and issue reports

2. Points of weaknesses:

- The NGO has not been able to attract more community members to join its general assembly over the last three years

- Apart from the projects reporting templates, the NGO does not have its own technical reporting formats.
- Apart from project staff, the NGO does not have paid employees. All functions of the NGO are undertaken by non-paid volunteers (board members, accountant and general assembly)
- Apart from the project's documented and well-observed means and arrangements of implementation, the NGO does not have manuals for project management
- The NGO does not have a strategy.
- Apart from the general assembly's opinions, the NGO has not undertaken surveys to identify needs and priorities.
- The NGO has not practiced tendering. As per projects contracts, procurements above L.E. 1000 were undertaken by the donor agencies of its projects
- The NGOs' computer dates back to 2000.

3. Capacity Building Needs:

- Training on usage of the project reporting format
- Training on project's loan management including application of beneficiaries' eligibility criteria, documents needed for loan approval, calculation of interest rates and repayment scheduling, loan repayment registration, loan bookkeeping, etc.

- Awareness raising on climate change, its impacts in the village, how to identify vulnerable groups, and how income augmentation and diversification projects can help build resilience of these groups.

- Administrative support through provision of assets (computer and furniture)

NGO assessment report

Name of NGO: Community Development Association in Samhoud, Qena

Results of the Institutional Assessment:

1. Points of strengths:

- The NGO has documented bylaws
- The NGO has a published mission, clear objectives and documented fields of operations that have been developed by the board of directors and approved by the general assembly
- The NGO has a board of 13 members that meets monthly
- The board is elected every three years and elections for 1/3 of the members are done every 2 years.
- The NGO has documented procedures for replacement of its inactive board members in its by-laws.
- The NGO had a general assembly of 56 members in 2011 and meets annually
- The NGO reports to the general assembly on an annual basis. This includes reporting of actual against planned financial progress
- Decisions in the Board and the General Assembly are made by voting
- The General Assembly approves the annual budget forecast for the upcoming year
- The NGO has 6 committees to work in different fields
- The NGO has attracted funds from international and national donors and successfully implemented projects of up to L.E. 500,000 in several domains
- The NGO is administering a loans portfolio of L.E. 500,000. This project has been ongoing since 2003.
- The NGO has been able to attract substantial funds from individuals and private sector
- The NGO has a strong bookkeeping system.
- The NGO has robust accounting and administrative systems
- The NGO projects finance system is competent and effective
- The end-of year accounts have been regularly audited by an external auditor and approved by the ministry of Social Affairs- as the supervising authority. No comments/irregularities were recorded.
- The NGO has been successfully using the donor's reporting formats to produce monthly and annual reports
- The NGO has good working relations with Government authorities and is a member of the Regional Union for NGOs
- The NGO has descriptions for employees in its projects
- The NGO has a separate bank account, financial administrative registers for each of its projects
- The NGO has a coordinator/ focal point for each of its services
- The NGO has estimated the cost of its service delivery for the different projects
- The NGO has on-going fundraising initiatives
- The NGO has done surveys to identify beneficiaries of its activities. The NGO has also undertaken market feasibility studies for some of its activities.
- The general public is aware that the NGO is to help in developing their community and are also aware of the different ways/fields it can do that.
- The NGO uses a computer to save information about beneficiaries and issue reports

2. Points of weaknesses:

- The NGO has not been able to attract more community members to join its general assembly over the last three years

- Apart from the projects reporting templates, the NGO does not have its own technical reporting formats.
- Apart from project staff, the NGO does not have paid employees. All functions of the NGO are undertaken by non-paid volunteers (board members, accountant and general assembly)
- Apart from the project's documented and well-observed means and arrangements of implementation, the NGO does not have manuals for project management
- The NGO does not have a strategy.
- Only 4 of the 56 members of the general assembly and 1 of the board members are females. The NGO might need to more adequately consider gender issues.

3. Capacity Building Needs:

- Training on usage of the project reporting format
- Orientation on the project's loan objectives and management system including beneficiaries' eligibility criteria, loan sizes, interest rates, repayment installments amounts, etc.
- Awareness raising on climate change, its impacts in the village, how to identify vulnerable groups, and how income augmentation and diversification projects can help build resilience of these groups.

NGO assessment report

Name of NGO: Community Development Association in Lo'a, Assuit

Results of the Institutional Assessment:

1. Points of strengths:

- The NGO has documented bylaws
- The NGO has clear objectives and documented fields of operations that have been developed by the board of directors.
- The NGO has a board of 5 members that meets as needed
- The board is elected every three years and elections for 1/3 of the members are done every 2 years.
- The NGO has documented procedures for replacement of its inactive board members in its by-laws.
- The NGO had a general assembly of 53 members in 2011 and meets annually
- The NGO has been able to attract more community members to join its general assembly over the last three years
- The NGO reports to the general assembly on an annual basis. This includes reporting of actual against planned financial progress
- Decisions in the Board and the General Assembly are made by voting
- The General Assembly approves the annual budget forecast for the upcoming year
- The NGO has 4 committees to work in different fields
- The NGO has attracted funds from international and national donors and successfully implemented grants projects of up to L.E.40,000 in several domains
- The NGO is currently administering a loans portfolio of L.E. 100,000
- The NGO has a strong bookkeeping system.
- The NGO has competent accounting and administrative systems.
- The NGO projects finance system is competent and effective
- The end-of year accounts have been regularly audited by an external auditor and approved by the ministry of Social Affairs- as the supervising authority. No comments/irregularities were recorded.
- The NGO has been successfully using the donor's reporting formats to produce monthly and annual reports
- The NGO has good working relations with Government authorities and is a member of the Regional Union for NGOs
- The NGO has cooperated with other NGOs in implementation of activities
- The NGO has descriptions for employees in its projects
- The NGO has a separate bank account, financial administrative registers for each of its projects
- The NGO has made adequate consideration for gender issues.
- The NGO had a coordinator/ focal point for each of its services
- The NGO has estimated the cost of its service delivery for the different projects
- The NGO has on-going fundraising initiatives and a strategy
- The NGO has done surveys to identify beneficiaries of its activities
- The general public is aware that the NGO is to help in developing their community
- The NGO uses a computer to save information about beneficiaries and issue reports

2. Points of weaknesses:

- Apart from the projects reporting templates, the NGO does not have its own technical reporting formats.

- Apart from project staff, the NGO does not have paid employees. All functions of the NGO are undertaken by non-paid volunteers (board members, accountant and general assembly)
- Apart from the project's documented and well-observed means and arrangements of implementation, the NGO does not have manuals for project management
- Apart from the general assembly's opinions, the NGO has not undertaken surveys to identify needs and priorities.
- The NGOs' computer dates back to 2004.

3. Capacity Building Needs:

- Training on usage of the project reporting format
- Orientation on the project's loan objectives and management system including beneficiaries' eligibility criteria, loan sizes, interest rates, repayment installments amounts, etc.

- Awareness raising on climate change, its impacts in the village, how to identify vulnerable groups, and how income augmentation and diversification projects can help build resilience of these groups.

- Administrative support through provision of assets (computer and furniture)

NGO assessment report

Name of NGO: New Rural Community Development Association in Gharb Tahta, Sohag

Results of the Institutional Assessment:

1. Points of strengths:

- The NGO has documented bylaws and internal bylaws
- The NGO has a published mission, clear objectives and documented fields of operations that have been developed by the board of directors and approved by the general assembly.
- The NGO has a board of 11 members that meets as needed, usually every fifteen days
- The board is elected every three years and elections for 1/3 of the members are done every 2 years.
- The NGO has documented procedures for replacement of its inactive board members in its by-laws.
- The NGO had a general assembly of 422 members in 2011 and meets annually
- The NGO has been able to attract more community members to join its general assembly over the last three years
- The NGO reports to the general assembly on an annual basis. This includes reporting of actual against planned financial progress
- Decisions in the Board and the General Assembly are made by voting
- The General Assembly approves the annual budget forecast for the upcoming year
- The NGO has 4 committees to work in different fields
- The NGO has attracted funds from international and national donors and successfully implemented grants projects of up to L.E.1,000,000 in several domains
- The NGO is currently administering a loans portfolio of L.E. 100,000
- The NGO has a strong and comprehensive bookkeeping system.
- The NGO has competent accounting and administrative systems.
- The NGO projects finance system is competent and effective
- The end-of year accounts have been regularly audited by an external auditor and approved by the ministry of Social Affairs- as the supervising authority. No comments/irregularities were recorded.
- The NGO has been successfully using the donor's reporting formats to produce monthly and annual reports
- The NGO has good working relations with Government authorities and is a member of the Regional Union for NGOs and the regional Network of NGOs active in Agriculture
- The NGO has cooperated with other NGOs in implementation of activities
- The NGO has descriptions for employees in its projects
- The NGO has a separate bank account, financial administrative registers for each of its projects
- The NGO has made adequate consideration for gender issues.
- The NGO had a coordinator/ focal point for each of its services
- The NGO has estimated the cost of its service delivery for the different projects
- The NGO has on-going fundraising initiatives and a strategy
- The NGO has done surveys to identify beneficiaries of its activities
- The general public is aware that the NGO is to help in developing their community and is well-aware of its possible field of activities
- The NGO has done surveys to identify community needs and priorities and has developed projects accordingly
- The NGO uses a computer to save information about beneficiaries and issue reports

- The NGO has documented regulations for HR management and development and project management

2. Points of weaknesses:

- Apart from the projects reporting templates, the NGO does not have its own technical reporting formats.
- Apart from project staff, the NGO does not have paid employees. All functions of the NGO are undertaken by non-paid volunteers (board members, accountant and general assembly)
- The NGOs' computer dates back to 2004.

3. Capacity Building Needs:

- Training on usage of the project reporting format
- Orientation on the project's loan objectives and management system including beneficiaries' eligibility criteria, loan sizes, interest rates, repayment installments amounts, etc.

- Awareness raising on climate change, its impacts in the village, how to identify vulnerable groups, and how income augmentation and diversification projects can help build resilience of these groups.

- Administrative support through provision of assets (computer and furniture)

NGO assessment report

Name of NGO: Al Shamia Rural Community Development Association, Assuit

Results of the Institutional Assessment:

1. Points of strengths:

- The NGO has documented bylaws and internal bylaws
- The NGO has clear objectives and documented fields of operations that have been developed by the board of directors and approved by the general assembly.
- The NGO has a board of 9 members that meets monthly
- The board is elected every three years and elections for 1/3 of the members are done every 2 years. The board chairman has been re-elected for 3 consecutive rounds.
- The NGO has documented procedures for replacement of its inactive board members in its by-laws.
- The NGO had a general assembly of 136 members in 2011 and meets annually
- The NGO has been able to attract substantially more community members to join its general assembly over the last three years
- The NGO reports to the general assembly on an annual basis. This includes reporting of actual against planned financial progress
- Decisions in the Board and the General Assembly are made by voting
- The General Assembly approves the annual budget forecast for the upcoming year
- The NGO has 4 committees to work in different fields
- The NGO has attracted funds from international and national donors and successfully implemented grants projects of up to L.E.500,000 in several domains
- The NGO is currently administering a loans portfolio project of L.E. 400,000. The project started in 2003.
- The NGO has a strong and comprehensive bookkeeping system.
- The NGO has competent accounting and administrative systems.
- The NGO projects finance system is competent and effective
- The end-of year accounts have been regularly audited by an external auditor and approved by the ministry of Social Affairs- as the supervising authority. No comments/irregularities were recorded.
- The NGO has been successfully using the donor's reporting formats to produce monthly and annual reports
- The NGO has good working relations with Government authorities and is a member of the Regional Union for NGOs
- The NGO has cooperated with other NGOs in implementation of activities
- The NGO has an organization chart and job descriptions for employees in its projects
- The NGO has a separate bank account, financial administrative registers for each of its projects
- The NGO has made adequate consideration for gender issues.
- The NGO had a coordinator/ focal point for each of its services
- The NGO has estimated the cost of its service delivery for the different projects
- The NGO has on-going fundraising initiatives and a strategy
- The NGO has done surveys to identify beneficiaries of its activities
- The general public is aware that the NGO is to help in developing their community and is well-aware of its possible field of activities
- The NGO has done surveys to identify community needs and priorities and has developed projects accordingly

- The NGO uses a computer to save information about beneficiaries and issue reports
- The NGO has documented regulations for HR management and development and project management

2. Points of weaknesses:

- Apart from the projects reporting templates, the NGO does not have its own technical reporting formats.
- Apart from project staff, the NGO does not have paid employees. All functions of the NGO are undertaken by non-paid volunteers (board members, accountant and general assembly)
- The NGOs' computer dates back to 2004.

3. Capacity Building Needs:

- Training on usage of the project reporting format
- Orientation on the project's loan objectives and management system including beneficiaries' eligibility criteria, loan sizes, interest rates, repayment installments amounts, etc.
- Awareness raising on climate change, its impacts in the village, how to identify vulnerable groups, and how income augmentation and diversification projects can help build resilience of these groups.
- Administrative support through provision of assets (computer and furniture)

Annex 11- Feasibility Study and Income Calculations of Interventions

Ducks projects Feasibility Study and Income Calculations

For a project capital of L.E. 1000:

- The project cycle is 10 weeks
- Average consumption of fodder = 11 kg/ duck
- Average cost of fodder= L.E. 1200/Tonne
- Mortality rate = 6%
- Purchase cost of chicks= L.E. 7/chick
- Other expenses (vet services, technical support, etc) = 15% of feeding costs
- Number of chicks to be purchased= 40 chicks
- Loan Interest to be paid to lending NGO= 5%
- Loan (including interest) repayment period= 30 weeks with instalments to be paid every cycle (10 weeks)

COSTS:

Purchase of chicks=7*45= L.E. 315

Fodder (11*45*1.2)= 594 L.E

Other expenses= 0.15*594= L.E. 89

Loan repayment = (1000*105/100)/3=L.E.350 (to be paid at the end of each of the first 3 cycles i.e. every 10 weeks for three times)

TOTAL Costs during first three cycles= L.E. 1348

TOTAL costs as of the Fourth Cycle (after loan repayment)= 998

- Average weight of mature duck= 3.5 Kg
- Average selling price of mature duck= L.E 11/Kg

REVENUE:

Number of ducks sold= 45*94/100=42 ducks

Total weight of ducks sold= 42*3.5= 147 kg

Total revenue from sold ducks= 147*11= L.E. 1617

Net profit for the first three cycles= 1617-1348= L.E. 269

Net profit as of the fourth cycle= 1617-998= 619

Rate of profit after the fourth cycle= (619/1000)*100= 61.9%

Rabbits projects Feasibility Study and Income Calculations

A breeding project with 10 females and 2 male Rabbits

Loan of L.E. 2500

To be repaid to NGO at an interest rate 5% over a period 6 months in two instalments (one every 3 months)

1 RABBIT BREADING CYCLE IS 40 DAYS

Investments costs

1. Breeding cages:

Cost of female rabbits cages= 10 cages* L.E50/cage= L.E. 500

Cost of male offspring cages= 12 cages*L.E.40/cage= L.E. 480

TOTAL FOR CAGES= L.E 980

2. Breeding parents:

Cost of 10 females and 2 males= 12 animals*L.E. 60= L.E. 720

TOTAL FOR PARENTS= L.E. 720

Operating Costs for a 3 months period :

1. Feeding Costs

Fodder for Parents: (25kg* 10 females)+ (12.5kg*2 males)=275 kg

Fodder for offspring (at a rate of 4 rabbits/female/cycle) till sale at weight of 2 kg= (6 kg*40 rabbits/ cycle* 4.5 cycles in 6 months/2)= 540 kg of fodder

Total cost of fodder=(275+540 kg)*L.E 800/tonne= L.E. 815

2. Vet and hygienic care = L.E. 75

3. Cages depreciation (over 10 years)= L.E.75

4. Total recurrent costs every quarter= L.E 965
5. Loan repayment at end of third and the sixth month (including 5% interest rate)= L.E. 2625/2= L.E 1312.5

Total costs in the 2 first quarters =L.E 2277.5

Total quarterly cost as of the third quarter=L.E. 965

REVENUE:

- Each female rabbit gives birth to 4-5 rabbits every cycle (40days)
- It takes 8 -9 weeks to grow a rabbit to a selling weight of 2 kg.

As of the first week 9, revenue from offspring sale at a weight of 2 Kg/rabbit= (10 females*4 rabbits/female/cycle of 40 days*2kg/rabbit* L.E/10/Kg)= 800 L.E. every 40 days (assuming a 60 days average period for growth to 2 kg and a 40 days conception period)

Quarterly revenue from rabbits sale= LE. 800*90/40 days= L.E. 1800

Quarterly revenue from sale of manure= 20 m³ *25 L.E. = L.E. 500

Net profit of the first 2 quarters = L.E. 2300- 2277.5= 22.5

Net quarter profit as of the third quarter =L.E. 2300-965= L.E 1335

Goats projects Feasibility Study and Income Calculations

The project shall provide 2 pregnant female goats to each farmer as a loan. By the end of the first six months, he is to return 2 female offspring.

At a gestation period of 4 months and an average birth rate of 2.3animals/ female and a 2 months growth to a selling weight of 30 kg

Cost of every six months:

Fodder= LE.20/goat/ month*6 goats (2 female parents+ 4 calves)*6 months= L.E. 720
 Vet care and technical support= 200 L.E.

TOTAL COSTS EVERY 6 MONTHS= L.E. 920

Revenue during first six months :

Revenue of selling 2 offspring (2 others offspring will be returned to NGO) = 2goats*30 kg*30 L.E/kg= 1800 L.E.

Revenue of selling milk= 1.2 kg/ goat/day* 2 female parents*3 L.E./kg* 180 days= L.E. 1296

NET PROFIT AFTER FIRST SIX MONTHS= 3096-920= LE. 2176

Revenue as of the seventh month:

Revenue of selling 4 goats *30 kg*30 L.E./kg = L.E. 3600 every 6 months

Revenue of selling milk (with offspring sold and only mothers giving milk) =1.2 kg/ goat/day*2 goats* 3 L.E./kg* 180 days= L.E. 1296

NET SEMI-ANNUAL PROFIT AS OF SEVENTH MONTH= 4896- 920= L.E. 3976

Bees project Feasibility Study and Income Calculations:

Cost of establishing a hive with 50 cell units:

Items	Number	Cost L.E	Lifetime - years	Depreciation L.E/YEAR
Cell orifice	50	2500		
Wooden Cell	50	2500	10	250
Air ventilator	2	30	3	10
Mask	4	30	3	10
Shovel	1	3	10	-
Gloves	2	20	5	4
Kg of galvanized wire	4	40	2	20
Kg nails	4	10	5	2
Wax melter	1	5	10	
Kg of base wax	60	900	6	150
Honey separator	1	400	10	40
Galvanized barrel	2	100	10	10
Spatula	2	20	10	2
Carpentry tools	-	50	10	5
Wooden mesh with vine leaves	1	300	10	30
TOTAL	6908			533

Annual Profit calculation of a Hive with 50 cells:

Costs	Amount (L.E.)	Revenue	Amount
Depreciation of purchased items (above)	533	Revenue from honey@ 15 kg/cell*15 L.E./Kg	11250
100 Kg of sugar for winter feeding of bees	500	Revenue from ¼ kg of royal bees jelly	750
Rental of land	300	Revenue from 5 kg of produced pollen	250
Formic Acid	50	Revenue from swarm bees	1000
Winter cover	50		
Glass jars	1000		
Miscellaneous	200		
TOTAL	2633		13250

Loan of L.E. 7000 to be given for the project at an interest rate of 5%. Repayment is to be made in monthly instalments of L.E. 490 each over a period of 15 months.

NET PROFIT DURING FIRST 15 MONTHS = REVENUE-COSTS-LOAN REPAMENT

INSTALMENT= (13250-2633)/12-490= L.E. 394 /month

NET PROFIT DURING AS OF 16TH MONTH = REVENUE-COSTS= (13250-2633)/12= 884 L.E. /month

Economic benefit calculation of Alternative Fodder

Cost of traditional fodder

Animal feed in Egypt is composed of Berseem to which hay and protein concentrate (in the form of maize, and minerals, is added).

An animal consumes some 5% of its weight berseem, 1.5% of its weight hay and 1.5% protein concentrate.

Thus a cow that is 300 kg consumes 15 kg of berseem (valued at L.E 15), 4.5 kg of hay (L.E. 4.5) and 4.5 kg of concentrates (some 9 L.E.)

Adding up, the cost is 28.5 L.E. /cattle head/day.

Cost of alternative fodder/ton:

Molasses: L.E. 50

Molasses transportation to farm= L.E. 50

Starter Bacteria= L.E. 30

Labour= L.E. 50

Rental of tractor= L.E. 20

Plastic sheath for covering= L.E. 50

Agricultural waste= (obtained free from farm)

Total = L.E. 250/ ton of agricultural waste

1 Ton agricultural waste = 1/3 tone of fodder

Thus the cost of 1 tone of fodder= $250 \times 3 =$ L.E. 750

A cow that is 300 kg consumes 24 kg of alternative fodder/day.

Thus a cow's consumption of alternative fodder costs $(750/1000) \times 24 =$ L.E 18

Alternative fodder thus reduces the cost of cow's feed by 36%.