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مشروع " تعزيز التكيف مع تغير المناخ في منطقتي الساحل الشمالي ودلتا النيل في مصر "  
Enhancing Climate Change Adaptation in the North Coast and Nile Delta Regions in Egypt Project (ECCADP)

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*Assessing Potential Socioeconomic Impacts of the NBCPW  
on the Local Communities in Kafr Elsheikh Governorate*

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## Final Report

October 2023

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## Executive Summary

Enhancing Climate Change Adaptation in the North Coast and Nile Delta Regions in Egypt Project (ECCADP) involved some measures to reduce the vulnerability of Egypt's North Coast to coastal flooding risks associated with a combination of projected sea level rise and more frequent and intense extreme storm events. These measures comprised constructing 69 km of Nature-Based Coastal Protection Works (NBCPW), using local reed fences, at five vulnerable hotspots within the Nile Delta including (27 km) of coasts in Kafr-el-sheik governorate.

Such measures can have a variety of direct and indirect impacts on local communities in both the immediate and long-term. Direct and more immediate impacts may include creating Job opportunities and supporting economic activities in addition to protecting and improving existing infrastructure. In this respect, constructing reed fences and relevant maintenance work create new job opportunities for local residents, which can have a direct impact on the local economy through the income generated. This, consequently, may lead to increased spending in the local economy, as workers allowing for the multiplier effect to take place. Moreover, these protective measures may assist in protecting existing or newly erected infrastructure, such as roads and utilities.

Indirectly, constructing reed fences may result in increased values of properties being less exposed to flooding, and improved quality of life in addition to supporting the health and well-being of local communities. In this respect, reed fences may also enable local homeowners to benefit indirectly from increased equity and improved access to credit due to the increased value of their properties. Additionally, the area of the protected land may be utilized for providing local communities with amenities, such as parks, public spaces, or community facilities. This, ultimately, can improve the quality of life for local residents and support their economic and sociocultural, and health well-being. Furthermore, as most protected areas are publicly owned, development projects could be planned and implemented in these areas, generating further indirect benefits to local economies.

Also, the ECCADP project has formulated several initiatives to support local communities. These initiatives included providing low-cost credit, and infrastructure provision, which would on one hand create more job opportunities and improve living conditions in these communities.

The overall objective of the study in hand is to:

“assess the beneficial impacts of the project activities at community and specific groups levels as well as the level of participation attained by the Enhancing Climate Change Adaptation in the North Coast and Nile Delta Regions in Egypt Project (ECCADP)”.

Accordingly, the scope of this study involves assessing benefits and/or costs associated with project activities, particularly the reed fence construction as well as the community development initiatives undertaken by the project. In order to assess the impacts of the reed fence construction, on local communities, the supply chain of the reed fence is identified and examined. Additionally, the local community development initiatives are analyzed, and their potential impacts are examined. Furthermore, participation of local community groups in project activities are assessed.

It should be noted that such an assessment and evaluation should be undertaken through clear methodology and based on adequate comprehension of the structure of the local communities, and the key stakeholder groups.

To attain the objective of this study, the report was structured as follows:

- Section I: discusses the methodology undertaken to assess benefits and evaluate participation.
- Section II: provides a comprehensive profile for Bar Bahry area, the study site, in terms of community structure and institutional framework.
- Section II: reviews different community development projects and initiatives undertaken by ECCADP project in bar Bahry area.
- Section III: provides a detailed analysis for supply chain of reed fences in order to identify the beneficiary groups of such activities.

- Section V: considers the results of stakeholder analysis highlighting key stakeholders groups.
- Section VI: intends to assess various benefits, direct and/or indirect, associated with such activities based on the main beneficiary groups identified in previous sections.
- Section VII: is concerned with discussing the results of local community participation in project activities and initiatives.
- The report is then concluded with a summary of the key findings and results in addition to a number of recommendations that may assist in maximizing the benefits of project activities and promote public participation.

## **1. Study Methodology and Methods**

### **1.1 Methodology**

In order to attain the above-mentioned objective, a methodology of four main phases was developed (Figure 1) as follows:

#### **1.1.1 Phase I: Reviewing institutional settings of local communities**

This involves reviewing informal community structure and legal framework as well as identifying potential local partners. This would involve acquiring data from available secondary sources including reviewing different literature on the study area whether generated within the framework of the project or from other sources. Additionally, official reports and census data generated by local and/or national government bodies on the study area will be surveyed.

#### **1.1.2 Phase II: Stakeholder Analysis**

This phase is intended to identify the main stakeholders in terms of communities and community groups affected directly and/or indirectly by the project in general and those involved in the reed fences supply chain. This entails reviewing community development activities and initiatives undertaken by ECCADP project. The intended analysis considers those communities that are affected by the project activities in general and with a focus on specific groups, mainly marginalized and women as well as those involved in the chain supply of the reed fences.

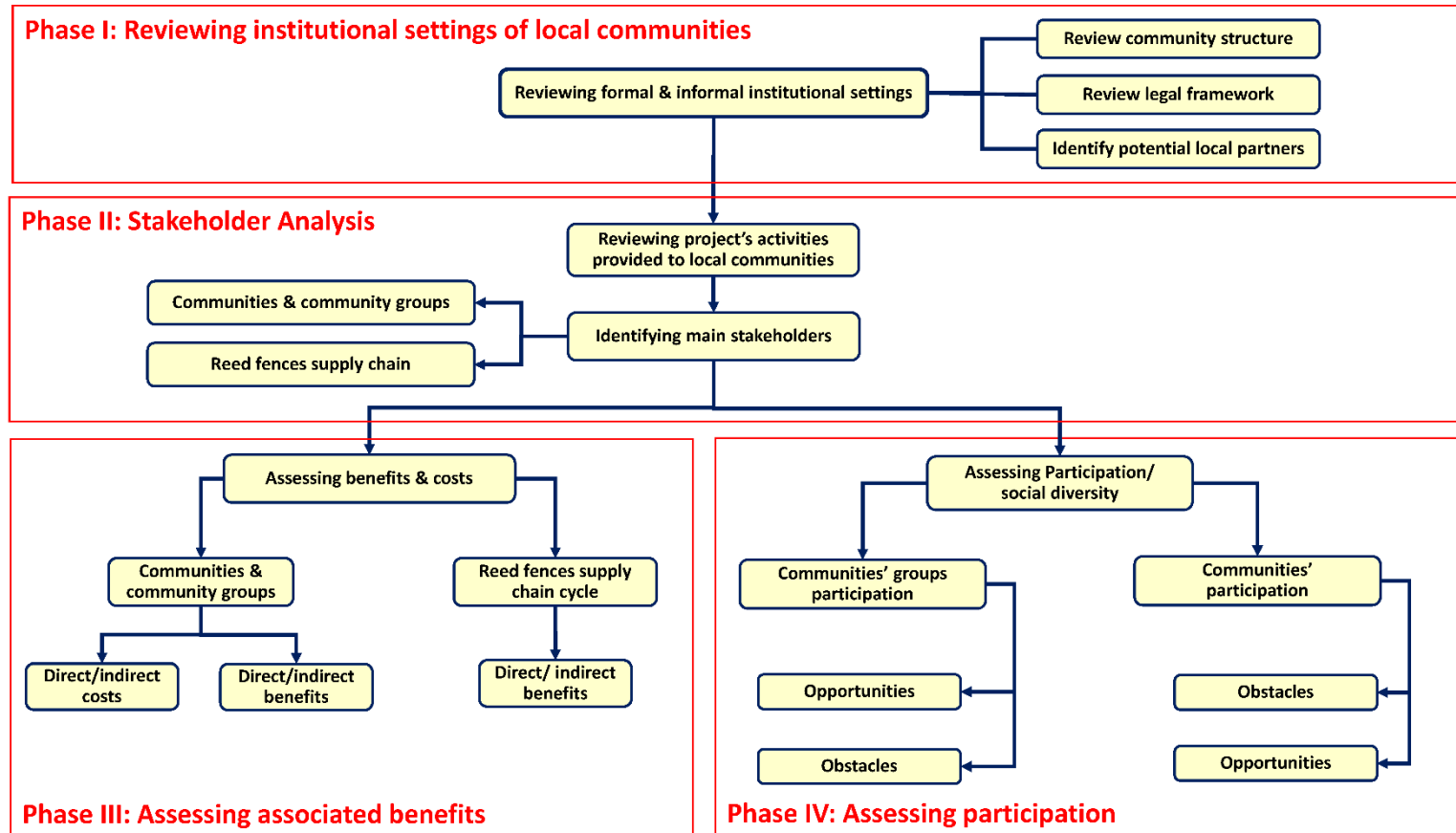


Figure 1: Methodology for assessing direct and indirect impacts of constructing reed fences and local participation



As for the stakeholder analysis, it is undertaken through a number of systematic subsequent steps including listing potential stakeholder groups, evaluating different stakeholders' groups based on their interest, power, and attitude, mapping stakeholder groups, and finally identifying involvement (relevance) level of different stakeholder groups. As a prerequisite for such a stakeholder analysis, detailed information and data on various stakeholder groups are needed. To Acquire such data, different sources, secondary and primary, are to be used such as meeting with contractors of the reed fences, which will allow for identifying the groups within the supply chain of the reed fences. Also, the reports on various activities and initiatives undertaken by the projects in the study site are reviewed. Assessing benefits of the project and evaluating the participation of local community groups requires, meanwhile, collecting a wide range of data and information on local communities as well as the project initiatives. For this purpose, a number of discussion and focus group meetings, in addition to interviews were organized in the study area.

### **1.1.3 Phase III: Assessing Associated Benefits**

This phase aims to assess the direct/indirect benefits as well as costs received by the communities and specific community groups in relation to the project activities. This involves assessing the direct and indirect benefits of the project activities and initiatives, which means attempting to estimate the scale of benefits and/or costs on local communities. This comprises using different economic valuation techniques which are methods used to assign a monetary value to goods, services, assets, or activities. These techniques are grouped into a variety of categories including market-based, cost-based, income-based stated preference and revealed preference techniques.

- a) Market-based valuation uses market prices of similar goods or assets to determine the value of the item in question.
- b) Cost-based valuation involves determining the value of an item by calculating the costs involved in producing or acquiring it.

- c) Income-based valuation values an asset based on the income it is expected to generate over its lifespan.
- d) Revealed preference infers the value of a good or service from individuals' actual behavior or choices in the market.
- e) Stated preference involves directly asking individuals about their willingness to pay (WTP) for a good or service in hypothetical scenarios.

It is worth noting that each of these economic valuation techniques has its strengths and weaknesses, and the choice of method depends on the specific context and the nature of the item being valued. Accordingly, the most appropriate techniques to be used in this case is market-based valuation methods such as change in productivity, avoidance measures, and/or replacement costs.

#### **1.1.4 Phase IV: Assessing Participation**

This phase intends to assess the participation of the communities in general and that of the specific community groups. Such an assessment is intended to evaluate the involvement, engagement, and contribution of key stakeholder groups in the project activities. The assessment is based on the active participation of key stakeholder groups, fulfilling their responsibilities, and their contribution.

It is worth noting that community participation may take several forms including volunteering, attending meetings, joining committees, participating in initiatives, and taking part in discussions or forums. Active participants contribute their time, skills, and resources to support actions that may enhance the well-being of the community.

Assessment of community participation and consequent recognition for active participation in addition to constructive feedback can assist in motivating individuals and groups, which ultimately encourages further engagement.

For assessing community participation, a variety of methods can be applied including, for example, observation, self-assessment, peer feedback, and performance evaluations.

Observations usually allow for firsthand evaluation and can provide valuable insights into their strengths, weaknesses, and areas for improvement. Self-

assessment allows individuals to evaluate their strengths, weaknesses, goals, and progress. Self-assessment can be done through self-evaluation forms or structured questionnaires. Meanwhile, peer feedback involves gathering input and insights from peers who work closely with an individual. Peer feedback can be valuable as it often comes from a third party who has firsthand experience of working with the person being evaluated. Moreover, performance evaluations are formal assessments conducted by a third party to assess participation. These evaluations often involve predefined criteria and metrics against which the individual's performance is measured.

For the purpose of this study, performance evaluation method will be applied through Community Engagement Continuum (CAC) framework. According to CAC, community participation has different forms that can be described by a continuum of increasing community engagement (Reed, 2008; DHHS, 2011). The different levels of such a continuum can be classified into three main stages (**Error! Reference source not found.**):

- Passive participation (outreach): this stage involves limited community involvement, where the communication flows from one to the other, to provide the community with information (dissemination). Usually, such a form of participation leads to creating communication channels for outreach.
- Consultation: this stage involves more interactive communication with the community, where communication flows to the community and then back to get information or feedback from the community. The outcome of such a form of participation is well-established communication channels.
- Active participation: this stage comprises three different levels of transformative community engagement; namely “involvement”, “Collaboration” and “Leadership”. Involvement implies a more participatory form of communication, which usually leads to establishing partnerships with increased cooperation. Furthermore, at the collaboration level, trust is built, which facilitates ongoing active participation and building strong partnership structures that are manifested ultimately in shared leadership (DHHS, 2011).

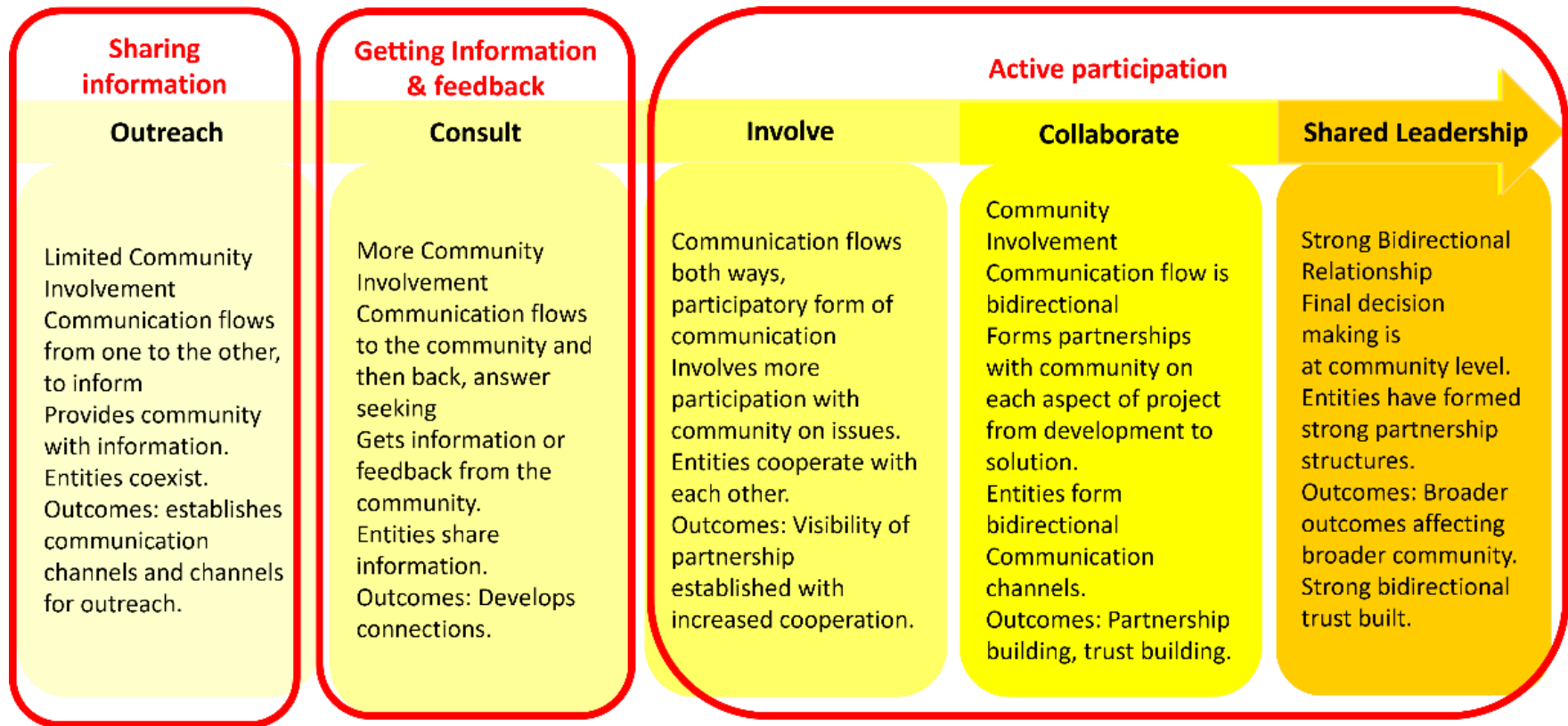


Figure 2: Community Engagement Continuum

Source: (DHHS, 2011)

It can be argued that active community engagement may be achieved during a time-limited project, and often evolves into long-term partnerships that move from the traditional focus on a single issue to address a range of social, economic, political, and environmental factors associated with the project sustainability.

Based on this notion, the community engagement continuum can be considered an appropriate framework for assessing local community participation in the project activities, where different levels of engagement would be likely appropriate in different contexts, depending on the objectives of the work.

The first step to applying CAC is to evaluate performance of for assessing community participation, which involves developing a list of assessment criteria. For this purpose, a list of six criteria and relevant indicators reflecting different levels of participation was developed (Table 1).

*Table 1: List of criteria and relevant indicators*

Aspect	Criteria	Indicators
Participation	Inclusiveness	Attendance records
Consultation	Getting feedback	Feedback provided
Active participation	Contribution	No. of Ideas shared, and questions raised
	Influence	Impacts of stakeholders' contributions and opinions on the decision-making process or outcomes
	Initiatives	No. of suggestions initiatives provided by stakeholders
	Collaboration	Willingness to work together as a team
	Leadership	Community members who take on leadership roles

Undertaking such an assessment would involve collecting data on local communities as well as the project. For this purpose, a variety of techniques are employed such as discussion groups and focus group meetings and interviews. It is worth noting that the application of such techniques would provide great opportunities for communicating effectively with local

community groups and understanding their livelihood structure. For example, discussion group meetings are usually useful to gather personal and qualitative data, while focus group meetings are useful to generate in-depth information on a specific topic. Also, interviews ensure that certain groups that do not typically participate in focus and discussion group meetings, such as older people and women, are targeted.

It is worth mentioning that the identification of the targeted group as well as assessment of benefits and/or costs and participation would require field visits to have access to:

- Local communities: A community can be defined from two perspectives: “place-based” or “non-place-based”. According to the “place-based” perspective, “community” can be considered as a geographic place with physical boundaries, comprised of residents, resources on which residents subsist, and processes through which residents distribute and exchange those resources to address their needs. Meanwhile, “non-place-based” perspective, focuses on the connections that people share, such as culture, shared interests, or common threats ...etc. (Todd and Drolet, 2020). Based on these two perspectives, community refers to “Different groups of people that may be exposed to similar physical, psychological, and/or social impacts from multiple coercive factors and/or share the same resources, often, but not exclusively, related by place (WeWorld-GVC, 2020). This implies that the community is not typically homogeneous, rather it has a variety of age, gender, or ethnic groups. These groups should be clearly specified and distinguished. In this respect, the work would require conducting consultation meetings with the communities as well as with specific target groups such as the marginalized and women.
- Groups involved in the supply chain of reeds used for the fences. Those include in addition to contractor, women, and some unskilled labor of the local communities.

These groups would also be covered through consultation and focus group meetings. The same approach would be undertaken to assess the effectiveness of participation at community and specific group levels. For this purpose, previous documents of the project will be reviewed to get a sense of the project activities and associated evidence and the identification of these different groups.

## 1.2 Field work and data collection

For the purpose of assessing direct/indirect benefits received by stakeholders' groups and evaluate the community participation in the project activities, there would be a need to organize a focus meeting group with the following stakeholders:

- Contractors of reed fences construction
- Families in the supply chain of reeds used for the fences.
- Applicants for the credit scheme (those who obtained credit – those who didn't) from one of the following villages Mastwah, Sedi Talha, El Sayed Ahmed El Badawi, Ibrahim El Dissouky.
- A representative Local NGO
- A representative of the local authority.

For this purpose, a number of discussion groups meetings were organized through three field visits to the study area on 19 June, 30 July and 10 August 2023 (Table 2).

- The first discussion group meeting was held on Sunday, June 19, 2023, during a field visit to the project site in the area located directly east of the Borollos power station. The meeting was intended to understand the supply chain of the reed fence construction, and thus identify the ways in which the local community can benefit from the project work in relation to the various stages of constructing the fence.

The meeting involved 5 contractors participating in the reed fence construction. The discussions during meeting focused on the following aspects:

- The number of workers involved in the different stages of constructing the reed fence.
- The origin of the workers participating in the establishment of reed fence.
- The origins of raw materials used in the establishment of reed fences.
- The detailed steps of processing the raw reeds and constructing the reed fence.
- The quantity of reeds and/or raw materials needed to construct a unit of reed fence.
- The maintenance work, if any, and the number of workers involved.

*Table 2: List of meetings organized with different stakeholders' groups*

S	Date	Target group	Place	No. of participants
1	19 <sup>th</sup> of June 2023	Contractors of reed fences	Study site	5
2	30 <sup>th</sup> of July 2023	Women working in preparing reed fences	Mastrowa village	2
3	10 <sup>th</sup> of August 2023	Representatives of National Desert research Institute, Masr El Khair Association, and local authorities	Headquarters of Kafr El Sheikh Governorate	7

- The second meeting organized on Sunday, July 30, 2023, was intended to gain insight into the reed fence processing and determine the level of participation of local community members in the reed fence supply chain and the benefits associated with these activities.

During the meeting, a semi-structured interviews with two of the families in the village of Mastrowa working in the preparation of reed fences were undertaken (Figure 3).





*Figure 3: Meeting with local families involved in processing reed fences*

During the meeting, discussions focused on:

- ✓ Socioeconomic conditions of local communities.
  - ✓ The participation of families in reed fence supply chain
  - ✓ The benefits of working in the preparation of the reed fences.
  - ✓ Potential means of maximizing and sustaining the benefits that can be derived from such crafts.
- The Third meeting took place during the project meeting at kafr El Sheikh governorate on Wednesday, August 10, 2023, to discuss the two initiatives provided by the project to support local communities. The meeting involved representatives of local authorities (Kafr-el-sheikh Governorate) in addition to the National Desert Research Institute and Masr El Khair Association, which were in charge of developing and implementing such initiatives. During the meeting, the initiatives objectives and details as well as progress made so far in their implementation were discussed as well as some background details about the processes of selecting the beneficiaries of these initiatives.

In addition to these meetings, which provided good opportunities to gain some insight about the initiatives and their implementation, data and information that provided evidence relevant to local community participation were obtained from reviewing a number of project documents.

## **2. Formal and Informal Setting of Local Communities**

The study site, Bar Bahry area, extends from 30° 34` 00" to 30° 50` 00" E and from 31° 25` 14" to 31° 32` 38" N covering a total area of 108.3 km<sup>2</sup>. The area has a shoreline extending for about 27 km. The topography of the area reveals that the area is generally low-lying land, where about 38.3% of the total area lie below 0.5 m mean sea level (MSL), (ARCA, 2017). The area is thus highly vulnerable to sea level rise and coastal flooding associated with extreme weather events.

### **2.1 Community structure**

In order to understand the magnitude of the benefits associated with the ECCADP project activities, there would be a need for contextualizing such benefits. For this purpose, the demographic as well as socioeconomic conditions of the local community are reviewed.

The local community in Bar Bahry area has 12 villages including for the east to west: Emad Village, Mohamed Sharsheer, Elshamy El Gharby, Awlad Salah, El Akouly, El Hanafy El Assasy, El Hanafy, Al Maqmassa, Mastwah, Sedi Talha, El Sayed Ahmed El Badawi, and Ibrahim El Dissouky. It is worth noting that the hinterland of the reed fence protection work established by the project covered only five of these villages; namely Mastwah, Sedi Talha, El Sayed Ahmed El Badawi, Ibrahim El Dissouky, in addition to Metobus Industrial zone that are located at the far-west of the study site (Figure 4). This means that the assessment will focus on the latter five villages and the industrial zone.

The Bar Bhary villages are generally characterized by relatively higher economic and demographic dependency ratio due to rapid population growth, which recorded 3% year<sup>1</sup>. Also, such rapid population growth was found to have significant implications on the age structure of the local community, where the age group less than 15 years old represents about 37.8% of the total population. While the group of population in the working age (15-64 years old) represents 59.7% of the total area population, whereas elder population group (more than 64 years old) represents 2.5% of the total

population of the city. Such age structure means high demand for jobs to by this age group (15-64 years old). If such demand was not addressed by a large sustainable supply of job opportunities, this can have significant socioeconomic implications on the individual, household, and local economic levels. Moreover, such implications may influence migration decisions either locally or transboundary. Additionally, a relatively high percentage of young population (< 15 years old) reflects high fertility levels and increasing demand for basic services including educational and medical care services.

Also, the local communities of Barr Bahry area are generally characterized by limited educational levels. This is reflected in high levels of illiteracy recording 41.3% on average. The Illiteracy in the area was found higher among female, which could, especially with prevailing culture beliefs, reflect the presence of serious gender inequality issues in the area. This may constrain the accessibility of women to the local labor market, which in turn, can limit the potential for women empowerment. This highlighted by the unemployment rate being noticeably higher among women compared to men in the area.

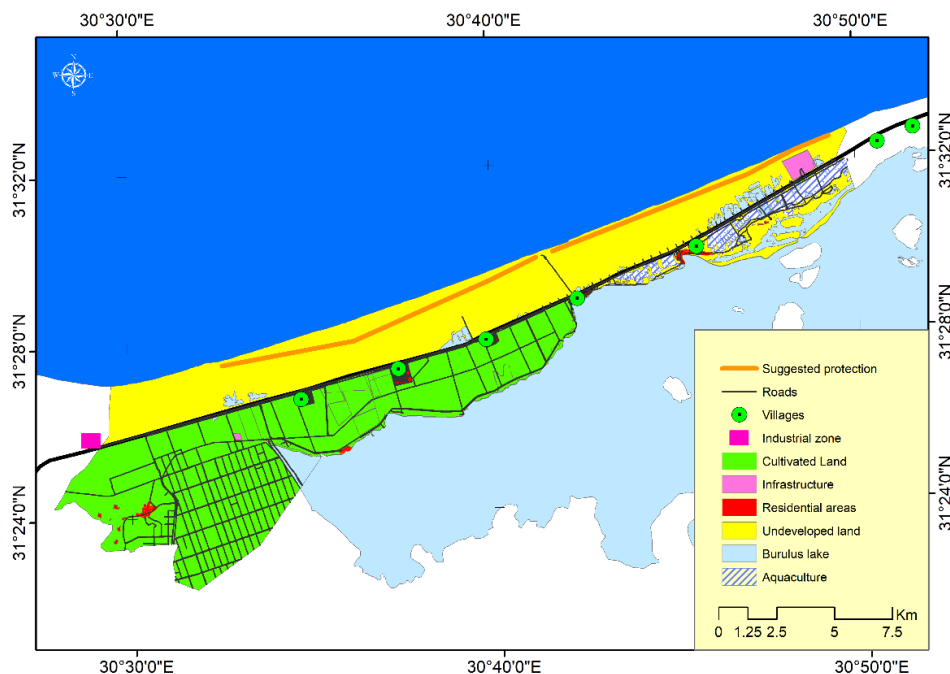


Figure 4: Local community structure

The limited educational levels in the local communities are expected to have significant impacts on the labor market, which is prevailed by unskilled labor force. However, it could be suggested that a good percentage of the population were found to be enrolled in technical education. This may suggest the availability of skilled technical labor force that provide the base for possible small and medium size (SMEs) projects.

According to the documents of local community initiatives undertaken by ECCADP project in Bar Bahry area, the local communities suffer from a wide range of challenges including:

- Exposure to heavy rains in the winter season annually.
- Lack of sanitation services, which increases the negative effects of rainstorms in these areas.
- Mobility difficulty and accessing services in the winter season due to lack of sewage networks or official rain drainage systems and high levels of groundwater.
- Productivity Loss of the cultivated land located north of the international coastal highway during the winter season due to the accumulation of rainwater during the winter season, with the absence of an adequate drainage system.

## **2.2 Institutional framework**

The responsibility of local community development in Egypt lies with various actors, including different governmental entities, community members, civil society organizations, and businesses. Here are some key responsibilities of different actors involved in community development in Egypt and the regulatory framework:

- Central Government: The Egyptian government is responsible for creating and implementing policies, laws, and regulations that support community development initiatives. The government allocates resources and funds for infrastructure development, education, healthcare, and other essential

services. They should also ensure equal access to resources and opportunities across different regions of the country.

- **Local Administration:** Community development efforts are often coordinated and implemented at the local level through local administrative bodies. Egypt is divided into governorates (provinces), which are further divided into districts and municipalities. Local administrative bodies play a crucial role in implementing and managing community development initiatives and initiatives. Also, they are responsible for issuing permits needed for such initiatives.
- **Civil Society Organizations (CSOs):** Non-governmental organizations, community-based organizations (CBOs), and other CSOs play a significant role in community development in Egypt. These organizations often have expertise in specific areas such as education, health, women's empowerment, or environmental conservation. They can provide essential services, advocate for community needs, mobilize resources, and work closely with local residents to address their concerns and aspirations. Currently, the work of NGOs is organized by Law No. 149/2019. According to the law, NGOs are allowed to work only in the areas of “Development and Social Welfare” and should support the State's plans and its developmental needs and priorities (Ismail, 2017; SSCHR, 2021).

### **3. Community Development Projects and Initiatives**

The ECCADP project involves the use of nature-based adaptation measures to reduce the vulnerability of Egypt’s North Coast to coastal flooding risks associated with a combination of projected sea level rise and more frequent and intense extreme weather events. This involves the construction of reed fences that would function as a sand trap creating artificial hillocks that protect coastal areas from coastal flooding.

Within the ECCADP project, a number of local community development initiatives were **implemented** in Bar Bahry area aiming to improve the social, economic, and environmental well-being of the local communities and its residents. These initiatives included:

### 3.1A water drainage system provision initiative

This initiative in Al-Aqoula village was intended to deal with street flooding due to heavy rains during the winter season. It is worth noting that such street flooding typically reduces accessibility from and to the area and thus reduces residents' movements including students, meeting basic needs and work requirements. The initiative aimed to improve accessibility to the village during the wintertime.

This initiative is based on a needs assessment exercise conducted by the project and would have positive impacts on the community as well as economic spillover. Additionally, the initiative would on one hand improve their living conditions and resilience to climate-related events and improve the profile of the project among the local community on the other. Despite that the technical study of the project was completed due to issues related to execution of the initiative and the management of the initiatives after completion delayed its implementation.

### 3.2 Establishing an agricultural drain

This initiative was intended to collect agricultural wastewater during the winter season in the area located to the north of the coastal road and consequently support the agricultural activities in this area and the livelihood of the local communities. Despite the importance of the proposed project to the residents and the completion of the technical study, the project was not implemented. This was due to the inability to obtain the necessary approvals and permits.

### 3.3 Supporting local micro-scale projects in local communities' initiative

This initiative aims to reduce the implications of climate change on the local communities in the coastal zone of Kafr El-Sheikh Governorate through supporting the potential for economic empowerment. For this purpose, the initiative, which is undertaken by Misr El-Kheir Association, involved two main components:

- Providing loans and grants for several beneficiaries in the local communities to finance small and micro-scale development projects. For promotion purposes, a part of this loan (30%) is considered a non-refundable grant. The Association announced the initiative and promoted it among the local community. Thereafter, applications were received from candidates, which were then assessed according

to a number of criteria to identify the eligible candidates according to these criteria. The Association, thereafter, selected 105 beneficiaries for funding.

It is worth noting that despite the fact that such an initiative may provide support to individuals and their families the spillover impacts may be expected to be limited for the community as a whole.

Still, it can be suggested that in the case of the two NGO beneficiaries, it would be different as they represent a context where benefits could be shared more widely, depending on the management system to be adopted in this case.

- Capacity building activities: This component of the initiative is intended to support the technical capacities of community individuals in certain development activities in the communities. Within the framework of this component, about 156 local residents were trained on mixing animal feed, producing fish nets, and processing dairy products (MEK, 2023).

It should be noted that as some of the capacity activities were provided for community members interested in specific activities at large, the impact (outcome) of such action needs to be assessed. Capacity building for the beneficiaries of the loan initiative needs to be properly planned to ensure that they get proper capacity support related to their proposed activities.

### 3.4 The pilot project initiatives

The initiative aimed to implement 28 successful models for cooperative investment projects, each with a value of about L.E. 500,000, in the coastal zone of Kafr El sheikh governorate. The suggested projects cover a variety of activities including:

- Modern Greenhouse production system
- Salt-tolerant plants cultivation
- Solar pumping system
- Establishment of an advanced hatchery for spawning Pangasius
- Mobile Agricultural waste recycling
- Azolla production
- Drying and packaging fruits and vegetables
- Beekeeping production

This initiative aims, by providing support to these projects, to improve the capabilities of about 85 smallholder farmers (male and/or female) and their families. Within this initiative, the proposed pilot projects aim to maximize the optimal utilization of available resources in the villages vulnerable to sea level rise in Kafr El-Sheikh Governorate taking into consideration local social, economic, environmental, and climatic conditions. In this respect, local communities would be provided with technical support to adopt improved agricultural practices through small-scale projects that offer job opportunities and generate revenue for local communities, in particular women and youth.

Furthermore, the proposed pilot projects are expected to improve the management practices of small and micro farmers/investors and introduce new applications and technologies for income generation. This will allow replication of the successful models in other areas along the coastal zone of the Nile Delta (El-Shaer and El-Bassiony, 2023).

In conclusion, community development initiatives undertaken by the project in the coastal zone of Kafr El Sheikh governorate adopted two approaches: Deficit Based Community Development (DBCD) and Asset Based Community Development (ABCD). DBCD approach, which applied in planning for the intended water drain and agricultural drain initiatives, focuses mainly on identifying and providing the needs of the community. ABCD, meanwhile, which applied in the case of supporting local-microscale projects and implementation of pilot projects initiatives, builds on the assets that are found in the community and mobilizes these assets to come together to realize and develop their strengths.

It is worth mentioning that the above-mentioned projects implemented by the Misr El Khir Foundation and Desert Research Institute are funded by the SDG-Climate Facility. Also, Enhancing Climate Change Adaptation in Egypt Project is one of the partners in the planning, implementation, and monitoring committee of these projects.



#### 4. Reed Fences Supply Chain

Different types of reeds are used in the study area both as soil binder to prevent erosion and for the construction of windbreaks for crop protection. Usually, mature reeds are cut and sold in the market in bundles (Shaltout, 2017). The activities of reed fence within the context of ECCADP project involve trimming reeds and cutting them to the desired length and weaving the reed into fences, with specific dimensions. It is worth noting that this activity was already common and localized in the area, yet with different specifications and types of reeds. This activity is typically undertaken by the women members of different households in the area.

Also, the produced weaved reed fences are then transferred to the coastal protection sites, where workers do land preparation and construction of the fences according to the specifications set by the ECACADP project.

It was found that the process of establishing reed fences includes five main stages (Figure 5). These stages are discussed briefly to identify the main groups involved and assist in assessing the benefits and/or costs involved.

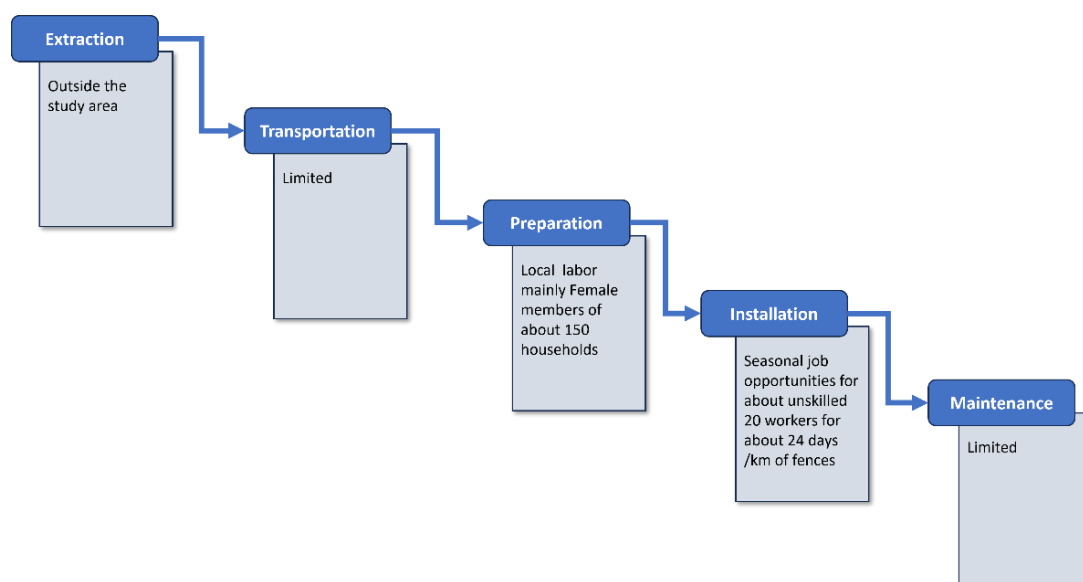


Figure 5: Reed fences supply chain and associated benefits

- **Collecting and purchasing the reeds:** The common reed (*Phragmites australis*) is a perennial plant growing locally at the study area and is

usually used for a variety of applications (Shuai et al., 2016). However, the reed used for constructing the reed fence is supplied from outside the areas. such as Disouq, Ismailia, Mutobas, and other agricultural areas in the Nile Delta. This is due to the fragility of the reed growing locally (Figure 6), while the reed growing outside the area is tougher and of higher quality that suites the needs for the fences (Figure 7).



*Figure 6: Reeds grow locally in Burulus Lake*

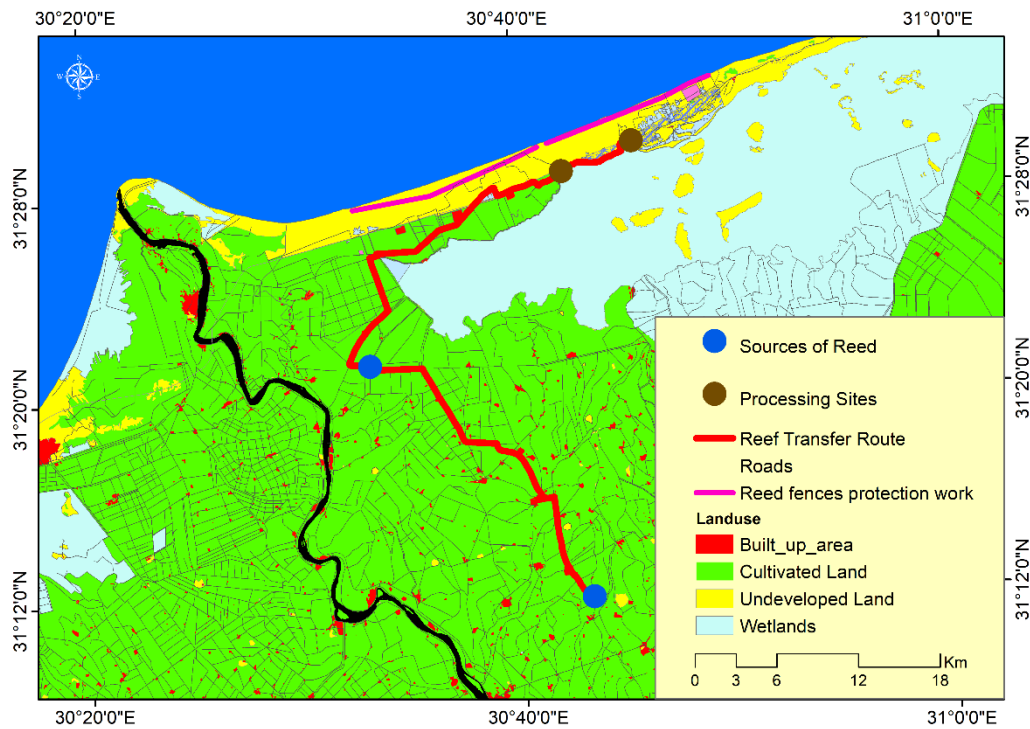


Figure 7: Key destinations of Reed Fence supply chain

- **Transportation of reeds:** As the reed purchased for the construction of the fence was available from outside the area, there was a need to transport it to the local villages where the trimming and cutting is taking place.
- **Cleaning and cutting the reeds:** This means trimming the reeds of any extensions and cutting them to the desired height. This as well as the next step is performed by local families, mainly women, living in Bar Bahri area, especially the villages of Mastrowa, and Al-Maqasbah.
- **Processing the reeds:** This process involves weaving the reed into fences, with specific dimensions.

It became clear from the discussions that took place with the families in the village of Mastrowa:

- Women have a vital role in the livelihood of the local community in the local area, through their participation in the preparation of the reed fences.

- There are typically about 100-150 families in these villages involved in the weaving of reeds for the fence.
- The weaving is usually prepared by a team of women, each team consisting of two women, with a daily productivity of one family of woven is 2-3 fence sheets, depending on the size of the baffle (Figure 8).

It is worth noting that when no work is available in the weaving of the fence sheets, women actively prepare and woven screens using harvested reeds growing locally in Burullus Lake, (Figure 6). Yet, this type of reed, and subsequently the screens made from them, is considered weaker it is known as “wind” reeds, and thus are used as windbreaks, where local farmers use them to protect their crops.



*Figure 8: Couple of women working in preparing the reed fence*

It should be noted that one of the advantages of this types of activities are undertaken by women at their home. In this context, it was observed during the field visit to Mastrowa village that the typical houses in the area are built with



concrete and bricks and provided with basic infrastructure. Each of these houses consists of two or three rooms with a backyard that is usually used as a workshop for reed weaving (Figure 9). Meanwhile, an area next to the house is typically used as storage area for the reeds (Figure 10). This means that women didn't need to commute in order to do such activities and thus no resistance from their men were observed about undertaking these activities.



*Figure 9: Reed fences weaving workshop in the backyard of the houses*



*Figure 10: Storage area of reeds*

- **Land preparation:** This step, undertaken at the fence site in the coastal area, involves leveling the soil using a loader in preparation for the mounting of the fence sheets (Figure 11).



*Figure 11: Land preparation activities*

- **Construction of reed fence sheets:** The construction of one unit of reed fence with a length of 500 meters requires about 20 workers for about 12 working days (Figure 12).

Most those workers are daily laborers who would work in agriculture and aquaculture depending on the availability of job opportunities. Despite the fact that some of them are educated and even university graduates but due to high levels of unemployment would so such jobs. This means that the available job opportunities for a wide range of job seekers including university graduates are quite limited. This highlights the role the ECCADP project and associated natural based coastal protection works play in job opportunities provision in such economic context. This is especially true considering the overall economic conditions in Egypt and the duration of COVID-19, which affected very much the informal sector in the country.







*Figure 12: Activities associated with reed fences construction*

It was found that all the workers involved in the construction of the reed fence are residents of the local communities in the villages of Bar Bahri, mainly Mastrowa and Al-Maqsabah villages (Figure 13). Those workers are mainly temporary labor force engaged in fishing and other local activities, in addition to its participation in the construction of reed barriers.



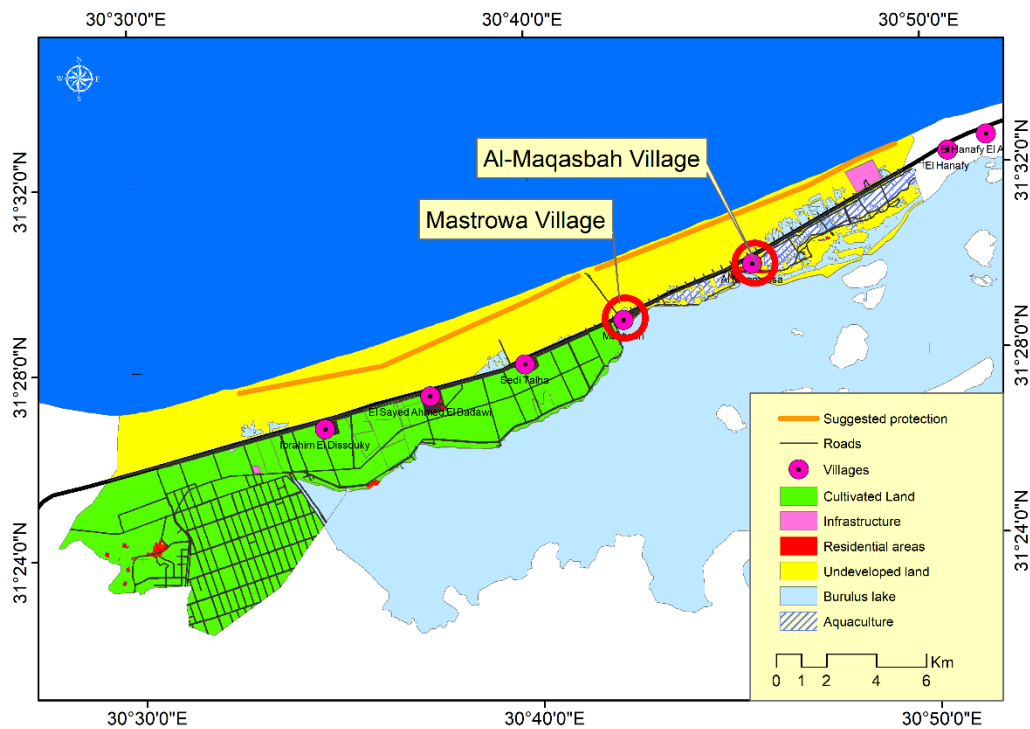


Figure 13: Villages of the labor force involved in reed fence preparation and construction

These means that individuals involved in the supply chain of reeds used for the fences are represented in contractor, women, and some unskilled labor of the local communities (Figure 11 and Figure 12).

## 5. Stakeholders Analysis (Potential Local Partners)

Stakeholder analysis can be considered as a prerequisite for stakeholder involvement and ensure a high level of engagement (Hassaan and Abdrabo, 2014). Stakeholder analysis involves identifying key individuals, groups, and bodies that may have a vested interest in proposed action and/or policy in addition to any other form of intervention. The analysis, which also investigates the powers and attitudes of various stakeholder groups, should consider the wider socioeconomic context and institutional, legal, and policy frameworks within which these stakeholders act.

Stakeholder analysis involves four key steps: listing potential stakeholder groups, identifying the interest, power, and attitude of various groups towards the project and relevant activities, mapping stakeholders, and identifying their involvement.

a) Listing of potential stakeholder groups

Based on the project activities and local communities' development initiatives undertaken by the project, the project has a variety of stakeholders at local levels including:

- Residents of local communities
- Women
- Farmers
- Fishermen
- Contractors and reed suppliers
- Industrial community
- Local NGOs
- Local authorities

b) Evaluating Stakeholders' Interest and Power

This step aims to identify each stakeholder's interest, attitude, power, and influence towards the project activities. Stakeholders' interests refer to their motives and concerns on the issues being addressed and their potential, which will define their potential reaction to the activity in hand and possible measures to address their concerns. Meanwhile attitude refers to the potential reaction of various stakeholders to different decisions related to the action in hand.

A stakeholder power refers to the scale of resources -human, financial, technological, political ... etc. - available to a stakeholder and its ability to mobilize them. This may determine the level of power with which a stakeholder can support or oppose the policy. Meanwhile, stakeholder influence means the type of opposition, which can be categorized into three main types; a power of veto, a power that can be mitigated, or can be neglected.

The evaluation of stakeholders in local communities of Bar Bahry area revealed that:

- **Residents of local communities:** This group involves the population living in the local villages that are located southward of the international coastal highway, particularly, Mastwah, Sedi Talha, El Sayed Ahmed El Badawi, Ibrahim El Dissouky villages. The residents of local communities are expected to be interested in the community development initiatives provided by the project as much as in the protective works undertaken by the project.

The residents of these communities have mainly limited educational levels, high levels of unemployment, and high dependency rates. This means that they have limited power and hence limited influence. As these communities are suffering from a wide range of issues (see section 5.1 of this report), this group will be interested in any initiative to improve their livelihood.

- **Women:** This group involves women in the above-mentioned villages, who more marginalized as they have a relatively lower educational level compared to men in the local community and limited access to the labor market. This group is expected to be more interested in the reed fence protection work as it provides them with an opportunity to generate income by taking part in processing the reed. Despite their high interest, the individuals of this group have limited power and influence due to traditions and cultural factors.
- **Farmers:** This group involves farmers, whose cultivated land on the northward side of the international coastal highway to the east of El Burullus power generation plant. These lands need agriculture drainage system improvements. Those farmers are expected to be highly interested in finding solutions targeting improving drainage systems and consequently, increasing productivity of their cultivated land and their profitability. This group has limited power and influence.
- **Fishermen:** This group involves fishermen and fish traders, who are expected to be affected by climate changes and sea level rise and their implications. Most

of the fishermen are organized in fishermen cooperatives. Fishermen and their associations are expected to be interested in finding solutions to deal with the problems they suffer from and increasing their profitability. This group has limited power, but they can create pressure, especially concerning the preservation of reed fences along the coast.

- **Contractors and workers from local communities:** This group involves a number of contractors who are responsible for establishing the reed fences alongside the study sites. As a business seeking profitability, the contractors are expected to be highly interested in the project activities as a profitable task. The power of the group members is driven by the job opportunities they provide, and income generation opportunities associated with the establishment of reed fences.
- **Industrial community:** This group is represented in Metobus industrial zone, which is located in the far west of the study site northward of the international coastal highway covering a total area of 1660 feddan. The area comprises food, chemical, and metal industries and provided basic services and infrastructure. As private businessmen with significant investments, these have a main stake in the project. This group is expected to be highly interested in the project activities due to their location northward of the International coastal highway and thus they are highly exposed to water storm during winter seasons.
- **Local NGOs:** There are several NGOs within the LAU Bar Bahri, including one at the village (the village of Aqola). This group of stakeholders is indirectly interested in decreasing, through work to improve livelihood conditions, the vulnerability of the community to the impacts of climate change and their potential contribution needs to be noted despite the limited financial and human resources. The main strength of this group of stakeholders is represented in their supposed established channels of communication with the local residents.

- Local Authorities:** They are responsible for the provision and maintenance of infrastructural services. These towns and villages' local councils are under the administration of the District Council, headed by the respective Governorate. These councils are interested in improving conditions and in particular the provision of services and infrastructure in the towns and villages under their jurisdiction. However, they are usually closely managed by their governorates.

Based on the above discussion, all stakeholders' groups were evaluated according to their interest, attitude, power, and influence, where each group was assigned a relative score ranging from (1) and (9) reflecting the least and highest levels of interest and power, respectively. Such an assessment would provide the ground for further work on the assessment of the direct and indirect benefits associated with the project.

c) Mapping stakeholder

This step aims primarily to present various stakeholder groups in a visual presentation, for a better understanding of the whole situation, using their interests and power, assessed in the previous step (Figure 14). Such a visual representation can easily, assist in deciding the degree of involvement of different stakeholders.

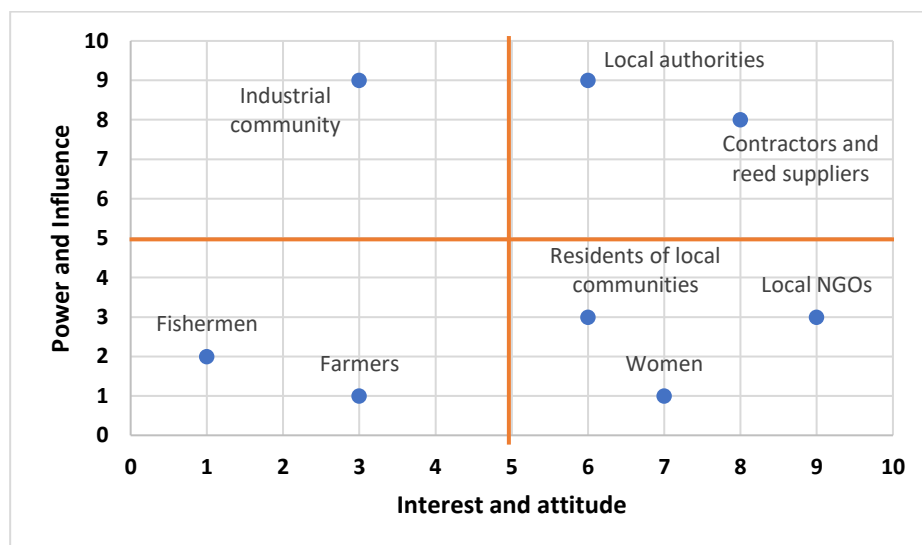


Figure 14: Mapping stakeholders

d) Identifying stakeholder involvement

As a result of mapping stakeholders, various stakeholder groups of the local communities in Bar Bahry area can be classified into the following four categories including:

- **Group 1:** consists of those stakeholders with high interest and power and thus should be managed closely. This group includes local authorities and contractors.
- **Group 2:** involves those stakeholders who have medium to low interest and high power and thus should be kept satisfied. This group is represented in industrial enterprises located in Metrobus industrial zone. It should be noted that ECCADP project has to keep this group informed about the project and its activities as well as the potential benefits they may get from the project and the importance of Reed fences in protecting their assets. The project needs also to communicate with this group and get them, whenever possible, to support local development activities as a part of their Corporate Social Responsibility.
- **Group 3:** includes those stakeholders that have high interest, but low power, and thus should be kept informed about the project activities. This group comprises local residents, women, and NGOs. As the members of this group represent the key beneficiaries of the project activities, there would be a need to sustain the communication channels with them for the sake of consultation and receiving their feedback. They need to be convinced that the project is important to them, as they would benefit from its activities, one way or another.
- **Group 4:** involves stakeholders with low interest and low power and thus should be monitored, including mainly farmers and fishermen.

## **6. Assessing Benefits Associated with Project activities**

### **6.1 Classification of potential economic benefits**

The different activities undertaken by ECCADP project in the coastal zone of Kafr El Sheikh governorate, either reed fence supply chain or community development initiatives, can have direct and indirect benefits. This in addition to the direct benefits associated with NBCPW which was estimated in a previous study but will be considered here in order to provide an overall estimate of the benefits associated with the ECCADP project. The direct benefits can be summarized in direct and creating job opportunities, income generation. Meanwhile, indirect benefits include economic stimulation, sense of empowerment, human resources, strengthening skills and knowledge, better chance of success, and potential income generation (Figure 15). The funds to be provided will represent an investment injection into the local economy that can promote more economic activities, either directly or indirectly, leading to economic enhancement. Also, such funds and the supported projects may have an indirect outcome depending on the targeted individuals, which can provide more sense of empowerment, particularly in the case of the marginalized groups, including women.

Moreover, the capacity building activities undertaken within EECCADP project initiatives and implementation of the projects under these initiatives are expected to enhance human capital through strengthening skills and knowledge in the different fields of such projects. The consequences of such endeavor will depend on the quality of training programs and the interest of those targeted.

The improved skills and knowledge as well as the mentoring process of pilot projects will create a better chance of success for those involved and thus increase the pilot projects' sustainability. This can promote these pilot projects within the community and encourage others to initiate similar projects with spillover effect. Consequently, the potential for income generation, whether from the pilot projects, improved skills and knowledge, and/or promoting entrepreneurship practices, will be enhanced.

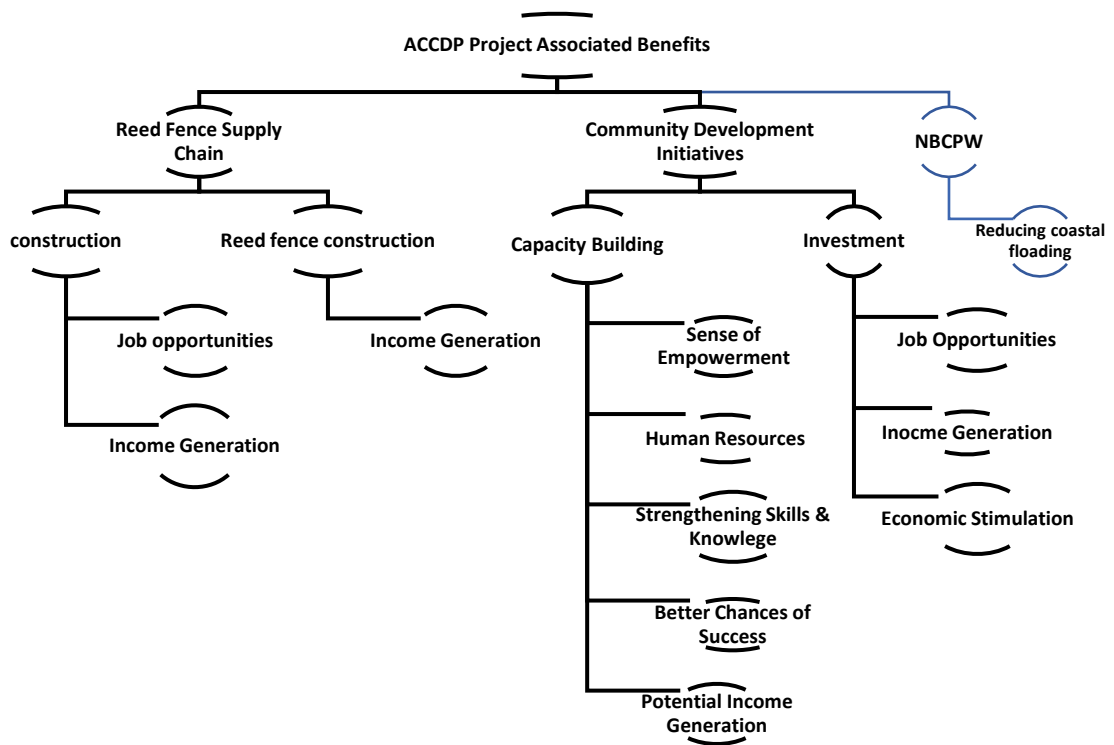


Figure 15: Benefits associated with ECCADP project

It should be noted that not all benefits listed in figure (15) can be valued, for example valuing the indirect benefits associated with capacity building activities entails assessing the outcome of these activities undertaken by the project initiatives. Such an assessment aims to evaluate the changes that may result from the implementation of the capacity building activities and community development initiatives. It is worth mentioning that the capacity building and community development benefits are typically long-term outcomes and thus cannot be measured in the short term. Thus, they cannot be assessed within the time frame of the current consultancy work. Meanwhile, direct benefits such as job opportunities and income generation can be valued through the data acquired through the undertaken field visits and focus group meetings.

In addition to the above-mentioned direct and indirect benefits, frequent meetings organized within ECCADP project activities and initiatives framework



contributed largely to improve awareness of local communities on the issue and impacts of climate change in general and sea level rise in particular.

An attempt is made to monetize those benefits that can be valued in economic terms in the following sub-sections.

## **6.2 Benefits associated with NBCPW**

One of the economic benefits of NBCPW is preserving wide areas located to the north of the International coastal highway from coastal flooding particularly in winter. The value of such benefit was estimated by **EGP 1,194 million** (Abdrabo and Hassaan, 2020).

This value was estimated on the basis of the following assumptions:

- Utilizing only 18,000 feddan only of these areas in developing aquaculture.
- The market price of the preserved land ranges between EGP 60,000 and 70,000
- the cost of land preparation for such aquaculture activities is about EGP 15,000 per feddan, which means a net added value of EGP 50,000 per feddan.
- The total number of jobs provided by aquaculture activities in the area is estimated to be as much as 6,560 jobs.
- The cost of job creation in the aquaculture sector is estimated to range between L.E. 18,000 and 30,000.
- The cost of job creation at the lower bound EGP 18,000

## **6.3 Benefits associated with reed fence supply chain**

The benefits associated with the reed fence supply chain can be categorized into:

### **a) Job opportunities provision**

The job opportunities created by the project in the reed fence supply chain are for those temporarily working in the construction of the fence itself.

Construction of one unit of reed fences extends for a distance of 500 meters and includes five rows or lines of successive fences (Figure 16). This means that each unit of reed fence includes about 1000 fences (the unit of woven reed), the dimensions of each fence are 1.8 x 3 meters. This means that each kilometer of fences consists of  $2000 * 3 = 6000$  meters of woven reed.

This means that the construction of one kilometer of barriers has contributed to providing job opportunities for about:

- 20 workers for 24 days
- Excavator driver for 24 days
- with a daily wage of EGP 150-180 in the past, but now the daily wage of the worker has reached EGP 280. It was found that Some workers who are educated and have higher qualifications, but due to the high unemployment rates in the region, they participate as temporary workers.



*Figure 16: Reed fences structure*

These provided jobs, despite being temporary, can assist in tackling unemployment prevailing in the study area, particularly among workers with limited skill, consequently, contributing to income generation and poverty alleviation in the area. At the individual worker level, the monthly income, assuming a daily income rate of about L.E. 250 on average and twenty working days/ month, would be about L.E. 5000, which is a relatively reasonable income for a householder.

This is especially true as the generated income would enable those workers to support their families not only in terms of addressing basic needs but also the educational and health needs of their family members. This highlights the potential

consequences of these jobs and the income generated at both household and community levels due to the multiplier effects.

**b) Demand for fence reed sheets**

This involves providing opportunities for local community members, especially women, to make woven reed fences and get paid for such work. This means either providing extra income to support their households and/or supporting, in the case of woman-headed families.

In this respect it was noted, during the field visit, that the educational levels and social classes of the women involved in reed fences supply chain are quite diversified. For instance, one of the interviewees was a young university graduate with a relatively better off social status, while another was an elder illiterate woman. This means that the impacts of the ECCADP project in terms of income generation for women in local communities had a multitude of women groups with different socioeconomic conditions.

It is worth noting that the income generated can have spillover effects on members of the households and the community as a whole.

Estimating the income generated and working days offered from making the woven reed sheets for the fence:

- The number of working days is estimated, assuming an average daily productivity of 7 - 10 meters of braided stone. This means that a total of about **27,000 working days** were provided by about 150 families in the area to produce the total length of reed fence sheets already constructed along the coastal area.

The income generated during this process, as the contractors and not the women were buying and transporting the reed used in reed fence sheets, they are only paid for the processing of sheets. They were typically paid about EGP 10 per sheet, with an average daily income per worker is about EGP 70 – 100. This means that the total income generated by these families is in the range of EGP 378,000 – 54,0000, which is considered, taking the socioeconomic

conditions prevailing in the area, as reasonably good additional income, especially for woman-headed families<sup>1</sup>. Bearing in mind that about 7-10% of the families in the region are headed by a woman, the activity of processing and preparing reed fence sheets represents a major source of income for these families.

At the individual woman worker level, the monthly income, assuming a daily income rate of L.E. 70-100 and twenty working days/ month, would be about L.E. 1400-2000, which is a relatively reasonable additional income for the household. It was observed in this respect that most of the time more than one member of the family would be supporting each other in this activity, which means magnifying the income generated for each household.

- It should be mentioned that despite this relatively low price of the fence sheets used in the protection work associated with the project, they are more profitable for the families of the local community compared to the windscreens, in addition to the ease of preparing the project fence sheets.
- It is worth noting that what may amplify the impact of such generated income is that many of the participants in the activity of preparing and processing reeds are girls of school age or graduates of high schools or even universities, but due to their inability to join the labor market, the activity of processing reeds provides a good alternative for them as a source of income.

*Table 3: Summary of benefits associated with reed fences supply chain*

Item	Labor	Working days	Income generated
Reed fence preparation	150 family	27,000	378,000 – 540,000
Construction	21	13,608	2,449,440 - 3,810,240
Total	-	40,608	2,827,440 – 4,350,240

This especially the case for women employment and Women-headed households in the area, where the economic overflows would be much greater at the

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<sup>1</sup> It is worth noting that the price of the reed screen that is processed from the wind reed that grows locally varies between 6 and 25 pounds, according to the size of the screen, and this price includes the prices of the raw materials used in processing.

household level and for the community. This will also assist in supporting gender equality in these communities through encouraging more economic independence of women at different ages.

Generally, this emphasizes the role of women as economic agents who have the potential for income generation and supporting their own livelihood and that of their households.

#### **6.4 Benefits associated with local community initiatives:**

Before attempting to assess the expected benefits of the local community initiatives planned by the project, a number of issues need to be considered first:

- The more the small projects, to be implemented within the framework of these initiatives, are coming from consultation with the communities and deep understanding of the economic structure of the area, the more impact, both economic and socio-cultural, they can have.
- The magnitude of the small projects would depend on the scale of spillover effects on the communities. This is reflected in the number of job opportunities to be generated and additional businesses that can be initiated in relation to the proposed projects (forward and backward linkages).
- These projects to have a significant on community development need to attempt to encourage the youth, especially women where empowerment can be a critical criterion, and the disadvantaged to be involved in such initiatives. This is particularly as these groups cannot have access to bank credits.

Generally, it was reported that the total candidate beneficiary of supporting local micro-scale projects in local communities' initiative, up till now is 56 candidates, 45% of them are female. The micro-scale projects suggested by those beneficiaries are mixing animal feed, manufacturing fishing nets, and purchasing manual tillers and motors for spraying. This number is planned to reach 105 by the completion of the initiative. This in addition to the job opportunities to be created by the pilot projects initiative, which was planned to be about 85 opportunities. This means that the two initiatives are expected to support the livelihood of about 190 households through creating job opportunities and income generation.

Also, within the capacity-building component, the initiative provided training for about 108 of local community members, mostly women, on mixing animal feed. The number of trainees is planned to reach 156 by the end of the initiative (MEK, 2023). Also, it was estimated that the implementation of the pilot project initiative is expected to improve the capabilities of about 360 smallholder farmer/fisher (El-Shaer and El-Bassiony, 2023).

*Table 4: Summary of benefits associated with community development initiatives*

Initiative	Job opportunities and income generation	Training
supporting local micro-scale projects in local communities	105	156
implementation of pilot projects	85	360
Total	190	516

It could be concluded that the funding to be provided within the framework of the two initiatives is expected to create more job opportunities, whether directly and indirectly, in addition to the number of job opportunities stated above. As for the income generation potentials of these projects, no feasibility studies were available in the documentation of the two initiatives.

## **7. Assessing Participation**

The assessment of the participation of local communities in both project activities and community development initiatives was based on the Community Engagement Continuum (CEC) framework (Figure 17). The CEC framework suggests three levels of participation: outreach, consultation, and active participation. These three levels involve seven criteria and their associated indicators (for more details see section 3 of the first report entitled “Study Method and Data Collection Report”).

As for the first level, “outreach”, the project achieved high level of outreach to different groups in the local communities in Bar Bahry area. This was highlighted by the number of meetings organized in different villages of the area during different phases of the project and the number of attendees at each meeting. For example,

within the framework of the socioeconomic components of ECCADP project, eight group meetings were organized with various stakeholders in the five study sites of the project during the period 28<sup>th</sup> of January to 11<sup>th</sup> of February 2020. The meetings were attended by 176 individuals representing various stakeholders' groups in five sites of the Nile Delta coastal zone.

These meetings were intended to inform local communities about the project, highlighting its objectives and main components as well as various potential impacts of coastal flooding and the suggested protection work and consult them on the most likely impacts and their actual development needs. Four of these eight meetings were organized in Bar Bahry villages, especially in Mastrowa, Mohamed Sharshir, and El Hanafy villages involving members of different stakeholders' groups (e. g., fishermen, farmers, female members of local authorities' representatives). These meetings assisted in not only informing the local community about the project but also in getting insight into study site context, something which was utilized later in conducting an in-depth assessment of the impacts of coastal flooding and suggested protection work (Abdrabo and Hassaan, 2020). Generally, it can be suggested that this approach and the associated activities emphasize inclusiveness and the high levels of outreach of the ECCADP project in local communities.

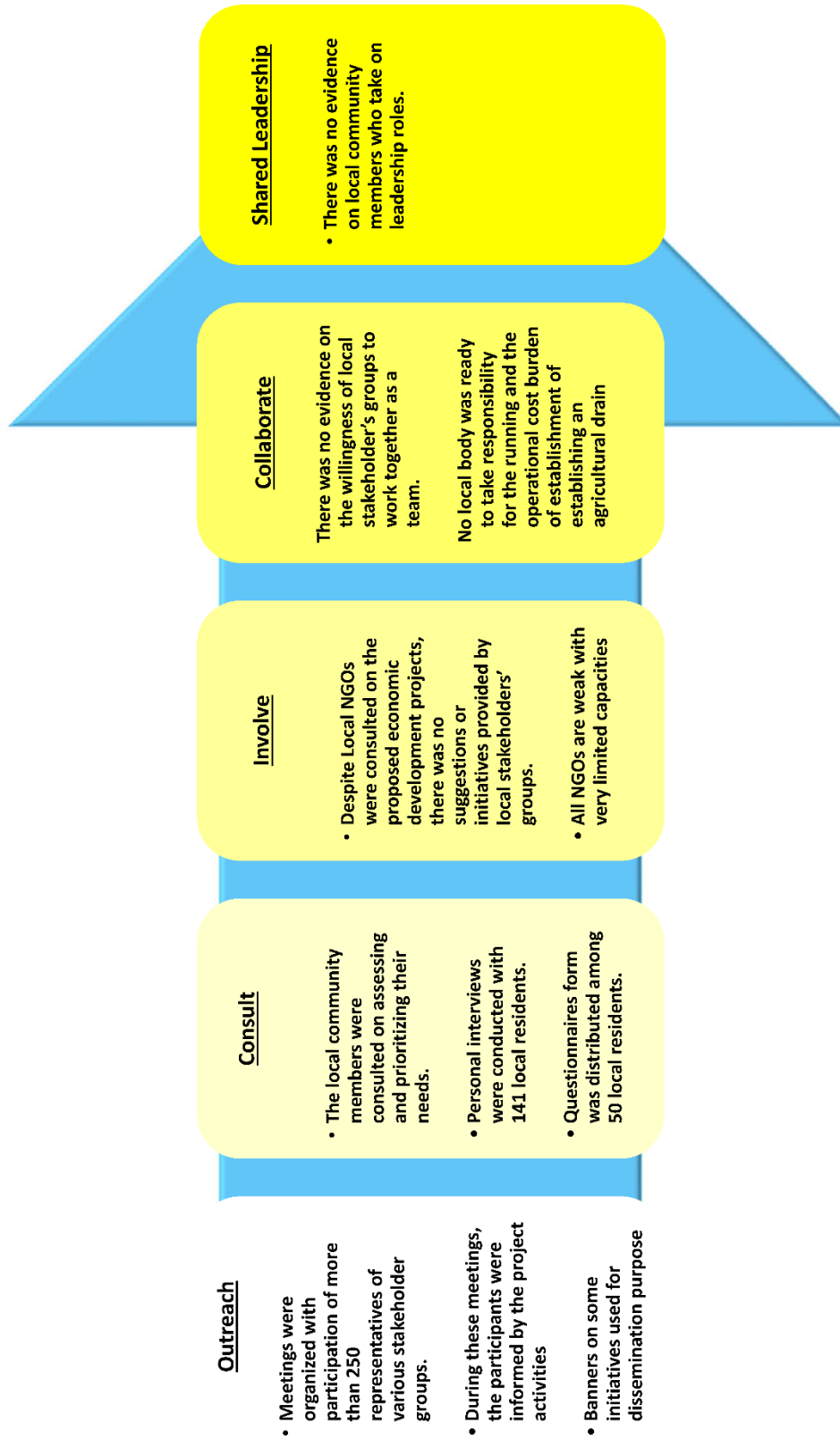


Figure 17: The outcome local community participation assessment



Concerning the second level, “consultation”, a number of consultative meetings were organized on a number of issues related to the project activities and community development initiatives undertaken by the project in the area. For example, within the initiative to establish an integrated Drainage system in Bar Bahry villages, meetings with local residents and officials were organized to perceive the key problems associated with rainwater and potential flooding in these villages and discuss the proposed solutions. In addition to these meetings, 50 questionnaire forms were distributed in these villages to assess formal and informal sanitation services existing in these villages and assessing the willingness to participate in the proposed initiative.

Also, within the implementation of a few pilot projects to maximize the optimal utilization of available resources in the villages vulnerable to coastal flooding in Kafr El-Sheikh Governorate, the Desert Research Institute team conducted three awareness and promotion events in collaboration with UNDP with the participation of 146 of local community members in Shahabya, Mastrowa, and Ibrahim Desouky villages. These meetings were intended to demonstrate the different proposed development projects to the local communities and get their feedback. Moreover, in order to investigate the feedback on the different projects, personal interviews were conducted with 141 local residents in Ibrahim El-Desouky, El-said El-badawy, Al-Shahabya, Ameera, Al-Hammad, and El-Hanafy villages (El-Shaer and El-Bassiony, 2023). It was noted that about 39% of participants in the above-mentioned meetings and interviews were women.

Also, in the development of the economic empowerment projects initiative prepared by Misr El Kheir Foundation, four consultation meetings were organized with local NGOs in Al-Shihabiyya, Mastrowa, Ibrahim El-Desouki villages during the period October-November 2022. The objectives of these meetings were to introduce the ideas of the intended projects to local community members. Simultaneously, banners on the intended economic empowerment projects grants were designed and used for dissemination purposes in Al-Jazeera Al-Khadra and Al-Shihabiyyah villages (MEK, 2023). It was suggested that, at present, about 45% of accepted candidates for the economic empowerment projects were women.

This brings the total number of meetings organized with local community members to 12 meetings for dissemination and consultation purposes. The feedback received from such meetings was utilized in assessing and prioritizing the local community's needs.

Active participation is necessitated by the need for collaboration, feeling ownership, and shared leadership that are required for sustainability of the suggested initiatives, thus ensuring high impacts not only on the development of local communities, but also on empowering these communities.

Concerning active participation, it could be suggested that local communities have had limited influence, initiatives, collaboration, and leadership, which implies limited active participation. This is clear from the limited contribution of local communities in the recommendation and selection of potential project ideas in the two initiatives. In this respect, there was no evidence of the willingness of local stakeholder groups to work together as a team. Similarly, there was no evidence of local community members taking on leadership roles. For instance, it was argued that despite the presence of a number of NGOs as one of potential development partners to manage, operate and maintain the suggested drainage systems, all NGOs have very limited capacities (Khedr, 2021). Moreover, it was reported that one of the challenges to implement the initiative of establishing an agricultural drain was that no local body was ready to take responsibility for the running and the operational cost burden of the network, which implies low levels of collaboration and shared leadership.

## **8. Conclusion**

The supply chain of establishing reed fences as nature based coastal protection works includes five main stages: reed extraction, transportation, preparation, construction, and maintenance. Also, within the ECCADP project, a number of local community development initiatives were implemented in Bar Bahry area aiming to

improve the social, economic, and environmental well-being of the local communities and its residents. For this purpose, two main approaches were applied to develop these initiatives including Deficit Based Community Development (DBCD) and Asset Based Community Development (ABCD).

The benefits associated with different activities undertaken by ECCADP project in the coastal zone of Kafr El Sheikh governorate, either reed fence supply chain or community development initiatives, can be summarized in supporting livelihood, improving capacities, creating job opportunities, and increasing demand for reed fence sheets. In this respect, the total working days generated for the preparation and construction of the reed fence was estimated to be about 40,608, leading to generated income in the range of EGP. 2,827,440 – 4,350,240. Still this value does not include other direct and indirect benefits associated with ECCADP project activities and community development initiatives.

The micro-projects initiative, implemented by Misr El-Kheir Association, involved two main components:

- **The micro-projects financing:** It is worth noting that despite the fact that such an initiative may provide support to individuals and their families the spillover impacts may be expected to be limited for the community.  
Still, it can be suggested that in the case of the two NGO beneficiaries, it would be different situations as they represent a context where benefits could be shared more widely, depending on the management system to be adopted in these cases.
- **Capacity building activities:** It should be noted that as some of the capacity activities were provided for community members interested in specific activities at large, the impact (outcome) of such action needs to be assessed. Capacity building for the beneficiaries of the loan initiative needs to be properly planned to ensure that they receive tailored capacity support related to their proposed activities.

- **As for the pilot projects initiative:** the initiative documentation by the Desert Research Institute had a list of possible projects that could be implemented in the area meaning that community members may have been involved in selecting the projects. However, such involvement was limited to the list that was presented to them.

Concerning supporting community members through the two initiatives, it was found that applicants were required to have certain assets, as guarantees, to be eligible for financial support. This means that the initiatives did not consider the case for marginalized and disadvantaged groups, including women and those with limited means for livelihood who are thus did not benefit from such initiatives.

It is worth noting that the links between the ECCADP project and community development initiatives are quite clear. Yet, the link between these activities and initiatives with actual NBCPW is not that clear. This may limit the feeling of ownership and sustainability of the protection work in the future.

As for participation, it can be suggested that ECCADP project has attained a high level of outreach to local community and that local communities were consulted repeatedly on various activities and initiatives undertaken by the project in the coastal zone of Kafr EL Sheikh governorate. Nevertheless, a low level of active participation was attained, which limits the potentials of suggested community development initiatives to ensure the sustainability of these initiatives.

It is worth mentioning that the future natural based coastal protection works in the area and associated increasing needs for reed fence is expected to support livelihood of local communities through job opportunities and income generation. Such job opportunities and income generation would depend on the magnitude of the protection work and the approach to be adopted by the contractors in recruiting local members of the communities.

Additionally, a good proportion of the income to be generated would be by women working in the reed fence weaving, thus it will provide an opportunity to

enhance their financial independence and support their families, which would be especially the case for women-headed families.

One of the key challenges to women working on reed fence weaving in the area is that the demand for these reed fences is not stable and not sustainable in nature. This means that the income generated from such work fluctuates, which is an issue that needs to be addressed.

Accordingly, one possible small-scale initiative with high potentials, that the project could support is to build on limited skills related to the preparation of reeds and processing them in the form of windscreens and fence sheets. This means that there is a lack of other experience and/or skills on how to benefit from reeds in the preparation of any other products (handicrafts). In this respect, it is possible to provide local women doing this job with a set of skills that enable them to benefit from the reeds that grow locally in the preparation and marketing of some products, which is an idea supported by the participants in the organized meetings.

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