Community Mangrove Restoration Project, Muni Pomadze Ramsar Site

Executive Summary

The Muni-Pomadze Ramsar site located at Winneba, Central Region is one of the five coastal Ramsar sites in Ghana. Originally endowed with mangrove biodiversity among other wildlife resources, the site has experienced a continuous resource decline over the years. Anthropogenic activities such as charcoal production, firewood collection, bush burning, inappropriate farming practices and illegal hunting have been identified as the cause of resource decline. This has a resulting ripple effect on both natural resources as well as basic livelihood options available to fringing communities who depend primarily on these resources. A Rocha Ghana in collaboration with the Wildlife Division of the Forestry Commission has undertaken several activities as part of efforts to restore the ecological integrity of the Ramsar site as well as improve the livelihood of communities utilizing the resources at the Muni-Pomadze Ramsar Site.

Activities

1. Conservation education and public awareness campaigns (CEPA)

In order to create awareness and build capacity of community members on conservation issues for successful management of God's creation, an intensive community, school and radio education was conducted throughout the project. This began with a project launch in August, 2013 where all stakeholders including the Effutu and Gomoa district assemblies, traditional authorities, community members and collaborators were informed about the project and its activities. Beneficiary Communities on this project were Mankoadze, Biwadze and Akosua Village. These communities were selected to participate in the project because their activities directly impact on the Muni-Pomadze Ramsar Site and its resources.

Subsequently, conservation education was carried out on various platforms including schools and communities' visits, church visits, radio station, workshops and other community meetings. A brief background to the project was given at each meeting and the activities to be conducted outlined so that the community members could understand the essence of the project and their role in ensuring its success and sustainability.

Community conservation radio discussion with Andrew Agyekumhene, the Ramsar Site Manager

As part of the awareness, two educational signposts were erected within the Project catchment. One sign post is located about 200m to Winneba junction to

educate all travelers about mangroves and the other situated at Akosua Village where the mangroves were planted. A green t-shirt with the inscription 'LET'S PROTECT OUR MANGROVES' boldly written at the back and a crest of a mangrove and the project name at the front was also printed and distributed to beneficiaries.

2. **Socio-ecological survey**

The objective of this activity was to assess the ecological and socio-economic needs of beneficiary communities in relation to conservation and sustainable utilization of resources. The outcome of the survey indicated that ecologically, most of the mangrove resources had been degraded and this affected the conservation of birds and marine turtle that use the site either as migratory routes or annual nesting site. Fisheries recruitment into the lagoon has also dwindled thus affecting the livelihood of fisher folks in the area. The project therefore sort to undertake habitat restoration activities such as mangrove planting and tree planting to restore the degraded vegetation to enhance biodiversity recovery within the site.

Socio-economically, the survey revealed that communities spent a lot of time collecting firewood for daily domestic use. Most of the community members were farmers and had no alternative sources of income to support their annual incomes gained from selling surplus foodstuff from their farms. The project therefore sort to promote the use of fuel efficient stoves to reduce the amount of fuelwood used in domestic cooking as well as provide alternative sources of livelihood.

3. **Community training on nursery establishment and sustainable natural resource conservation and management**

Assessing the development of the community nursery

As part of efforts to empower community members to be able to restore the ecological integrity of the Muni-Pomadze Ramsar site and its environs, training on establishment of tree nursery and sustainable natural resource conservation and management was held for 30 persons from the three target communities; Akosua village, Mankoadze village and Biwadze. The training was also used as an opportunity to carry out a refresher session for existing community resource volunteers. Beneficiaries were trained in ground preparation, soil management, proper filling of poly-pots, seeding of poly-pots, proper watering and best practices of general nursery management. As part of the training, beneficiaires were also taken through best practices of nursing mangrove and tree seedlings. The nursery establishment was also to serve as a means of alternative livelihood for beneficiaries. Subsequently, seedlings were purchased from beneficiaries who practiced their own nurseries for planting along the Pratu River, which supplies the Muni Lagoon with fresh water.

4. **Community training on alternative livelihood options for target communities**

The objective of this activity was to boost the socio-economic lives of the people within the project area. Based on results of the socio-ecological survey and the outcome of consultations at different levels, beneficiaries identified snail and grasscutter rearing as feasible livelihood enterprises that

could be undertaken. A total of 30 beneficiaries comprising of 13 women and 17 men were trained from the 3 communities in identified livelihood enterprises. Participants were taken through handling, feeding, housing and pen management, record keeping, predator, pest and disease management and handling during gestation period. After the training, participants were supplied with start-ups in the form of a 3-tier grasscutter cage with 3 breeding stock comprising 2 females and 1 male. For beneficiaries of snail farming, each beneficiary received a 3mx7m pen with breeding stock of 4 large snails.

Grasscutters, distributed in their cage

Before the start-ups were distributed a monitoring team assessed beneficiary readiness to receive livelihood start up. Housing facilities for grasscutter and sites for snail farming were inspected. Beneficiaries whose facilities were not satisfactory were encouraged to improve them before start-ups were released. This they did and showed commitment at various levels of improving the housing facilities.

At the point of delivery start-ups, beneficiaries were taken through a contract, which they signed as their commitment to undertaking the livelihood enterprises. In the contract, community members agreed to pay back the cost of start-ups into a mutual revolving fund to be managed by a designated committee. Funds would be used to expand project by supporting other community members. This is also envisaged to sustain the project after its completion.

A community member shows her hatched snails to the monitoring team

Subsequent monitoring and evaluation of the project indicated that some beneficiaries have recorded births with their grasscutters. Beneficiaries of snails have recorded high number of eggs and are making efforts to expand their snail pens as the ones that were provided can no longer hold the increasing number of snails.

5. Mangrove planting

One of the objectives of this project was to replant degraded areas within the Muni-Pomadze Ramsar site with mangroves as top priority species for restoration. In the light of this, the project planted both mangroves and tree species to facilitate the restoration of the Muni Lagoon and the Pratu River. A total of 3500 white mangrove seedlings (*Avicennia* species) and 4700 Red Mangrove Seedlings (*Rhizophora* species) were nursed and planted along the Muni Lagoon at Akosua Village. However due to very high salinity levels and activities of domestic animals, the project lost about 80% of white mangroves planted. The planting was done in done batches November, 2013 and July, 2014. A total of 3600 *Senna siamea* and *Acacia* seedlings which are fire resistant were planted over a 1km stretch on both sides of the river. The planting received support from community members, student chapter of A Rocha from University of Cape Coast, Volunteers from USA and Spain as well as representatives from GEF/SGP.

6. Training women in construction of improved stoves

The over dependence of women on fuel wood particularly for household use has contributed significantly to the degradation of shrub vegetation and trees along the lagoon and rivers within the project catchment. In order to address the problem of fuel usage and the continuous cutting of trees as fuel wood, 45 community members from the 3 beneficiary communities were trained in the production of fuel efficient stoves at Mankoadze. In order to maintain gender balance as well as support for the women, each of the three communities were represented by 13 females and 2 males for the training.

An expert demonstrating clay preparation during stove construction

Beneficiaries were taken through clay preparation, molding and baking. As part of clay preparation materials such as ash and manganese could be added to the clay mixture to ensure durability of the stoves.

Monitoring and Evaluation

Before the inception of the project, a team from A Rocha visited the site to ascertain first hand situation after the project formulation. This therefore served as a baseline for monitoring throughout the project implementation. Monitoring was carried out quarterly as well as throughout all project activities. During the first quarter, community members were taken through various form of conservation education, trained in nursery establishment and management, mangrove seedlings were nursed and planted and community members trained in livelihood enterprises. Monitoring indicated that community members were more receptive to conservation action, some set up their own nurseries and other started their own snail farms even before the start up was provided. Most of the mangroves which were planted were however lost due to high salinity in the lagoon and activities of domestic animals.

Community conservation education at Mankoadze

During the second quarter, more conservation education was carried out in both communities and basic schools. Beneficiaries were supplied with their start-up for the livelihood enterprises (snail and grasscutter), women were trained in production of improved stoves, more mangroves were planted along the Muni lagoon and tree species (*Acacia* and *Casia species*) along the Pratu River which supplies the lagoon with fresh water. Subsequent monitoring indicated that there was some observation of behavioral change among community members toward conservation. They were making more efforts to protect resources from cattle grazers, whiles showing high commitment to planting both mangroves and trees. Beneficiaries who received livelihood start-ups for grasscutter also recorded pregnancies even though 6 out of the 46 grasscutters supplied died due to causes such as injury and cold. The mangroves and trees had also established and were growing well.

The third quarter was dedicated to project monitoring and mopping up conservation education to sustain the momentum of existing information and action in both communities and schools. Monitoring was undertaken at all sites planted with either mangroves or tree species. Livelihood activities were also monitored and some beneficiaries had recorded births as high as 4litre per female. Snails hatched at least 600 eggs and some beneficiaries are preparing to expand their snail pens.

Results

Describe to what extent the objectives of the Agreement were accomplished:

The objectives of the agreement were:

1. **To restore the ecological integrity of the Muni Lagoon and its adjacent hunting grounds for biodiversity recovery through strengthening of the governance structure of the Ramsar Site to ensure sustainability and wise use of resources, habitat rehabilitation and manipulation.**

This objective was achieved through planting of 7.5ha of degraded mangrove area along the Muni Lagoon at Akosua village and planting of 3,500 fire resistant tree seedlings along the Pratu River. Furthermore through the engagement of stakeholders such as the district assembly, some support is being received to enhance conservation at the Ramsar Site. However, more efforts need to be mobilised in strengthening the governance structure at the community level as currently by-laws are weak and also not properly enforced. The site covers a total area of about 30ha. The remaining areas will also require rehabilitation in order to enhance the conservation and restoration of mangrove resources at the site.

2. **To promote conservation and sustainable utilisation of natural resources within the Muni-Pomadze Ramsar Site through conservation education programmes, training of communities, proper demarcation and mapping of the site's boundaries to enhance law enforcement and resource protection and rehabilitation of degraded sites**

This objective was achieved through the massive conservation education sessions undertaken during the project. A total of 3095 people were reached comprising of 1226 Females, 1062 Males and 807 children. 30 beneficiaries received refresher training as community conservation volunteers. 45 people received training in production of improved stoves. 30 beneficiaries also received training in alternative livelihood. This ignited behavioural change in beneficiary communities as they on several occasions took initiatives to take care of trees planted near the Pratu river as well as massively participating in planting sessions and showing commitment in providing housing and other support during the setting up of livelihood enterprises. However, the project was unable to undertake proper demarcation and mapping of the site boundaries. This is affecting effective law enforcement and resource protection of the Ramsar site.

3. **To improve the standard of living of the communities within the wetlands of the Muni-Pomadze Ramsar site through introduction of alternative and additional livelihood**

The project was able to achieve this objective by training and equipping 30 beneficiaries from 3 communities with alternative livelihood snail farming and grasscutter rearing. Another alternative source of income was raising nursery seedlings. However, this number has to be up scaled in other to support beneficiaries of other communities that fringe the Ramsar site and whose activities also directly impact of resource management and utilization.

Immediate benefits received by the participants and/or the recipient communities:

During the implementation of the project, immediate benefits received by communities include;

1. Training in nursery establishment and management. The training received by beneficiaries was also to serve as an additional source of income. Based on this, some seedlings were purchased from community members during planting of trees at Pratu River. 30 community members benefitted from this training.

2. Training and provision of start up for alternative livelihood enterprises (snail and grasscutter). All community members who received start-up have since recorded pregnancies and births of grasscutter. Beneficiaries of snails have also recorded high numbers of hatches and others are making efforts to expand their snail pens. A total of 30 community members received training and start-ups. One community member was contacted by a church group in Winneba to train their women's fellowship and is preparing to build snail pens for them at a fee. Through this training community members are making additional income not only from start-ups provided but by using the skills gained.

3. Training in production of improved stoves: The use of firewood particularly for domestic cooking was identified as a contributing factor to resource decline particularly alterations in vegetative cover of the Ramsar site. Collection of firewood was also becoming a challenge. 45 beneficiaries comprising 39 women and 6 men were therefore training in production of fuel efficient stoves. Training received equipped beneficiaries with skills not only in the production of domestic stoves but also stoves that could be sold for profit.

Long term benefits of the project:

The long term benefits include increases knowledge on conservation issues facing the Ramsar site and this is influencing behavioral change toward resource utilization on the site. The planting of mangroves along the Muni Lagoon and tree species along the Pratu River would facilitate the improvement of habitat condition and ultimately the ecological integrity. The mangroves at the Muni lagoon will also support spawning of fish thus increasing fisheries recruitment and enhancing fishing and livelihood of fisherfolks around the Ramsar site.

New developments and unexpected difficulties/problems:

The degraded mangrove resources at the Ramsar site cover an area of about 30ha. Under this project a total of 7.5ha of degraded mangrove area was replanted in two phases. However, the project lost about 3ha of the replanted area due to challenges such as high salinity and destruction by domestic animals, this was unexpected as previous plantings did not experience such challenges. To address the issue of lost mangroves, the second planting was done in the raining season and area planted was barricaded with thorny bushes which kept off the domestic animals. Subsequent monitoring and evaluation indicate that the second phase of planting are doing well. Fisherfolk have also reported that they have observed fish spawning in some areas that were planted 3years ago through efforts of the Wildlife Division. To restore the mangrove resources and ecological integrity of the site, there is therefore an urgent need to replant the remaining 25.5ha. Trees that were planted along the Pratu River would have to be maintained in order not to lose them to overgrown weeds as well as keep off cattle grazers.

Another challenge the project faced was unsatisfactory cooperation from some beneficiaries from Akosua Village. Although they took part in all other activities, their commitment to undertaking the livelihood enterprise is low and unsatisfactory. The project management team is therefore continually holding meetings with beneficiaries and their leaders on the best way to address the issue of low commitment.

Furthermore, the Ramsar site is fringed by six other communities which depend directly on the resource and whose activities directly impact on the protection and management of the Ramsar site and its resources. These communities face similar challenges as those addressed in this project. Furthermore, some of these communities serve as key nesting sites for endangered marine turtle which nest annually at the Ramsar site. Given that GHA/SGP/OP5/Y3/STAR/BD/07/04/014 has ignited some behavioral change of community members towards conservation and set in measures to enhance habitat restoration and ultimately the sustainable management and utilization of resources at the Ramsar site, it would be prudent to address challenges faced by communities that were not included in the first project for the holistic conservation and sustainable utilization of resources at the Muni Pomadze Ramsar site.

Additionally, due to limited resources, the project was unable to fully achieve its objectives. Particularly in the areas of proper demarcation and mapping of the site to enhance protection of resources. The site is currently being encroached not only for farming but also structural development. Proper demarcation and mapping of the site is therefore urgent in order to sustain activities already undertaken to enhance protection of the site. Governance structures is another area that was not adequately addressed under this project, despite various engagement with traditional authorities, district assemblies and other stakeholders. In order to adequately promote conservation and sustain the current activities at the site, the development and enactment of by-laws is prudent.

Remarks/lesson learned:

Habitat Rehabilitation

1. Though mangroves are known to adapt to saline conditions and are often not consumed by domestic animals such as goats and sheep, local conditions should be taken into consideration ensuring that there is sufficient balance between fresh and brackish water before planting is carried out. In the case of Muni Pomadze, the blockage of the estuary and lack of rains at the time of planting (Nov 2013) limited the amount of fresh water supply into the lagoon hence the high levels of salinity recorded and subsequent loss of mangroves. A good supply of freshwater during the second phase of planting (July, 2014) has yielded good mangrove stands.

Livelihood Enterprises

2. Eggs of snails should not be moved before they are hatched as time of movement can affect survival of eggs.
3. Pregnant grasscutters should always be separated from males
4. Young grasscutter are sensitive to cold. Therefore if the housing is near the beach, more bedding should be placed in cages and housing kept warm as much as possible

Community expectations

5. Managing community expectations can be challenging and issues need to be pre-discussed before major decisions concerning their involvement in the project is taken
6. It is important to incorporate community views into project implementation strategy as long as they do not deviate from the project objective.
7. Allowing communities to take initiatives for some of the project activities help in making the project implementation process smoother
8. It is important that participants of project implementation process speak and understand a common language. Language barrier can slow down implementation process and reduce the understanding of messages delivered in the process. Though this was a minor challenge, it is worth flagging up.
9. Community members are aware of some of the challenges facing the decline of mangroves and other natural resources but the will-power and capacity to undertake initiatives is lacking. More education and capacity building sessions in identified areas should be encouraged.

Collaborations

10. Collaborations with Municipal and District Assemblies facilitate easy access to permits required during project implementation