

Documentation on local coping strategies to climate change impact.

Doakola (Krishnanagar) a coastal village in Paigacha Upazila of the coastal district of Khulna, Bangladesh.

Hazard (s): Changing of rainfall intensity and Salinity increase.

Impacts (S): Loss of livelihood options due to limiting of crop cultivation, drinking water scarcity.

Strategies (S): Alternative livelihood options.

Create income generating options through adapting crab fattening.

Description: Paikgacha is a coastal upazila and traditionally the community is dependent on agriculture and last two and half decades more than half of total areas have been converted to shrimp farm through tidal saline water regulation process though some villagers kept their part of land for rice cultivation. Thus many villagers lost their inherent profession and the mentioned area people's forced to dependent more on the collection of wood and non wood (fish, snail, grass, honey) products from the Sundarbans reserve forest. In Doakhola village, agriculture is the main source of livelihood with minor aquaculture inside the embankment of rivers and extensive aquaculture outsidess the embankment. Due to viral infection to shrimp farm, aquaculture farm and periodic loss of shrimp farm had set back the community to agriculture practice. But due to increased salinity agriculture has become more limited and vegetable cultivation could only possible



Pic. Shibani Sarker group member of SUS organized Kamona Mohila Samity is standing beside her crab farm.

on raised mound followed by rainy season. The community and the fish farmers have

adapted an alternative adaptation strategy and initiated to crab fattening in salinity affected areas as an alternative livelihood option. This is the community based adaptation strategy and has been promoted by "SUS" through their beneficiary groups. This crab fattening activities was identified by the Sundarban Bio-diversity Conservation Project Beneficiaries (a project funded by ADB, Bangladesh Forest Department and micro-finance support by PKSF Bangladesh) as an alternative livelihood option during the year of 2002-2003. Then it was up taken as an alternative livelihood option against the most severe vulnerability context of "increase salinity" under SUS-CARE Bangladesh Reducing Vulnerability to Climate Change (RVCC) project and promoted accordingly in RVCC project areas. Ms. Shibani Sarker, wife of Uday Sarker is group beneficiaries of SUS organized Kamona Mohila Somity under Sundarban Bio-diversity Conservation Project, where micro-financed support was ensured by PKSF-Bangladesh. Her husband was a fisherman so both were separately organized into male and female group for awareness creation about the conservation of the Sundarban and subsequently trained on aquaculture and they mentioned about the potentiality of crab fattening. Because Shibani's group leader Ms. Shyamoli Rani Sarker husband name Subodh Chandra Sarker were established crab fattening farm in their small pond. Subsequent year this crab fattening activity has extended in their group and out of 30 beneficiary families of

this group total 14 member's families have adapted crab fattening as their livelihood option. When talking with Ms. Shibani and her husband Mr. Udoy Sarker, they mentioned that under salty condition this crab fattening is good options for income and need small farm (small pond) size 10-15 decimal of land is enough to harden and regarding of 50-60 kilogram crab fort nightly or monthly that can bring monthly average income ranging tk. 5000-7000 (One US Dollar equal to tk. 70) or more. Once farmers like her husband used to grow rice in their field and got enough rice to run their family for near about 8 months, asides her husband used to go to collect fish from the forest and Bay of Bengal but last year they could neither cultivate Amon rice (rainy season) nor cultivate borrow rice (summer rice) in their own 100 decimal of land due to increased salinity this year said Ms. Bizoli Sarker mother of law of Shibani Sarker. Though 15 decimal of land for crab farming pond/farm is enough to run their family for 8/9 months.

When we were talking with Shibani Saker another female and male members gathered in the same place and share their learning and fillings to us. They simultaneously spoke that under increase saline condition crab fattening is good livelihood option. One prominent farmer Tapon Sarker mentioned that for crab fattening, high salinity enhance its growth and during late rainy season and after heavy rainfall when salinity PPT is come down, the crab fattening is hampered. The farmer use market salt to their farm (called hatchery) under low saline condition.

Management: Standing besides the crab farm (locally called crab hatchery), Ms. Shibani mentioned that they use net and high slash bamboo fence to protect crab from going out. The farmer divided farm to two to four segments to harden or grow male and female crab separately. They need to change their water periodically to change poor quality water and use outlet and inlet for water regulation.

Source of seed/ fingerling/ small crab/ smash crab: They normally collect or buy crab from the fisher men of river, from the shrimp farm, from crab depot or local fish/crab market of such crab which have soft shell "Jhora" or grade fell or not suitable for marketing. They buy crab by an amount of average tk. 30-50/kg body weight of minimum 150gm/male crab and minimum 100gm/female crab and above size. They buy soft shell crab from the fishermen who collect crab from nearby forest areas during June to November every year. For male crab need to feed at least 6/7 days for grading/ hardening shell or to get marketable size and female need at least 12/15 days to get marketable condition, though they could allow more days for feeding. This fattening process is done to increase weight increases and improve quality. They use small fish mostly tilapia fish (*Tilapia nilotica*) and other fish to feed crab and they also mentioned that flesh of snail or meat is good feed for crab fattening. They gave negative feed back for ready made fish feed that normally use in fish farm. The farmer some times face problem to control water quality and collection disease infected crab that become threat for them. Our income is regular and housing condition is improved, children is going to school and we are happy to get an average monthly income tk.6000/7000 from this crab farming said smiling Shibani with pleasure. She helps her husband to regularly feed the crab farm and her husband collect the crab from the locality. SUS has been with them for seven years and she took loan tk. 10000 past three times though she took tk. 3000 as first loan during 2003. All the group members expressed their happiness with the involvement of SUS and they are getting regular loan support from SUS and technical support from SUS technical officer-fisheries. All the crab farmers agreed that they are in better off condition than the past as they have adapted these local community adaptation strategies.

Non-climate benefit: The costal areas poor people can take it an employment generation.

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