Resilience of man and nature

Cyclone Aila seemed to have broken the back of agriculture in the Sunderbans. Most observers, including **Santadas Ghosh**, felt it would be years before agricultural activity got back to normal. But just three months after the cyclone, salinity notwithstanding, seeds were sprouting and the freshwater ecology stirring with life

Cyclone Aila devastated the economy of the low-lying but densely populated Sunderbans islands, just before the 2009 monsoon. These islands -- the official figure is 54 islands, none of which has any freshwater source -- are mudflats in the maze of rivers in the Indian part of the Sunderbans. They are surrounded by the Bay of Bengal, whose waters travel with the tide north through numerous channels from the southern tip of West Bengal.

On a no-moon day, with unusual high-tide levels, the islands' earthen embankments gave way to nature's fury, drowning almost every part of the islands in saline water. The destruction was not massive in terms of loss of life. But it ensured little or no agriculture for the inhabitants during the all-important monsoon season. With most islanders relying on agriculture -- and the single monsoon crop -- many outsiders like me sensed the gravity of the calamity that would unfold with time.

Climate change predictions establish that events like these are likely to occur more frequently in future.

After Aila

I was able to embark on a proper exploratory visit to the islands only three months after the event, when the chaotic situation on the ground had limped back to something resembling normalcy. But the veil of routine life in the Sunderbans hid the effects on agriculture. With memories of the aftermath of the cyclone -- lands submerged by saline water, standing crops turned brown with salt -- I expected to see empty, discoloured lands. But there were patches of green fields, newly planted with rice! It was a pleasant surprise to see attempts at cultivation in the year immediately following Aila. Although the plants looked weak and yellowish, the very fact that seeds had sprouted and taken root in the damaged fields showed their resilience.

Further into the maze of islands that make up the Sunderbans, I saw a mixed scenario. There were vast stretches of fields, as I had expected. These fields had remained submerged in a mixture of trapped salt water and monsoon rains. Where embankments could not be quickly repaired and tidal inundations regularly occurred, the land was too saline for seeds to sprout. But where salinity was reduced thanks to rainwater, desperate farmers were rewarded with some rice yields.

Even in the most devastated areas, homestead lands were generally higher than the surrounding paddy fields and so the river water didn't stay for too long, even with exposed embankments nearby. Here, people maintained kitchen gardens and grew fruit trees like banana. I saw many tall rotten brown stems of dead banana trees, but there were little green leaves peeping out from below!

There were more surprises in store. The first was a snake (non-venomous) that I spotted in a field. Did this mean the freshwater ecosystem on the islands had revived? I had discussed the impact of salt water on freshwater snakes, frogs and earthworms with the inhabitants. If there was a drastic decline in their population, the entire ecosystem would be crippled. But people confidently told me that even on the most damaged islands, these species had survived, although in fewer numbers. Earthworms too had survived (salt water is deadly to them); they must have buried themselves deep in the earth to stay away from the salty surface water, coming back up only on higher ground.

For the population of these islands, surviving the post-Aila months on insufficient relief provisions, very little drinking water and an outbreak of diarrhoea has been a dreadful trial. But right through the hardships, their natural instinct was to try and grow crops.

Not everyone with land risked everything on cultivation. Even on islands where land salinity was uniform, some farmers attempted agriculture while others did not. I wanted to know who had tried and who hadn't. My theory was that some families were able to survive despite a very poor harvest because the 'costs' of growing crops differed across households, even in the same village.

My discussions with several villagers yielded the following: everything depends on family labour and hired labour. Monsoon paddy cultivation is possible at a minimal cost if the family doesn't need to hire labour against cash. For such farmer families, the combined cost of fertilisers, pesticides and the processing of rice from paddy totals around Rs 1,000 per hectare in the Sunderbans, against which a normal crop would yield a value of Rs 10,000, at local prices. Therefore, farmers estimated a profit in attempting cultivation if the post-Aila yield was more than 10% of the usual output. For larger farmers who needed hired labour for cultivation, the cost was estimated at Rs

3,500 per hectare; it would require more than 35% of normal output to make the effort remunerative. Therefore, even where the saline water didn't stay long, and the land received less salt deposits, big farmers were afraid to take a risk with agriculture. It was mostly small farmers who tried their luck, using family labour.

This pattern seems perfectly rational, as those who attempted agriculture reported yields varying between 25% and 40% of their normal production.

In many places, soil salinity had risen to such an extent that no one even considered putting any effort into agriculture. In some cases, this is true for the whole island. In other places, parts of islands face different situations. In a few pockets, the land survived the high-salinity wash and normal agriculture was reported during the post-Aila monsoon. As I have recently begun new research on the dynamics of post-Aila livelihood adjustments on the islands, the findings of firsthand data collection on 323 villages spread over 19 islands in the Sunderbans are useful.

Although all the evidence indicates destruction to agriculture following Aila, there is also evidence of resilience, refuting the perception that no agriculture in the Sunderbans would be possible in 2009, a view that I too initially subscribed to (see previous issue of ***Infochange Agenda*** on coastal communities).

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