

SACON TR 177

**DOCUMENTING THE BIODIVERSITY OF SOMPETA WETLAND,
SRIKAKULAM DISTRICT, ANDHRA PRADESH AND DEVELOPING
BIODIVERSITY-MEDIATED LIVELIHOOD OPTIONS FOR LOCAL
COMMUNITIES**

Final Report

Dr. Mathew K. Sebastian, Dr. P. R. Arun & Dr. R. Jayapal

March 2017



Sálim Ali Centre for Ornithology and Natural History

**A Centre of Excellence under the Ministry of Environment, Forest & Climate change
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EXECUTIVE SUMMARY

In 2011, The Union Ministry of Environment and Forest (MoEF) entrusted SACON with a short-term study on the wetlands of Srikakulam district of Andhra Pradesh. Accordingly a survey and documentation spanning six months was conducted by SACON and a detailed report was submitted to the MoEF during May 2012. Altogether information about 65 wetlands was listed in the report.

Sompeta wetland was one of the major wetlands documented in the study. It has attracted national and international attention in view of the proposal for setting up a Super Thermal Power Plant triggering massive protests by the local community against it and the police firing resulting in the death of three farmers. Our studies established that apart from being a biodiversity rich area, the wetland is playing a critical role in water regime of the whole area. The livelihood of thousands of people depends on the various ecosystem services provided by the wetland. Based on our findings we recommended that further detailed studies should be undertaken on the biodiversity of the wetland and its surrounding areas. It was also recommended to explore alternate income generating avenues to enhance the livelihood options for the local stakeholders in order to reduce their dependence on the wetland.

Paryavaran Parirakshana Samiti, Sompeta, an Environmental NGO, which has been in the forefront to conserve the Sompeta wetland, requested SACON to take up a study to address the twin issues listed above. They also offered necessary financial assistance and logistics to conduct the study. Accordingly SACON prepared a proposal with a duration of ten months to conduct the study from March to December 2016.

The objectives of the study were: 1) Survey and document the biodiversity of avifauna, butterflies and odonates of Sompeta Wetland 2) Explore and suggest measures to enhance the sustainable biodiversity-mediated livelihood options for the local stakeholders.

Regarding avian survey, birds are sampled from the habitats using standard methodologies like Point-count for woodland birds and vantage-point based total counts for water birds. In case of shy bird taxa like those frequenting reeds and marshes of the wetlands, area-search method was adopted to maximize the detection. The same methods, as for bird survey, were followed for documenting the Lepidopteran fauna. Micro-habitats, particularly

identified on the basis of vegetation composition and structure, presence of larval plants, and vicinity to water bodies, were selected and sampling of butterflies and odonates were conducted accordingly.

Data for devising measures to enhance the biodiversity-mediated livelihood options were collected in a participatory way. A detailed survey of the locally available resources and existing livelihood practices and options available for the local people was conducted by collecting information through participatory tools, questionnaires and, focused and semi-structured interviews.

Sompeta wetland is situated in Sompeta Mandal of Tekkali Division. It is locally known as 'Beela'. Beela is a low lying swamp/marsh area with a unique habitat for rich biodiversity with a distinctive hydrological regime. There are three distinct water bodies of varying size and characteristics in the Sompeta wetland complex. The first one is known as '*Peddha Beela*' which is linked to two other Beelas known as the '*Chinna Beela* (Mankkiapuram Beela) and *Tampara* which is eventually connected to sea near Idduvanipalem.

Sompeta wetland complex spreads over nearly 4000 acres, has an approximate length of 20 kms, with varying widths. It consists of marshes, swamps, mud flats, permanent shallow marine waters, marine sub tidal aquatic beds, coastal brackish/saline lagoons, seasonal/intermittent freshwater marshes/pools, permanent freshwater lakes, aquaculture ponds, irrigated lands etc.

This wetland provides various ecosystem services. During monsoon the entire wetland complex gets inundated by flood waters thereby helping to control the flood in the surrounding areas which are thickly populated. Numerous seasonal channels and streams feed 'Peddha Beela' during rainy season. The other two 'Beelas' are fed by the water from the Peddha Beela, with a typical water regime which have wider implications in terms of the water table, water quality and sustenance of the biodiversity of the surrounding areas.

Around 400 families are engaged in full time subsistence fishing in the wetland. Apart from this, many people from different villages do fishing as part time. The wetland is also a source of medicinal, edible and fodder plants. Many plants are used for making mats and other articles for day to day use of local people and also used for thatching, roofing and fencing of houses.

We recorded 493 plant species and 149 bird species in Sompeta wetland that include migratory species. In fact the wetland and its environs give shelter to 74 % of the plants and 52 % birds found in the entire Srikakulam district. A 25 acre hillock within the wetland harbours a wide variety of wildlife such as wild pigs, several species of snakes, and bats. It is a potent Important Bird Area (IBA). It harbours Common Pochard (*Aythya ferina*), a globally Vulnerable species (as per IUCN 2016 Red List) which has been consistently and regularly recorded from Sompeta wetland particularly from open moderately deep freshwaters. Besides, seven Near-threatened species (*viz.*, Painted Stork, Spot-billed Pelican, Black-headed Ibis, Oriental Darter, Eurasian Curlew, Curlew Sandpiper, and Alexandrine Parakeet) have also been recorded in good numbers in suitable habitats across Sompeta wetland. In addition to the presence of these threatened and near-threatened birds, the wetland – characterized by patches of secluded and inaccessible pools of freshwaters surrounded by tall reed growth, is a potential habitat for the Critically endangered Pink-headed Duck (*Rhodonessa caryophyllacea*), last seen in the wild in 1949.

Our survey, covering less than 10% of the total wetland area enumerated a total of over 1500 waterbirds, and we are of opinion that the entire wetland would hold more than 20,000 waterbirds in winter. However, further systematic sampling cutting across seasons would yield a true and reliable estimate of the actual abundance. In this regard, a proposal in due format will be submitted to BNHS for their consideration during the next review of IBA network in India.

Forty six species of butterflies and 24 species of dragonflies and damselflies were also recorded during our survey.

A *bona fide* legal status of protection can be achieved for Sompeta wetland by designating it as a 'Community Reserve' under the Wild Life (Protection) Act of India, 1972. Sompeta wetland, with its spectacular diversity of fauna and flora and its myriad roles while rendering key ecosystem functions and services to local communities, would be a fit case for designation as a Community Reserve.

The physical and operational interventions due to the establishment of any industrial activity would alter the natural system drastically in the coming years. In the process several species, known and unknown, are likely to disappear from the area, and several crucial ecosystem services will be seriously undermined affecting the environmental security.

Almost 60% of the local household rear cattle. Since the cattle are feeding on grazing lands the quality of the milk produced is high. In Sompeta, Kaviti, and Kanchili mandals there are hundreds of acres of coconut plantations. The entire coastal area is covered with numerous Pandanus plants which are naturally grown and also planted by forest department as a sand binder. Almost all the parts of Pandanus tree are used commercially for various purposes. Lotus plants can be easily grown in the Beela and large number of ponds that exist in the surrounding areas. Therefore it is suggested to establish a dairy in the cooperative sector, another cooperative society for establishing an industrial unit for the preparation of value added products from coconut/coconut tree, small scale household units for the preparation of value added products from, Pandanus, and Lotus plant parts. In order to exploit the natural capital available as the wetland, promotion of ecotourism is also suggested.

The important Natural Capital commonly available to the local community is the Beela which is the main source for water for irrigation, drinking, grazing field for livestock, fodder, roofing and thatching materials, edible and medicinal plants etc. Apart from this the Beela plays a major role in maintaining the ecological and environmental balance which facilitates in maintaining air and water quality which is required for a healthy living. The rich biodiversity of birds, plants and fish (though less in biodiversity and depleted) add to the natural capital. Only about 40% of the local stakeholders own land which makes them vulnerable to poverty.

Physical capital comprises the basic infrastructure and producer goods needed to support livelihoods such as affordable transport, secure shelter and buildings, adequate water supply and sanitation, clean, affordable energy and access to information. All the households own houses though only around 50% houses are 'pucca'. Almost 100% of the households, in many cases more than one member, owns a mobile phone and 90% own a TV in their house rendering them accessible to information and communication facilities. In most of the village streets, drinking water is provided through pipeline; around 60% households own a bicycle whereas around 40% households own a two wheeler; either a Moped or a Motorcycle. The maximum number of Motor Cars available in a village is 3-5. Being an agrarian community in many villages 2-3 tractors are found. Other Physical Capital on commercial basis available in the villages is threshers flour mills, rice mills, and coir making units.

"Human capital represents the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives". It is a major and decisive factor in order to make use of any other type of assets. It is noteworthy that in most of the villages the available human capital is high. Villagers traditionally are skillful in their occupation such as agriculture, fishing, weaving, sweet making, preparation of mats, construction etc. Generally people are enjoying reasonable good health since government supported health care is mostly available and accessible to them. Kusumapatanam, Kalingapatanam and parts of Baruva in the Uddanam area are afflicted by the rare Chronic Kidney Disease (CRD) which is incurable so far.

The availability of few Junior and Senior colleges, both in the private and government sector has facilitated hundreds of youth to become formally educated. In all the villages there are ample number of Graduates, Graduate and Post Graduate Engineers, MBAs, Diploma and ITI certificate holders. Around 50% of them are employed in the formal sector. Apart from this there are informally skilled plumbers and electricians in each village to cater to the local needs.

Social resources upon which people draw in seeking for their livelihood outcomes, such as networks and connectedness, that increase people's trust and ability to cooperate or membership in more formalised groups and their systems of rules, norms and sanctions are the mainstay of the social capital of the local villagers. It is heartening that due to various factors, the social capital of the study area is quite high. Srikakulam district has a long history of many social movements. The agitation against the proposed Super Thermal Power Plant in which three people lost their lives and many got injured, have united people like never before.

The villages have many formal and informal organizations and institutions viz. Irrigation Committees, Self Help Groups (SHGs), Youth Clubs, Non Governmental Organisations (NGOs), Temples, Panchayat and Village Offices, Anganwadis, Banks, Fishermen Committees etc., enhancing their social capital.

"Financial capital" denotes the financial resources that people use to achieve their livelihood objectives and it comprises the important availability of cash or equivalent, that enables people to adopt different livelihood strategies. Two main sources of financial capital can be identified: 1) Available stocks comprising cash, bank deposits or liquid assets such as

livestock and jewellery, not having liabilities attached and usually independent on third parties 2) Regular inflows of money comprising labour income, pensions, or other transfers from the state, and remittances, which are mostly dependent on others and need to be reliable.

The financial capital of the villagers is precarious. Being an agrarian economy, failed monsoons, lower returns from agricultural products, which are very frequent, affect their income which in turn negatively impacts the farm owners and large number of agricultural labourers. Agricultural labourers and several small and marginal farmers migrate to states like Gujarat, Punjab and cities like Mumbai and Bengaluru. The migration is so rampant that sex ratio of all the villages are favouring females. Because of the depletion of the fish population in the Beela (mostly due to uncontrolled overfishing), inland fishers are struggling to survive. Women folk equally contribute to the financial well being of the family in various ways such as marketing of fish and vegetables and working as agriculture labour. Women from fishing communities also work as agricultural labourers.

An analysis of five types of sustainable capital of the stakeholders from where they derive the goods and services to improve the quality of lives indicates that the natural capital, social capital and human capital available in the community are high whereas their physical capital is moderate and financial capital is low. In order to lead a sustainable life all the capitals will have to be high. Since the first three capital mentioned above are high, the chances of improving the other two capitals viz. financial capital and physical capital is feasible.

Since the community's social capital is quite high, the natural capital available i.e. the wetland and its associated resources such as water, land, and biodiversity, can be effectively utilized by the human capital viz. the skill sets available with the community in the form of traditional skills coupled with the educated human resource in various fields.

Based on two criteria viz. i) presence of Globally Threatened Species and ii) Congregations of > 20,000 Waterbirds on a regular basis, Sompeta wetland qualifies to be declared as an IBA. Necessary steps have to be initiated for the same. A *bona fide* legal status of protection can be achieved for Sompeta wetland by designating it as a 'Community Reserve' under the Wild Life (Protection) Act of India, 1972. Therefore efforts should be taken to achieve this purpose.

Fingerlings of native species should be stocked in the wetland in order to restore piscifaunal diversity. Restrictions on uncontrolled fishing such as ban on fishing during breeding season, banning nets of small mesh size should be implemented.

It is suggested to establish a dairy in the cooperative sector, another cooperative society for the establishing an industrial unit for the preparation of value added products from coconut/coconut tree, small scale household units for the preparation of value added products from *Pandanus* and Lotus plant parts.

Ecotourism with all the necessary components and infrastructure as detailed in the report should be established at the earliest in order to conserve the ecosystem simultaneously enhancing the income of the local stakeholders.

A Non Governmental Organisation having linkages with all the line departments and Local Self Governance (LSG) bodies should be established to initiate the administrative and financial process of setting up of the necessary institutional framework to deal with the livelihood issues. The same NGO should take initiatives to conduct awareness campaigns among the local population on various issues and also for organising skill development programmes, training and extension programmes.