Minor Bio-resources Seldom Acknowledged as Major Livelihood Supports

Case studies of Edible Bivalves and Fishes from Aghanashini, a Small Estuary of Karnataka's West Coast

Edible Bivalves

Just 186 ha of Aghanashini estuary's 1969 ha with open access (the rest 3267 ha is under private control) mostly few mudflats, produce annually 22,000 tons of edible Molluscan bivalves (including shell weight) annually, worth Rs.660 millions at Rs.3548387/yr/ha

Paphia malabarica | *Meretrix meretrix* | *Meretrix casta* | *Crassostrea* sp. | *Villorita cyprinoides*

Bivalve fishing safe for even women and children

- Bivalve harvesting provides employment for over 1200 families
- It is non-specialized form of fisheries, dominated by women and even children gather bivalves
- Edible bivalves guarantee protein security of thousands of coastal families
- Per capita annual income from bivalves, considered officially as an "obscure form of fisheries" estimated at Rs.281,000, an amount over five times more than income from estuarine fisheries
- Bivalve fisheries manually done requires no material inputs or fuel and is totally pollution free

Estuaries Playing Paramount Role in Livelihood Support

Aghanashini River estuary (1969 ha) deserves to be ranked among highest productive ecosystems, as tropical estuaries are

Prevalence of

- Intermediate salinity conditions between sea and fresh water & Nutrient input from land and sea, and mangroves cause high production
- Most of pristine Karnataka estuaries are densely populated due to livelihood opportunities
- Sustainable harvests prevailed among traditional resource users.

Bivalve processing: womens' domain

Bivalves packed for Goa market

THREATS TO BIVALVES

Over-harvest due to rising demands from tourism areas, reckless shell mining, future plans for power production, port expansion etc.

Fishes

Tropical estuaries are rich in fishes, act as fish nurseries and feeding grounds. Salinity range from very low to almost marine contribute to fish richness.

Total fish sps in Aghanashini: 82 (40 families)

Amazing figures for grassroot livelihoods based on small estuary (1969 ha) study (greater portion of estuary used for shrimp farming excluded)

- Persons involved in fishing: 8239,
- fishing days/yr: 14,97,200
- fish catch per year Rs. 43,50,72,000
- per capita income per year: Rs.52,806
- Per/ha fish production worth: Rs.220,960

Threats to fishing based livelihoods

- **From proposed developmental projects- power plants, port expansion,**
- **Reclamation, shrimp farming**
- **Shell mining disturbing estuary**

HONEYBEES FOR LIVELIHOOD SUPPORT: POTENTIAL OF AN UNDER UTILISED BIO-RESOURCE

Expert and Major honey producer Me. Balachandra Hegde

Honeybees:

•Demonstrate healthy linkages between biodiversity (insects and plants) and sustainable livelihoods at no cost.
•Supports agricultural outputs through cross pollination.
•Provides honey, beeswax, propolis and royal jelly Beekeeping ensures better quality fruit and seeds.
•Bees being also prey for many animals make themselves important links in the food networks operating in ecosystems.
•Major domesticated honey bee is *Apis cerana*
•Major wild bee is *Apis dorsata*

Trigona culture

Prospects of beekeeping in Uttara Kannada (U.K) :

The Western Ghats district has over 6000 sq.km. under forest cover, about 1500 sq. km. farmlands dominated by spices gardens, where bees are major pollinators.

Trigona sp.

Varieties of honey in U.K.

1. Terminalia paniculata
2. Carallia brachiata
3. *Syzygium cumini*
4. *Strobilanthus* spp.
5. *Sapindus laurifolius*
6. *Gliricidia sepium.*
7. *From mixed sources*

Production Potential : Prime need for study

Beekeepers interviewed for case study = 105
Average bee-boxes/beekeeper = 14
Total honey production for interviewed: 10, 424 kg
Average honey production/box = 6.68 kg/ box/yr
Market price of normal honey = 230 to 250 / kg
Rate of soapnut honey = 800 / kg

Beekeeping: a neglected field:

India with largest number of bee colonies in the world is only 7th in honey production, this backwardness is due to ignorance, neglect and lack of training, land use changes especially deforestation, pesticide applications, tree monoculturing etc.,

Recommendations:

•Bee-farming to be given more importance for creating healthier, pollution free farming systems
•To increase forest vegetation
•To check exodus into urban areas by generating rural employment
•Even landless can afford to pursue it
•Training and awareness programmes.
•Enrichment of degraded forests and roadsides with selected bee forage plants
•Soapnut tree (*Sapindus laurifolius*), native tree requires massive planting efforts
•Promotion of organic honey production

Apis cerana

Apis dorsata

Apis Florea

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