

## **NTFP in the Indian Sundarban (West Bengal): traditional livelihoods, value addition, and future prospects (with block-wise outlook)**

### **1) What “NTFP” means in the Sundarban reality**

In classic forestry language, **NTFP = non-timber forest products** (honey, wax, leaves, fruits, fibres, medicinal plants, etc.). In the Sundarban, however, local livelihood systems treat **forest–estuary resources as one basket: honey/wax + fish/crab/prawn + fuelwood/thatch materials**—all harvested through difficult, risky work in tidal creeks and mangrove edges.

A Sundarban livelihood study on NTFPs explicitly lists the major products collected as **firewood, prawn, fishes, crab, honey and bee wax**, highlighting risk from tigers and high livelihood dependence.

At the same time, **within the Sundarban Tiger Reserve**, the official NTFP regime today is **largely focused on honey and beeswax** (permit-based collection).

So, for planning purposes, it’s useful to talk in two layers:

- **(A) “Legal/official forest NTFP”** (permit-based inside/around protected forest)
- **(B) “Landscape NTFP & aquatic commons”** (mangrove-fringe, embankments, creeks, private/community lands, fisheries/aquaculture)

---

### **2) Traditional NTFP livelihoods: who does what (and why it still matters)**

#### **2.1 Mouals/Moules (honey collectors) and beeswax**

The most iconic Sundarban NTFP is **wild mangrove honey** (*Apis dorsata* / giant honey bee). The Sundarban Tiger Reserve states:

- Honey & beeswax are collected during **April–May**
- STR issues **permits** annually
- Collected honey is stored at STR godowns and handed over for disposal/marketing through **West Bengal Forest Development Corporation Ltd (WBFDC)**

**Livelihood logic:** This is a seasonal “high-risk, high-value” income pulse, timed with flowering cycles and forest access rules.

#### **2.2 Bawalis (historical golpata/hental collection) and forest material culture**

Historically, **Golpata (*Nypa* sp.)** and **Hental (*Phoenix* sp.)** were major thatching and craft materials.

STR’s official note is important here:

- Golpata collection was **discontinued in 1978**
- Hental collection **discontinued in 1991**
- “Coupe operation” stopped since 2001

**Implication for “future prospects”:** Inside the Tiger Reserve the old extraction model is not the path forward. But **value addition and cultivation on private/community lands** (where permitted) can still be explored—especially for craft/fibre products and climate-resilient roofing materials.

#### **2.3 Fishers, crab collectors, prawn seed collectors: the estuarine NTFP frontier**

In Sundarban livelihood practice, fish/crab/prawn are “daily NTFP equivalents” because they are harvested from **mangrove-dependent estuarine systems** and drive cash flow for thousands of households.

Research on NTFP contribution in Sundarban livelihoods groups **prawn, fish and crab** alongside honey/wax and fuelwood as major collected products.

---

### 3) The core Sundarban NTFP basket: products and processed-product possibilities

#### A) Honey & beeswax (high-priority value chain)

**Traditional product:** raw/crude honey, beeswax

**Existing institutional pathway:** STR permits + WBFDC storage/marketing mechanism

**New market advantage: GI registration** strengthens branding and traceability. WBFDC issued a public notice stating GI registration for Sundarban Honey (Application no. 769; certificate no. 540) in its favour. WBFDC also publicly asks bulk purchasers to specify **crude vs filtered honey**, showing segmentation already exists.

#### Processed products to build (realistic, scalable):

1. **Filtered/creamed honey** (quality grading, moisture control, anti-fermentation handling)
2. **Single-floral / seasonal batches** (where feasible) + lab-tested pollen profile (premium niche)
3. **Beeswax products:** candles, balm base, traditional waterproofing, artisan items
4. **Honey-based foods:** honey-spice mixes, honey-amlam/ginger infusions (with food safety compliance)

**Most important enabling step:** community-level **standard operating protocol (SOP)** for hygienic extraction + moisture thresholds + food-grade packaging + batch coding.

---

#### B) Golpata / Nypa palm (*Nypa fruticans*): “material NTFP + food/sap potential”

Even if extraction inside STR is discontinued, Nypa is culturally central to the delta.

A review on Nypa palm (Golpata) notes its multi-purpose value: **roof thatching/partitioning, food/medicinal use, fuelwood**, and importantly the **sugary sap** can be processed into **molasses/treacle, sugar, vinegar and alcohol**.

A Sundarban-focused education site also notes golpata is a best thatching material and mentions sap use for sugar/alcohol/vinegar.

#### Processed products to consider (where legal and feasible):

- **Thatch panels / pre-fab roofing sheets** (treated, bundled, standardized sizing)
  - **Craft & fibre goods:** mats, baskets, wall panels (women-led SHG units)
  - **Sap-based products (high potential but regulation-heavy):** molasses, vinegar (food-grade), jaggery-like products
    - This line needs careful compliance because fermentation/alcohol intersects excise and food safety laws.
- 

#### C) Hental (*Phoenix paludosa*) and other fibre/craft resources

Hental is often cited in Sundarban traditional use systems and appears in knowledge syntheses alongside golpata and major mangroves.

#### Future prospects (best-fit):

- **Handicraft clusters** (mats, rope/fibre goods, household items)

- **Eco-tourism-linked retail** (story + provenance + fair pricing)
- 

#### **D) Fuelwood and small poles: the “sensitive” NTFP**

Fuelwood is still a livelihood coping mechanism, but it is also the quickest route to forest degradation if unmanaged. Studies listing fuelwood as a major collected NTFP also highlight livelihood vulnerability.

**Future direction:** reduce dependency through:

- alternative energy access,
  - controlled community woodlots outside the reserve,
  - and value-added alternatives that pay more per unit labour than cutting wood.
- 

#### **E) Estuarine “edible NTFP”: crab, prawn, fish (capture + processing)**

Because fish/crab/prawn are included in major NTFP livelihood baskets in Sundarban literature, they belong in a “processed-product prospects” roadmap.

**High-demand processed products (strong market pull):**

- **Hygienic crab meat picking and packing** (where infrastructure exists)
  - **Dry fish value chain** (improved drying racks, quality control, packaging, branding)
  - **Prawn/fish pickles** and ready-to-cook marinated products (cold chain dependent)
  - **Ice + insulated transport micro-enterprises** (often the single biggest margin improvement)
- 

#### **4) The “future prospects” strategy (what will actually work)**

A global mangrove-NTFP perspective emphasizes that commercialization is challenging without **quality standards, value chain management, and inclusive approaches**—not just extraction.

For Sundarban, the most practical “future” model looks like this:

##### **4.1 A 3-tier product ladder (from safe to ambitious)**

1. **Tier 1 (immediate, low-regret):** honey filtering/grading/packaging; beeswax candles/balms; improved dry-fish systems
2. **Tier 2 (cluster-based):** craft/fibre products (golpata/hental), eco-tourism retail tie-ups, SHG branding
3. **Tier 3 (policy-heavy, high value):** sap-based products (nypa vinegar/molasses), nutraceutical-grade honey lines, formal GI-authorized user expansion

##### **4.2 The “GI + traceability + trust” advantage for Sundarban honey**

GI registration can support:

- anti-adulteration messaging,
- premium pricing,
- and institutional buyers.

WBFDC’s public GI notice and bulk purchase requisition process show the system is moving toward formalization.

---

#### **5) Block-wise status and prospects (Sundarban, West Bengal)**

##### **5.1 The Sundarban Affairs Department block set (official list)**

The Department of Sundarban Affairs lists the Sundarban operational blocks across South & North 24 Parganas, including: **Sagar, Namkhana, Kakdwip, Patharpratima, Mathurapur-I/II, Kultali, Joynagar-I/II, Canning-I/II, Basanti, Gosaba; and Hingalganj, Hasnabad, Sandeshkhali-I/II, Haroa, Minakhan.**

## **5.2 Block clusters and “best-fit” NTFP prospects (planning note)**

Instead of pretending every block has the same NTFP portfolio, it’s more accurate to plan by **clusters**:

### **Cluster A — Core tide–mangrove interface (highest forest/creek dependence)**

**Likely blocks:** Gosaba, Basanti, Patharpratima (plus parts of Canning-II)

**Traditional dependence:** honey collection networks, fishing/crab collection; high exposure to tiger/river risk

#### **Best future prospects:**

- **Honey value addition hubs** (collection hygiene, grading, packaging support aligned with permit systems)
- **Crab & fish hygienic handling + cold chain micro-enterprises**
- **Skill packages:** safe creeks navigation, first aid, lightning/cyclone protocols

### **Cluster B — Coastal/island edge and sea-facing belt (high storm + market access)**

**Blocks:** Sagar, Namkhana, Kakdwip, Patharpratima

#### **Best prospects:**

- **Dry fish modernization** (raised racks, solar-assisted drying, packaging)
- **Fish/prawn pickles & ready-to-cook** (if cold chain feasible)
- **Eco-tourism retail** for certified honey + crafts

### **Cluster C — Estuarine-agri–aquaculture mixed belt (transition zone)**

**Blocks:** Canning-I, Canning-II, Kultali, Mathurapur-I/II, Joynagar-I/II

#### **Best prospects:**

- **Brackish aquaculture services + product diversification** (crab fattening, value-added fish products)
- **Honey distribution/processing nodes** closer to road markets (even if collection happens deeper)
- **Craft clusters** (women-led SHG products using legally sourced fibres)

### **Cluster D — Northern Sundarban (North 24 Parganas Sundarban blocks)**

**Blocks:** Hingalganj, Hasnabad, Sandeshkhali-I, Sandeshkhali-II, Haroa, Minakhan

#### **Best prospects:**

- **Market-linked honey & beeswax retail** (branding + GI compliance messaging)
- **Crab/fish handling & aggregation** (transport advantage to larger markets)
- **Mangrove-friendly enterprise training** (reduce pressure on sensitive forest extraction)

---

## **6) A short “policy & safety” note (must-have in any serious NTFP plan)**

- **Inside/adjacent to protected forest:** honey/wax is permit-based; other historical extractions like golpata/hental were discontinued in the Tiger Reserve context.

- **Value addition should not incentivize illegal harvest.** The best approach is: higher income per unit effort from **legal, traceable supply** + non-extractive enterprises (processing, packaging, transport, crafts, services).
- 

## 7) References (selected, high-utility)

- Sundarban Tiger Reserve. *Non Timber Forest Produce* (honey/wax permits; discontinuation of golpata/hental; coupe stopped).
- West Bengal Forest Development Corporation (WBFDC). Public notice confirming GI registration details for Sundarban Honey (Application 769; certificate 540).
- WBFDC. Bulk purchase notice referencing GI-registered natural Sundarban honey and crude vs filtered forms.
- Department of Sundarban Affairs, Govt of West Bengal. *Block Profile* page listing Sundarban blocks.
- Bhattacharya (paper). *Contribution of NTFPs in the livelihood of mangrove forest dwellers of Sundarban* (major NTFP basket includes firewood, prawn, fish, crab, honey, beeswax).
- Review on Nipa palm (Golpata): uses including sap products (molasses/sugar/vinegar/alcohol) and leaf uses.
- MDPI (Forests). *NTFP livelihood-focused interventions in support of mangrove restoration* (value chain + standards emphasis).

## Block-By-Block Mini Profile For All 19 Sundarban Blocks (as listed by the Department of Sundarban Affairs).

Each profile has:

- **Top 5 NTFP / nature-based livelihood resources** (NTFP in the *Sundarban* sense often includes honey/wax + estuarine harvests like fish/crab/prawn, as documented in Sundarban NTFP-livelihood studies).
- **Key risk constraints** (cyclone/surge, salinity, embankment, access rules, market issues)
- **3 priority enterprises** (practical, scalable, and *aligned with legality and sustainability* — important because inside/around STR, permitted forest NTFP is mainly **honey & beeswax** and some earlier extractions were discontinued).

## A note before the block profiles (important for correctness)

- **Inside/around Sundarban Tiger Reserve (STR):** honey & beeswax collection is permit-based and seasonal (April–May), and historically golpata/hental extraction was discontinued in the STR context; coupe operations stopped.
  - A widely-cited Sundarban livelihood study counts the major NTFP basket as **firewood, prawn, fish, crab, honey, beeswax** — I'm using that "ground reality" definition for this planning tool.
  - **Sundarban Honey has GI registration** associated with WBFDC (useful for branding, buyer confidence, and premium markets).
- 

## 19 Block mini profiles (Top 5 resources • Risks • 3 priority enterprises)

## **NORTH 24 PARGANAS SIDE (northern Sundarban belt)**

### **1) Haroa**

**Top 5 resources:** fish (estuarine supply chains), crab (live trade), prawn/shrimp (aquaculture + landing), honey (market/retail link), beeswax (craft/value add).

**Key risks:** salinity variability, market price volatility, quality/adulteration risk in honey, cyclone-linked transport disruption.

**3 priority enterprises:** (i) GI-compliant honey retail + testing/branding hub, (ii) ice + insulated fish transport micro-enterprises, (iii) beeswax candle/balm SHG unit.

### **2) Minakhan**

**Top 5 resources:** fish, crab, prawn/shrimp, honey, fuelwood (pressure risk).

**Key risks:** embankment erosion, cyclone waterlogging, dependence on risky extraction/low margins.

**3 priority enterprises:** (i) crab aggregation + grading + live holding, (ii) improved dry-fish racks + packaging, (iii) community woodlot/biomass alternatives (reduce forest fuelwood pressure).

### **3) Sandeshkhali-I**

**Top 5 resources:** fish, crab, prawn/shrimp, honey (retail/processing), beeswax.

**Key risks:** cyclone surge impacts (northern coastal influence), law-and-order/market disruptions (context-specific), adulteration risks in high-value products.

**3 priority enterprises:** (i) fish landing hygiene + ice services, (ii) GI-linked honey packaging/labeling unit, (iii) crab fattening (mud crab) with biosecurity SOPs.

### **4) Sandeshkhali-II**

**Top 5 resources:** fish, crab, prawn/shrimp, honey, beeswax.

**Key risks:** embankment breaches, saline intrusion, disease outbreaks in brackish aquaculture.

**3 priority enterprises:** (i) small-scale aqua input/service centre (lime/probiotics/testing), (ii) dry fish modernization + brand, (iii) beeswax value-add (candles, polish, balm base).

### **5) Hasnabad**

**Top 5 resources:** fish, crab, prawn/shrimp, honey (market), beeswax.

**Key risks:** transport bottlenecks during monsoon/cyclone alerts, cold-chain gaps.

**3 priority enterprises:** (i) crab live-trade aggregation node, (ii) ice plant + last-mile insulated delivery, (iii) GI-compliant honey distribution/wholesale point.

### **6) Hingalganj**

**Top 5 resources:** fish, crab, prawn/shrimp, honey (seasonal/permit-linked in many areas), fuelwood (pressure).

**Key risks:** high exposure to storm surge/waterlogging, embankment vulnerability, human-wildlife interface in some belts.

**3 priority enterprises:** (i) disaster-resilient fish drying (raised racks/solar-assisted), (ii) crab holding & transport improvement, (iii) honey testing/packaging cluster (link to GI compliance).

---

## **SOUTH 24 PARGANAS SIDE (core inhabited islands + sea-facing belt)**

### **7) Canning-I**

**Top 5 resources:** fish (landing/markets), crab, shrimp/prawn, honey (processing/retail), beeswax.

**Key risks:** market pressure → low producer share; food safety gaps in value-added products.

**3 priority enterprises:** (i) hygienic fish handling + ice services hub, (ii) GI-linked honey packaging/training centre, (iii) fish/prawn pickle unit (FSSAI-compliant) with shared kitchen model.

#### **8) Canning–II**

**Top 5 resources:** fish, crab, shrimp/prawn, honey (supply chain), fuelwood (pressure).

**Key risks:** embankment seepage/breach; saline waterlogging after storms; livelihood seasonality.

**3 priority enterprises:** (i) crab fattening + live holding (quick returns), (ii) dry fish racks + packaging, (iii) beeswax candles/balm SHG enterprise.

#### **9) Mathurapur–I**

**Top 5 resources:** honey (market-facing), fish, crab, shrimp/prawn, craft fibres (where legally sourced: nipa/golpata-type leaf crafts outside STR).

**Key risks:** saline intrusion; cyclone-related livelihood shocks; raw material legality/traceability for “forest-like” products.

**3 priority enterprises:** (i) honey grading + moisture control + packaging, (ii) crab aggregation + cold chain, (iii) legal fibre craft cluster with eco-tourism retail tie-ups.

#### **10) Mathurapur–II**

**Top 5 resources:** fish, crab, shrimp/prawn, honey, beeswax.

**Key risks:** quality standards + certification gaps; storm-season transport stoppages.

**3 priority enterprises:** (i) honey + beeswax value-add (dual product line), (ii) ice/insulated transport service, (iii) small crab/fish processing for institutional buyers (training + hygiene + packaging).

#### **11) Jaynagar–I**

**Top 5 resources:** honey (brand/market link), fish, crab, shrimp/prawn, beeswax.

**Key risks:** adulteration reputation risk; price manipulation by middlemen.

**3 priority enterprises:** (i) GI-compliant honey retail + lab tie-up, (ii) beeswax candle/balm cluster, (iii) crab grading + live transport node.

#### **12) Jaynagar–II**

**Top 5 resources:** fish, crab, shrimp/prawn, honey, beeswax.

**Key risks:** high dependence on volatile aquatic markets; disease in brackish systems.

**3 priority enterprises:** (i) aqua health/testing services (salinity/pH/ammonia), (ii) improved dry fish + packaging, (iii) honey packaging and traceability support.

#### **13) Kultali**

**Top 5 resources:** fish (creek-based), crab, shrimp/prawn, honey (seasonal), fuelwood (pressure).

**Key risks:** embankment vulnerability; tiger/river risks in deeper interface areas (site-specific); seasonal isolation.

**3 priority enterprises:** (i) crab fattening + live holding, (ii) ice + fish handling services, (iii) honey + wax value-add training (aligned with permit systems where applicable).

#### **14) Basanti**

**Top 5 resources:** honey (strong cultural association), beeswax, fish, crab, shrimp/prawn.

**Key risks:** cyclone water-level hazard; access/permit constraints for forest honey; occupational safety

risks for collectors.

**3 priority enterprises:** (i) “Sundarban Honey” community brand unit (GI-compliant packaging + batch coding), (ii) beeswax product line (candles/balm), (iii) crab aggregation + live trade improvement.

#### **15) Gosaba**

**Top 5 resources:** honey, beeswax, fish, crab, shrimp/prawn.

**Key risks:** high exposure to embankment breach & prolonged saline waterlogging; high livelihood risk for forest/creek users.

**3 priority enterprises:** (i) honey hygiene + moisture control + packaging centre (linked to permit season), (ii) crab holding & transport upgrades, (iii) cyclone-resilient dry fish (raised racks + storage).

---

### **SEA-FACING / COASTAL BELT (highest cyclone/surge exposure; strong fish/dry-fish potential)**

#### **16) Kakdwip**

**Top 5 resources:** marine/estuarine fish, dry fish, crab, shrimp/prawn, honey (market node).

**Key risks:** storm surge, rough sea closures, post-cyclone infrastructure damage; high losses without cold chain.

**3 priority enterprises:** (i) dry fish modernization (hygiene + racks + packaging), (ii) ice plant + insulated transport, (iii) crab live-trade aggregation with quality grading.

#### **17) Sagar**

**Top 5 resources:** fish, dry fish, crab, shrimp/prawn, honey (retail/branding).

**Key risks:** very high cyclone + surge exposure; seasonal tourism pressure; shoreline/embankment stress.

**3 priority enterprises:** (i) branded dry fish + “clean drying” certification, (ii) GI-honey retail outlet chain for visitors, (iii) emergency-resilient fish landing + ice services.

#### **18) Namkhana**

**Top 5 resources:** fish, crab, shrimp/prawn, dry fish, honey (market link).

**Key risks:** high surge/wind risk; saline water intrusion into ponds/fields; boat safety constraints in storm months.

**3 priority enterprises:** (i) crab fattening + live holding, (ii) improved dry fish + packaging, (iii) fish ice + insulated transport micro-enterprises.

#### **19) Pathar Pratima**

**Top 5 resources:** honey & beeswax (linked to deeper interface livelihoods), fish, crab, shrimp/prawn, dry fish/cured products.

**Key risks:** embankment breaches + isolation; high disaster exposure; safety risk for forest/creek users.

**3 priority enterprises:** (i) honey & wax value-add (packaging + candles/balm), (ii) crab aggregation + live transport, (iii) cyclone-resilient dry fish systems (raised racks + storage + branding).

---

### **A simple “block priority matrix” (so you can use this in a DPR)**

- **Honey & beeswax value-add priority blocks:** Basanti, Gosaba, Kultali, Pathar Pratima (+ market nodes: Canning/Jaynagar).
- **Dry fish modernization priority blocks:** Kakdwip, Sagar, Namkhana, Pathar Pratima.

- **Crab live-trade & fattening priority blocks:** Minakhan, Hingaljanj, Basanti, Gosaba, Canning-II, Namkhana (plus Sandeshkhali belt).
- **Cold-chain/ice service hubs:** Canning-I/II, Kakdwip, Hasnabad/Hingaljanj corridor.