



## **GREAT NICOBAR ISLAND (GNI) PROJECT**

**GNI Project** is a key plan to make **Great Nicobar a global maritime hub** in the **IOR**, balancing **infrastructure growth, ecology, and tribal welfare**, despite **environmental concerns**.

- ⌘ **Launched:** 2021 | **Conceived by:** NITI Aayog
- ⌘ **Implementing Agency:** A&N Islands Integrated Development Corporation (ANIIDCO)
- ⌘ **Aim:** To build International Container Transshipment Terminal (ICTT), greenfield international airport, township & gas-solar power plant

### **Strategic Significance**

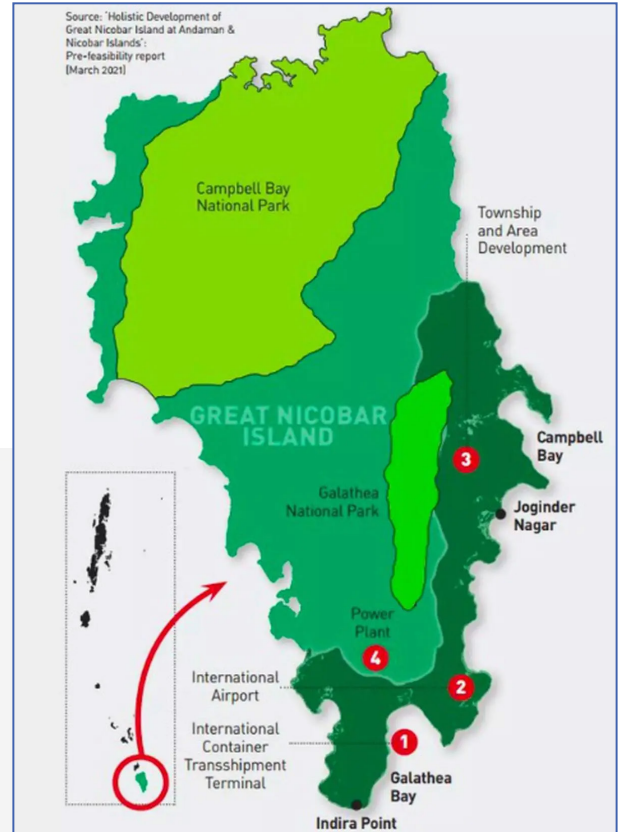
- ⌘ **ICTT:** Reduces reliance on foreign ports; integrates India into global supply chains
- ⌘ **Greenfield Airport:** Boosts connectivity, tourism & dual-use defence capability
- ⌘ **Strategic Positioning:** Near Malacca, Sunda, Lombok Straits
  - ❖ Gives India proximity to **Sabang** (Indonesia), **Coco Island** (Myanmar) & **the proposed Kra Canal** (Thailand).
  - ❖ **Equidistant from Colombo, Port Klang & Singapore**, placing India at the centre of regional sea trade.
- ⌘ **Maritime Security:** A&N Islands are **India's first maritime defence line**, sharing sea boundaries with Myanmar, Thailand, Indonesia & Bangladesh, providing a vast EEZ and continental shelf under UNCLOS.
  - ❖ Strengthens India's naval reach; **counters piracy, trafficking, terrorism, great-power rivalries.**
- ⌘ **Geopolitical Role:** Supports Act East Policy, QUAD's Indo-Pacific strategy.

### **Tribal Safeguards**

- ⌘ **Consultation:** Ministry of Tribal Affairs, **Andaman Adim Janjati Vikas Samiti (AAJVS)**, NCST under Article 338A(9)
  - ❖ **AAJVS Role:** Trustee of PVTGs; ensures Shompen welfare
- ⌘ **Guided by:** Jarawa Policy (2004), Shompen Policy (2015)

### **Environmental Safeguards**

- ⌘ **Framework:** EIA Notification, 2006 & Environmental Management Plan (EMP)
- ⌘ **Wildlife Corridors:** 8 planned for safe movement of species
- ⌘ **Compensatory Afforestation:** Planned in **Haryana** due to >75% forest cover in A&N Islands



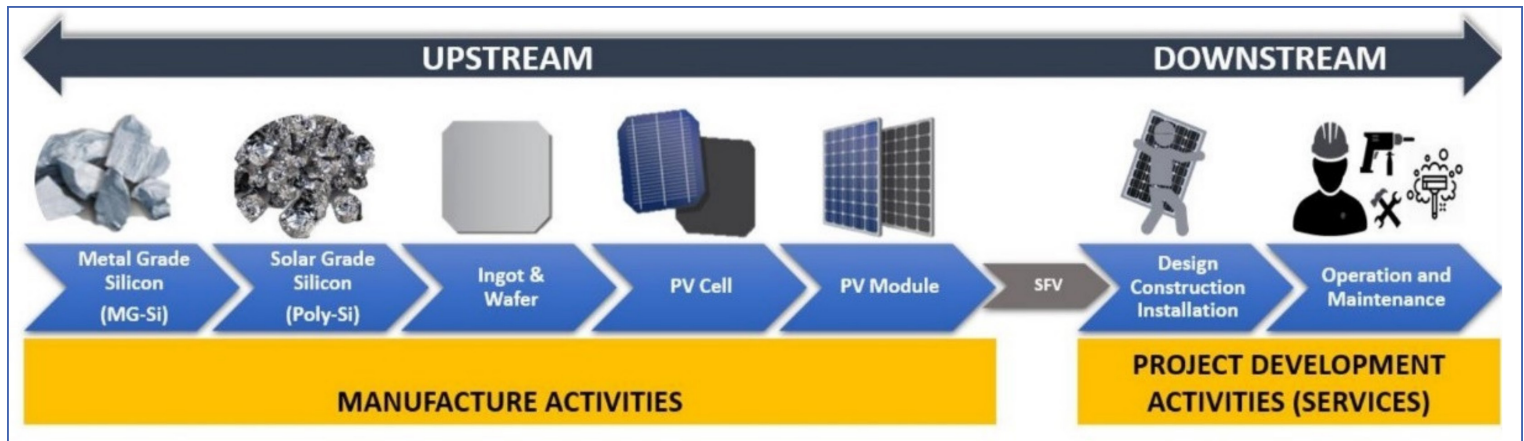
- The **A&N Islands** comprise 836 islands, divided by the **10° Channel** into the **Andamans (north) and Nicobars (south)**.
- **Great Nicobar, the largest Nicobar island** hosts Indira Point (India's southernmost tip), 90 nautical miles from Sumatra (Indonesia).
- **Great Nicobar Biosphere Reserve**– added to the list of **Man and Biosphere (MAB)** Program of UNESCO in 2013.

## **INDIGENOUS SOLAR VALUE CHAIN**

The **Ministry of New and Renewable Energy** plans to build a fully indigenous solar manufacturing ecosystem by 2028, covering **modules, cells, wafers, and ingots**.

- ⌘ India relies on **heavy import dependence, esp. on China** & a roadmap is underway for **Swadeshi polysilicon**.

- ⌘ **Solar value chain** converts raw materials to solar PV modules; divided into **Upstream** (high-tech, capital intensive) & **Downstream** (labor-intensive) segments.



CHALLENGES (HURDLE)	SUGGESTIONS (SHINE)
<ul style="list-style-type: none"> <li>• <b>H – High Costs &amp; Scale Issues:</b> Indian components are costlier due to dis-economies of scale.</li> <li>• <b>U – Upstream Infra Gaps:</b> Limited domestic capacity in tech- and capital-intensive polysilicon and wafer production.</li> <li>• <b>R – RoW &amp; Land Bottlenecks:</b> Land acquisition and Right of Way (RoW) issues block projects.</li> <li>• <b>D – Delayed Power Purchase Agreements (PPAs):</b> Procurement delays by States/Discoms hurt project viability.</li> <li>• <b>L – Lack of Experience:</b> Limited experience in advanced solar manufacturing.</li> <li>• <b>E – Export/Import Dependence:</b> Reliance on imports increases vulnerability.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>S – Sustained Policy Support:</b> Expand <b>ALMM</b>, ensure stable <b>PLI</b>, phased <b>customs duties</b>; clear <b>technology acquisition</b> plans.</li> <li>• <b>H – Harness Investment:</b> Build <b>Greenfield manufacturing</b>, provide <b>capital support</b>, &amp; resolve <b>land/RoW</b> issues.</li> <li>• <b>I – Innovation &amp; R&amp;D:</b> Promote <b>technologies</b> like <b>Perovskite</b> and strengthen <b>ancillary industries</b>.</li> <li>• <b>N – Navigate Coordination:</b> Streamline <b>state-level execution</b>, ensure <b>Discom financial stability</b>; align with <b>PM Suryaghar Yojana</b> &amp; <b>PM-KUSUM</b>.</li> <li>• <b>E – Expand Demand:</b> Drive <b>domestic solar manufacturing demand</b> through policy &amp; deployment programs.</li> </ul>

- India has surpassed **251.5 GW non-fossil energy capacity**, over half of its **2030 target (500 GW)**.
- Under **PM Suryaghar Yojana**, **20 lakh rooftop solar** projects installed; target to cross **50 lakh**.
- Under **PM-KUSUM**, **1.6 mn+ solar pumps** installed/solarised, saving **1.3 bn litres diesel** & cutting **40 mn tonnes CO<sub>2</sub>** annually.

## INDIA'S FIRST BAMBOO-BASED ETHANOL PLANT

Inaugurated in Golaghat Assam, it will use **5 lakh tonnes of bamboo annually** from Assam and NE states, giving a ₹200-crore boost to Assam's rural economy & benefiting local farmers & tribal communities.

### Bioethanol

- ⌘ A high-octane biofuel (C<sub>2</sub>H<sub>5</sub>OH) produced **biologically from biomass like corn, sugarcane, grains, bamboo and vegetable residues**.
- ⌘ Mainly used as a **gasoline additive**, with engines now capable of burning pure ethanol.
- ⌘ Key production steps include fermentation of sugars, pretreatment of **starch or cellulose**, **distillation**, and dehydration to fuel-grade ethanol.

Post amendment to **Indian Forest Act, 1927**, **bamboo is no longer classified as a tree**, enabling its cutting and supporting forest community livelihoods.

## INDIA'S GREEN FINANCE PLAN

India plans to use **Contracts for Difference (CfD)** as a central mechanism to mobilize **~\$1 trillion** green finance for its **500 GW renewable target by 2030**.

- ⌘ **CfD** is a financial pact b/w **renewable producers & govt.** to stabilize revenue.
- ⌘ If market price < strike price → **govt. pays difference**; if market price > strike price → **producer returns surplus**.
- ⌘ Reduces risk; widely used in **Europe**.

### Green Finance

- ⌘ Encompasses financial products & services **designed to promote environmental sustainability**.

- ☞ **India needs \$2.5 trillion by 2030** (Paris Agreement targets) & **\$10 trillion by 2070** (net zero goal).
- ☞ India finances renewable energy through– **National Clean Energy and Environment Fund (NCEEF)** funded by coal cess
  - ❖ **IREDA** concessional loans
  - ❖ **PSL** mandated by RBI
  - ❖ **Green, Social, and Sustainability (GSS) Bonds**
  - ❖ **Carbon markets and credits** & crowdfunding platforms like Bettervest for rural projects

## MANKI-MUNDA SYSTEM AND HO TRIBE

Ho Adivasis in Jharkhand's Kolhan **protested against alleged interference in the Manki-Munda system**, citing vacant posts, hereditary inefficiencies, and demands for reforms.

- ☞ **About:** Self-governance framework of the Ho adivasi community; **Munda** (village head), **Manki** (head of 8–15 villages/pidh). Handles local disputes; **no role in revenue, land, or tax**.
- ☞ **British Era: Captain Thomas Wilkinson (1833)** codified system; integrated Mundas & Mankis into colonial administration
  - ❖ Led to private **property, pattas**, and **influx of outsiders (dikkus)**
- ☞ **Post-Independence:** Wilkinson's Rules still followed; recognised as **customs** (not law) in **Mora Ho vs State of Bihar (2000)**
  - ❖ **2021 Jharkhand initiative (Nyay Manch)** proposed reform, but not enacted.

Ho Tribe	
<ul style="list-style-type: none"> <li>• <b>Ethnic Group:</b> Ho or Kolha are Austroasiatic Munda ethnic group; mainly in <b>Jharkhand's Kolhan</b>, parts of <b>Odisha, WB, Bihar, Bangladesh, and Nepal</b></li> <li>• <b>Language:</b> Ho; written in <b>Devanagari, Latin, Warang Citi</b> (native script developed by Lako Bodr)</li> <li>• <b>History:</b> Presence since <b>3500–4000 years</b>; migrations from <b>SE Asia</b> <ul style="list-style-type: none"> <li>❖ Uprisings– <b>Kol (1831–33)</b> against exploitative <b>non-tribal landlords (dikkus)</b>, <b>1857 revolt</b> under Raja of Porahat</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Culture:</b> Festivals – <b>Mage Parab</b> (creator god festival), <b>Baa Parab</b> (festival of flowers), <b>Sohrai</b> (agricultural festival), and <b>Jomnama Parab</b> (harvest)           <ul style="list-style-type: none"> <li>❖ Dance &amp; music central to culture; performances held in the <b>akhra (village ground)</b></li> </ul> </li> <li>• <b>Economy:</b> <ul style="list-style-type: none"> <li>❖ <b>80%+ in agriculture</b>; among the first adopters of settled farming</li> <li>❖ Some in <b>mining</b></li> <li>❖ Depend on <b>sal forests</b>; oppose <b>teak plantations</b></li> </ul> </li> </ul>

## SCARBOROUGH SHOAL

**Philippines** opposed **China's plan** to set up a **nature reserve** at Scarborough Shoal in the **South China Sea**.

- ☞ A **triangular atoll, ~200 km** from the **Philippines coast**. Lies within **Philippines' EEZ** under **UNCLOS (1982)**.
- ☞ Strategically **vital for its rich fisheries, natural shelter, and proximity to shipping lanes** handling \$3 trillion trade, offering **geopolitical and military advantage**.
- ☞ **Part of South China Sea disputes** (incl. Spratlys, Paracels) where China's nine-dash claims overlap with EEZs of Vietnam, Malaysia, Brunei, and Indonesia.
- ☞ **2016 Permanent Court of Arbitration Ruling:**
  - ❖ **Invalidated** China's South China Sea claims and blockade of the Shoal.
  - ❖ **But did not resolve the sovereignty issue**, leading to persistent tensions.



## INS ARAVALI COMMISSIONED IN GURUGRAM

INS Aravali, **named after the Aravali Range**, is the Indian Navy's newest naval base.

- ☞ Located in Gurugram, it supports the Navy's Command, Control, Communications, and MDA (Maritime Domain Awareness) framework.
- ☞ Guided by the motto: 'सामुद्रिकसुरक्षायाः सहयोगं' (*Maritime Security through Collaboration*).
- ☞ Will be a hub for collaborative **vision of MAHASAGAR**.
- ☞ Reinforces India's role as the Preferred Security Partner in IOR.