

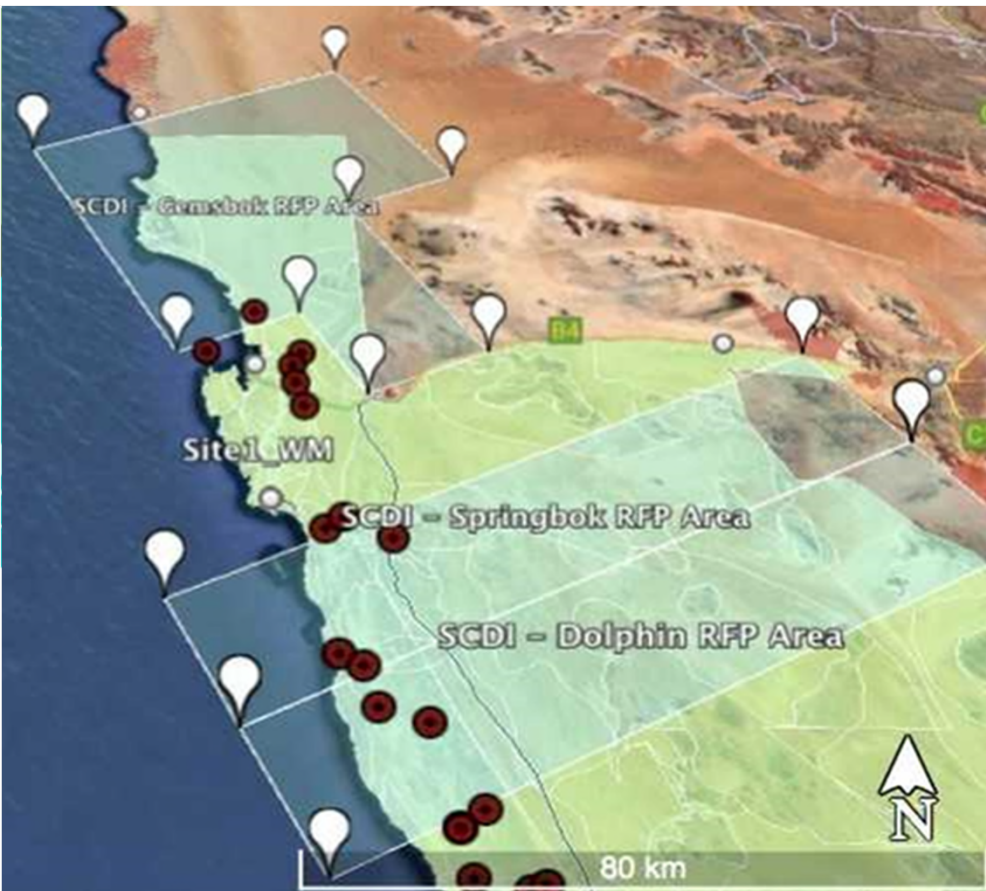
# Issues, Challenges and Opportunities to Develop **Green Hydrogen** in Namibia

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Namibia Scientific Society

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# Introduction



Source: Prof. Anicia Peters, UNAM

- Considerable international interest in *hydrogen*
- In Namibia: Harambee Prosperity Plan II  
*Southern Corridor Development Initiative*
- Award: Hyphen Hydrogen Energy, 4 Nov 2021  
Springbok & Dolphin areas in Tsau ||Khaeb NP
- Numerous recent inflationary pronouncements
- Wide-ranging, large-scale & non-trivial impacts

# Global Decarbonisation

- Man-made greenhouse gas (GHG) emissions are a global challenge
- IPCC: deep cuts & reductions of GHG emissions are necessary
- Massive global transition is necessary to phase out fossil fuels
- *Green hydrogen* is amongst the options for a cleaner energy future



Source: Hans Rack - Van Eck power station

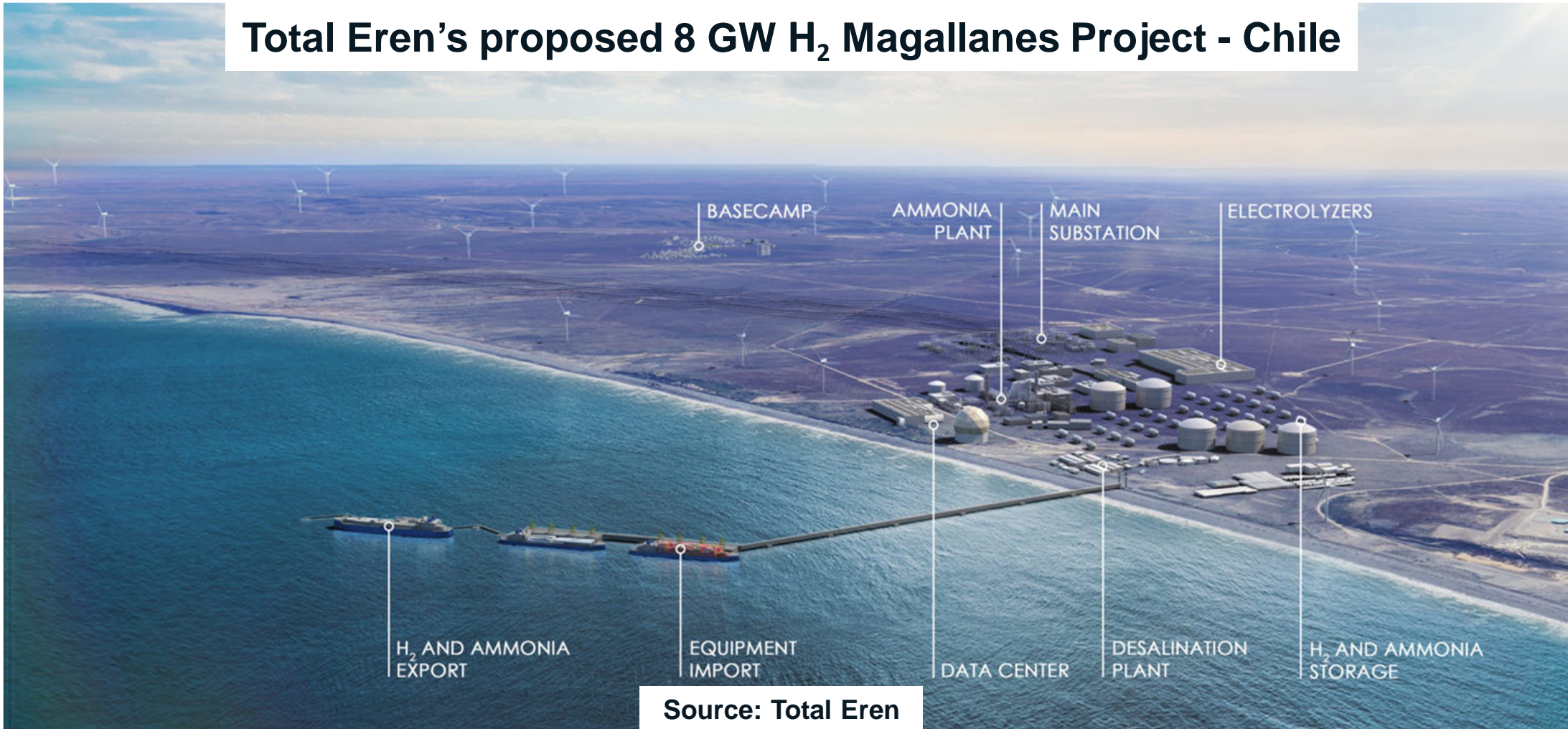
# Hydrogen



- **Most abundant element in the known universe**
- **Molecular hydrogen is rare (yet)**
- **Global consumption ~90 Mt/a**
- **H<sub>2</sub> derivatives: ammonia, synfuels & numerous chemicals**
- **H<sub>2</sub> is a fuel ≠ *primary energy source***
- **H<sub>2</sub> *synthesis is energy intensive***

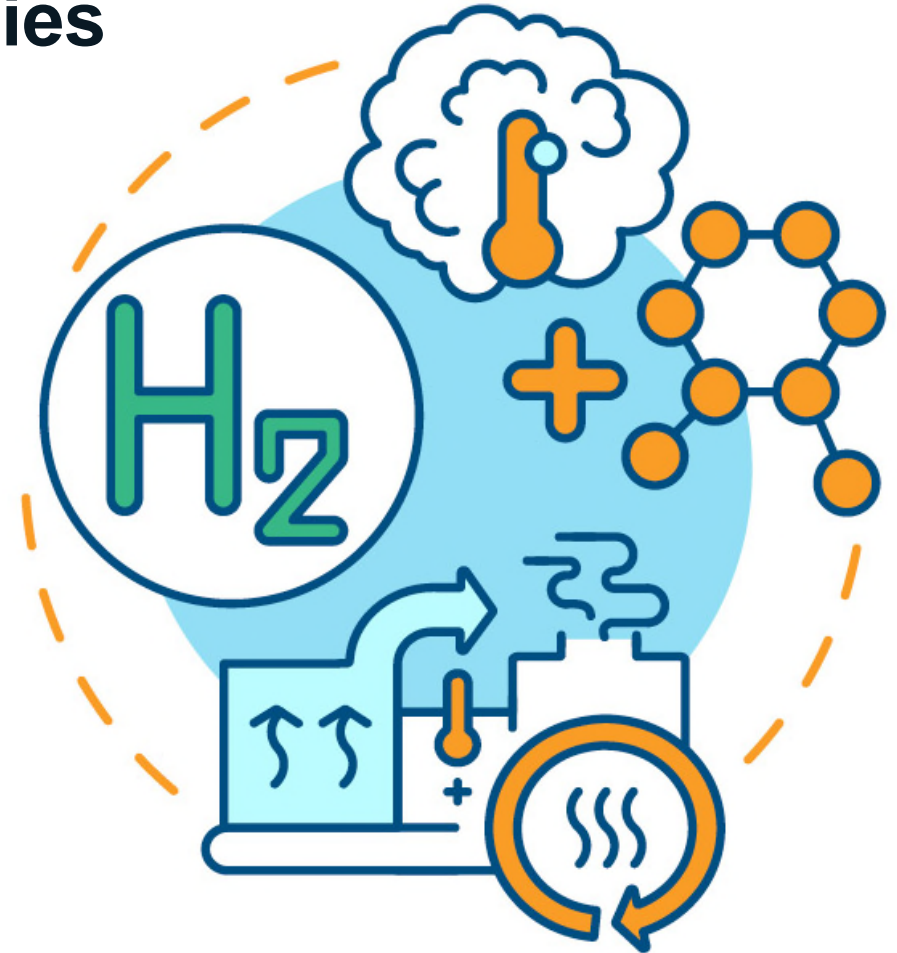
# Green Hydrogen Ambitions

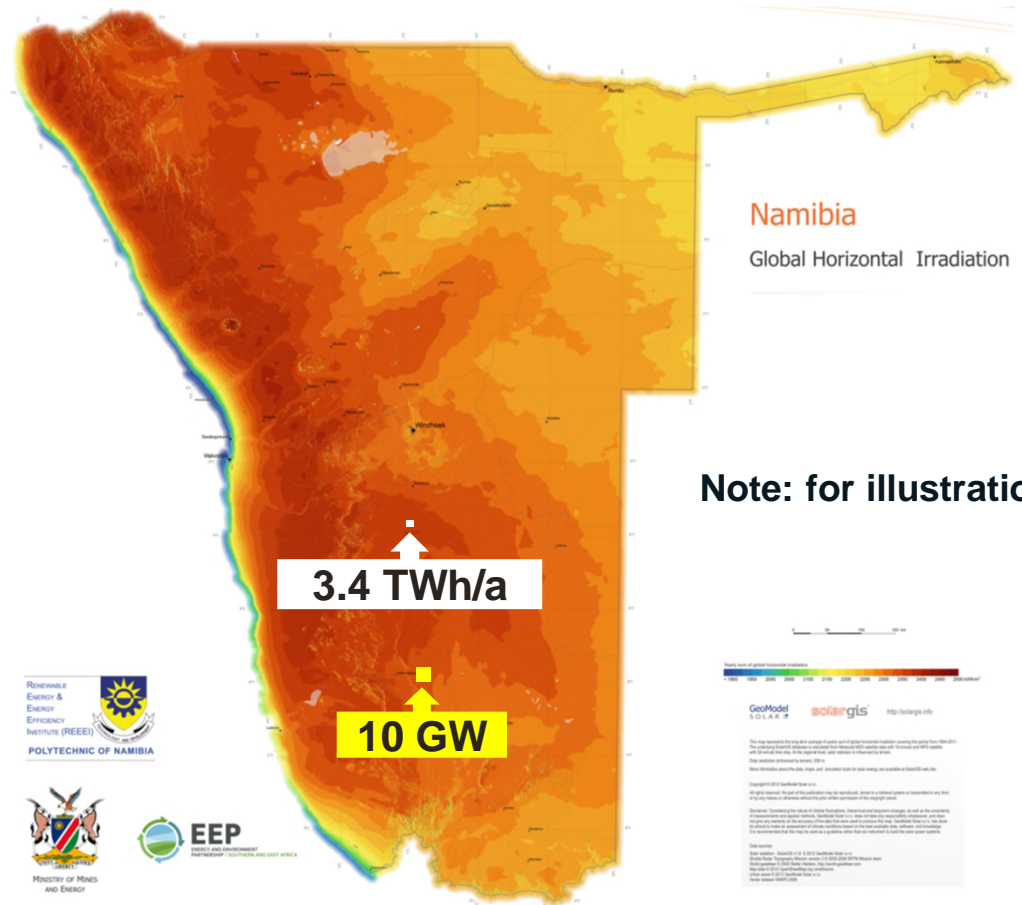
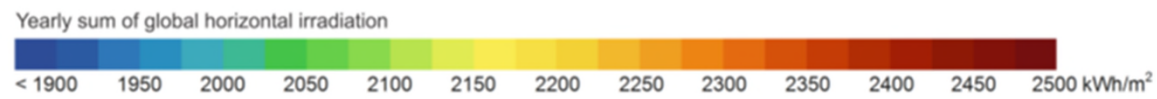
Total Eren's proposed 8 GW H<sub>2</sub> Magallanes Project - Chile



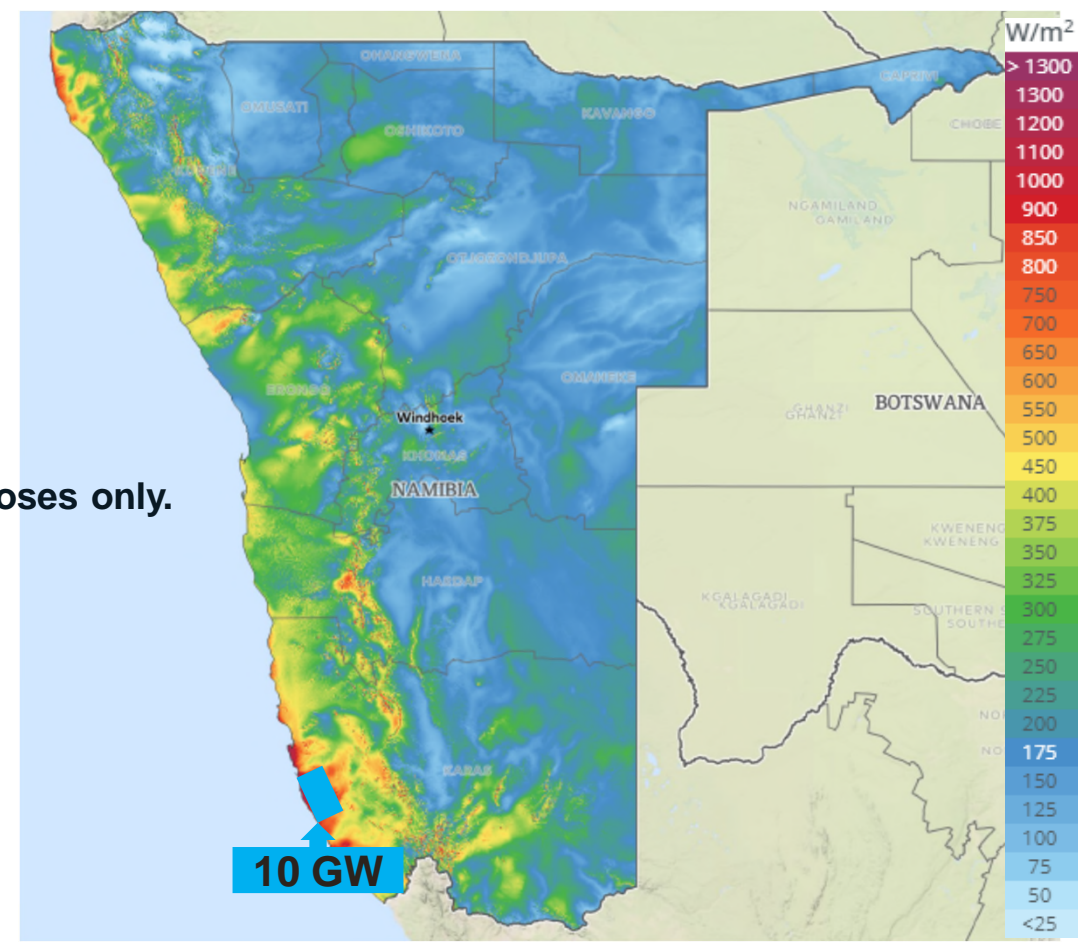
# Green Hydrogen in Namibia?

- Abundant renewable energies





Note: for illustration purposes only.



Source: GeoModel Solar, from Namibia Energy Institute & VO Consulting

Source: Global Wind Atlas & VO Consulting

# Green Hydrogen in Namibia?

- Abundant renewable energies
- Large tracts of 'under-used' land
- Low-cost electricity
- Water – H<sub>2</sub>O – via desalination
- H<sub>2</sub> production, processing, transport & storage infrastructure
- Human capital & funding
- Markets – local, regional & international



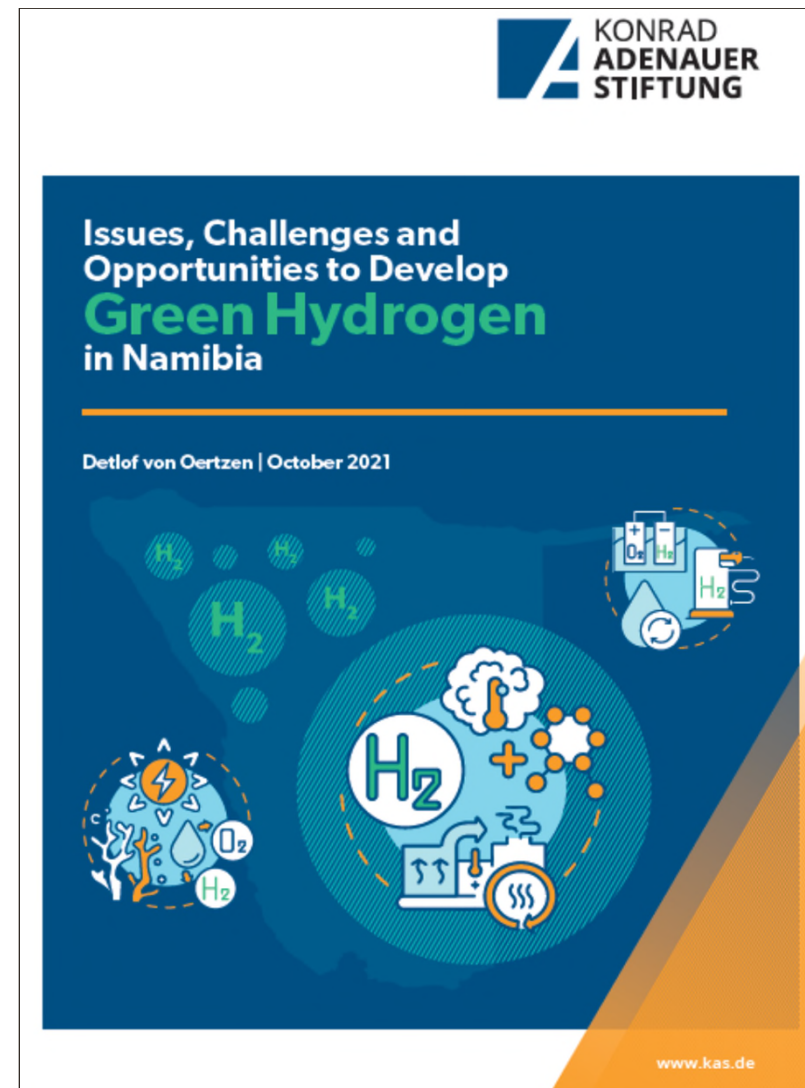


# Challenges & Risks

- Next best alternative(s)
- Policy, regulatory & governance
- Namibia's development agenda
- Development trade-offs in national park areas, incl. biodiversity hotspots
- Strategic impacts – SEA
- Local absorption capacities incl markets
- International drivers, incentives & agendas

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Source: Detlof von Oertzen / KAS

<https://voconsulting.net/energy/>

# Conclusions



- Namibia's renewable energy potentials are *most significant*
- Development of local energy resources is critically important
- **H<sub>2</sub>** holds opportunities – irrational exuberance is misplaced
- International agendas & requirements  $\neq$  local imperatives
- Outsourcing our development pathway to commercial developers is unlikely to result in optimal local outcomes
- Fact-based and systematic planning & active integration with other national development priorities is a critical necessity.