

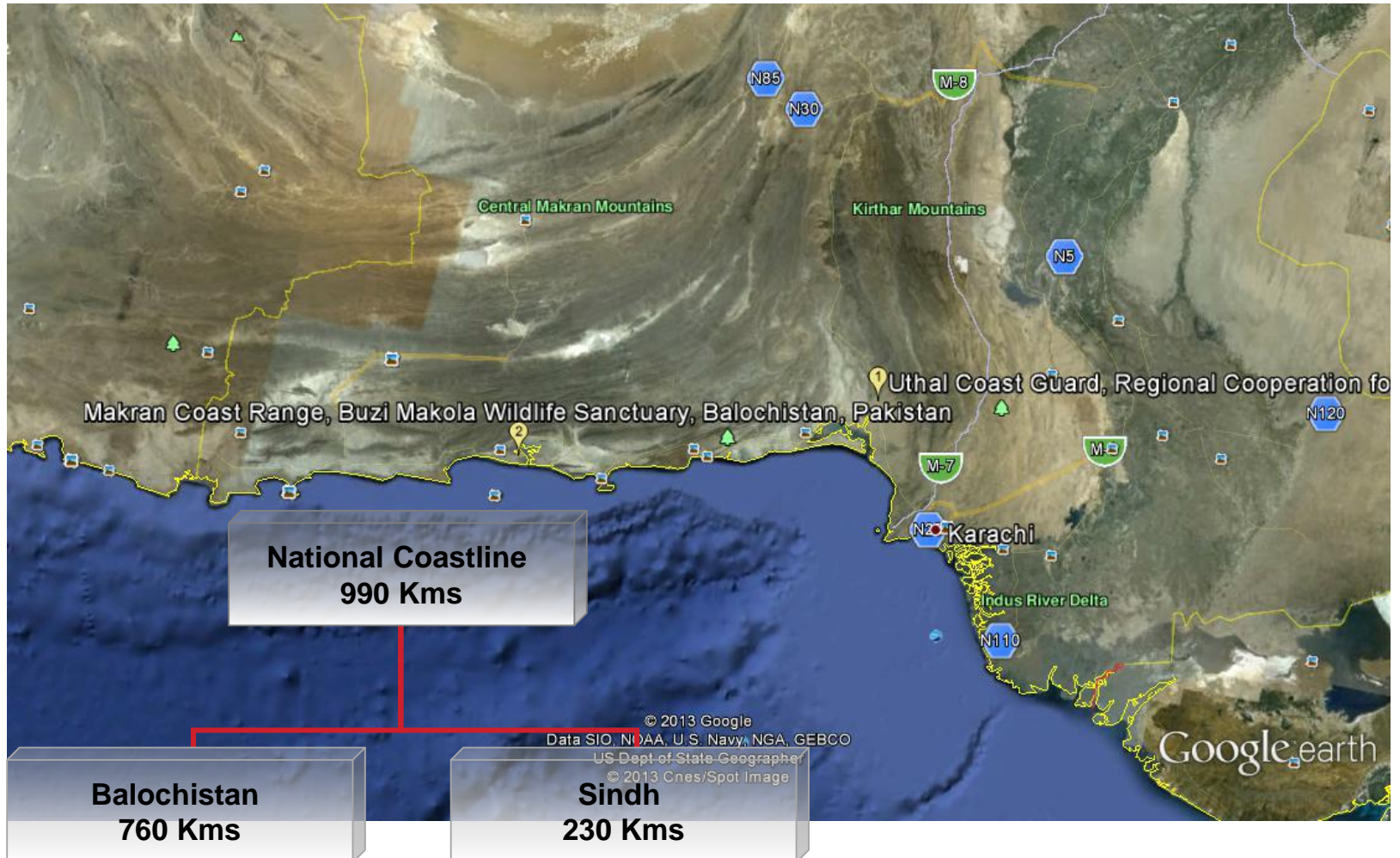
# Mangrove-related policy and institutional framework in Pakistan



Ghulam Qadir Shah (National Coordinator, MFF Pakistan)



**Mangroves for the Future**  
INVESTING IN COASTAL ECOSYSTEMS

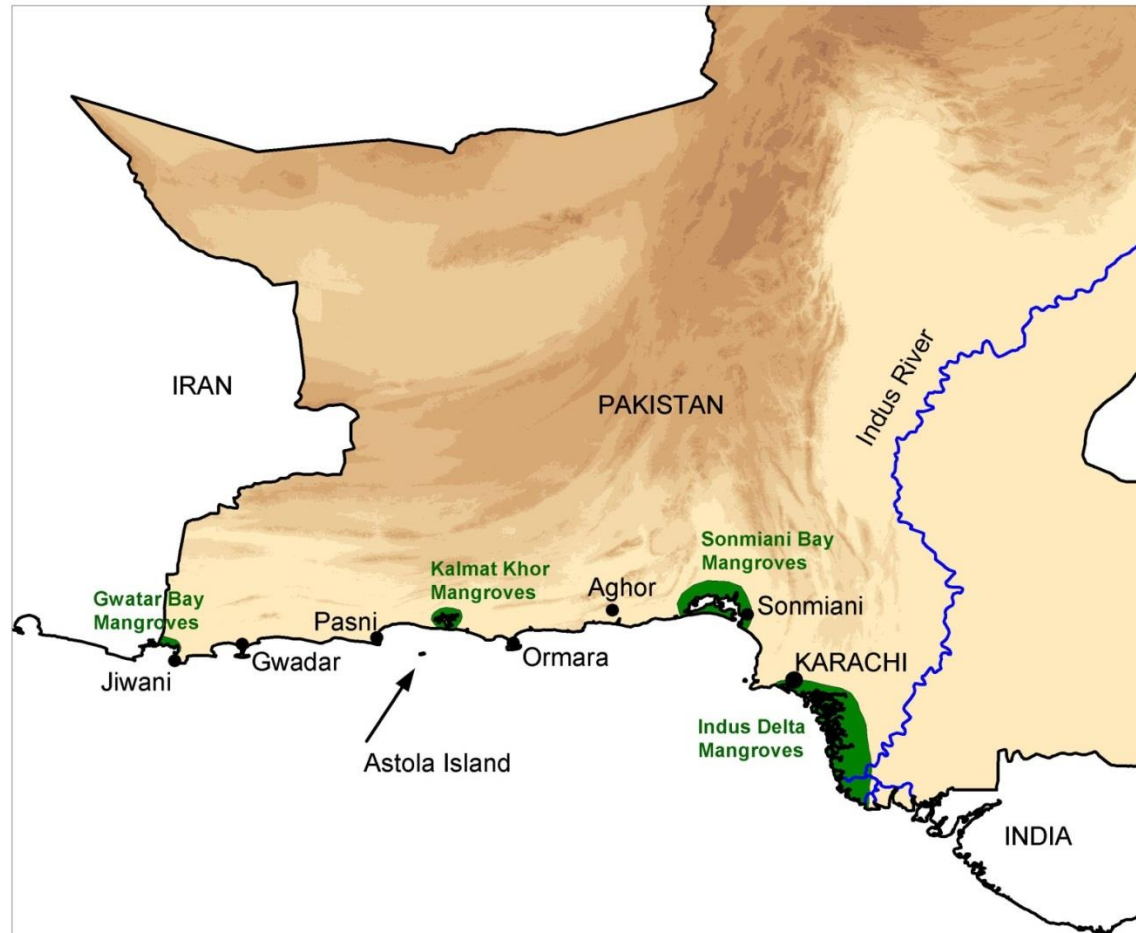




# Mangrove resource of Pakistan



- In Pakistan, 97% mangroves are found in Indus Delta – Sindh province
- Remaining in Balochistan province in small patches at three locations

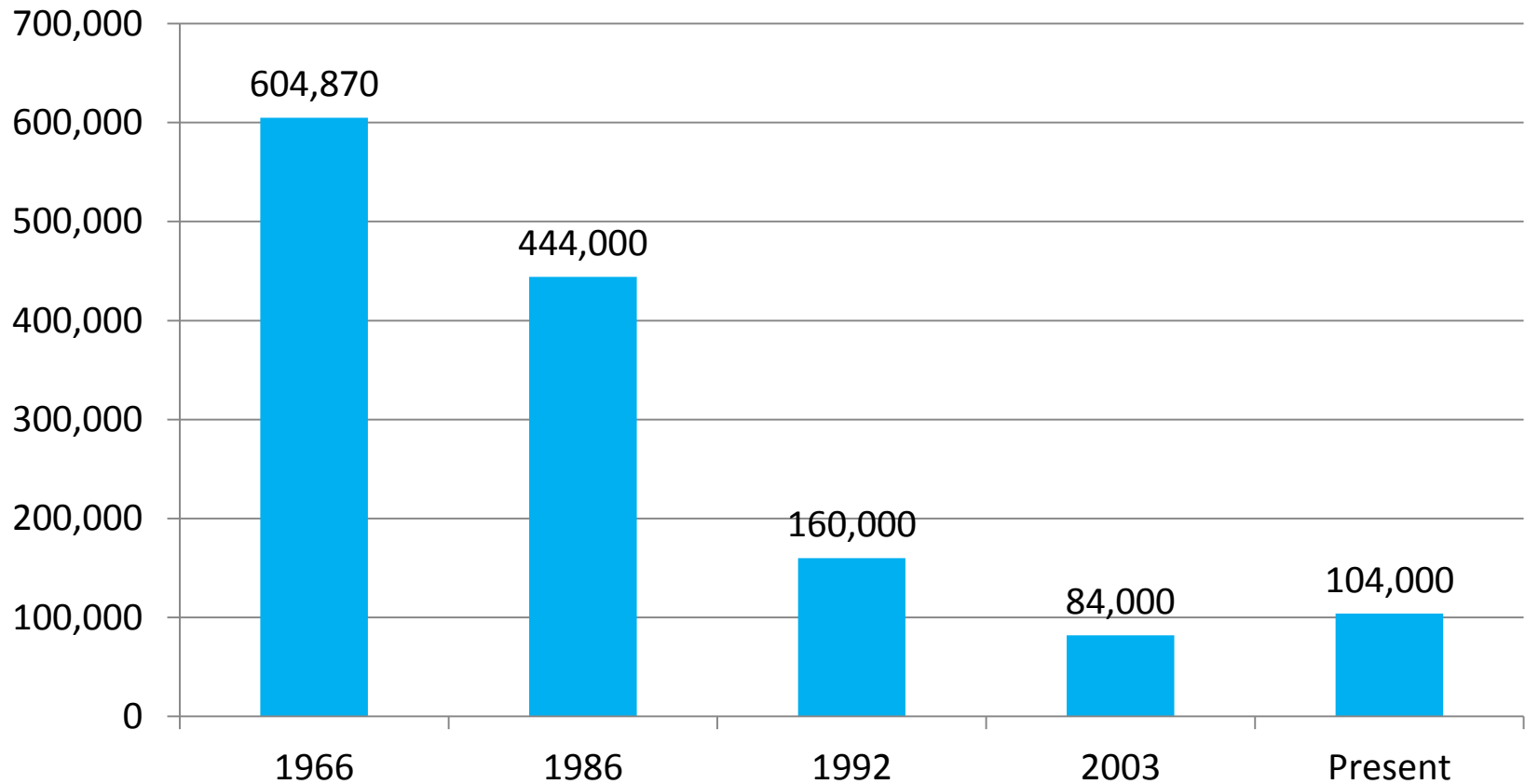


# Mangrove tenure



- Most mangroves are located in remote, sparsely populated areas
- All forests in Sindh and Balochistan provinces are **state-owned**
- In 2010, the Sindh Govt issued a notification declaring all mangroves as “**protected forests**” **under the Forestry Act 1927**, meaning that clearance, harvesting, and animal grazing in mangroves are prohibited; however, the reality is different.

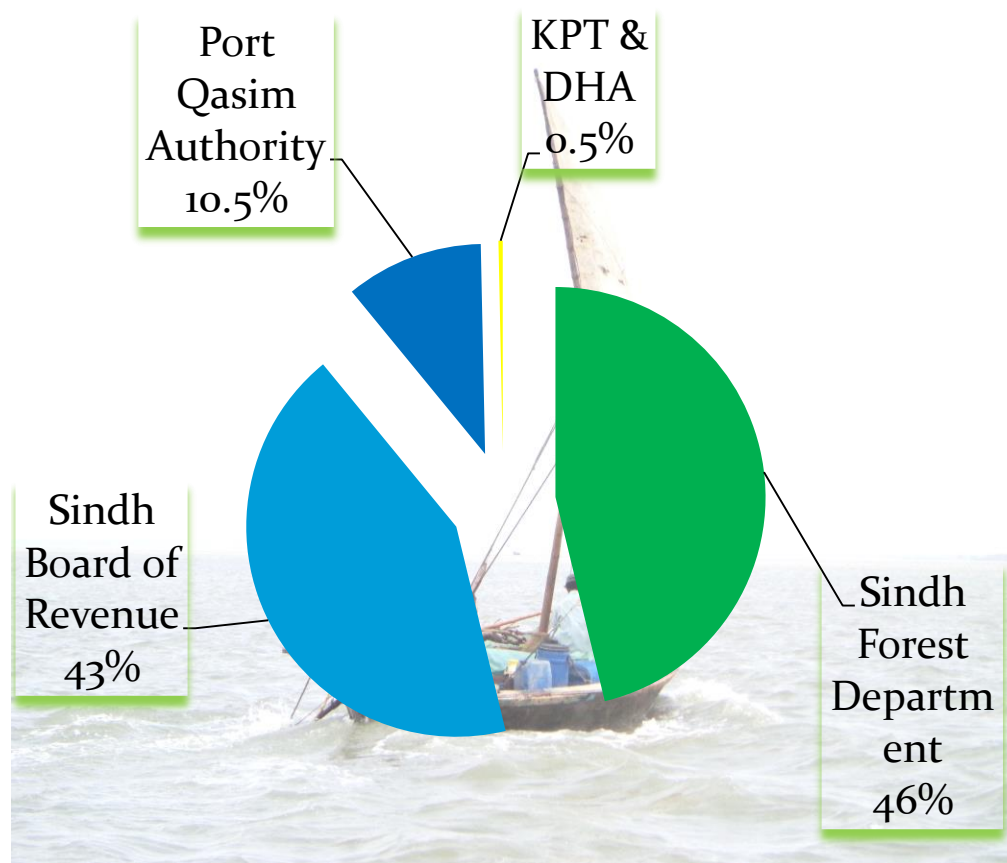
# Indus delta mangroves



Sources: Coastal Environmental Management Plan for Pakistan, UNESCAP, GOP and Sindh Forest Department

## Management Status – Indus Delta

Agency	Area in Ha
Sindh Forest Department	280,580
Port Qasim Authority	64,405
Sindh Board of Revenue	260,000
Karachi Port Trust and Defence Housing Authority	2,000
<b>Total Mangrove Area</b>	<b>606,985</b>



# Management Status – Balochistan Coast



Location	Area in Ha	Legal Status
<b>Total Area</b>	<b>4660</b>	<ul style="list-style-type: none"> <li>• Protected forest (294 ha) under management of BFWD</li> <li>• Remaining is communal / BoR property</li> </ul>
<b>Miani Hor</b>	4018	<ul style="list-style-type: none"> <li>- Protected forest 294 ha</li> <li>- Remaining is communal / BoR property</li> </ul>
<b>Kalimat Hor</b>	407	Communal / BoR property
<b>Jiwani</b>	235	Communal / BoR property

# Key mangrove agencies and legislation



- Republic of Pakistan is a federation; forestry is a provincial matter

Ministry of Climate Change	coordinates national environment and forestry related policies
Provincial Forest Departments (PFDs)	responsible for forest protection, management and law enforcement
Provincial Boards of Revenue	owns all state land, and can issue land use rights to other public or private entities, including PFDs
Forest Act 1927	Key forest management legislation
The West Pakistan Land Revenue Act 1967(Punjab Land Revenue Act 1967)	the main legal instrument determining legal aspects of land ownership



# Mangrove policy



Forest Policy	<ul style="list-style-type: none"><li>- No active national-level forest policy</li><li>- 2010 National Forest Policy not implemented</li><li>- Forest policy 2015 still a draft</li></ul>
National Climate Change Policy 2012	<ul style="list-style-type: none"><li>- Calls for restoration of degraded mangroves in the Indus Delta</li></ul>
Forest Management Plans	<ul style="list-style-type: none"><li>- PFDs prepare provincial-level forest management plans (e.g. SFD in 1963-64, 1984-85 and 2006-07); however, rarely implemented.</li><li>- No management plan for Balochistan Mangroves</li><li>- Instead, mangrove-related activities have been largely project-based, with funding from domestic and outside sources</li></ul>

# Mangrove threats



## Indus Delta:

- **Damming and barraging of Indus River** – reduced flows of water and sediment; consequent fresh water scarcity and lack of nutrients have caused reductions in mangrove area and diversity, and stunting.
- **Increasing salinity and saltwater intrusion** – in Indus Delta.
- **Grazing by camels, goats and buffaloes**; no commercial exploitation, fuelwood use, no serious threat to convert mangroves to aquaculture, and no high-grade pollution due to the lack of industry and human population.

## Karachi Coast

- **mangrove clearing** for industrial and urban development; fierce competition for land, high pollution, limited commercial exploitation.

## Balochistan Coast

- **dune movements, fuelwood collection and erosion**
- **Camel grazing**





# Mangrove planting



- PFDs are key agencies in mangrove planting:
  - SFD – 72,000 hectares of mangroves planted during 1947-2012
  - Balochistan PFD – 800 hectares to date
- SFD's planting projects funded by donors (World Bank, ADB) and through its own resources (e.g. a 2012 project to plant 100,000 ha of mangroves; 40,000 planted by 2016)
- SFD employs local communities for mangrove planting
- Ample SBOR-managed 'idle land' in Indus Delta suitable for planting; previously used for rice cultivation, but abandoned due to saltwater intrusion
- SBOR apparently does not object to SFD or other parties planting mangroves in SBOR-managed areas, as no change in land ownership



# Community-based mangrove management



- Communities do not have formal land use rights; however, donor agencies (IUCN, WWF) enter into agreements with community-based organisations (CBOs) to plant and protect mangroves
- Most CBOs are government-registered and represent all households within a community (typically a village)
- Registered CBOs have rules on how money should be spent and must keep bank account ledgers for government checks
- CBOs generally receive funds for labour and incentive payments based on seedling survival rate
- Funds usually go towards community activities, e.g. construction of schools and water tanks
- An intermediary (such as a NGO or a local forest department) between the financier and the CBO usually increases the chances of successful outcomes

# Mangrove monitoring



- PFDs responsible for patrolling mangrove areas under their control and enforcing laws
- SFD has a fleet of boats and local staff, and also engages “community watchers” in return for monthly payments (6 000 Rupees per 60 ha)
- SBOR, PQA, KPT and DHA responsible for monitoring mangrove in areas under their control, but lack the necessary technical expertise
- In Balochistan, only five PFD staff employed in patrolling mangroves, but assistance provided by local NGOs financed by WWF and MFF
- PFDs do not conduct regular mangrove inventories – mainly project-based mapping

# Drone Monitoring









# Examples of Community based mangrove conservation projects

# Sindh Coastal Community Development Project (2009-2014)



- Planting mangroves on 8 000 hectares of government land (overseen by SFD) and on 350 hectares of community land (overseen by IUCN). Monitoring of SFD planting by IUCN.
- IUCN signed agreements with local registered CBOs (e.g: FRDO)
  - IUCN provided planting materials, training, field supervision and funding
  - **Planting – by 15-20 people** who were paid a daily rate
  - **Monitoring – two villagers** were paid PKR 3 000 per month to stay in the mangroves during the daytime
  - **Incentive payments – per surviving seedling**; into FRDO bank account; for the first 18 months
  - Following cessation of IUCN payments, CBOs have continued to protect the mangrove areas.
  - Willing to participate in other mangrove planting initiatives.









**Before**

**Sept. 2009**





**After  
Feb. 2015**



# Mangrove restoration – WWF Pakistan



- 10,000 hectares planted since, 2007
  - simple written agreements to engage with local communities.
  - Installs crab ponds in villages to incentivise mangrove protection
  - Villagers map out mangrove areas on foot or in boats using GPS units provided by WWF
  - Monitoring by using annual fixed-point photography - built 20 concrete pillars near mangrove restoration sites; also undertakes regular field visits, and maintains a database of all recorded information
  - Expressed willingness to assist in monitoring future mangrove projects in the Indus Delta



# Private Sector Initiatives (IUCN)

- Mangroves Conservation Rehabilitation and awareness raising in Port Qasim Area
  - Engro Elengy
  - Sui Southern Gas Company
  - Engro Foundation
- Local communities are involved for planting and protection



# Piloting of Community based mangrove conservation





# Ideas for implementation



## Location:

- “Idle land” in Indus Delta.
- Species’ selection and planting location should be carefully considered.

## Implementing partners:

- Engaging with a reputable CBO a key to success – FRDO in Bhoori village?
- SFD, WWF-Pakistan and IUCN have capabilities in mangrove monitoring and facilitating community-based restoration and protection
- Private sector/other donors – carbon financing, CSR.

## Logistics:

- Simple communal agreements to be prepared
- community endowment fund can reduce the likelihood of misuse
- establishing crab ponds or such other initiatives can provide incentives to maintain mangroves

# Thank You



## Mangroves for the Future

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