

Contribution of Coastal and Marine Forestry on GDP in Kenya

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Coastal forests and 'blue forests' in Kenya

- Coastal forests include both **terrestrial** and **mangrove** forests.
- Terrestrial coastal forests also include **eastern arc mountain forests**, and the **lowlands terrestrial forests**.
- These forests cover Taita Taveta, Kwale, Mombasa, Kilifi, Tana river, and Lamu counties.



2.1. Terrestrial Coastal Forests in Kenya

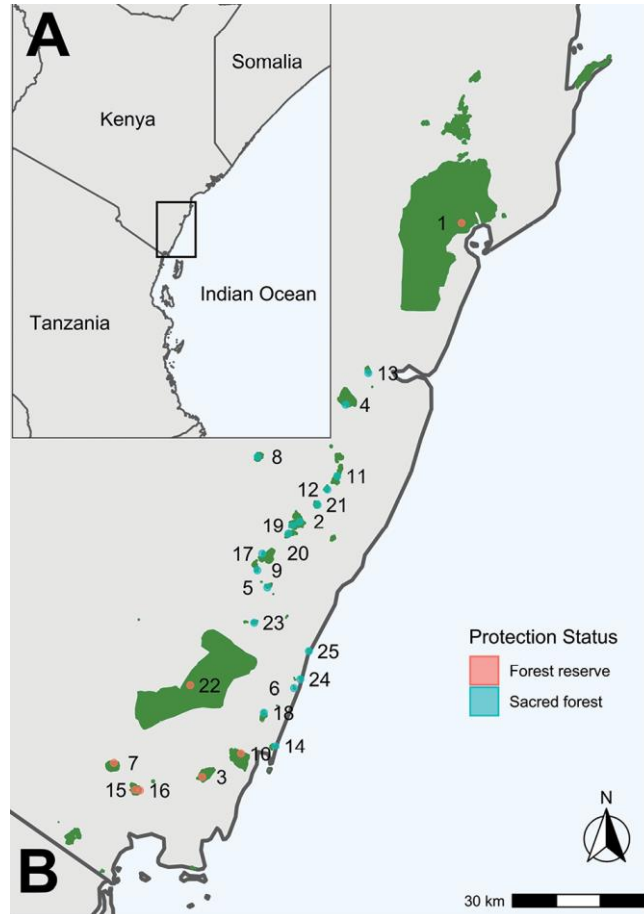


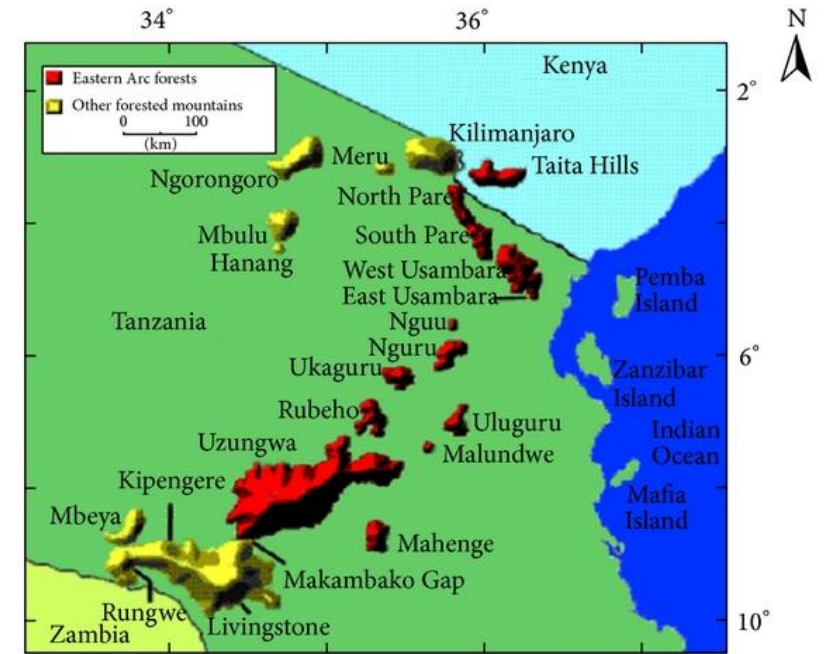
Table 1&2

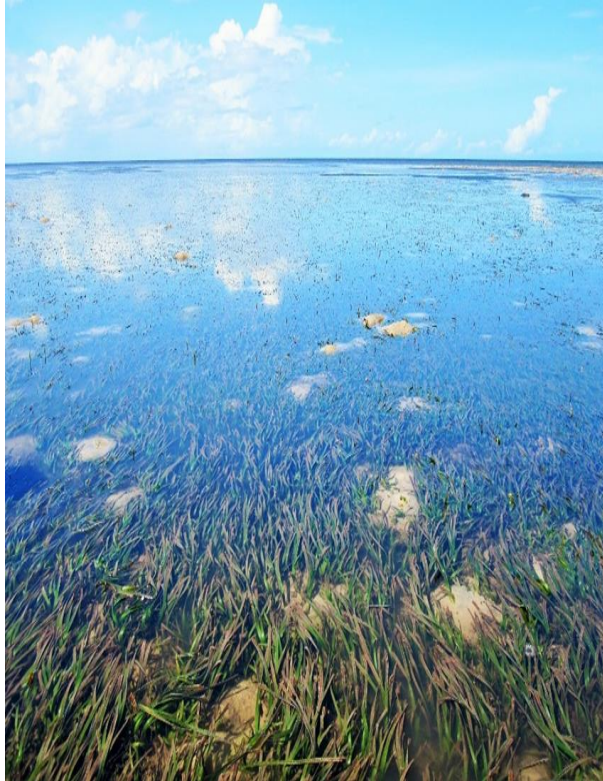
| COUNTY | AREA |
|------------------------------|----------------|
| KILIFI | 77,500 |
| Kwale | 29,132 |
| Tana river | 255,694 |
| Lamu | 87,917 |
| Taita Taveta | 6383 |
| Kaya Forests in all Counties | 2,840 |
| TOTAL(ha) | 459,466 |

Managed by KFS, County governt, NMK, and KWS

2.2.2 Eastern Arc Mountain Forests

- Extends from Tanzania to Kenya
- Highly influenced by Indian Ocean
- Taita Hills Forests
 - ✓ 600ha
 - ✓ Heavily fragmented
 - ✓ 200 ha close canopy





Seagrasses
37,000ha



Mangroves
61,000ha

BLUE Forests in Kenya

Carbon rich coastal wetlands

- Habitat for fish,
- Climate regulations
- Shoreline protection

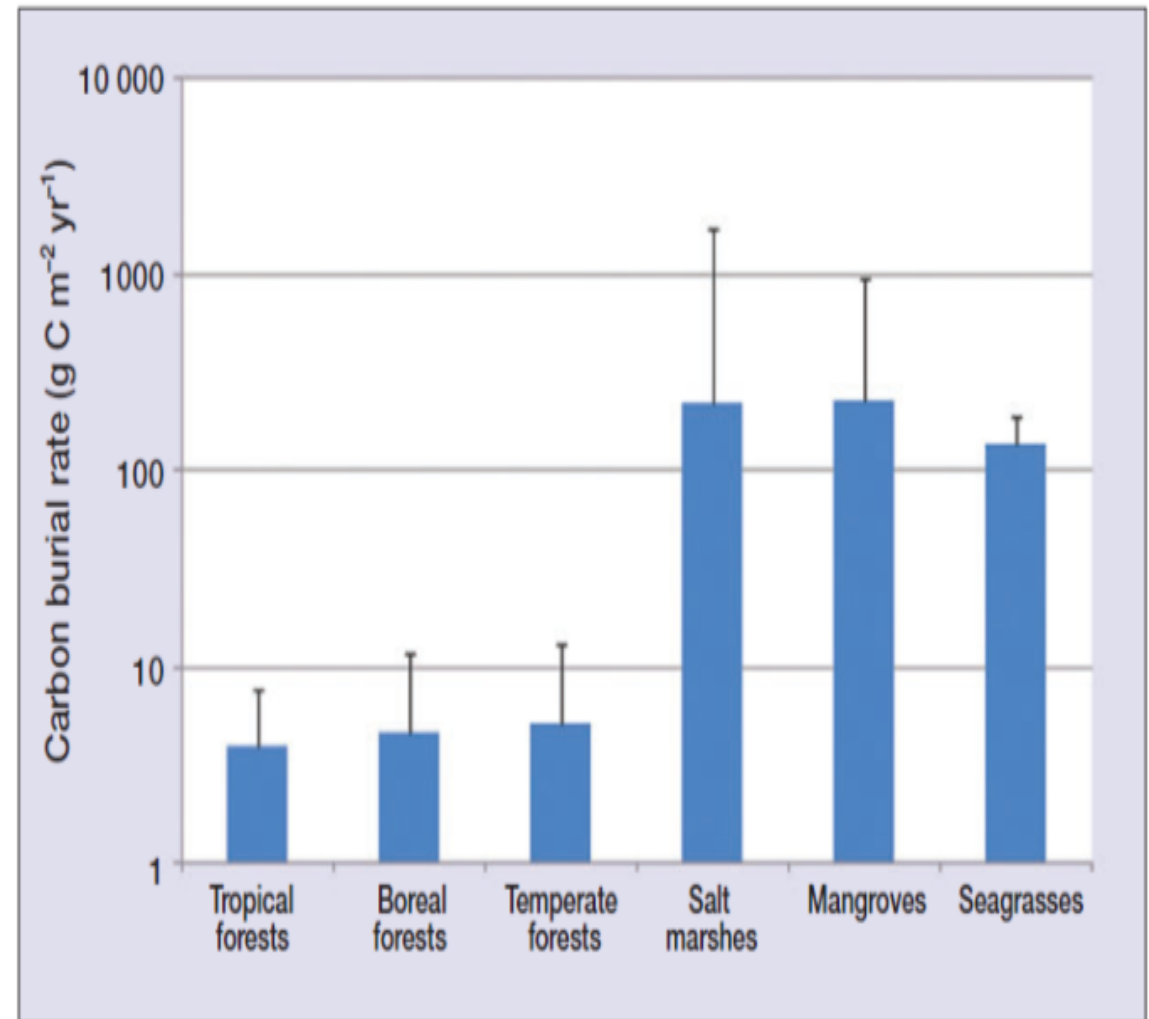
Significance of Blue Forests

Mitigation

- Carbon rich ecosystems
- They store carbon in their soils for 1000 of yrs.

Adaptation

- Can keep pace with sea level rise
- Protect shorelines
- ...100 meters of mangroves can reduce wave energy by 66%.



McLeod et al. 2011.

2.2.3. Mangrove Forests

- Total area 61,000ha (approx. 1% of country area)
- Environmental, Ecological and Environmental Values
- **Contribution of coastal forests and mangroves to GDP overly unknown.**



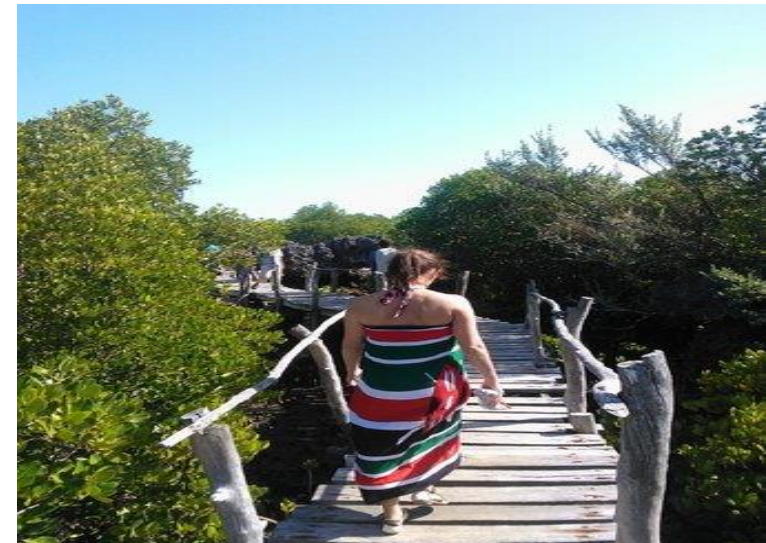
Contribution of coastal forests to economy

Direct contributions

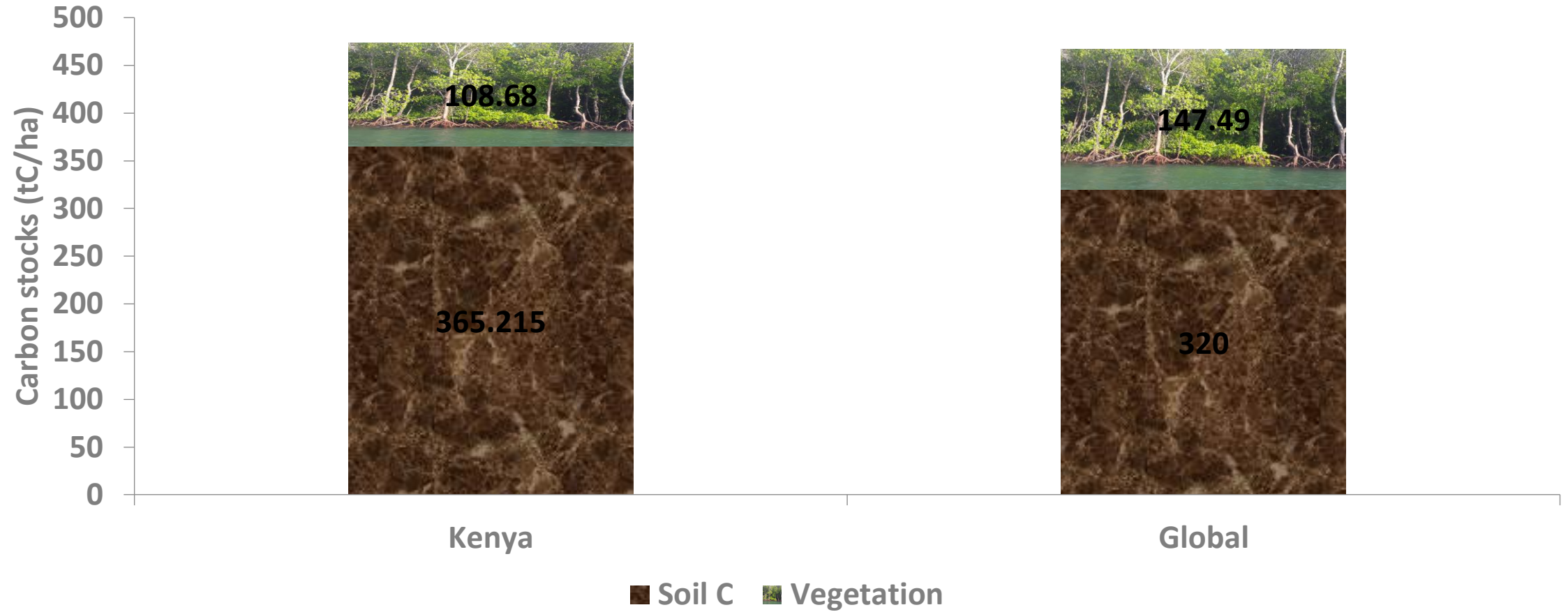
- In 2019, the environment and natural resources sector contributed about US\$3 million to the country's GDP of which about **US\$ 1.2 million** was from the forestry sector
- Coastal forests also provide opportunities for wood carving that generate between **US\$ 20-25 million** annually in export revenues
- Activities such as bee-keeping, butterfly farming, hunting for game meat also contribute to the local economy.



...direct use values of mangroves



Carbon stocks - mangroves



Valuing mangrove goods and services

| Product and services | KES ha ⁻¹ yr ⁻¹ |
|------------------------|---------------------------------------|
| Building poles | 30,659.5 |
| Fuelwood | 4,505.0 |
| Onsite fisheries | 9,612.7 |
| Beekeeping | 1,249.5 |
| Integrated aquaculture | 408.0 |
| Education & Research | 65,469.6 |
| Tourism | 782.0 |
| Carbon sequestration | 21,896.0 |
| Shoreline protection | 134,866.1 |
| Total | 269,448.3 |



Global values US\$37,000-57,000/ha/yr

80% of commercial coastal fisheries
depending one way or another on mangroves

5.2. Conservation Initiatives on coastal and marine forestry

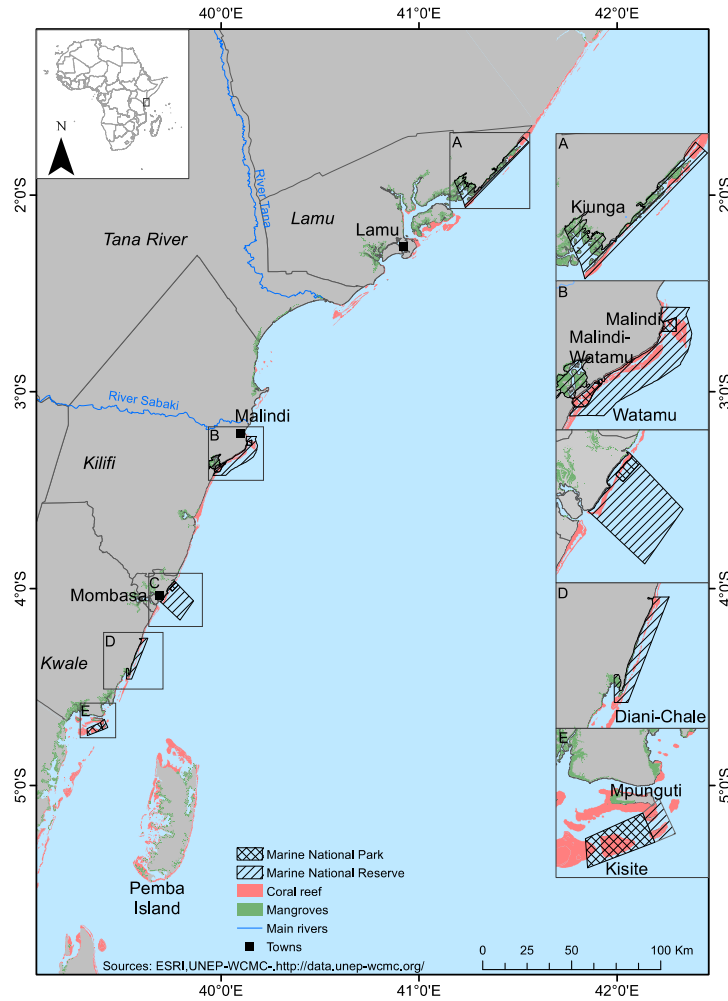


Table 4:

| | |
|--|------------------------|
| Kenya's Exclusive Economic Zone (EEZ) | 142 000km ² |
| EXISTING MPAs | |
| No. of MPAs (combine Parks and Reserves) | 6 |
| MPA area | 941.093km ² |
| % EEZ | 0.67 |

The area is far short of 10% commitments; as well as 30% by 2030 projections

Threats facing coastal forests and mangroves

Deforestation and degradation

Overexploitation of forest resources

Forest fires

Illegal logging and mining

Land conversion e.g. shrimp farming in mangroves

Climate change

Sedimentation

Pollution (oil spills in mangroves, poor waste disposal in terrestrial)



Socio-economic impacts of mangrove degradation



Kenya's NDC and Blue Carbon

| | |
|---|---|
| Environment | P6: Rehabilitation and conservation of degraded forests |
| | P7: Establish at least 2,000 hectares to promote nature based (non-wood forest products) enterprises across the country |
| | P8: Establish 150,000 ha commercial private forests plantations |
| | P9: Plant 350,000 agro-forestry trees in farmlands established |
| | P10: Greening of 14,000 ha of infrastructure (roads, railway lines, dams) |
| | P11: Enhance/strengthen governance of community structures in participatory resource management in coastal ecosystems |
| | P12: Conduct blue carbon readiness assessment for full integration of blue carbon/ocean climate actions into NDCs |
| | P13: Develop marine spatial planning and outline sustainable management approaches |
| | P14: Promote and expand opportunities for nature based enterprises including seaweed farming, and mangrove ecotourism |
| | P15: Integrate the use of nature based solutions, including the implementation of national mangrove management plan, into national and county development plans |
| P16: Strengthen early-warning and tailor made climate information services through institutional strengthening of KMD and other information user institutions | |

- Ministry of E & F is Currently Developing Long term Strategies (LTS) for low carbon development pathways that will include **Blue Forests**

Key Policy documents & National Plans Governing Forests

Policies & Legislations

1. Constitution of Kenya, 2010
2. National Climate Change Framework Policy
3. Climate Finance Policy
4. Integrated Coastal Zone Management Policy, 2013
5. Climate Change Act 2016
6. Forest Conservation and Management Act 2016
7. Wildlife Conservation and Management Act 2013
8. Fisheries Management and Development Act

National and Sectoral Plans

9. Kenya Second National Communication
10. National Climate Change Action Plan, 2018-2022
11. National Adaptation Plan, 2015-2030
12. National Climate Change Response Strategy, 2010
13. National Strategy for Achieving and Maintaining Over 10% tree Cover By 2022
14. Taskforce Report on Forest Resources Management and Logging Activities in Kenya, 2018)
15. National mangrove management plan, 2017 – 2027.

Nature Based Solutions - Mikoko Pamoja

Mikoko Pamoja is a good example of Nature Based Solutions to Climate Change

2013

Launch of Mikoko Pamoja. 3000tCO₂/yr @KSh 2.4millio

2017

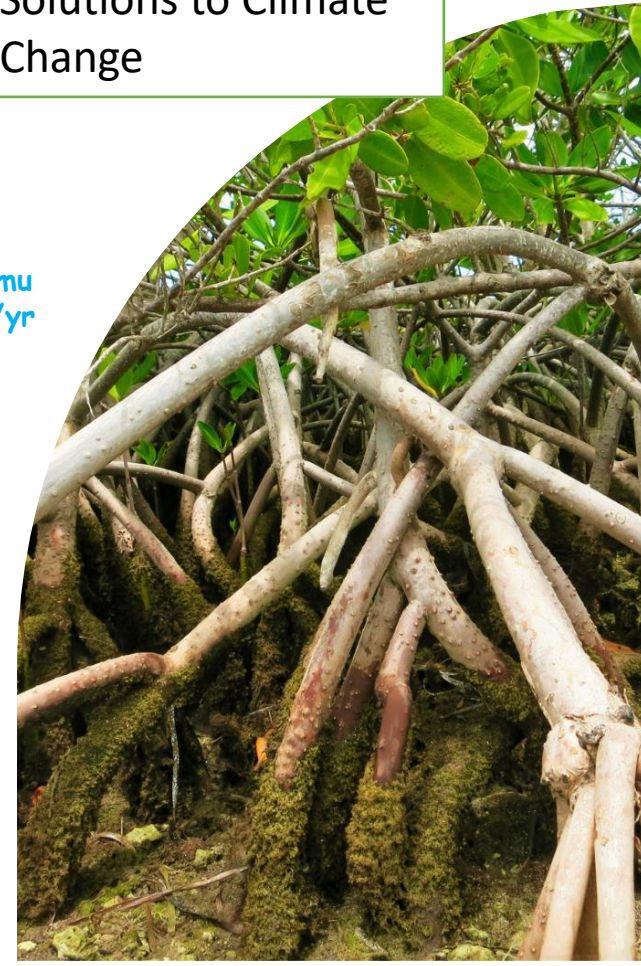
Mikoko Pamoja Wins UN's Equator Prize

2019

Launch of Vanga Blue Forest - 6000tCO₂/yr @KSh.4.5million

2021

Piloting blue carbon projects in Lamu and Kilifi County >100,000mtCO₂/yr



Conclusions

Coastal forests and mangroves provide goods and services that are of **environmental, ecological and economic value** to the society

These ecosystems are threatened by a **combination of human and natural stressors**

The current **legal and policy frameworks provide good enablers** for their restoration and protection

Blue economy provide a new window for protecting coastal forests and mangroves as **nature based solutions to climate** change challenges

There is good opportunity for advancing **REDD+ projects in coastal forests and mangroves**

Thanks

