



- They usually consist of small steps that allow the fish to climb over the obstacles and enable them to reach the open waters on the other side.
- For the intervention to work, the water running over these ladders must be controlled - it must be adequate to catch the attention of the fish, but not too strong to deter them from swimming against it.

5.8 Bio-Restoration

- A new technology for ecological restoration (Bio-restoration) was developed to revive the mangroves degraded due to rising sea levels, climate change and human intrusion in the Sunderbans, West Bengal.
- [The Sunderbans is a protected wetland under the Ramsar Convention and is also a UNESCO World Heritage site.]
- Ecological restoration means reviving native ecosystem in degraded areas while maintaining diversity of original flora and fauna through regeneration but bringing down the regeneration period to 4 to 5 years.
- Restoration process begins with stabilising entire site by planting native salt tolerant grasses. It involves the use of growth-promoting bacteria.
- The restoration project was initiated with help from the Department of Biotechnology in 2013 and is now likely to be extended to 100 acres.
- The transplantation of propagated mangroves started in 2014, initially at a moderately degraded patch and then at severely degraded zones.

5.9 Failure of First Inter-State Tiger Relocation Project

Sundari, a tigress shifted as part of India's first inter-state translocation project in 2018 from Madhya Pradesh (MP) to Odisha, was relocated back to MP.

- The tiger relocation project was initiated in 2018.
- As part of this, two big cats were relocated to Satkosia Tiger Reserve in Odisha, to shore up the tiger population in the state.
 - a male (Mahavir) from Kanha Tiger Reserve and a female (Sundari) from Bandhavgarh from Madhya Pradesh
- Both were selected for the translocation project as per the NTCA (National Tiger Conservation Authority) guidelines and in collaboration with the Wildlife Institute of India and the Government of India.
- The relocation was meant to serve two purposes:
 - i. reducing tiger population in areas with excess tigers to majorly reduce territorial disputes
 - ii. reintroduce tigers in areas where the population has considerably reduced due to various reasons
- The project was estimated with a budget of Rs 19 crore.
- It was started under the project of "augmentation and recovery of tiger population in Satkosia tiger reserve".
- Six tigers (three pairs) from different reserves of Madhya Pradesh were to be sent to Odisha under the project.
- The project ran into trouble within weeks of initiation.
- The arrival of the tigers was followed by severe protests by villagers living on the fringes of the reserve.
- Forest department officials were attacked and their offices burnt down by the villagers.
- This reaction was the outcome of displacing tribals from Raigoda in the core area to Saruali on the outskirts of the reserve.
- The villagers feared the big cats would endanger their livelihoods, lives and livestock.
- They also alleged that they were not consulted or informed prior to the translocation.
- Within months of the translocation, Mahavir was found dead.
- Earlier, a woman was allegedly mauled to death by Sundari and another person was also killed.