



FACTSHEET

PK

2014

Climate Change Adaptation

Mangrove Plantations for Climate Change Adaptation

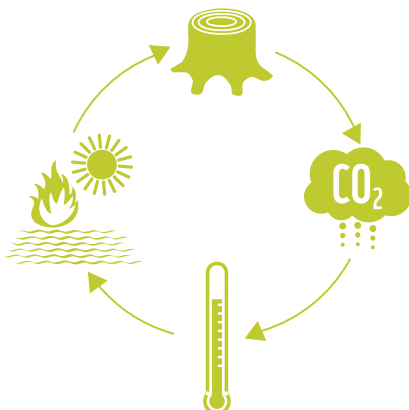


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December 2015

Project Title: Building Capacity
on Climate Change Adaptation
in Coastal Areas of Pakistan
(CCAP)



The Indus Delta was once home to thick mangrove forests stretching from Karachi to the Rann of Kutch. Today, only some pockets of these forests remain. Before deterioration of the mangroves began, Pakistan had one of the largest mangrove forests in the world; which provided rich breeding grounds for fish, crabs and shrimp, in addition to protecting the coast from storms and tsunamis. Over the passage of time, mangrove forests came under extreme pressure due to continuous seawater intrusion, lack of freshwater being released into the delta, pollution, cutting of wood for fuel and timber, and grazing by camels.

The Indus Delta consists of several creeks, including those located in Keti Bunder union council of Thatta district. This area contained one of the largest tracts of arid zone mangrove forests. Keti Bunder town itself was a prosperous place where the locals grew red rice and bananas; but now their agricultural lands have been swept away by the intruding sea or spoiled by water-logging and salinity. Eight species of mangroves grew in the area but today only three species have survived: *Avicennia marina*, *Aegiceras corniculata* and *Rhizophora mucronata*. Freshwater in the delta has gradually decreased since hardly any river water is released below the Kotri Barrage and an increase in saline water has seriously constrained mangrove growth. Mangroves need a mix of freshwater and saline water to thrive.

The erosion of mud flats in the creeks (now full of seawater), has led to considerable migration of local fishermen from the delta area to places inland and even further to Karachi's coastal fishing villages such as Ibrahim Hyderi. Planting of mangroves can minimize land erosion and protect the coast from cyclones and storm surges, which are expected to worsen due to the impacts of climate change.

According to a study, hazard maps, conducted by the Geographical Information System Laboratory, WWF-Pakistan (2012) commissioned by the CCAP project, the

mangrove plantation open and closed canopy in Keti Bunder is 7,774 hectares (ha) and in Kharo Chan is 7,752 ha. Over the passage of time, the level of awareness among the community members for plantation of mangroves has increased immensely. Hence, one of the aims of the project is to develop and implement adaptation tools to protect the community against the impacts of climate change. Mangrove plantation is one of the tools for disaster risk reduction (DRR).

Objectives

1. Build capacity and knowledge base of local communities to understand importance of mangrove plantation as adaptation to potential threats of climate change impacts such as storms, cyclones, intense precipitation and tidal surges;
2. Identify means to ensure sustainable use of natural resources to ensure resilience of coastal communities to respond to potential hazards; and,
3. Create awareness among local people to secure their participation in conservation efforts for their own well-being.

Updates and Achievements

Under the CCAP project the total target of mangrove plantations was 50 ha. The project successfully planted 525 ha of mangroves in village Gilli Sholani, Khobar Creek, Keti Bunder in the years 2013 and 2014. The project exceeded its mangrove plantation target by 950 per cent.

During the year 2013 (July-September), a total of 400 ha of *Avicennia marina*, a local species that requires less freshwater was mostly planted since it is more salt tolerant. In the year 2014 (March-May), a total of 125 ha of *Rhizophora* was planted. This species was near extinction and has been reintroduced by WWF-Pakistan in the area.

This site was finalized based on the past performance of village organizations (VOs) and community based organization (CBOs) who planted mangroves in creek areas of Keti Bunder. Village organization, Gilli Sholani has a proven track record of plantation and rehabilitation of mangroves through their proactive role in conserving these plantations. Mangroves needs intensive care in the early days of plantation, specifically from threats of camel grazing, and without communities' active role their survival rate remains a challenge. The survival rate of mangrove plantations is the highest in Khober Creek over the last five to six years plantations under different projects of WWF-Pakistan in creeks (Hajamaro, Chan, Khober, and Turchan).

It is evident that intensity and frequency of cyclones are increasing and pose threats to coastal communities in Pakistan. Their impact can be reduced by leaving nature's protective infrastructure firmly in place – such as mangroves plantation which are a well-studied and documented coastal shield and can reduce the vulnerability of these coastal communities. Moreover, mangroves are natural fish nurseries, supporting the livelihoods of poor fisher folk along the coast.




Recommendations

1. Up/out scale this intervention at government level by engaging concerned departments;
2. Replicate this adaptation effort by developing capacity of coastal communities through partnership with other organizations; and,
3. Mobilize other communities to replicate similar interventions in their villages.



WWF-Pakistan Climate Change Goal

To enable a nationwide climate change adaptation programme to reduce the consequence of climate change on ecosystems and biodiversity of Pakistan, and to promote sustainable development in the country.

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|  | <p>Why we are here: To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.</p> |
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