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## Impact of Mangroves Recovery on the Livelihood of People Living Around the Mangrove Forest of Sindh

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### Abstract:

*This research investigates the Impact of Mangroves Recovery on the livelihood of people living around the Mangrove forest of Sindh. Data were collected from Thatta and Badin Coastal belt. The importance of mangroves has got a new turn after the Tsunami 2004. In this tragic incident more than 247,000 people lost their lives for this tsunami disaster in addition to financial and economic losses. The research studies attributed this tragedy to the anthropogenic interventions of deforestation made for the economic, infrastructure and industrial developments. The significant chunk of mangrove forests were cleared in the name of abovementioned development activities. It compelled the scientists to rethink about the biological mechanisms that lower the destructive energy of the Tsunami tidal strikes by vegetative impediments. In addition, the climatic change parameters given the new ways and turns to study about the role of mangrove to sequester the Carbon. Now, the environmental scientist are urging for the immediate recovery of lost mangroves cover with special relation to above given areas of environmental development. Pakistan is lucky to recover these lost mangroves covers significantly. It was increased from 477.22 km<sup>2</sup> to 1463.59 km<sup>2</sup> in a period of last thirty years. The trends about the mangroves research are being changed and the researchers have sorted out new areas for the studies about the Mangroves. The past studies were not in conformity with the ecological principles. Now the focus of these studies is ecological process present in natural and restored mangrove systems. They are correlating the relationship of restored ecosystems with the adjoining ecological systems stock such as salt Marsh eco systems, sea grass beds. This study is meant to assess the impact of Mangroves in terms of livelihood, biodiversity conservation and Carbon Sequestration along the coastal belts of Sindh.*

**Keywords:** Mangroves Recovery, Livelihood, Mangrove Forest

### Introduction:

The importance of mangroves has got a new turn after the Tsunami 2004. In this tragic incident more than 247,000 people lost their lives for this tsunami disaster in addition to financial and economic losses. The research studies attributed this tragedy to the anthropogenic interventions of deforestation made for the economic, infrastructure and industrial developments. The significant chunk of mangrove forests were cleared in the name of abovementioned development activities.

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In addition, the climatic change parameters given the new ways and turns to study about the role of mangrove to sequester the Carbon. Now, the environmental scientists are urging for the immediate recovery of lost mangroves cover with special relation to above given areas of environmental development. Pakistan is lucky to recover these lost mangroves covers significantly. It was increased from 477.22 km<sup>2</sup> to 1463.59 km<sup>2</sup> in a period of last thirty years. The trends about the mangroves research are being changed and the researchers have sorted out new areas for the studies about the Mangroves. The past studies were not in conformity with the ecological principles. Now the focus of these studies is ecological process present in natural and restored mangrove systems. They are correlating the relationship of restored ecosystems with the adjoining ecological systems such as salt Marsh eco systems, sea grass beds. This study is meant to assess the impact of Mangroves in terms of livelihood, biodiversity conservation and Carbon Sequestration along the coastal belts of Sindh.

### **Data Collection Methodology**

Data were collected from Thatta and Badin Coastal belt. Data were analyzed by using SPSS-25 version software. A structural questionnaire was developed for the reliable and validate the data. Materials and Methods

At the first instance, the available resources on internet, history books, periodical, news articles and oral accounts of the people were reviewed. In addition various dialogue sessions were conducted with different stake holders who are directly related to mangroves forests under the control of Forest department. The forest Functionaries have supervised the planting and keeping up the maintenances and protection operations. They are part of the conservation activities on and they studied the interaction of Mangrove and livelihood improvement interactions on the ground. It was started from local fishermen and herdmen who are living inside the forest and their livelihood is dependant upon the Mangroves and forestry related products. Later on, senior management upto highest level of province was consulted to correlate the conservation with the activities and role bandits inside the forests. In the same way, the opinion of bandits living inside the forests was sought through indirect sources. The scope study was further broadened when other stake holders who are not directly related to safeguard the forest cover but they are obliged to control the crime. They were consulted about the role of decoits in deforestation and biodiversity destructions. At the last, different research journal on the subjects of forest, criminology, biodiversity and anthropology were referred. It was meant to know the role of bandits for the biodiversity conservation and tree cover be known at the global level.

### **Results and Discussions:**

the importance of mangroves has got a new turn after the Tsunami 2004. In this tragic incident more than 247,000 people lost their lives for this tsunami disaster in addition to financial and economic losses. The research studies attributed this tragedy to the anthropogenic interventions of deforestation made for the economic, infrastructure and industrial developments. The significant chunk of mangrove forests were cleared in the name of abovementioned development activities.

It compelled the scientists to rethink about the biological mechanisms that lower the destructive energy of the Tsunami tidal strikes by vegetative impediments. It is inferred by the scientific studies that Mangroves has been recognized as ecological shield against the sea rise, hurricanes and tsunamis. This proves the ecological significance of Mangroves Forests along the coastal lines. The recovery and restoration of mangrove eco system is directly related to the coastal communities. The interaction of these communities with the resources of nature cannot be ruled out. The mangroves are main source of livelihood for the communities abiding around the coastal belts of Pakistan.

In addition, the climatic change parameters given the new ways and turns to study about the role of mangrove to sequester the Carbon. Now, the environmental scientists are urging for the immediate recovery of lost mangroves cover with special relation to above given areas of environmental development.

Pakistan is lucky to recover these lost mangroves covers significantly. It was increased from 477.22 km<sup>2</sup> to 1463.59 km<sup>2</sup> in a period of last thirty years. The trends about the mangroves research are being changed and the researchers have sorted out new areas for the studies about the Mangroves. The past studies were not in conformity with the ecological principles. Now the focus of these studies is ecological process present in natural and restored mangrove systems. They are correlating the relationship of restored ecosystems with the adjoining ecological systems stock such as salt Marsh eco systems, sea grass beds. This study is meant to assess the impact of Mangroves in terms of livelihood, biodiversity conservation and Carbon Sequestration along the coastal belts of Sindh. The methodology of this study will be decided after the approval of this synopsis.

### **Results and Discussion.**

The study revealed that the livelihood of poor people improved in terms of the income generation. As the mangrove cover is increased the people have got more employment opportunities. Mostly, the communities living around the mangroves forests along the coastal belts of Sindh are fishermen by profession. During the discussions they informed that the fish catch is increased after the increased mangroves. Furthermore, the quality of the caught fish is improved in terms of size and population of high valued fishes. The fishes are getting more vegetative food which makes them healthy and larger in size. Besides, the mangrove plants are a natural shield against the predators of fish. In addition, the mangrove clusters are breeding ground for shrimps and other marine life. It was further told by the local dwellers that the mangroves Recovery has increased the economic recovery of the area by means other than fish catch activity. Invariably, fish business is booming in positive direction. These economic activities had generated other income generating employment opportunities. On the other hand the cattle herders are second section of the communities living along the mangroves. They generally graze their camel in the coastal forests. The increase in vegetative cover they found the grazing ground increased. However, Forest department negotiated and settled a deal with the herders of area belonging to Jat

Communities. Under this herders are not allowed grazing in newly planted areas, where as, They have been facilitated in their livelihood improvement initiative by establishing facilities in the areas in the areas of education and health

### **Recommendations**

1) The marine fisheries sectors should be seen in the prospective of international climate change adaptation standards. The improvement of mangroves cover depicted a new picture in terms of climate change adaptations. Now, the fisheries sector should be organized on scientific standards for maximum productivity of fisheries dependent upon mangroves.

2) Special trainings should be organized for the fishermen who are depending upon the fish catch for livelihood. They should be trained about the importance of mangroves for the fisheries the significant role of mangrove in the value chain of fisheries.

3) The private sector should encourage for investments in the fisheries sector for the improvement of local fisherman livelihood. These investments should mean to make fish on international demands with attractive price. As the fish catch is standardized with climate change parameters, it will fetch good prices in the local and international markets.

4) Forest Department should start the community based livelihood improvement programs for the fishermen who are living along the Mangrove with the forest. These livelihood program should mean to improve the quality of fish keeping in view the quality standards of developed countries. These livelihood improvement program be in lieu of their services to protect and regenerate more mangroves along the coastal belts of Pakistan.

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