

**“POTENTIAL AND COMMERCIAL OUTPUT OF FISHERIES
IN BALOCHISTAN, PAKISTAN”**

PREFACE

The Research Paper is based upon research and studies conducted for Fishing Industry in Balochistan. The paper highlights the problems associated with the sector, and recommends an action plan for their remediation.

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EXECUTIVE SUMMARY

Fishing is one of the most important economic activities along the coastal areas of Pakistan. Along the coast of Balochistan there are five major towns and more than 27 fishing villages spreading along more than 700 km long coastline. The Industry has mainly provided subsistence employment but in the recent years, the industry has partially flourished because of international interest in the coastal regions. A major problem in the Industry is the difference between ‘potential’ and the present production of the fisheries. The problem is the concept that the difference between present fish catches and the potential yield represents a surplus which is available for harvesting by additional fishing efforts. Lack of operational fleet and organizational lag are major sources of limited production. The Commercial output can be increased by proper involvement of provincial and federal governments, public-private partnership, and international market exposure.

Development of Port facilities and Harvesting techniques including mechanized boats and refrigeration facilities can open a Pandora box of new dimensions for development in the region as pelagic fish like shrimps can form major market products. The negative trade balance of payment of Pakistan can be corrected and the current seafood consumption rate of Pakistan can be raised with increasing production. But through strict regulations, sustainable fishing should be encouraged as this free commodity should be a diamond pearl for many generations to come.

This research paper presents a detailed outline of the problems faced by the fishing industry in Balochistan and the steps required to remediate these issues using federal and provincial government’s support and international market interest in the region.

GLOSSORY OF TERMS & ACRONYMS

- I. Pelagic zone
Any water in a sea that is not near to the shore
- II. Bullo gears
A type of local operational gear for fishing in Balochistan
- III. Gujja gears
A local wire net used for fishing in Balochistan
- IV. Katra gears
For catching small pelagic modified purse seine is being used which is locally called 'Katra'
- V. Demersal fish
Fish that live on or near to the bottom of the sea
- VI. ADB
Asian Development Bank
- VII. WB
World Bank
- VIII. PPP
Public- Private Partnership
- IX. FSB
Fisheries Development Board
- X. JCIC
Jiwani Conservation and Information Centre
- XI. FAO
Food and Agriculture Organization
- XII. Sustainability
Conserving today's resources for future generations
- XIII. USAID
An aid programme by the government of United States
- XIV. Aquaculture
An aquatic transgenesis technique which allows for attainability of desirable features of the organisms

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INTRODUCTION

Balochistan is the largest province of Pakistan and accounts for about 347,190 sq. km – 44% of the land mass. Balochistan is a land of contrasting geographical features ranging from high rugged mountains and plains to coast of about 1129 km, which is rich in Marine life, starting from the Hub towards north and then west up to Iranian border near Jiwani. Based on the vast economic potential present in the development of these marine resources, the country's economic crisis can be stabilized. The region has always been neglected by the developers hence, it has never achieved its due status but its potentials are exaggerated but never exploited in the needed way. Fishing Industry in particular has been developed partially but encounters a lot of problems which need to be resolved for a better commercial output of the industry.

Statement of Problem

Despite the projection in the field, a major problem is the difference between 'potential' and the present production of the fisheries. The problem is the concept that the difference between present fish catches and the potential yield represents a surplus which is available for harvesting by additional fishing efforts. There are biological and technical reasons for the limits of the industry. Fish catching and handling practices in Pakistan have traditionally been poor, but there have been some improvements in recent years. [1]

Out of the 38 fishing stations on the Makran Coast, Balochistan limited infrastructure facilities are available at Pasni and Gwadar stations. The remaining stations do not have jetties, water power generators, fish storage and the handling facilities. These problems can be resolved by proper budgeting at federal and provincial levels and long terms planning for the future.[1]

Significance and Scope of the Study

The research topic provided vast opportunity for the appreciation of the extensive potential present on the Makran Coast. The scope of study was limited to the commercial output of the industry with particular emphasis on the potential resources and the present production trends. the research included study of the present status of fishing industry, problems and constraints of the sector and recommendations for improvement.

Review of the Literature

There is a discrete absence of literature in the field, with poor statistical data available for proper planning and management of resources. Most of the research in the field is confined to the potential of multinational industries' interest in the zone, while less emphasis is placed on the development of the present resources including operational facilities and employment in the region. Banks like Asian Bank and World Bank have given case studies on the long term industrial plan for fishing industry in Pakistan, particularly Balochistan, but due to high corruption and political instability, the plans have remained as plans and have never been implemented completely.

[1] Competitiveness Support Fund (CSF). Balochistan Fisheries Development Study

Method

I have applied analytical, quantitative and qualitative methods in my research paper. I have used data available by the provincial and federal governments, including budget descriptions, industrial planning by organizations and local endeavors for improvement. A mixture of methods is employed in the paper, to provide various dimensions to the research paper.

Organization of the Paper

The research paper is based on the three major research sectors including status of industry, problems and constraints of the sector, and potentials of development for the fishing industry in Pakistan. The order shall provide a methodological understanding of the problems faced by fishing industry in the region and how these can be compensated for increase in the commercial output of the industry.

I STATUS OF FISHING INDUSTRY IN BALOCHISTAN

The Marine Environment and Fishing Grounds:

The Makran coastline, which extends about 700km, making up 70 percent of Pakistan's coastline is characterized by a number of bays (Jiwani, Gwadar, Pasni, Ormara, Somiani) and the absence of any substantial river systems. The shelf area is estimated to be about 35,740 sq. Km in Karachi-Sindh and 14,530 sq. Km on the Makran coast. The Appearance on the shelf of cool, low-oxygen water in Arabian Sea affects the distribution of demersal fish and shrimp. Fish species move to avoid the low-oxygen water, aggregating in increasing quantities near shore. [2]

Fisheries Resources:

Waters along Pakistan's 1,100-kilometer coastline have abundant fish resources. The commercially important marine fisheries resources of a Pakistan are composed of about 350 different species. Some 24 of them are demersal fish, 50 are small pelagic, 10 are medium sized pelagic, and 18 are large pelagic fish. In addition, there are 15 commercial species of shrimp, 12 of squid/cuttlefish/octopus, and 5 of lobster. Other include King mackerel sardine, snapper, tuna, pomfrets, sea catfish, eels, barracuda, marlins, groper, ivory shell, mussels, clams, seaweed, sea urchins and crabs. [2]

Production Trends and Governmental Budget:

In the Rs. 152 Billion annual Balochistan budget for the fiscal year 2010-11, an amount of about RS. 45 million have been allocated to fisheries sector with Rs.20 million allocated for purchase of Ambulance boats and an amount of Rs.25 million allocated for purchase of more patrolling boats to curb illegal fishing in our areas of responsibilities. On the whole, the role of Provincial

[2] Asian Development Bank. Pakistan Fisheries Sector Study. 1987.

and Federal Government is unimpressive. Legally the jurisdiction of the Provincial Government to explore the resources lies within 12 nautical miles from the coast. Balochistan coastal belt has engaged nearly 50,000 fishermen for their livelihood with a 1.2 million metric ton fishing catch and creating a R. 9 billion space in the Provincial GDP. The fisheries sector contributes around 1% to the GDP of Pakistan; Balochistan forms 30% of the total catch. During the period July-March 2008-09 the total marine and inland fish production was estimated 490,000 M. tons out of which 167,000 M. tons was marine production and the remaining catch come from inland water. Whereas the Production for the 2007-08 was estimated to be 455,000 M. tons in which 253,000 M. tons were for marine and the remaining was produced by inland fishery sector. Pakistan's major seafood buyers are China, UAE, Thailand, Korea, Malaysia, Indonesia, Hong Kong, Middle East, Sri Lanka, etc. Regarding Fish consumption for Pakistan, there was very little increase in per capita fish consumption from 1.0 kg in 1961 to 2.3 kg in 2001, while the world average increased from 9.0 kg to 16.3 kg. (FAO 2004)

The fishing policy developed in 1995 segments the coast into three zones, each for different sized vessels. Zone 1, which is from the coastline to 12 nautical miles is used for small-scale fishing and is under the management of the provincial government. Both Zone 2 (12 to 35 nautical miles) and Zone 3 (35 to 200 nautical miles) fall under the purview of the federal government. Zone 2 is used for fishing by medium sized vessels, and Zone 3 for industrial fishing. To increase its revenues from fishing, the government of Balochistan has asked the federal government to also shift Zone 2 into its jurisdiction. However, no action has been taken in this regard and all fishing done long the coast of Pakistan is bound by the guidelines stipulated in the fishing policy of 1995. [3]

Table of landings (2005)

Area	Qty Vol (Tonne)		% increase or decline	% contribution	Rank
	2004	2005	2004-5	2005	
Gawadar	33,707	29,252	-13%	25%	1
Pasni	27,692	24,775	-11%	22%	2
Ormara	15,876	14,813	-7%	13%	3
Jiwani	12,714	12,192	-4%	11%	4
Damb	12,128	11,177	-8%	10%	5
Surbandar	8,219	7,533	-7%	7%	6
Pishukan	8,103	7,472	-8%	7%	7
Gaddani	5,315	5,318	-16%	5%	8
TOTAL	124,755	112,642	-10%		

[7]

[3] Government of Pakistan. Ministry of Food, Agriculture and Livestock. National Policy and Strategy for Fisheries and Aquaculture Development in Pakistan. Islamabad: 2007.

[7] <http://www.slideshare.net/quartermaine/balochistan-fisheries-development-presentation/4.4.11>

Harvesting Techniques and Infrastructure:

Fish catching and handling practices in Pakistan have traditionally been poor, but there have been some improvements in recent years. Operational fleet consists of 18,000 small wooden boats of 1.0 – 4.0Gt. About 30 % are the sail boats while 70% are motorized. Majorities of boats are highly under-powered, devoid of navigation and fish finding equipment, powered gears, refrigeration and cold storage facilities. The gears are simple and manually operated and the output is limited. The equipment consists of nets, nylon ropes, floats, and winches. The fishing activities are confined to the territorial within 20km from the shoreline. When small boats are used, fishing continues for up to one day only. Fishermen using big boat can stay at sea for 5 to 15 days. Out of the 38 fishing stations limited infrastructure facilities are available at Pasni and Gwadar stations. The remaining stations do not have jetties, water power generators, fish storage and the handling facilities. In the absence of port facilities, the fish is brought ashore in wicker baskets and deposited on the sand or pebbles on the beach ready for auction sale. No effort is made to protect the fish either from the sand, the sun, or bacterial contamination. After the auction sale, buyers either remove the fish to retail outlets where it is washed before being offered for sale to the public, or pack it in ice in insulated containers for transportation inland.

Initially the standard process for preserving fish in Gwadar was salting and drying. In 1970, the department of Coastal Development and Fisheries established an ice factory at Pasni. The first private ice factory started production in 1976. At present there are 16 ice factories in the district out of which 6 are at Gwadar, 1 in Sur Bandar, 2 in Jiwani, 4 in Pasni and 3 in Ormara. Now fresh fish is packed in ice and sent to Karachi. The advanced processing of fish canning is done at Karachi. There is a great potential for canning industry in the makran areas provided that road links are available for marketing. At present, Pakistan is among the 80 countries whose canned food is banned in Europeans and other developed countries, mainly because of the highly unhygienic canning facilities. [3]

Employment:

The fisheries sector in Balochistan is the major source of employment for people residing coastal belt, this include fishermen and other associated businesses such as boat building and net manufacturing. Boat/vessel/launch is one of the most important aspects of fishery, local fishermen use locally made boats/launches for their catches. This industry is labor intensive and many people are earning their livelihood from boat manufacturing; today at Gwadar approximately 200 people are associated with this industry. Locally produced boats and launches are durable and long lasting. Boat building industry at Gwadar comprises of both new boats manufacturing and repairing and renovations of old ones, but they fetch maximum chunk of revenue from renovation and repair of old and used boats and launches. Others of form of employment include hawkers, vendors, store keepers, tourist guides, drivers and etc. Out of the 125,000 persons employed in the fishing sector, 31.6% are employed in the marine sector while 68.4% are in inland fisheries. The reasons are the population density towards the inland cities of Pakistan and more productive trends. Almost all of the communities on the coast of Balochistan depend on fishing for their livelihood. Among Balochi fishing families children learn the skills early in life and even lends a hand with the day's work. Although the Balochistan's sea water is

rich in fish, fishermen are able to catch only as limited amounts of fish because of their conventional methods. Recently, infrastructure facilities have been provided at Gwadar, Pasni and Ormara fish harbors, which will help increase the catch. [4]

Market Analysis:

Marine Catch from Balochistan coast has a tremendous market domestically and internationally both. At the domestic level the catch from the marine fisheries is supplied to the local fish markets through whole sale dealers. In the main fishing centers, street hawkers also buy some of the fish catch and provide door-to-door service. Frozen or processed food is supplied to only a few large departmental stores in the urban cities, because people prefer to buy fresh fish and prawns rather than the processed ones. However the local demand for fish is less than its catch. The per capita consumption is 1.6 kg p.a., which is quite low as compare to the European countries where it is 20 kg p.a. [5]

On the international level Pakistan has a market for fish and fish products. About 30% of the total fish catch is exported to 30 countries of the world. Japan is the main market for fish and shrimps. U.S.A., West Germany, UK and France are other markets. About 80% of the total fish catch of the Makran coast is dried for export to the Middle East. Pakistan earns more than 6% of its foreign exchange by exporting fish and fish products. Most of the fish catch from Gwadar and Pasni are transported to Karachi from where they are further exported to other countries like Sri Lanka, China (including Hong kong), and Korea. Sri Lanka is the major importer of Pakistani fish. [5]

II. PROBLEMS AND CONSTRAINTS OF THE SECTOR

Resources:

Over exploitation of resources

Mechanization of the fishing fleet in the recent decade and increased demand of sea food for export and domestic consumption have led to increased fish production. Some the resources have been depleted, some are currently over exploited while others are at verge of depletion. Shrimp stocks have been severely over fished and a major decrease in landings of important shrimp species as well as a major reduction in the size of commercial species is now noticeable. No stock assessment survey has been carried out for the last 20 years and the lack of information on the present status of various resources in shallow and offshore waters makes impossible the implementation of appropriate management measures. In the absence of regular monitoring of the resources, it is not possible to determine appropriate levels of exploitation of commercially important species.[2] [3]

[3] Ibid.

[4] 'Fishing Industry'. <http://www.jang.com.pk/thenews/investors/ap.2003/if.htm/08.01.11>

[5] Huma Naz Sethi. "Environment of Pakistan". Malaysia: Peak Publisihng, 2001.

Legislation shortcomings

Although some legislation is present, it is often not well enforced. This applies for example to the use of illegal fishing gear with ineffective legislation monitoring and surveillance support services falling to prevent the spread of some of these fishing methods, and has resulted in significant declines in stocks of commercially important species. [2] [3] A potential threat to the production is the unlawful fishing by boats of other countries in the EEZ of Pakistan. The provisions of the law cover:

- Licensing and management of fishing operation
- Fishing craft subject to navigational regulation
- Prohibiting illegal, dynamite and poisoning fishing
- Closed season and prohibited area

Fishing Resources

Most of the boats available for fishing are not mechanized and cannot go far in the waters to catch a large amount of fish resources. This acts as a major limiting factor to total production. Furthermore, lack of refrigeration facilities on these bats don't allow the fishers to remain at sea more than 8-10 days as the fish start to rot.

Post Harvest- Problems

Already small catch due to lack of facilities like smaller nets are accompanied with the operational and transportation cost of the catch. Lack of post harvest facilities particularly refrigeration facilities, force fishers to send their catch to Karachi from Gwadar, Pasni, Ormara and Jewani for host harvest facilities.

Fisheries Statistics and Biological Research:

Inadequate Research and Development in Sector

Although a number of research organizations, institutions and universities include fisheries related subjects in their agendas, most of the research conducted to date has had little relevance to practical aspects and concerns of those in fisheries and related industries. Adequate research support is needed for development of the sector to happen. [2] [3]

Inadequate Statistical Data

Fisheries information in Pakistan faces problems of inadequacy, reliability and accuracy. For example, there are some inadequacies in the data collection system in Balochistan linked to poor

[2] Ibid.

[3] Ibid.

[5] Ibid.

sampling methods along the coast, whilst no reliable data collection system even exists. This inadequacy in the statistical data makes the management of the system extremely difficult and enigmatic. [2] [3]

Inadequate Institutions

Provincial/ areas fisheries departments are not properly manned nor organized, in particular at district levels. Mandates, hierarchies and responsibilities in these organizations are not well defined, nor well know, while some institutions which could enhance the development of fisheries within the wider economy are simply lacking. Internal conflicts linked to institutional dis-functioning have prevented fisheries management to receive the attention they require. The lack of producer's organizations is slowing down the development of the sector and hampering information sharing and concerted action. The lack, if not nonexistence, of fisheries management schemes organized and managed by communities is also institutional weakness that could be rectified through adequate devolution of responsibilities for sustainable inland and coastal fisheries resources management and use. [2] [3]

Environmental Factors:

Use of harmful fishing methods

Ineffective legislation and a lack of monitoring and surveillance facilities have resulted in a failure to prevent the spread of some of the harmful fishing gears like 'bullo', 'gujja' , and 'katra' to the coast of Balochistan, although coastal communities were able to eradicate use of bullo in an operation carried out in April 2006. Some conflicts have arisen between the fishermen of Balochistan and Sindh on the use of trawl nets. [2] [3]

Increase in pollution and environmental degradation

Industrial and urban pollution has been increasing and has started to negatively affect both inland and coastal waters. Environmental degradation due to habitat destruction, land reclamation, mangrove cutting and other factors has also affected the natural productivity of coastal fisheries, in particular in Sindh. Pollution has also increased in inland water bodies throughout the country, especially in the vicinity of large populations and industrial centres. Most of the fishing grounds in Sindh have been polluted by the industrial and urban pollution, while Balochi coast is still saved. But with increase in consumption rates and population increase, biodiversity of the habitat is highly affected. [2] [3]

[2] Ibid.

[3] Ibid.

III. POTENTIALS OF DEVELOPMENT

High revenue generation and Trade Enhancement:

Pakistan's exports of fishery products stand at about 0.25% of world exports. A rough estimate based on maximum sustainable yield figures, existing value addition, and foreign benchmarks, puts our total export potential from this sector at around US\$ 1.0 billion from existing natural resources. If we include the high potential area of aquaculture, our fisheries sector can yield even higher export earnings.

If the marine exports of the country are increased keeping in view the need of conserving biodiversity of the waters, Pakistan can generate far more than 6% of its foreign exchange from this 'aqua diamond' resource.[6]

Employment Opportunities:

With development of the infrastructure and availability of facilities to the community, shall provide a number of various employment opportunities for all kinds of personnel ranging from the clerkish to the top notch jobs. Fishermen would have other opportunities than the subsistence fishing and would have jobs for the multinational industries and skilled labour can be hired for pre-harvesting and post harvesting facilities. With adequate publicity, the interest of the world traders can be molded towards these potential lands and open new ways in the development of fishing industry and sustainable tourism.

Coastal Aquaculture:

Aquaculture is currently one of the fastest growing food production systems in the world with production level increasing at an average rate of 11% per year over the last decade. In Pakistan too, the major potential for increase in fish production lies in marine aquaculture. Therefore, there is an increased interest in the development of aquaculture production not only for the food security but also for larger economic benefits. Fishery aquaculture has existed in Pakistan for quite sometimes now. In this one literally grows fish from small fish media called fingerling, the latter being produced in hatcheries. Fishery aquaculture is, however, quite expensive business requiring land, pond excavation, water pumps and drainage system and in some cases even expensive oxygenation. Fish feed is also to be provided. In coastal areas of Sindh and Balochistan, natural fish is caught under traditional net and line method using fishing boats and trawlers. It is an open access system where Pakistani vessels have equal access under a nominal registration fee system. Fish catches and yields from the sea have been dwindling throughout the world including Pakistani coasts, creating a space and demand for other fishing techniques, one of which is fish aquaculture.

[1] Ibid.

[3] Ibid.

[6] 'Fisheries Sector', <http://www.pakissan.com/english/agri.overview/fisheries.sector.in.pakistan.shtml>/15.02.11

Lately Fisheries Development Board has announced a project named Cage Fishery Development. Currently the initiative launched by Fisheries development Board(FSB) is geared towards larger projects and investments.FSB has created a network of facilities to promote fish production through this method. The in-cage fishery aquaculture is feasible both for large scale as well as at micro and individual level.FSB and provincial governments would be strongly advised to launch

a small scale initiative for the poor farmers, rural poor and the landless peasants and now the flood victims. A package consisting of 4-5 fish cages of one cubic meter volume(one meter all sides),and monthly feed supplies and a starting stock of fingerling could be provided to the target group in all parts of the country in flood areas and in coastal Balochistan. Water bodies may be allocated to farmers groups and associations or on individual basis along with the aforementioned inputs. A training and demonstration programme should also be launched .Chinese government may be requested to provide assistance in this respects. They have a lot of experience in this and offer inputs and services at less than % prices. [1] [3]

CONCLUSION AND RECOMMENDATIONS

The Proposed Remediation/ Action Plan for the fishing industry in Balochistan is based on the developmental strategies suggested by the World Economic Forums and the Federal/ Provincial governments. The largest requirement for development in the sector is the commercial gain, which can be achieved by involvement of public- private investors and international market exposure of marine products. Improvement in the infrastructure facilities available in the region can drastically improve the trade capacity of the products. Following are the recommendations, suggested for the better development of fishing sector in Balochistan:

Investment:

Sustainable Future Investment Opportunities

As discussed before, marine resources should be exploited in a sustainable manner that conserves resources for the future generations.

Development of Fisheries Development Strategy

As the problems exist in the statistical data of the industry and the institutional framework, there is a requirement of strategic advancement policy development to monitor the fishing potential of the province. Economic forums like World Bank and Asian Development Bank have provided short term and long term plans which have not received due attention due to lack of organizational abilities.[4]

[1] Ibid.

[3] Ibid.

Public- Private Sector Involvement

Exploring the potential of fishing industry in Pakistan, it provides a vast investment opportunity in both public and private sectors. It has been long been in the hands of the government to handle the fishing practices but now is the time to merge in the abilities of both sectors for the greatest achievements.[5][6]

Technology

Diversification of Fishing Efforts

With the advancement of worldwide technology, new fishing methods have been developed. In Balochistan, the operational fleet should be increased in number so that diversified fishing efforts can be pertained.[3]

Development of Technical Research Programmes

The advanced technologies in the industry cannot be utilized properly without the proper training of the employed personnel. Training research programs should be arranged by federal and provincial government in collaboration with highly profiled institutions.[2] [3]

Establishment of Sustainable Harvesting Methods

Environment friendly harvesting methods should be introduced to avoid destruction of the marine habitat. This can be monitored by Environment Department and Fishing Board. [3]

Post Harvest Sectoral Improvements

The post harvest sectors include the storage, and transportation of the fish catch. With the development, of ice stores and proper handling techniques development, the sector can improved extensively.[4] For preservation facilities, Ice flake plants can be installed at following sites: Gaddani, Damb, Ormara, Chur, Kund Malir, Kalimat and Gunz.

Repair Work/ Workshops

No repair facilities are available on the Makran Coast. Workshops are required at Ormara, Pasni, Gwadar, and Jiwani. Large profits can be earned in this way. Potential sites include Gaddani, Ormara, Damb, Pasni, Surbandar, Piskukan, Gwadar and Jiwani.

Management

Local infrastructure Development

The infrastructural facilities are typically low in the region. Development of metallic roads for better transportation and communication should be encouraged so that domestic and international markets can be reached in more appropriate time.[2] [4]

Development of high potential zones for coastal aquaculture development

As the government has already developed zones for the marine catchment, further potential zonal diversification should be introduced so that zone- specific aquaculture can be encouraged. Aquaculture development is high potential area.[5]

Regulation

Fish inspection and Quality control

The quality of the marine catch for export quality assurance can be checked on regular basis by specialized departments. This ensures quality control of export and marks a better trade mark for Pakistani catch.[2] [3]

Control of over exploitation of marine fisheries

Over exploitation of the marine fisheries especially shrimps should be avoided to conserve the natural habitat. This is necessary for the commercial development of fishing industry as it keeps open the investment opportunities in the future.

Rehabilitation of marine aquatic habitats damaged by pollution and environmental degradation

Rehabilitation of the marine habitats by adequate monitoring and sea patrolling to avoid ill legal fishing should be encouraged. This shall reduce the environmental degradation process.

Marketing

Improvement in Marketing System

The present market of the marine catch is strong but can be readily improved by publicity stunts including seminars and exhibitions on the potential of the marine sources. [3]

Promotion of sport fishing activities in coastal waters

Sports fishing activities should be encouraged to assure public interest in the marine resources as such events can provide a platform for marketing of the marine products.

Encouragement of production of aquatic resources able to compete domestic and international markets

As discussed before that Pakistan's canned marine food is banned in the developed world, through proper development of canning industry facilities and other sectors, our products will be able to compete in the international markets.[2][3]

Promotion of Gwadar and other potential ports in the World market

Gwadar has occurred as potential port on the world map. Other ports should also be developed as the demand in marine catch increases. It is reported that Pasni port will not be functional in further 3 years because of siltation. Through proper management and developmental strategy, this problem can be solved.

Human Resource

Training of local Fishermen

Local Fishermen are the greatest resource in this industry. Increase in their knowledge about fishing techniques can help assure quality catchment of the marine resources.

Promotion of fisher folks' safety at sea

Each year many of the fishermen never return from the violent sea, there safety should be ensured by a setup of patrolling force. This will generate more employment in the sector.

Improvement in reliability of fisheries statistical data in the region

The statistical data collection process should be appropriate and federal government should announce a certain budget for the data collection for quality control and management.

[2] Ibid.

[3] Ibid.

[4] Ibid.

[5] Ibid.

[6] Ibid.

Appendix 1

DIRECTORATE OF FISHERIES GOVERNMENT OF BALOCHISTAN
statement of fish production and value on Balochistan Coast for the year 2005

S.No	COMMERCIAL FISH	QUANTITY IN M. Tons	VALUES IN PAK RS.
1	Flatfish	336.628	26784476
2	Sardineella	15735.98	97982896
3	Other clupeiform	3107.924	23319777
4	Wolf Herrings	786.892	31760931
5	L.Mackerel	1916.833	244845724
6	S. Mackerel	1882.923	151999594
7	Tuna	12656.261	316499068
8	Sea catfish	9062.609	154587828
9	Eels	1289.147	27060456
10	Barracuda	2568.028	46090081
11	Marlins	2083.072	56126486
12	Mulletts	411.683	7049104
13	Threadfin	430.852	12160895
14	L.Groper	2230.494	55562992
15	S.Groper	3269.245	66312261
16	Cobias	1522.966	38522995
17	Scads	3744.112	23786019
18	Indian Mackerel	14703.885	286131987
19	Queen fish	2313.101	143618823
20	Travelly	1798.307	114367392
21	Dolphin fish	1994.467	36086978
22	Grunts	1647.959	112767880
23	L.Croaker	2241.554	84395122
24	S.Croaker	2575.177	105205761
25	Emperors	1428.097	78581438
26	King Soldier Bream	482.706	42449930
27	Pomfrets	1823.929	419191143
28	Hairtail	12272.32	334870966
29	Sharks	3009.134	103771905
30	Rays	2085.769	30071229
31	Guitar fish	298.913	7666766
32	Shrimps	245.085	102460191
33	Kiddi	301.463	22749318
34	Grabs	65.416	2196873
35	Ivory Shell	66.743	1782900
36	Lobster	153.621	77356605
37	Cuutle fish	99.04	6878231
Total		112642.335	3493053021

Source: Directorate of Fisheries, Government of Balochistan

Appendix. 2

DIRECTORATE OF FISHERIES GOVERNMENT OF BALOCHISTAN							Period 2005
Quantity in M. ton		Estimated disposition of Catch in terms of round fresh weight basis					
		Catch i.e. Landing on round Fresh basis					
S.No	Name of Commercial Fish	total fish	chilled	frozen	cured	reduction	Offal
1	Flatfish	336.628	93.211	243.417	0	0	
2	Sardineella	15735.98	1450.602	132.161	23.108	14130.109	
3	Other clupeiform	3107.924	1270.224	3.34	69.35	1765.028	
4	Wolf Herrings	786.892	739.084	28.367	15.192	4.249	
5	L. Mackerel	1916.833	1348.212	560.084	8.501	0.036	
6	S. Mackerel	1882.923	1223.211	659.12	0.58	0.012	
7	Tuna	12656.261	8680.004	273.13	3700.047	3.08	
8	Sea catfish	9062.609	4015.11	1094.064	3936.022	17.413	
9	Eels	1289.147	278.439	989.569	19.027	2.112	
10	Barracuda	2568.028	1274.318	360.123	931.193	2.394	
11	Marlins	2083.072	930.04	0	1140.037	12.995	
12	Mulletts	411.683	407.473	0	0	4.21	
13	Threadfin	430.852	316.4	106.201	8.201	0.05	
14	L. Groper	2230.494	766.11	29.266	1434.013	1.105	
15	S. Groper	3269.245	1437.045	1248.15	582.021	2.029	
16	Cobias	1522.966	352.141	17.261	1153.103	0.461	
17	Scads	3744.112	2990.091	298.602	239.29	216.129	
18	Indian Mackerel	14703.885	708.211	12658.559	0	1337.115	
19	Queen fish	2313.101	844.901	486.401	980.691	1.108	
20	Travelly	1798.307	880.072	732.108	186.094	0.033	
21	Dolphin fish	1994.467	655.097	280.007	1057.211	2.152	
22	Grunts	1647.959	932.394	694.204	21.159	0.202	
23	L. Croaker	2241.554	1059.242	208.147	972.151	2.014	
24	S. Croaker	2575.177	1532.027	1028.305	12.201	2.644	
25	Emperors	1428.097	785.387	613.397	29.218	0.095	
26	King Soldier Bream	482.706	457.585	23.006	2.115	0	
27	Pomfrets	1823.929	584.514	1231.231	8.184	0	
28	Hairtail	12272.32	1698.1	9777.021	9.154	788.045	
29	Sharks	3009.134	298.404	5.129	2698.291	7.31	
30	Rays	2085.769	0	0	1863.128	222.641	
31	Guitar fish	298.913	0	0	296.761	2.152	
32	Shrimps	245.085	44.086	200.505	0	0.494	
33	Kiddi	301.463	137.401	163.001	0	1.061	
34	Grabs	65.416	45.114	18.201	0	2.101	
35	Ivory Shell	66.743	29.143	30.236	0	7.364	
36	Lobster	153.621	20.121	132.249	0	1.251	
37	Cuuttle fish	99.04	15.041	82.103	0	1.896	
Total		112642.335	38205.344	34406.665	21396.043	18541.09	570.300 M. Tons as bi-products

Source: Directorate of Fisheries, Government of Balochistan

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