

Fishing Industry

Catching fish (rivers / lakes / ponds / sea / ocean) for business called fishing industry.

Different Terms

Aqua Culture

Development of water resources for fish and shrimps.

Marine Fishing

Fishing related to Sea or Ocean / Catching of fish from Sea / Ocean.

Inland / Fresh Warm Water Fishing

Fishing related to Rivers, Lakes and ponds / Catching of fish from Rivers / Lakes / Ponds.

GDP (Gross Domestic Product)

The total domestic output of a country including exports but not imports.

Importance Of Fishing Industry

1. Fishing is an oldest occupation of the people who live near Lakes, Rivers, Sea and Ocean.
2. Fish is an important source of diet.
3. Fish provides **13-20 %** Proteins **10-12 %** Fats along with Calcium ,Phosphorous, Iron, Iodine, Vitamin **A** and **D**.
4. According to the session 2009-2010 the total number of people i.e. **395,000** were engaged with this sector but out of total **135,000** people are engaged with Marine fishing and remaining **225,000** with Inland fishing.
5. Fishing industry has a share of **GDP (Gross Domestic Product) 0.9 %**.
6. Pakistan earns **6 %** of its foreign exchange by the export of fish and fish products and fish is exported to Japan ,Germany, USA, Middle East and other countries.
7. Fish is delicious, white meat, and low cholesterol diet and important for heart patient.
8. Fish waste is used to make fertilizers and Poultry feed.
9. Oil is extracted from fish.

Types of Fishing

There are **two** types of Fishing

1. **Marine Fishing**
2. **Inland / Fresh Warm Water Fishing**

1. Marine Fishing

Fishing related to Sea or Ocean / Catching of fish from Sea / Ocean.

Marine Fishing is done at Sindh Coast and Makran Coast (Baluchistan). At Sindh coast Karachi is the main fishing centre. At Makran Coast Jiwani, Gawdar, Pasni, Ormara and Somiani (small ports) are the main catching centres.

Different species of fish are found at these coasts. At Sindh Coast **Prawns, Shark, Sardines, Makeral, Herring, Drums, Skates, Rays and Cat fish.**

At Makran Coast the number of species are caught by the fishermen e.g. **Sardines, Makeral, Herring, Drums, Skates, Rays, Cat fish and Shark.**

The peak **season** for catching fish i.e. **November to May** and for Shrimps **October to November**. **June and July** declared as close months due to breeding.

Sindh Coast

1. Sindh coast has **30 %** of total coastal area for fishing.
2. From Sindh Coast **68 %** of fish is caught.
3. On Sindh Coast Karachi is the main fishing centre.
4. Sindh Coast has an advantage of wider continental shelf. (The shallow sea bed boarding a continent).
5. Sindh Coast is rich in fish food because the River Indus brings lot of fish food and join the Arabian Sea. Mangrove forest also located here. These are good breeding place for fish and shrimps.
6. Sindh Coast has wide shallow sea beyond.
7. Sindh Coast has numerous creeks, because River Indus forms the delta.
8. On Sindh Coast Government has provided the Storage, Preservation and export facilities.
9. In Karachi the Government has developed the Korangi fish harbour where storage and packing facilities are available to fishermen.

Makran Coast

1. Makran Coast has the **70 %** of total area for fishing.
2. From Makran Coast we catch **32 %** of Marine fish.
3. On Makran Coast small ports are the main fishing centres e.g. Jiwani, Gawdar, Pasni, Ormara and Somiani.
4. Makran Coast has no creeks, because only the seasonal streams join the Arabian Sea.
5. On Makran Coast mangrove forests do not exist.
6. On Makran Coast Government has provided the facilities e.g. for docking of sail boat, handling of the catch, preservation and storage, Ice factory and refrigeration plants and modern fish curing yards.
7. People adopt the traditional techniques for catching the fish.
8. On Makran Coast Gwadar is the most important fishing port.

Fig.1, Shows the location of Ports at Balochistan coast.



Location of ports

Q.1. Name, in order of importance, Pakistan's three main importing and exporting ports.

Ans.

1. Karachi / Keamari.
2. Port Qasim.
3. Gwadar.

Q.2. Why are the ports in Balochistan small?

Ans.

- Mountainous / rugged interior.
- Inhospitable interior.
- Undeveloped.
- Little industry for fishing.
- Poor communication to interior.
- Few links to developed areas of Pakistan.
- Lack of infrastructure.
- Small population of the Makran Coast.
- No large estuaries.

Q.3. How does the poor infrastructure of Balochistan make development of the fishing industry difficult?

Ans.

- Poor road / no railway for transport.
- Lack of electricity / power for processing.
- Poor telecommunications to markets.
- Lack of fresh / clean water for processing.
- Illiteracy / lack of training / lack of education

Q.4. At present time, most of the fish catch is processed in Karachi. The ports of Balochistan such as Gwadar and Pasni have the potential for development. What are the advantages and disadvantages of developing fish processing industries in the ports of Balochistan.

Ans. Advantages

Stimulates development of fishing industry / port facilities e.g. Gwadar.
Reduced cost of transport than to Karachi.
More fish / no delay / no need for storage.
Infrastructure developed, e.g. roads, power, telecommunication.
Higher living standard due to rise income e.g. better housing, jobs.
Exported to abroad (Middle East) and earn foreign exchange.

Disadvantages

Lack of infrastructure, e.g. roads, power, water.
Small market / population.
Uneducated / unskilled population.
Inhospitable climate / relief.
Long way from major centers of population.
Pollution and its effects on urban population.

Types of Marine Fishing

- i. **Subsistence Marine Fishing**
- ii. **Commercial Marine Fishing**

i. Subsistence Marine Fishing

When the fisherman and his family consume the fish they catch. Some fishing communities on the coast are engaged in Subsistence Fishing, as fish is the main component their diet. As a result the fish catch is also nominal and cannot be relied on as a permanent source of income. In this type of fishing the fishermen uses traditional / conventional techniques for catching fish. These are as follows:

1. **Small wooden boats. (2 – 5 Kms in deep sea water).**
2. **Sailing / Rowing boats.**
3. **Traditional / hand made nets.**
4. **Rod and line methods.**
5. **Fish kept in baskets of ice.**
6. **Only in coastal areas.**

ii. Commercial Marine Fishing

In this type of fishing fish is sold into the market after catching by the fishermen. A number of fishing communities depend on fishing as the sole source of their income. There are two main fishing centers of commercial fishing i.e. Karachi and Gwadar.

In Karachi the Government has developed Korangi fish harbour where storage and packing facilities are available. In this type of fishing fishermen use modern techniques to catch the fish. These are as follows:

1. **Mechanized Boats / Engines. (1 – 50 Kms in deep Sea water).**
2. **Gill netters.** (Nets for catching fish which entangles their respiratory organs).
3. **Trawlers.** (A fishing boat that uses large net that its drags through behind it).
4. **Chilled storage on boat.**
5. **Loans for Education / Training.**

Q.1. Describe how marine fishing methods can be improved.

Ans. Boats with engines.

Can go further offshore.

Can stay at sea for several days.

Cold storage on boats.

Mechanized equipments / winches.

Nylon / bigger / stronger / nets or ropes.

Satellite navigation.

Training / education.

Study the Following

Fish

Group 1- Crab, Lobster, Prawns, Sardines, Shark

Group 2- Hilla, Mahaseer, Palla, Trout

Group 3- Herrings, Mackerel, Sardines, Shark

Fishing Areas

A - Inland Fishing

B - Makran Coast

C - Indus Coast

Q.1. In which fishing area are the fish in group 1 caught?

Ans. Indus Coast.

Q.2. In which fishing area are the fish in group 2 caught?

Ans. Inland Fishing.

Q.3. Name two fishing ports on the coast of Balochistan.

Ans. Jiwani / Gwader / Pasni / Ormara / Sonmiani

Q.4. Name two type of marine fish caught by fishermen.

Ans. Prawn / Sharks / Sardines / Herrings / Catfish.

Q.5. Describe the fishing industry of the Makran Coast with reference to methods of catching the fish, ports and the uses of the fish caught.

Ans. Makran Coast covers the 68 % area.

Fish caught from this coast is 32 % .

Fishing is the main occupation of people living along the Makran Coast.

Fishermen adopt subsistence and commercial fishing techniques. e.g.

Use of gill netters, Small wooden boats, Hand made net, Mechanized boats, Trawler are being used.

Fish is a white meat, low cholesterol and balance diet.

Fish waste is to make fertilizer and poultry feed.

Q.6. For marine fishing name the main catch and the most important export market for catch?

Ans. Prawn / shrimps

Japan

Study **Fig.2**, which shows the weight of marine fish caught 1996 – 2006.

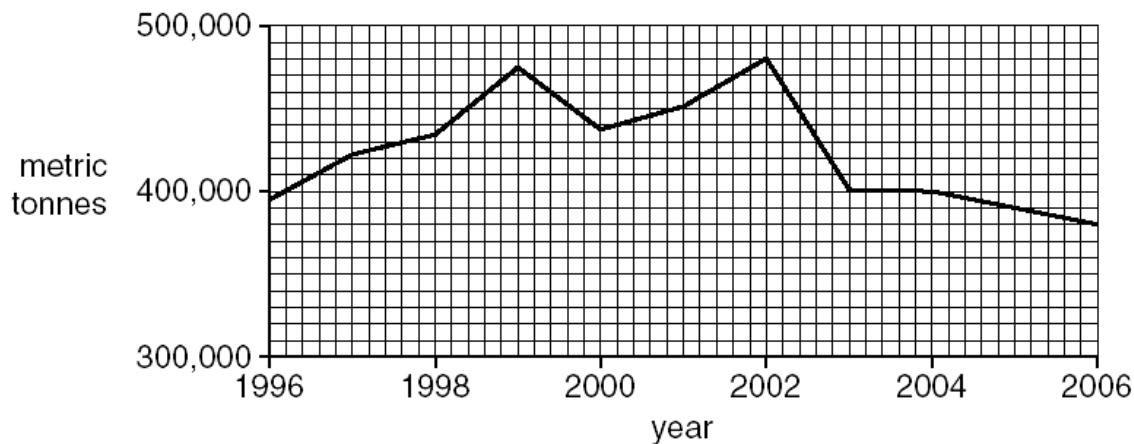


Fig.2

Q.7. The weight of fish caught in 2006 was less than in 1996. Suggest two reasons for this decrease.

Ans. Over – fishing.
Water pollution.
Loss of breeding due to cutting of mangrove forest.
Fishing in closed season i.e. June to July.
Fishing by boats from other countries.

Q.8. Describe how the weight of fish caught changed in the years between 1996 and 2006.

Ans. Increases and decreases / fluctuates.
Highest in 2002.
Two peaks.
Lowest in 2006.
No increase since 2003.

Q.9. How can fish be stored and processed on shore?

Ans. In ice / cold storage / refrigerated.
Gutted.
Canned. (A metal container)
Dried. (To be used for cooking)
Frozen. (To preserve)
Salted. (For preserving)
Fish oil.

Q.10. Why is fish processing called ‘Value-added’?

Ans. Can be sold for more money / more profit.

2. Inland / Fresh Warm Water Fishing

Fishing related to Rivers, Lakes and ponds / Catching of fish from Rivers / Lakes / Ponds.

Types of Inland / Fresh Warm Water Fishing

i. Fresh Warm Water Fishing

Catching of fish from Rivers, Lakes, Dams & Barrages.

ii. Cold Water Fishing

Catching of fish from Rivers which are located in northern areas, only the Trout fish exist in cold water..

iii. Pond Fishing

Pond fish is under the custody of private sector. They construct number of ponds in various parts of the country and culture the fish in these man made ponds. Fish farms are rectangular man-made ponds for breeding of fish. They have a concrete or cemented impervious base to prevent water losses through leakage. The side of the farm is edged with solidified mud. Trees are normally planted around the fish farms to provide oxygen, to minimize water losses through evaporation and to keep the water body cool. This facilitates the growth and fertilization of fish.

Photograph (Pond Fishing)



Photograph of Fish Pond

Factors (For the Construction of Fish Pond)

1. Flat area.
2. Alluvial soil.
3. Availability of water from canals / tube well.
4. Young fish from hatchery complex.
5. Availability of food.
6. Availability of transport.
7. Man made.

Species (Inland Fishing)

Rahu
Pala
Thala
Gross and silver
Mahaseer

Sources of Inland Fishing

1. River Indus and its eastern and western tributaries.
2. Manchar in Dadu District.
3. Haleji west of Thatta.
4. Kenjhar north of Thatta.
5. Mangla Dam
6. Tarbela Dam.

Fig.3, shows the location of **Inland Fish Farms**.

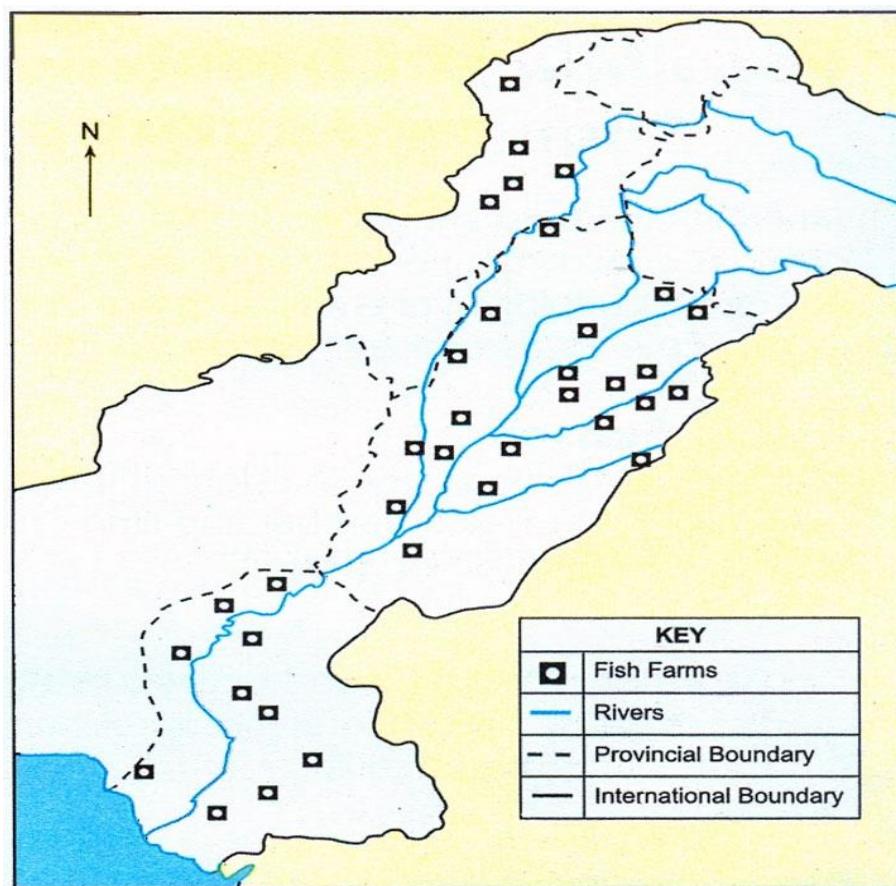


Fig.3

Q.1. For inland fishing state where and why fish are caught.

Ans. Rivers, Lakes, Ponds, Dams and barrages.

- 1- Balance diet / source of protein / vitamins A, D.
- 2- White meat and low cholesterol.
- 3- Subsistence food.
- 4- Sold into local market.

Study photograph A



Photograph A

Q.2. With reference to photograph A, Describe the lay-out and features of the fish farm.

Ans. Large area.

Several / at least 4 ponds.

Rectangular pond.

Line of trees.

Small pebbles on the bank of pond.

Trees for shade.

Constructed according to planning.

Road straight.

Q.3. How has the Physical topography of the area made it easy to construct the ponds?

Ans. Flat land / Plain land.

Large area.

Easy to use machinery for digging out ponds.

Soft soil / Alluvial deposits.

Water collects for canal / tubewell.

Q.4. Where are the material come from that has been used to make the banks of the ponds?

Ans. From the area dug out for the ponds. (Adjacent areas)

Q.5. Study photograph A, state three ways in which the owner has improved the site for fish farming.

Ans. Rectangular / man-made ponds for better management etc.

Brick / stone / pucca road for vehicles / for easy access.

Trees for shade / shelter / beauty.

Ponds full of water for healthy fish.

Embankment of ponds to prevent soil erosion.

Q.6. Name two species of fish reared on fish farms.

Ans. Mahaseer, Rahu, Palla, Thalla, Trout, Shrimp.

Q.7. Describe the fishing methods used on a fish farm.

Ans. Prepare ponds / half fill for insects.
Buy small fish from hatchery complex for breeding.
Of single species / improved type of stock.
Regular feeding (with poultry waste).
Health care / regular checks.
Check water levels clean water.
Transfer between ponds by size.
Catch fully grown fish / fish of market size.
Catch by net.

Q.8. Why is fish farming of growing importance in Pakistan? Credit will be given if you name a species of fresh water fish reared on fish farms. OR Explain why fishing and fish farming are important industries in Pakistan.

Ans. Fish Breed:

Silver Grass / Rahu / Tallah / Mahaseer / Palla / Trout.

Why

Growing population.
Lack of proteins in diet.
Fish are rich in proteins / Low cholesterol.
Provides alternatives income for farmers.
Provides employment opportunities.
Water available from irrigation schemes / lakes / reservoirs.
Nutritious food / good quality / healthy.
Bones for fertilizer.
Export / earns foreign exchange.

Q.9. Explain why more people are employed in inland fisheries than marine fishing?

Ans. More people live near rivers, lakes.
Maintenance of ponds.
Hatcheries.
Feeding.
Catching.
Transport.
Government encouragement / loans.

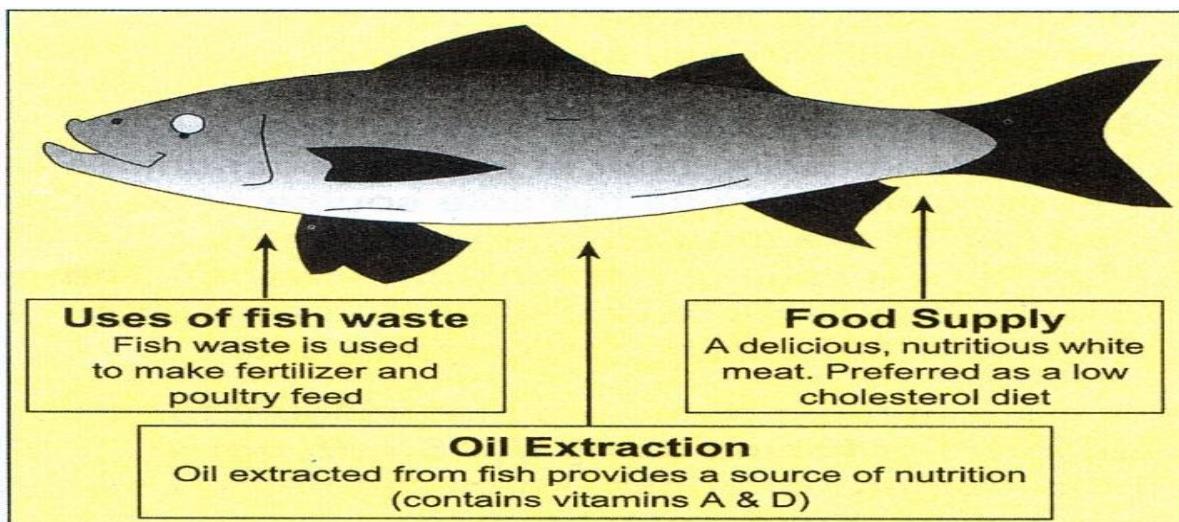
Fish Marketing

Pakistan has a domestic and an International market for fish, shrimps and fish products. At the domestic level the catch from marine fisheries is supplied to the local fish markets through wholesale dealers. In Karachi, the main fishing centre, street hawkers also buy some of the fish catch and provide door to door service. Frozen or processed fish is supplied to only a few large departmental stores in urban areas, but 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 compared to European countries.

At 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, U.K and France** are other markets. About **80 %** of the total fish catch of the Makran Coast is dried for export to the Middle East.

Uses of Fish

1. Fish is delicious, white meat, and low cholesterol diet and important for heart patient.
2. Fish waste is used to make fertilizers and Poultry feed.
3. Oil is extracted from fish.



Problems of Fishing Industry

1. Water pollution
2. Over fishing
3. Threat / cutting of mangrove forest
4. Less water in rivers (winter)

Study **Fig.4**

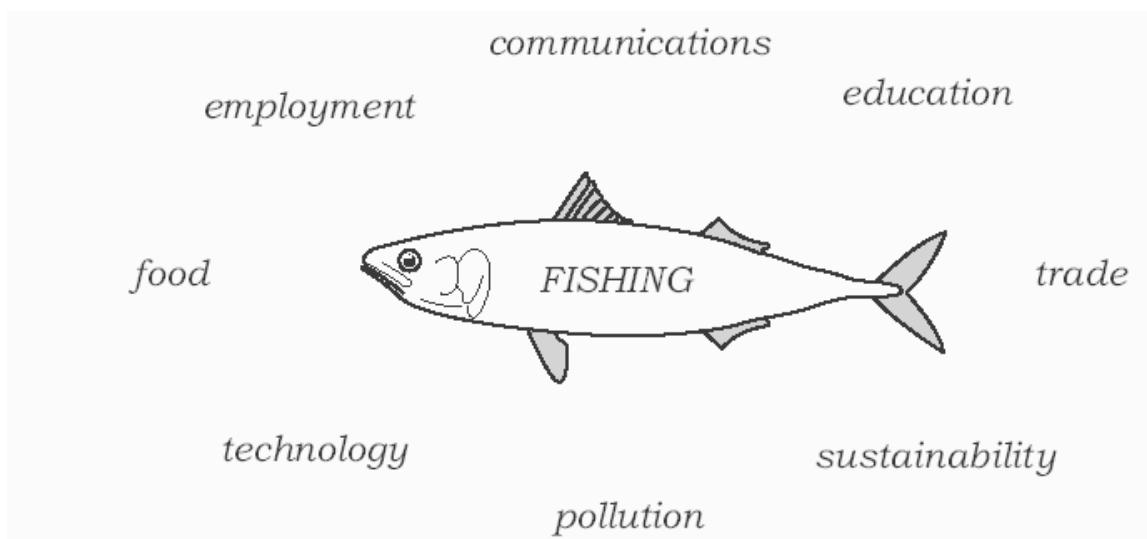


Fig.4

Q.1. Study Fig.4. Explain the advantages and disadvantages of developing the fishing industry in Pakistan.

Ans. Advantages

- More food
- More proteins.
- More employment opportunities.
- Exports to Japan and other countries for foreign exchange.
- More technology – introduction of Engines, Machines, Radaf, Satellite navigation.
- More education by teaching skills. Sustainability as fish are 'Free' should not run out
- Growth of other industries e.g. Processing, Boat building.

Disadvantages

Education	Lack of skilled labor.
Technology	Costly / Imported.
Water Pollution	Kills, damage fish, Pakistan's rivers are polluted.
Restrictions	Marine fishing banned in June and July.
Income	Not large, delayed profit.
Sustainability	Issues of over fishing.

Study **Fig.5**, a graph comparing the production of marine and inland fisheries in Pakistan.

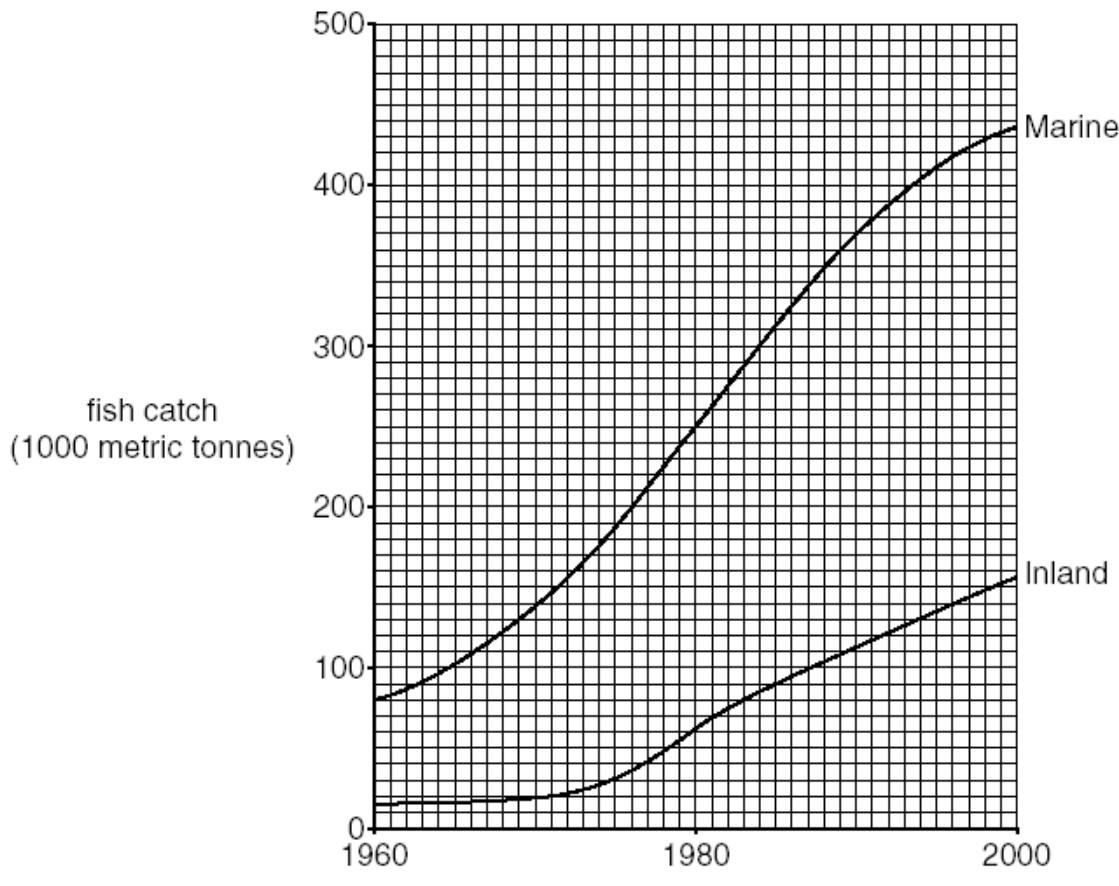


Fig.5

Q.2. Compare the changes shown in the graph.

Ans. Both increases.

Marine increases more than inland / faster than inland.

Marine increases / continuously but inland had little increase until early 1970s.

Inland increased to nearly 10 times bigger / marine only 5 times bigger.

Government Efforts to Develop Fisheries

The Government is taking a number of steps to improve the fisheries sector which include:

1. The introduction of new fishing methods.
2. The development of Value-added products such as canned or frozen fish by providing fish processing facilities.
3. Guidance and weather information for the fishermen through broadcasting services and the meteorological departments of the government.
4. Monitoring of deep sea fishing vessels.
5. Loans for training / education.
6. Construction of cold storage for processing.
7. Provision of Infrastructure facilities e.g. electricity and roads.
8. Communication facilities for marketing.

Sustainable Fisheries

Sustainable development means that fisheries should be developed in the most balanced way in order to increase the food production for the present generation and to ensure fish remain available and accessible to future generations.

In order to develop fisheries on sustainable lines the Government should take all those factors into consideration and should

1. Banning the use of **illegal nets**. These have small holes which catch the baby fish.
2. Avoid to the cutting of Mangrove forests and water pollution.
3. Avoid to over fishing.
4. Construction of cold storage for processing.

Q.1 How does the production of fish in Pakistan help its economy?

Ans.

1. Rise in **GNP** (Gross National Product).
2. Greater return to fishermen.
3. Increase Employment opportunities.
4. Extra income to farmer.
5. Use of technology and up-grading of skills will ensure increased fish production.
6. Pakistan earns foreign exchange from the export of fish and shrimps.
7. Reduces burden on crop and livestock.