approach would indeed be unwise and ultimately unsustainable, involving risks that could impose human costs and constraints on economic growth and development.

Hence, realizing the full potential of the oceans and waterways will demand responsible and sustainable approaches to its economic development. A greener and more effective seafood chain can contribute to sustainable growth and food security, and pave the way for less pressure to be placed on marine and land resources.

This is why FAO has launched the *FAO Initiative on Blue Growth in Support of Food Security, Poverty Alleviation and Sustainable Management of Aquatic Resources*. This initiative encompasses the contribution of aquatic renewable resources from Oceans and freshwater to the Blue Economy.

With the Blue Growth Initiative, we aim to enable the catalysis of policies, investment and innovation which would underpin sustained growth and give rise to new economic opportunities such as ecosystem services. It would integrate key aspects of food security, economic performance, such as poverty reduction, job creation and social inclusion, with those of environmental performance, such as mitigation of climate change, eco-systems and biodiversity loss. It would mobilize technical support and build local capacity for the design and implementation of Blue Growth Strategies and create action-oriented policy options and institutions tailored to the respective economic circumstances and constraints of Member Countries.

The initiative would aim to intensify partnerships among industry, governments at all levels, civil society organizations and communities. The recognition of the fundamental role the private sector, CSOs and public-private partnerships will play in changing current behaviors, practices and technologies, and accepting that short- term economic impact will be superseded by long-term economic gain, is essential.

I look forward to discussing with you the possibilities for collaboration on this FAO Initiative and the FAO work in support of the Blue Economy in its Member Countries.

Thank you for your attention.

Dr. Lahsen Ababouch
Director, Fisheries Policy and Economics Division, FAO, Rome.

These statistics indicate clearly why the oceans, seas, lakes and rivers are at the centre of an important economic activity to feed and provide livelihoods to a global population set to rise by 2 billion over the next 40 years. But is the current trend sustainable? Unfortunately not.

The aquatic environment is already under stress from over-exploitation, pollution, declining biodiversity, climate change, increase in hypoxic areas, expansion of invasive species and ocean acidification. This is because economic growth in Fisheries and Aquaculture in recent decades has been accomplished in several parts of the world through unsustainable exploitation of many aquatic resources. In the case of Fisheries, such growth has commonly not allowed fish stocks or habitats to regenerate, resulting in overfishing, ecosystem degradation and habitat and biodiversity loss. Consequently, the share of marine fish stocks that are over-exploited has increased during the last decades from 10% in 1970 to nearly one third in 2009. A further 52% of the fish stocks are fully exploited. Illegal, Unreported and Unregulated (IUU) fishing is estimated at 15 to 20 million tonnes a year. Fishing continues to be one, if not the most hazardous occupation in the world, resulting in over 24,000 deaths annually, mainly on board small fishing vessels. Disease outbreaks have cost the global aquaculture industry tens of billions of dollars over the last 20 years. The tsunami of December 2004 in the Indian Ocean caused massive loss of life (over 230,000 deaths), severe damage to the physical infrastructure of many Asian countries estimated at over US $ 10 billion and another 11 billion for its reconstruction and left over 1.7 million people homeless. More recently, Typhoon Haiyan has had similar devastating effects in South East Asia, particularly in the Philippines affecting 16 million People, causing the death of 6,300, displacing 4.1 million, and destroying some 1.1 million homes and causing the loss of income for 5.9 million workers

The good news is that in some regions, the introduction of proper fisheries management schemes has restored fish stocks' vitality. In fact, FAO and the World Bank estimate that the potential economic gain from restoring fish stocks and reducing fishing capacity to an optimal level is on the order of USD 50 billion per year.

FAO is of the opinion that Fisheries and Aquaculture can be vital in the transition towards a Blue Growth due to their interconnectivity with, and reliance on aquatic ecosystems and the potential for people employed in it to act not only as resource users but also as resource stewards. To continue a "business as usual"

Aquaculture has made and continue to make to global food security, poverty alleviation and sustainable management of natural resources.

Indeed, Fisheries and Aquaculture supply around 19.4 kg/capita per year and 17% of global animal proteins in addition to essential micronutrients such as vitamins A, B and D, or minerals such as zinc, iodine, selenium, calcium or iron. These micronutrients are vital for the eradication of nutritional deficiencies that still affect millions of people, especially children, in the developing world. Populations in Low Income Food Deficit Countries (LIFDCs), in Africa or Asia rely even more on fish for their intake of animal proteins, at respectively 25% and 18%.

In fact, per capita fish consumption has more than doubled since 1973. This was possible despite the stagnation of capture fisheries during the last 20 years because of the important increase in aquaculture production, estimated at an average 8.3% yearly growth during the period 1970 – 2010, making it the fastest growing food production system. As a result, the average annual contribution of fish from aquaculture for human consumption has increased seven fold, from 7% in 1970 to 48% in 2012. This trend is projected to continue, with the contribution of aquaculture to fish food supply estimated to reach 53%- 65% by 2020 depending on how innovations and investment would accrue to aquaculture to enable it to meet the demand for fish.

But the Fisheries and Aquaculture sector is not only about its contribution to food security. Its social and economic dimensions are equally important. Around 58 million people are directly employed in Fisheries and Aquaculture and some 200 million direct and indirect employment opportunities occur along the value chain from harvesting to distribution, making the livelihoods of some 880 million people (12% of the global population) dependent on the sector. Employment in the Fisheries and Aquaculture sectors has grown faster than the world's population and faster than employment in traditional agriculture.

Finally, fish and seafood are one of the most traded food commodities. Some 38% of the world production enters international trade in various shapes and forms, generating a value of US$ 130 billion in 2012, up from a mere 8 billion in 1976. Over 53% of this trade originates in developing countries whose net trade income (export – import), valued at US$ 36 billion in 2012, and was greater than the net trade income of the other food commodities combined.

OPENING STATEMENT BY
DR. LAHSEN ABABOUCH
DIRECTOR FISHERIES POLICY AND ECONOMICS DIVISION (FAO)


DR. LAHSEN ABABOUCH

Excellencies, Ladies and Gentlemen,

I wish to thank the Government of Pakistan, the Department of Fisheries and the Pakistan Fisheries Society for inviting me to speak at this 5th International Fisheries Symposium. I wish also to congratulate them for the excellent organization and for the wonderful hospitality

The 197 Members of the Food and Agriculture Organization of the United Nations (FAO) have an ambitious vision and have set ambitious goals for the Organization. FAO's vision is "*A world free from hunger and malnutrition where food and agriculture contribute to improving the living standards of all, especially the poorest, in an economically, socially and environmentally sustainable manner*".

Three Global Goals underpin this vision:

1) *eradication of hunger, food insecurity and malnutrition, progressively ensuring a world in which people at all times have sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life*;
2) *elimination of poverty and the driving forward of economic and social progress for all, with increased food production, enhanced rural development and sustainable livelihoods; and*
3) *sustainable management and utilization of natural resources, including land, water, air, climate and genetic resources for the benefit of present and future generations*.

Fisheries, trade and investment, the theme of this 5th IFS edition, are at the heart of this ambitious vision and these ambitious goals. Please allow me to share with you relevant FAO statistics to highlight the key contribution Fisheries and

draw his kind attention towards the genuine problems being faced by the private fish farmers. The price escalations of inputs like fish feed, fertilizers and electricity have put more economical burden on the shoulders of private fish farmers. In this direction, patronization of the government in the shape of subsidy and tax rebates will be commendable. Moreover, provision of the soft loans as previously extended to the farmers may be revived, so that the deserving fish farmers could be benefitted.

This symposium will be a way forward providing ample opportunities for fisheries scientists/ technologists to share their knowledge and ideas for uplifting of fisheries sector and suggest measures for increase in fish production per unit area.

In fact, the Department of Fisheries Punjab is paying attention with heart and soul to promote fisheries in the province. It is mentioned with pride and pleasure that Department has launched seven (7) new development projects during current financial year (2014-15). It is hoped that after completion of these development projects not only the departmental personnel and private farmers will be benefited with rich knowledge and hands on trainings but also fish production per unit area will be increased. I am fully confident that this gathering of intellectual will put in full blooded efforts to accept the challenges of 21st century focusing on enhanced protein production. The assertive approach to accomplish the job of addressing protein deficiency will be highly appreciable.

I am highly thankful to worthy Chief Minister and other eminent scholars who have spared their valuable time for this noble cause of nation building.

THANKS

SPEECH BY

MR. MALIK MUHAMMAD ASIF BHA AWAN

MINISTER FOR FOREST, WILDLIFE AND FISHERIES
GOVT. OF THE PUNJAB

MR. MALIK MUHAMMAD ASIF BHA

Worthy Chief Minister Punjab, Guest of Honour, Honorable Guests, Fisheries Scientists and Participants

"Assalam-o-Alaikum''

I feel immense pleasure to welcome all of you here on the eve of this memorable 5th International Fisheries Symposium 2015. As for history of fisheries is concerned, it is very old and dates back to 500BC. The fish is considered to be best source of animal protein. Its flesh is blessed with essential minerals which play vital role to maintain the human health. It is worth mentioning here that due to ever increasing population, the requirement of quality protein has gained momentum. Traditional sources of animal protein are under constant pressure. To augment animal protein aquaculture is the best answer.

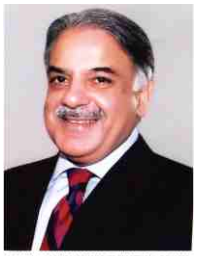
The natural waters are under continuous stress of over exploitation and ever increasing pollution. Moreover, drought also adversely affected the water resources. Under these circumstances it has become responsibility for fisheries scientists to join hands and put in efforts to develop "Aquaculture Industry" on modern lines.

No doubt, we are not pacing along with the advancements made by the other nations in the field of science and technology but I am of the firm belief that our scientists can abridge this gap by hard work, devotion and dedication. Dr. Allama Muhammad Iqbal has said.

نہیں ہے نا اُمید اقبال اپنی کشتِ ویراں سے
ذرا نم ہو تو یہ مٹی بہت زرخیز ہے ساقی

Presently, more than 8000 fish farms have been established on 60,000 acres in Punjab, which are running successfully and this number is also increasing day by day. Taking the opportunity of presence of **Honorable Chief Guest** I want to

MESSAGE FROM
MR. MIAN MUHAMMAD SHAHBAZ SHARIF
CHIEF MINISTER PUNJAB


MR. MIAN MUHAMMAD SHAHBAZ SHARIF

Department of Fisheries has taken a laudable step by convening an International Symposium on "Fisheries, Trade and Investment Opportunities". This symposium will provide an opportunity to the prominent researchers, scientists and experts from both national and international communities, fish farmers and business community to gather at one platform and share their views and discuss the major issues and problems being encountered by this sector in the country and come up with concrete proposals/ suggestions for its further development on modern scientific lines. The Symposium will also create opportunities for the investors from private sector to invest in field of fisheries and aquaculture to bring this sector at par with the other developing nations of the continent. It is encouraging to note that the declining fish production from the natural resources is being more than compensated by the production from the private sector fish farms which are operating under the technical guidance of the Department of Fisheries Punjab. The fisheries sector has been given due importance in the manifesto of the PML (N). In line with that the present government has increased development portfolio of the fisheries department manifold.

It is the fundamental policy of this government to promote Public –Private partnership as well as private sector investment in the sector and it is a matter of satisfaction that department has launched a first ever PPP project "Feasibility Studies for Establishment of Aquaculture Processing Zone under PPP Mode".

I assure the participants of the symposium and especially the foreign delegates that present government will facilitate the private investors in setting up modern aquaculture Technology Park and fish export processing zone to initiate fisheries export from Punjab province.

I take this opportunity to welcome all the delegates and wish them pleasant and fruitful stay in Lahore. I hope that they will take some time out of their busy schedule to visit the historical attractions in Lahore and enjoy the beautiful spring weather. I also congratulate the organizers for making this useful symposium possible.

ideas shared during this Symposium will bear fruit in future planning to address various issues. In the end, I again extend my gratitude to the Chief Minister Punjab and Minister FW&F Department, Dr. Lahsen Ababouch, dignitaries, National and International eminent scientists, researchers, academia, Professionals, Students, fish traders and processors, investors and fish farmers who spared time to participate in this Symposium and made it a huge success. I would also like to acknowledge and thank the partners for this event especially the UNIDO/EU, FAO and FDB.

and SPS). The export of fish products requires certified test results from recognized institutions i.e. accredited laboratories, especially regarding parameters of food safety including microorganisms and chemical contaminants. In Pakistan there is a federal legislation for "Inspection & Quality Control Act, 1997. Similarly Province of Punjab has Fish Quality assurance Act of 2007. Likewise there are two well-equipped and certified Laboratories in Karachi and other in Lahore. These are well equipped both for microbiological/chemical testing with regard to personnel and facilities, analyzing and certifying fish and fishery products meeting national and international quality standards and have the facilities to conduct all the tests legally required by the fish exporters for exports to EU.

Trade. The Department is making efforts for establishing Export Processing Zone in the Southern Punjab, through a development project that will be operating though Public Private Partnership (PPP) that will help export quality fish and generate foreign exchange.

Aquaculture has been the main drive in National Food Security and foreign fishery trade. As regards global Fisheries imports, Europe is the largest market, followed by Asia and North America. In 2012, import growth slowed down in the developed countries but remained stable in the developing regions. However, a review of exports reveals that with increased value addition, Asian producers have dominated in supplies of food fish in International trade (about 41% share). FAO has reported that during 2012, the net export revenues earned by developing countries from their fish and fishery products is higher than the entire sum of all other food commodities combined.

Statistical Data reveals that that individual export value of Tilapia and Pangasius catfish crossed US$ 1 billion supported by increasing consumer demand in large, medium and small markets worldwide.

In this Symposium around 100 abstracts have been received from Universities all over Pakistan including University of the Punjab, Lahore College for Women University, UVAS, GCU, Faisalabad, GC Women University, Faisalabad, University of Agriculture Faisalabad, BZU, Multan, Karachi University, University of Jamshoro, Hyderabad, University of Peshawar, Mardan University, KPK, AJK University and many others, besides contributions from China, Morocco, Thailand and Rome. It is hoped that the

lying vacant for about a decade may be filled in. Some previous in this regard have already submitted their proposals to IPCC.

The endeavors of the Department of Fisheries have helped in the dissemination of artificial fish breeding technology to the private sector and presently a number of hatcheries exist in private sector that are catering to the needs of the private sector for fish seed and also employment generation.

One of the salient achievements of the Department is the successful artificial breeding of the endangered species mahseer *Tor macrolepis* during 2004. Department is making all out efforts for adopting all conservational measure to preserve the biological heritage.

The Department has established a Biodiversity Hatchery at Chashma Barrage, District Mianwali, which offers a huge water potential covering around 358 km^2 lake for study on endemic fauna of fish and other aquatic animals in the lake covering all aspects particularly pertaining to the breeding behavior of different species, so that these may also be included in our fish culture system.

The Department also plans to introduce the Intensive Culture System which has already been adopted worldwide, for obtaining higher fish production from minimum amount of water thereby addressing the issue of reduced availability of freshwater in nature, resulted due to anthropogenic activities.

Fish has high nutritional quality, is relatively low in saturated fats and cholesterol, High in polyunsaturated fatty acids, High in protein and minerals (calcium, phosphorus, sodium, potassium and magnesium). Raw fish-highly perishable commodity, its flavor and texture changes rapidly after death Spoilage due to enzymatic/chemical and bacterial factors.

The WTO regime and implementation of Agreement on Sanitary and Phyto-Sanitary (SPS) measures was done in 1st January, 1995. Fish export from Pakistan is banned by the EU in 2005 on the grounds of poor quality fish/non assurance of quality fish. The International markets for fish export require both legislation and infrastructure to be of the same standards as those applicable in their countries (EU Market). The International markets for fish export require both legislation and infrastructure to be of the same standards as those applicable in their countries (EU market). Measures are required to be adopted to overcome risk of rejection of products in export markets due to lack of conformity (TBT

Presently fish farms established in Pakistan cover an area of around 70,500 hectares. That is facilitated by about 60 hatcheries in public and 130 in private sector. About 110 million fish seed is stocked in public sector and 90 million is stocked in rivers, canals, lakes as a stock replenishment endeavor for sustainable development.

The Government's priority regarding this sector has been increasing over past decades as is evident from the productions projected in the 10th 5 year plan (2010-15) as against production bench mark of 170 million tons during 2004-05, 246 million tons has been produced in 2009-10 indicating 8.8% annual rise from inland resources and against the production bench mark of 404 million tons in 2004-05, 457 million tons have been produced in 2009-10 indicating 2.9% annual change.

However, the fisheries production targets of 10th 5 year plan 2010-15 have been fixed for 313 million tons during 2014-15 against the bench mark of 246 million tons during 2009-10. Likewise, the production targets for marine fisheries have been fixed for 582 million tons for 2014-15 against the bench mark of 457 million tons during 2009-10.

The sector development is being undertaken by the respective provincial Annual Development Program. The allocations during last 5 years for fisheries sector in Punjab remained as Rs.235, 370, 250, 158 and 580 million during 2010-11, 2011-12, 2012-13, 2013-14 and 2014-15 respectively, which shows that the Punjab Government has recently enhanced the development allocation.

There is a need for a coherent and concerted effort to develop and promote this sector to realize its full potential. The draft National Fisheries Policy developed several years ago could not be approved. Similarly it is essential that after devolution of this subject as a result of 18th Amendment, that each province develop its own provincial policy in line with the National Fisheries Policy. At present there are two federal agencies working for promotion and regulation of fisheries sector at federal level. First is the all important office of Fisheries Development Commissioner, attached with the Ministry of Ports & Shipping and the second is FDB, which is attached with the Ministry of Food Security. It is essential to devise a mechanism for integration and coordination of both these organizations under one ministry. Moreover, the office of the FDC, which is

The Department of Fisheries, Government of the Punjab, has been established for more than 100 years, with a vision to conserve, manage and develop aquatic resources in the province to meet quality protein requirement of the masses/ public. In the Punjab i.e., *the land of five rivers,* the natural water resources cover a total area of about 3.00 million hectare.

Fish and fish products are a major source of human food, employment and foreign exchange. Globally 54.8 million people are engaged in the fisheries and aquaculture sector. It is an important part of diet of about 4.3 billion people and constitutes about 15% of animal protein intake. The fish consumption in Pakistan is only 1.8 kg/ capita/ year against the average world availability of 19.9 kg/ capita/ year. The World fish food supply having an annual growth of 2.1% from 2005-10 has outpaced the world human population growth of 1.2% per year which indicates a promising future for fisheries business.

The statistics indicate that worldwide 156.2 million tons of fish are produced out of which the share of aquaculture is around 41%, as 62.7 million tones is produced in this way.

The global fisheries trends indicate that the contribution of aquaculture is consistently increasing from 2000-2010 from 40 million tones to around 80 million tones. Asia is the biggest contributor amongst all the continents to global fisheries supply as it contributes a lion share of 91% to world aquaculture. In Asia-Pacific countries, Pakistan is the 10^{th} major producer as it contributes 0.140 million tonnes of aquaculture produce annually.

Through the land of Pakistan, flows the mighty river Indus and its tributaries Jhelum, Chenab, Ravi and Sutlej that finally culminates its journey into the Arabian Sea in the South. Pakistan also enjoys a coastline of 1050 Km with its Exclusive Economic Zone (EEZ) of 25,000 km^2 and inland water resources of 79,200 km^2 comprising rivers, dams reservoirs, lakes, canals, Indus delta, flood area and farms.

Pakistan produces 952,735 m tons of fish annually out of which the share of marine fisheries is 667,762 m tons (70%) and that from inland resources is 284,793 m tones i.e. 30%. The share of aquaculture in inland production is around 50%. At present it exports are around 124000 million tons of fish & its earnings are around $US 315 million.

OVERVIEW OF FISHERIES SECTOR

BY

DR. MOHAMMAD AYUB

PRESIDENT PAKISTAN FISHERIES SOCIETY
DIRECTOR GENERAL FISHERIES, PUNJAB

DR. MUHAMMAD AYUB

I am feeling immense pleasure over the organization of the 5th International Fisheries Symposium and highly grateful to the worthy Chief Minister, Punjab and Malik Muhammad Asif Bhaa Awan, Minister for Forestry, Wildlife & Fisheries for sparing his precious time and gracing this event. His presence also reflects his interest and concern of Government of Punjab, over the issue of food security and poverty alleviation. I am also indebted to Dr. Lahsen Ababouch, Chief of the Fisheries Industry Division at FAO Rome, who has honored the Fisheries Department by accepting the invitation and chairing the Symposium, being organized by the Department of Fisheries, Government of the Punjab in collaboration with Pakistan Fisheries Society, FAO, EU, UNIDO, WWF and others, with the main objective to create awareness, probe and promote trade and investment opportunities in and around Pakistan benefitting the public through employment and revenue generation thereby alleviating poverty and providing food security.

Pakistan Fisheries Society was founded in 1990 as an interdisciplinary scientific society that draws members from diverse biological backgrounds under the unified discipline of Aquaculture and Fisheries with the main objectives of Promotion of scientific research, publication and application of knowledge of aquatic animals; Planning and implementing projects for the advancement of scientific knowledge in Aquaculture and Fisheries; Improvement of education and of professional qualifications in Fisheries Science and Promotion of international cooperation in achieving the above objectives. The Society has successfully organized 4 National and International Symposia earlier during 1999, 2001, 2005 and 2009 which helped in development of linkages between the scientific community and other stakeholders associated with the fisheries business. Likewise, the Society is also publishing scientific journal titled “Pakistan Journal of Fisheries”.

Upon recommendations of this committee following posters presentation were selected were selected for first three positions.

1. Toxic Effect of Besphenol-A on organs of freshwater fish *Catla catla* by Ms. Mehwish Faheem, GCU, Lahore (First Prize Rs. 10,000).

2. Fresh Fish Marketing System at Mangla Reservoir, Pakistan by Dr. Zahid Sharif Mirza, DDF (FQCL) (Second Prize Rs. 7,000).

3. Study of Physico-Chemical Characteristics and Soil Texture Determination for Establishment of New Fish Ponds in Lahore Division by Ms. Kashifa Naghma Waheed, Principal Chemist FR&TI. (Third Prize Rs. 5,000).

University, Lahore and Dr. Muhammad Naeem Khan, Professor, Department of Zoology, University of the Punjab, Lahore were awarded with honorary shields.

For glorious contributions in the field of Fisheries, Professor Dr. Muhammad Ramzan Mirza was awarded with Dr. Muhammad Yaqoob Javed Memorial Gold Medal. The following officers of the department were also awarded with shield for their contributions in successful conduction of the symposium: Mr. Iftikhar Ahmad Qureshi, Director Fisheries (Ext), Dr. Sikender Hayat, Director Fisheries (Aqua), Dr. Imtiaz Begum, Director Fisheries (R&T), Mr. Muhammad Ismail, Director Fisheries (H.M), Dr. Muhammad Zafar Ullah Bhatti, Director Fisheries (Chashma), Mr. Anser Mahmood Chatta, Deputy Director Fisheries (P&D), Mr. Amjad Rasheed, Deputy Director Fisheries (ADMIN), Mr. Imtiaz Gul, Assistant Director Fisheries (Publicity) and Syeda Noreen Gillani, Assistant Director Fisheries (I&E).

A special feature of this symposium was that for the first time, Dr. Muhammad Saleem Mahoon Gold Medal, donated by Dr. Arshad Ali, Professor Emeritus, University of Orlando, Florida was awarded for best oral presentation for which an evaluation committee comprising the following members was constituted.

1.	Dr. Arshad Ali, Professor Emeritus, University of Orlando, Florida.	Convener
2.	Mr. Javed Ayub, Project Director, CDP, AJ&K.	Member
3.	Mr. Iftikhar Ahmed Qureshi, Director Fisheries (Ext.) Punjab.	Member
4.	Dr. Zafar Ullah Bhatti, Director Fisheries (Chashma).	Member
5.	Dr. Atif Yaqub, Assistant Professor, GCU, Lahore .	Member

In the light of committees recommendations this gold medal was awarded to Mr. Haji Muhammad for his presentation on “Skin Disease in Different Fish Species of Indus River at Taunsa Barrage, District Muzaffargarh”.

Likewise, an evaluation committee comprising the following members was constituted for awarding cash prize to first three positions of poster presentation.

1.	Dr. Quddosi Balqes Kazmi, Professor University of Karachi.	Convener
2.	Dr. Muhammad Naeem Khan, Professor Punjab University, Lahore.	Member
3.	Dr. Sikandar Hayat, Director Fisheries (Aqua), Punjab.	Member

- ✶ Mass awareness and motivation regarding fish production systems, transportation, storage, fish processing, quality and food safety of fish and fish products should be initiated. Electronic media now a day has a strong impact which may be used for promotion of fish culture and stoppage of illegal fishing practices. Literature for awareness/information may be published in local languages and distributed among the real stakeholders i.e. fishermen communities, contractors and law enforcing agencies.
- ✶ Indiscriminate capture of brood/ parent stocks is also highly destructive in case of fresh water prawn *M. dacqueti* and *M. malcomsomi.* Several thousands of developing embryos are also destroyed when every single brooder is killed. This could have been aggravated by upstream migration of juveniles of freshwater prawns synchronized with the closure of barrages.
- ✶ Pakistan being a member of FAO should fully participate in the newly launched programme by FAO "Global Blue Growth Initiative for Food Security and Poverty Alleviation " to support fisheries sector.

While summing up all the proceedings, Dr. Muhammad Ayub, Director General Fisheries Punjab thanked all the participants and expressed hope that Fisheries & Aquaculture will acquire the status of industry and new openings will be made available for foreign investment in the sector.

This session was followed by distribution of prizes, shields and gold medals to the event participants. The chair and co-chair of all the sessions including Mr. Bruno Valanzulo, Chief Technical Advisor, TRTA-II Programme, Dr. Ali Abbas Qazilbash, Programme Officer, TRTA-II Programme, Dr. Afzal Kazmi, General Secretary, Pakistan Fisheries Society, Dr. Muhammad Nazir Bhatti, Ex-Director General Fisheries Punjab, Dr. Muhammad Shafiq Ahmed, Associate Professor, Department of Zoology, University of the Punjab, Lahore, Dr. Muhammad Sharif Mughal, Professor, Department of Fisheries & Aquaculture, University of Veterinary and Animal Sciences, Lahore, Dr. Ameena Zubairi, Assistant Professor, Department of Animal Sciences, Quaid-e-Azam University, Islamabad, Mr. Javaid Ayub, Project Director, Community Development Project, Azad Jammu & Kashmir, Dr. Naeem Tariq Narejo, Dean, Research and Graduate Centre, University of Sindh, Jamshoro, Dr. Muhammad Ashraf, Dean, Faculty of Fisheries and Wildlife, University of Veterinary and Animal Sciences, Lahore, Dr. Atif Yaqoob, Assistant Professor, Department of Zoology, Government College

- Research & Development (R&D) institution/University may be developed according to modern trends of Fisheries to attract international communities.
- Center of Excellence for Fisheries may be established at all universities offering courses on fisheries and aquaculture.
- Enhance support to and improve quality and relevance of research and development applied to fisheries and aquaculture.
- Increase the reliability of fisheries and aquaculture statistical data country-wide.

✶ Code of Conduct for Responsible Fisheries should be implemented by all the concerned agencies in its true letter and spirit, to avoid waste by catch which is mostly the juveniles . Code of conduct be available to local fishermen in their own languages.

- Ban on the destructive fishing gears should be implemented in letter & spirit. Enforcement staff may be appointed to monitor the illegal fishing during closed season and other voilations. Illegal jetties along the coast and in the creek areas be regulated
- Strategies and technologies may be developed to minimize Harvest/Post harvest losses. Fishing gears/nets used may be of only permitted categories for fishing to avoid small size of fisheries.

✶ Financial institution should place Fisheries sector at priority for financing. There should be aquaculture financing in the sector for culture, harvesting, processing and marketing. Government fish financing be aimed at assisting and facilitating banks to penetrate the aquaculture/fisheries sector by rigorously financing related activities.

✶ At a time when the conceptual and practical importance of biodiversity is becoming clear, there is a shortage of trained personnel and lack of necessary funds. Endangered fish species may be protected and efforts should be made for their rehabilitation. Establishment of Fish Biodiversity Hatchery at Chashma by the Department of Fisheries, Punjab is the first step towards achieving this objective. Such projects may be launched/ supported for maintenance of Biodiversity in natural aquatic resources.

and farms, organic waste management, quarantine and fish health, notification of diseases, quality of feeds.

- ✶ High values fish species should be brought in culture system which have acceptance in the world markets. New technologies may be applied to get maximum yield per unit area.
- ✶ Value addition of the fisheries products can fetch better price in the market and fish may become export commodity. Pakistani exporters should opt for value-added products so that export could rise. For example, shell of shrimp which are at present utilized in fish meal production can be utilized for production on other commodities like chitin and chitonosis.
- ✶ Marine aquaculture in Pakistan is of negligible size and special attention be focused on this sub sector. Shrimp and fish farming along the coast may be promoted through provision of land to private sector, establishment of demonstration farms, making hatcheries operational and development of other infrastructure for such farming. Feasibility of farming of lucrative shellfish species as well as finfish species such as cobia may be carried out and private sector may be facilitated for establishment of such farming. Procedure for making available land for shrimp and fish farming along the coast may be simplified. Land Lease Policy of Balochistan already has provisions for availability of land which may be further be simplified for shrimp and fish farmers.
- ✶ Research and Education in Fisheries sector is not field oriented/applied nature. Therefore dependence on International Fisheries institution for research and training has become inevitable. It is recommended that:
    - The research sections of the Punjab and Sind Fisheries may be strengthened and research sections may be established in the Fisheries Department of Balochistan, KPK and AJK to carry out research on important issues being faced by the fisheries sector their respective provinces/area.
    - A strong link may be developed between academia, Fisheries Departments and private sector involved in fish culture, processing and marketing. Joint projects and development activities may be initiated.

CONCLUDING SESSION

A healthy discussion followed all these technical session. The proceedings were finally summed up by the fisheries experts who made following recommendations:-

- ✶ Reorganization of the fisheries and ancillary organizations with clear mandate may be done and overlapping and conflicting functions may be sorted out. An evaluation of the institutional set up of the fisheries sector may be carried out and those areas which need further strengthening may be identified and accordingly readjustment or new recruitments may be made to fill in the gaps.
- ✶ Fisheries sector may be got declared as an industry so that the schemes including EOBI, collective bargaining, minimum wages, insurance, compensation in cases of injury or death is made available for fishermen. Social Welfare Department may be strengthened in the coastal area to provide special assistance to the fishermen which are highly prone to natural calamities.
- ✶ Fisheries sector lacks ownership in the government and social hierarchy and placed at very low level of the Govt. priorities. The contribution of the sector need to be acknowledged and proper importance and ownership may be given to the sector while making plans. Also ensure that social, economic, marketing and institutional issues are adequately dealt with in relation to fisheries and aquaculture development.
- ✶ The post of Fisheries Development Commissioner should be placed under proper ministry (National Food Security & Research) and be filled through relative representation from all provinces. Since the Fisheries Development Commission (FDC) is the only office for international session, it must be strengthened so that skill development opportunities/training facilities abroad could be utilized.
- ✶ Aquaculture is the fastest growing sector contributing food security and significant earning Aquaculture development may be governed through legislation. Currently the fisheries laws do not cover aquaculture. Areas that are not covered include pollution, introduction of new species, use of antibiotics, pesticides and other drugs in feeds, residue levels in harvested products, harvesting of wild post larvae or brood stock, registration of farmers

SESSION 4

Fish Biology, Ecology & Limnology

1. IFS-2015-D-15: **Preservation of Salted and Non-Salted Meat of *Cirrhinus mrigala* by Sun Drying Process":** Fatima Kafayat.

2. IFS-2015-D-16: **Fish Diversity and Socio- Economic Status of Fishermen Community of District Muzaffarabad Azad Jammu & Kashmir:** Amir Latif Chughtai, Department of Fisheries & Aquaculture UVAS, Lahore.

3. IFS-2015-D-19: **Age and Growth Study of Minor Carp, *Cirrhinus reba* (Hamilton) from Manchar Lake, District Jamshoro Sindh Pakistan:** Shaista Jalbani, Department of Freshwater Biology and Fisheries, University of Sindh, Jamshoro.

4. IFS-2015-D-22: **Effects of Hatchery Rearing environment on Brain Structure and Stress Responses of Mahseer (*Tor putitora*):** Shahzad Ahmad, Imdad Ullah and *Amina Zuberi, Department of Animal Science, Fisheries and Aquaculture Lab Quaid-I-Azam University, Islamabad.

5. IFS-2015-D-17: **Comparative Effect of Urea with 30% Crude Protein Feed on Production of *Labeo rohita* under Polyculture Conditions:** Mehrunisa Shaukat, Department of Zoology, Wildlife and Fisheries University of Agriculture, Faisalabad.

6. IFS-2015-D-17: **Transposons:** Mehrunisa Shaukat, M.Phil. (Zoology), Department of Zoology, Wildlife & Fisheries, University of Agriculture, Faisalabad.

SESSION 2

Fish Health, Pathology & Toxicology

1. IFS-2015-B-20: **Skin Diseases In Different Fish Species of Indus River at Taunsa Barrage, District Muzaffargarh:** Haji Muhammad and Zafar Iqbal, Department of the Zoology, Quaid-e-Azam Campus, University of the Punjab, Lahore.

2. IFS-2015-B-23: **Zebrafish: an Inflammation and Infection Model:** Dr. Zakia Kanwal, Assistant Professor, Lahore College for Women University, Lahore.

3. IFS-2015-B-25: **Effect of Imidacloprid on the Amino Acid Profiles of *Labeo rohita:*** Shazia Qadir, Ph.D. Scholar Institute of Pure and Applied Biology Zoology Division Bahauddin Zakariya University Multan (Pakistan).

4. IFS-2015-B-26: **Morphometric Relationships of *Oreochromis aureus* in Relation to Body Size and Condition Factor From Pakistan:** Dr. Muhammad Naeem, Abdus Salam, Khalid Pervaiz, Summera Yasmeen, Syed Ali Ayub Bukhari and Abir Ishtiaq, Institute of Pure and Applied Biology, Bahaudin Zakariya University, Multan.

SESSION 3

Fish Biology, Ecology & Limnology

1. IFS-2015-D-1: **Artificial Fish Migration**: Thaworn Jirasoponrak

2. IFS-2015-D-2: **Studies on The Fish Biodiversity of River Ravi in Punjab Pakistan:** Manzoor Husain Bhatti, Khalid Pervaiz, Anser Mahmood Chatta, Sikender Hayat and Imtiaz Khalid Minhas, Fisheries Research and Training Institute, Department of Fisheries, Manawan, Lahore-Pakistan.

3. IFS-2015-D-7: **an Ichthyofaunistic and Limnological Study of Barganatu Dam, FR Bannu, Pakistan:** Zaigham Hasan & Jalaludin, Department of Zoology, University of Peshawar.

7. IFS-2015-B-7: **Comparative Study of Genotoxicity, Hematology and Heavy Metals in *Cyprinus carpio* & *Rita rita* Sampled From Selected Polluted Sites of Trimu Head:** Naureen Aziz Qureshi* & Saba Bukhari, Government College University, Faisalabad,* Government College Women University Faisalabad.

8. IFS-2015-B-9: **Isolation of Bacterial Pathogens from an Imported Ornamental Fish Shubunkin, *Carassius auratus* L.:** Farah Ansar and Dr. Zafar Iqbal, Department of Zoology, University of the Punjab, Lahore.

9. IFS-2015-B-10: **Fungal Infections in some Economically Important Fishes of River Ravi in District Kasur, Pakistan:** Zafar Iqbal and Maria Ashraf, Department of Zoology, University of the Punjab. Quaid-e-Azam Campus, Lahore.

10. IFS-2015-B-11: **Crustacean Parasites of Commercial Shrimps and Fishes of Pakistan:** Quddusi B. Kazmi, Marine Reference Collection & Resource Centre, M. Afzal Kazmi, Zoology Department, University of Karachi, Pakistan.

11. IFS-2015-B-13: **Comparative Study on Partial Characterization Of Kidney Catalase (Cat) Enzyme Purified from Control and Pb+Cd Metal Mixture Stressed *Oreochromis niloticus:*** Tanveer Ahmed, University Of Agriculture, Faisalabad.

12. IFS-2015-B-15: **Effect of Nickel Toxicity on Growth Parameters and Hepatic Enzymes in Major Carp:** Sobia Akhtar, Lahore College for Women University, Lahore.

13. IFS-2015-B-16: **Effect of Lead Toxicity on Growth Hormone and Cortisol Levels in Major Carp Species of Fish: Saba** Ghaffar.

14. IFS-2015-B-18: **Genotoxic Effect of Metals Mixture to *Cyprinus carpio* using Single Cell Gel Electrophoresis:** Faiza Ambreen and Muhammad Javed, Department of Zoology, Wildlife and Fisheries, University of Agriculture, Faisalabad, Pakistan.

HALL-B
SESSION 1

Fish Health, Pathology & Toxicology

1. IFS-2015-B-1: **A Study of Commonly Occuring Fish Disease of Fish Farming Sector in Punjab Pakistan:** Manzoor Hussain Bhatti, Khalid Pervaiz and Imtiaz Khalid Minhas, Fisheries Research and Training Institute, Department of Fisheries, Manawan, Lahore-Pakistan.

2. IFS-2015-B-2: **Isolation and Identification of Some Pathogenic Bacteria From Selected Fish Species of River Ravi:** Asif Ali, Tariq Mehmood, Ehsan Mehmood Bhatti, Sikender Hayat and Imtiaz Khalid Minhas, Fish Quality Control Laboratories, Department of Fisheries, Government of Punjab, Pakistan.

3. IFS-2015-B-3: **Microbiological Assessment in Fishes of the River Chenab from Marala To Trimu Headworks:** Asif Ali*, Saima Yaqub Shelly*, Ehsan Mehmood Bhatti*, Sikender Hayat*, Imtiaz Khalid Minhas and Muhammad Shafiq Ahmed, ** Fish Quality Control Laboratories, Department of Fisheries, Government of Punjab, Pakistan.

4. IFS-2015-B-4: **Determination of Heavy Metals Concentration and Histamine Levels in Marine Fish Species Collected From Super Store and Fish Market of Lahore, Pakistan:** Nasreen Kosour, Asif Ali, Kashifa Naghma Waheed, Muhammad Arfan Hadyait, Ehsan Mehmood Bhatti, Sikender Hayat and Imtiaz Khalid Minhas, Fish Quality Control Laboratories**,** Lahore, Pakistan.

5. IFS-2015-B-5: **An Evaluation of Chemical Approaches for Controlling Snails in Aquatic Environment:** Kashifa Naghma Waheed, Zehra Khatoon, Nasir Hussain Naqvi, Sikender Hayat and Imtiaz Khalid Minhas, Fisheries Research & Training Institute, Department of Fisheries, Punjab, Lahore.

6. IFS-2015-B-6: **Applying Chemical Means to Increase Dissolved Oxygen Level During Drastic Conditions in Water:** Zehra Khatoon, Kashifa Naghma Waheed, Nasreen Kousar, Nasir Hussain Naqvi, Imtiaz Khalid Minhas and Sikender Hayat, Fisheries Research & Training Institute, Department of Fisheries, Punjab, Lahore.

SESSION 3

Fish Breeding & Genetics

1. IFS-2015-C-1: **Genetic Diversity in Different Populations of Mahseer (*Tor putitora)* in Pakistan: A Rapid-Based Study:** Nuzhat Shafi, Khurshid Anwar, Fakhar-i-Abbas and Afsar Mian, University of Azad Jammu and Kashmir, Muzaffarabad, Pakistan, Bioresource Research Center, Islamabad.

2. IFS-2015-C-2: **Impact of restocking on genetic status of *Catla catla* in River Chenab:** Irum Shahzadi, Department of Zoology, Wildlife and Fisheries, University of Agriculture, Faisalabad

3. IFS-2015-C-3: **Applications of SSR Markers in Genetic Monitoring of Fisheries:** Nadia Nazish, Department of Zoology, Wildlife and Fisheries University of Agriculture, Faisalabad.

4. IFS-2015-C-4: **Atpase 6/8 Gene Assisted Genetic Variability Studies among the Population of *Labeo rohita:*** Syed Shafat Hussain, M. Phil. Fisheries and Aquaculture, University of Veterinary & Animal Sciences, Lahore.

SESSION 4

Fish Breeding & Genetics

1. IFS-2015-C-9: **Multi-locus based genetic variability in hatchery produced seed of *Cirrhinus mrigala*:** Rabia Iqbal, Aquaculture Biotechnology Lab, Department of Zoology, Wildlife and Fisheries, University of Agriculture, Faisalabad.

2. IFS-2015-C-10: **Characterization of Golden Mahseer (*Tor putitora*) of Pakistan and Azad Jammu & Kashmir by microsatellites (SSR) Loci:** Nuzhat Shafi, Javaid Ayub and Tasleem Akhter, University of Azad Jammu & Kashmir, Muzaffarabad, Fisheries Department, Govt. of Azad Jammu & Kashmir, Muzaffarabad, Pakistan.

3. IFS-2015-C-14: **Breeding and Culture of Mono-sex Tilapia in Pakistan:** Professor Muhammad Shahid Iqbal, Director, Tawakkal Tilapia Hatchery, Muzaffargarh, Pakistan.

6. IFS-2015-A-13 **Impact of Azomite Supplemented Diet on the Growth, Body Composition and Endogenous Enzymes of Gmt Tilapia:** Abdur Rehman Azam, Dr. Noor Khan, Dr. Fayyaz Rasool, Usman Atique, Matiullah, Department of Fisheries and Aquaculture, Faculty of Fisheries and Wildlife UVAS, Ravi Campus Pattoki.

7. IFS-2015-A-14 **Evaluation of Different Stocking Ratios of *Channa marulius* and *Oreochromis mossambicus* on Growth Performance of *C. marulius* in Fertilized Ponds:** Iram Qadeer Department of Zoology, Wildlife and Fisheries, University of Agriculture, Faisalabad.

SESSION 2

Fish Culture, Nutrition and Growth

1. IFS-2015-A-16 **Efficacy of Phytase Supplementation on Growth Performance and Nutrient Digestibility of *Cirrhinus Mrigala* Fingerlings Fed on Soybean Meal-Based Diet:** Muhammad Mudassar Shahzad, Ph.D. Scholar, Department of Zoology, Wildlife and Fisheries, GC University, Faisalabad.

2. IFS-2015-A-18 **Forage Ratio and Feeding Behavior of *Salmostoma bacaila* (Hamilton-Buchanan) Occurring in Stagnant Water of Jamshoro Thermal Power Plant, Sindh, Pakistan:** Dr. Mukhtiar Ahmed Mahar.

3. IFS-2015-A-19 **Growth Performance of Metals Mixture Stressed Fish in Earthen Pond:** Sidra Abbas and Muhammad Javed, Fisheries Research Farms, Department of Zoology, Wildlife and Fisheries, University of Agriculture, Faisalabad, Pakistan.

4. IFS-2015-A-26 **Preparation and Characterization of Chitosan Nanoparticles and their Effects on Growth , Immunity and Body Composition of Silver Carp *Hypopthalmichthys molitrix:*** Naima Younus, Amina Zuberi, Muhammad Akmal, Saba Rauf, Ahmad Shoaib, Department of Animal Sciences, Fisheries and Aquaculture Lab., Quaid-i-Azam University, Islamabad.

SESSION 2

Fisheries and Aquaculture Development

1. **Quality Control Standards & Labels in Fisheries:** Professor Dr. Muhammad Naeem Khan, Department of Zoology, University of the Punjab, Lahore. President, Pakistan Aquaculture & Fisheries Society (PAFS).

DAY 2 (25.02.2015)

HALL-A
SESSION 1

Fish Culture, Nutrition and Growth

1. IFS-2015-A-1 **Studies on the Growth and Survival Rate of *Channa marulius* (Saul) Under Different Feeding Regimes:** Ehsan Mahmood Bhatti, Zahid Iqbal, Abdul Rehman, Abdul Rehman Makki, Sikender Hayat, Sajid Ali Naqvi.

2. IFS-2015-A-2 **Impact of Extruded Feed on the Growth Performance of Rohu (*Labeo rohita*) Fingerlings Reared at High Stocking Density Under Semi Intensive Culture in Nursing Ponds:** Muhammad Azeem, Tariq Rashid*, Sikender Hayat, Imtiaz Khalid Minhas and Sajid Ali Naqvi Fisheries Research & Training Institute, Lahore.

3. IFS-2015-A-5 **Effect of Citric Acid and Phytase on Mineralization of Whole Body, Bones and Scales in *Labeo rohita* Juveniles Fed Soybean Meal Based Diet:** Syed Zakir Hussain Shah*, Muhammad Afzal, Mahroze Fatima, Syed Makhdoom Hussain, Tanveer Ahmad And Naheed Bano.

4. IFS-2015-A-11 **Phytase Supplementation Improves Growth Performance and Crude Protein Digestibility in *Labeo rohita* Fingerlings Fed Barley Meal Based Diet:** Mahroze Fatima*, Muhammad Afzal, Syed Zakir Hussain Shah and Naheed Bano Fish Nutrition Laboratory, Department of Zoology, Wildlife and Fisheries, University of Agriculture, Faisalabad, Pakistan

5. IFS-2015-A-12 **Studies on Liver Catalase Enzyme Activity in *Catla catla* as Influenced by Season:** Hina Amjad, Department of Zoology, Wildlife and Fisheries, University of Agriculture, Faisalabad.

PLENARY SESSION

1. **Fortification of Foods Opportunities in Pakistan:** Munawar Hussain, Program Manager, Food Fortification Global Alliance for Improved Nutrition (GAIN).

2. **Establishment of National Food Safety, Animal and Plant Health Regulatory Authority:** Ministry of National Food Security and Research, National Animal & Plant Health Inspection Services (NAPHIS), Government of Pakistan, Islamabad. February, 2015. Presented by: Itrat Rasool Malhi (NAPHIS).

3. **TRTA I & II Programmes & GSP+ Overview**: Bruno Valanzuolo Chief Technical Advisor (TRTA II), UNIDO.

4. **The Role of Academia in Food Safety Management:** Dr. Muhammad Nasir, Officer In-charge, Dept. of Food Science and Human Nutrition, UVAS-Lahore.

5. **Strengthening Sanitary and Phytosanitary (SPS) Controls in Pakistan: EU/TRTA II Programme:** Dr. Ali Abbas Qazilbash, Programme Officer, SPS Compliance & Laboratory Accreditation, EU-TRTA II Programme.

6. **Global Fisheries & Aquaculture: Challenges & Opportunities:** Dr. Lahsen Ababouch, Director, Policy & Economics Divisions Department of Fisheries and Aquaculture (FAO) Rome, Italy.

7. **Role of Network of Aquaculture Centres in Asia-Pacific in Sustainable Aquaculture Development:** Dr. Cherdsak Virapat, Director-General (NACA).

SESSION 1

Fisheries Trade and Investment Opportunities

1. **Role of Fisheries in Pakistan's Trade:** Mrs**.** Anjum Assad Amin, Director General, (PITAD), Islamabad.

Fisheries Society, FAO, EU, UNIDO, WWF and FDB with the theme **"Symposium on Fisheries, Trade and Investment Opportunities"** at Pearl Continental Hotel, Lahore on 24-25 February, 2015 with the objectives to disseminate knowledge regarding this sector across the country, promote salient research, trade and investment opportunities and provide food security & revenue generation options for poverty alleviation. About 300 Fisheries experts, businessmen, scientists, fish farmers, traders and students from Pakistan and other countries attended the symposium.

The Minister for Forestry Wildlife & Fisheries Department, Mr. Malik Muhammad Asif Bha Awan, representing the Chief Minister Punjab also graced the function as Chief Guest. The Minister addressed the audience and read the message of Chief Minister, Punjab. The symposium was chaired by Dr. Lahsen Ababouch, Chief of Fisheries Industry Division, FAO, Rome. In his inaugural address Dr. Muhammad Ayub, Director General Fisheries, Punjab welcomed and thanked all the delegates/ participants & presented a worldwide review of fisheries sector. Dr. Lahsen Ababouch, Chief of Fisheries Industry Division, FAO, Rome, made his presidential speech. Dr. Chardek Virapat Director General, Network of Aquaculture Centers in Asia Pacific (NACA), Mr. Thaworn Jiraso Phonark, Provincial Fisheries Director, Thailand, Mr. Asif Riaz, Fisheries Development Commissioner, Ministry of Ports and Shipping Islamabad, Mr. Faisal Iftikhar, Chief Executive Officer, Fisheries Development Board, Islamabad, Ms. Anjum Asad Amin, Director General, Pakistan Institute of Trade and Development (PITAD), and Mr. Bruno Valanzulo, Technical Advisor, TRTA Programme II, United Nations Industrial Development Organization (UNDIO), also participated in the seminar.

More than 100 research papers from different universities & institutions of Pakistan, Morocco, China and other countries were received for this symposium. On the 1st day the programme comprised inaugural session followed by plenary session and two technical sessions, while on the 2nd day, four technical sessions were conducted in two halls in which more than fifty research papers were presented. Their details are as follows:-

PROCEEDINGS OF THE 5TH TWO DAYS INTERNATIONAL FISHERIES SYMPOSIUM HELD ON 24-25 FEBRUARY, 2015

SYEDA NOREEN GILLANI

Aquaculture practices are rapidly growing among the World's food production sectors. According to the Food and Agriculture Organization (FAO) database, 156 million metric ton fish is being produced annually, out of which, 133 million ton is used as food. Presently, Aquaculture is producing more than 62 million ton fish per annum which indicates that 50 % of world's edible fish is being provided through fish farming and aquaculture.

Pakistan is an agricultural country and possesses enormous agricultural aquatic resources. In our country, 9.53 metric ton fish including 6.67 hundred thousand ton marine fish and 2.85 hundred thousand ton fresh water fish is produced annually.

Fisheries sector is advancing swiftly in Punjab. 45,000 metric ton fish is produced from natural aquatic resources of Punjab and 61,000 acre area is used for fish farming. In this way, Punjab is producing 94,000 metric ton fish annually. Department of Fisheries, Punjab is making continuous efforts for the growth of this fisheries sector. As a realization of the importance of this sector, Government of the Punjab has considerably enhanced its allocation of funds. As a result of sufficient funding a number of projects are introduced in the annual development program of this department. One of these development projects is titled as **"Mass Motivation Campaign for Promotion of Fisheries/ Aquaculture in Punjab"**. Under this project a huge campaign for promotion of fisheries all over the Punjab has been launched & fish melas have been organized persuading the farmers to opt this business that will ultimately help to address the protein scarcity issue & provide healthy food for human consumption.

An International Symposium was also organized under this project as such occasions provide a platform for sharing expert opinion and latest research on any issue. The government also realizes the importance and need of investment by the private sector at national and international level. Therefore, the department organized a two day International Symposium in collaboration with Pakistan