



MPTF OFFICE GENERIC FINAL PROGRAMME NARRATIVE REPORT

REPORTING PERIOD: FROM 26 March 2008 TO 20 February 2012

Programme Title & Project Number <ul style="list-style-type: none">• Programme Title: Towards Sustainable Development of Inland Fisheries in Iraq• Programme Number : A5-23• MPTF Office Project Reference Number: A5-23	Country, Locality(s), Priority Area(s) / Strategic Results¹ <p><i>Iraq</i></p> <p><i>Priority area/ strategic results</i></p>
Participating Organization(s) <p>Food and Agriculture Organisation of the United Nations (FAO)</p>	Implementing Partners <p>Responsible line ministry of government of Iraq: Ministry of Agriculture</p>
Programme/Project Cost (US\$) <p>Total approved budget as per project document: US\$:</p> <p>MPTF /JP Contribution: US\$3,000,007</p> <p>Agency Contribution</p> <p>Government Contribution</p> <p>Other Contributions (donors)</p> <p>TOTAL: US\$ \$3,000,007</p>	Programme Duration in months: 47 months <p>Start date: 26 March 2008</p> <p>Original End date: 26 Sep. 2009</p> <p>Revised end date: 29 Feb. 2012</p> <p>Operational Closure Date: 29 Feb. 2012</p> <p>Financial Closure Date 28 Feb. 2013</p> <p><u>Budget Revision/Extensions:</u></p> <p>1th extension date ;31-July-2010</p> <p>2th extension date: 31 Desember-2010</p> <p>3th extension date :30-June -2010</p> <p>4th extension date 30-June -2011</p> <p>5th extension date : 31 December-2011</p> <p>6th extension until 29 February 2012</p>
Programme Assessment/Review/Mid-Term Eval. <p>Evaluation Completed</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Date: <i>dd.mm.yyyy</i></p> <p>Evaluation Report - Attached</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Date: <i>dd.mm.yyyy</i></p>	Report Submitted <p>By FAO – Food and Agriculture Organization of the United Nations</p> <p>Dr. Fadel El-Zubi, Head, Food and Agriculture Organization of United Nations</p> <p>Tel: 00962-6-556 2550/1 Fax: 00962-6-556 2553</p>

EXECUTIVE SUMMARY

The project aims to build institutional capacity and the local capacity based on community participation in order to enable remote and rural communities, and relevant state agencies to undertake jointly a sustainable development programme in inland fisheries development. The most important achievements in the project were the capacities build within the General Board of Fish Resources Development (GBFRD) and partnerships built between fisheries associations and other technical institutions to undertake jointly a sustainable development programme in fisheries and aquaculture in Iraq. the Project developed and strengthened GBFRD capacity to i) produce quality fish seed to promote inland fish production, ii) monitor and maintain fish disease free aquatic environment, iii) develop sustainable fish feed supply iv) select productive areas in inland water bodies to adopt an effective fish restocking/stock enhancement programme. and iv) to develop innovative approaches to community participatory management of inland fisheries. This strengthened capacity was much needed as capacity development should precede any development activities where a sector has been neglected as in the case of fisheries sector in Iraq. This developed technical capacity was further strengthened with necessary infrastructure such as establishment of fish hatchery and fry rearing facility to provide the most critical input supply, the fish seed, and laboratory facilities monitor the environment and health of fish and development of fish feeds. The project also strengthened the Geographical Information System capability of the GBFRD to identify productive inland water resources to carryout fish stock enhance programmes and implement aquaculture to boost the inland fish production and to monitor the impact of interventions on the environment.

Key outputs achieved in 2009 including nature of the activities that been completed

1. Establishment of one breeding cum fry rearing centres and operation at Salah Al- Deen SITE.
2. Establishment of disease diagnostic & fish nutrition laboratory facilities.
3. Technical specification for GIS Facilities.
4. Capacity building of GBFRD personnel.
5. Review of Iraqi fisheries legislation.
6. Purchase of equipment for fish feed manufactory.
7. Preparation and extension material.
8. Work plan in Amman for capacity building.

I. Purpose

The long-term development goal of the project is to contribute towards the sustainable development of inland fisheries, in order to meet the domestic demand of fish and to enhance livelihood and employment opportunities and food security among rural and disadvantaged communities of central to northern parts of Iraq by addressing the following immediate objectives to:

- build capacity of General Board of Fish Resources Development (GBFRD) of Ministry of Agriculture (MoA) to establish a fish seed supply network to reach remote and potential areas to support a sustainable inland fishery industry;
- diversify inland fisheries practices that will contribute to national fish production and enhance employment/livelihoods of communities and to empower rural and marginalized communities by involving them in the planning, extension and development of sustainable inland fisheries; and
- strengthen extension services system reaching remotely located rural communities.

It is expected to generate the following key outputs through planned activities of the project:

- Broodstock development programme for native carp species established and fish seed supply operational
- Disease diagnostic and fish feed formulation and testing capacities of GBFRD personnel enhanced
- Fish stock enhancement/restocking programme established
- Community participatory methodologies for conservation and management of inland fishery established
- Extension capacity of GBFRD on inland fisheries management enhanced

Under UN Cluster (A) for Agriculture, Food Security, Environment and Natural Resources Management, the UN assistance to Iraq is to increase agricultural production, in which fish production is included, and national food security, enhance product quality and safety and reduce reliance on fish imports. To achieve this objective, one of the strategies underpinning the UN Plan in the cluster, is to aim for achieving a sustainable, economically efficient, socially acceptable and environmentally sound rural development. The initiatives of this project will impact to increase the inland fish production to boost the national fish production through production of increased good quality fish seed supply and built institutional and local capacity to jointly undertake a programme to develop inland fish production into a sustainable industry.

The main focus of the project to develop inland fisheries sub-sector in Iraq is in line with the National Development Strategy (NDS) of Iraq in which the framework setting to develop goals is based on the internationally agreed Millennium Development Goals (MDGs). The NDS of Iraq recognizes the need to develop agriculture sector, in which fisheries is a sub-sector, i) to create employment opportunities and enhance livelihoods and ii) build capacity to generate new generation of researchers and extension workers. The project is designed to address these national priority goals in NDS through:

- The development of inland fisheries and thereby offer opportunities for communities associated with these water bodies to diversify their livelihoods and income generation avenues;
- Adoption of community participatory management strategies for the sustainability of fisheries and aquaculture practices; and
- Capacity building through access to innovative inland fishery practices and technologies and information for dissemination.

As the project main focus is to increase inland fish production and enhance food security and livelihoods of rural poor the most immediate contribution that project makes to the achievement of the MDGs is to contribute to the eradication of hunger and poverty. In this context enhanced fish production through improved fishery practices and increased inland fish production will relieve hunger directly through the provision of food and providing a source of employment and income generation to enhance purchasing power to purchase food. Hence, inland fisheries has the potential to contribute to the achievement of the MDGs as a contributor to rural development and poverty alleviation and by reducing vulnerability of rural households to shocks and seasonal/annual variability through diversification/income smoothing.

Clearly development of inland fish production has the potential to contribute to the achievement of the MDGs Four and Five by providing a source of high quality food source, rich in essential micronutrients. The project also has a focus on the development of gender sensitive technologies and participatory resource/constraints assessment and planning which contributes towards the Goal three “promote gender equality and empower women”.

II. Assessment of Programme Results

i) Narrative reporting on results:

Outcomes:

To contribute towards the longer term objective of the project to contribute towards the sustainable development of inland fisheries, in order to meet the domestic demand of fish and to enhance livelihood and employment opportunities and food security, the Project strengthened GBFRD capacity to i) produce quality fish seed to promote inland fish production, ii) monitor and maintain fish disease free aquatic environment, iii) develop sustainable fish feed supply iv) select productive areas in inland water bodies to adopt an effective fish restocking/stock enhancement programme iv) built capacity of GBFRD in innovative approaches to community participatory management of inland fisheries. This strengthened capacity was much needed as capacity development should precede development where a sector has been neglected as in the case of fisheries sector in Iraq.

In order to revive the inland fish production in Iraq the most urgently needed basic service deliveries are i) to initiate production of quality fish seed and supply to aquaculture farmers as well as to cater to the demand to stock in inland water bodies, ii) to provide a service to monitor and control fish disease free environment, iii) to supply nutritionally balanced fish feed for a healthy fish production and iv) to advice on good practices on the management of inland fishery resources. In order to increase the capacity to supply quality fish seed, the project strengthened the capacity of GBFRD by establishing an operational fish hatchery to produce fish seed of native carps and exotic carps (common carp and Chinese carps) which are the main species preferred by aquaculture farmers and for stocking of inland water bodies. This hatchery further strengthened the previously built capacity of GBFRD by the project on Restoration and modernization of fish production in Iraq (OSRO/IRQ/503/UDG). The present hatchery added value to the existing capacity of fish seed production with potential to produce

1.5 million native and exotic carp fingerlings, which are the fish seeds use for stocking of ponds and open water bodies.

In order to provide a monitoring service to maintain a fish disease free aquatic environment, the capacity of GBFRD was strengthened to monitor fish diseases by providing adequate range of equipment to monitor bacteriological and parasitological disease conditions. This added value to the existing capacity of the GBFRD to monitor physico-chemical parameters and surveillance of bacteriological and parasitological conditions of aquatic environment, which was built by the previous project on Restoration and modernization of fish production in Iraq (OSRO/IRQ/503/UDG). Present project provided nine types of bacteriological disease and 12 types of parasitological disease monitoring equipment to establish a disease monitoring laboratory within GBFRD.

Fish feed represents by far the most important cost in fish seed production, i.e., fry to fingerling rearing. Fish feed formulation and manufacture in Iraq is at best underdeveloped. The problem lies largely with formulation of fish feeds for specific species and using locally available raw materials. Farmers can boost profits by using raw materials from agriculture, but these have nutritional limitations. Therefore, requires well researched feed formulae. The project built capacity of GBFRD with inputs from international expertise to develop appropriate fish feed development programme for Iraq and to test various techniques for the production of farmer-made as well as manufactured fish feeds. Moreover, this built capacity was further strengthened by the project by supplying 11 types of equipment, which required to setup a complete fish feed mill and six types of equipment to carryout nutritional analysis of feeds. This enables GBFRD to produce own nutritionally balanced formulated feeds for testing and dissemination of knowledge to farmers and potential feed manufacturing entrepreneurs.

The utilization of aquatic resources for fishing and farming activities forms an integral part of the cultural and economic life of most communities associated with inland water bodies. Food security is a critical issue for communities associate with many inland water resources. Often remotely located with traditional cultivation practices and hardly any access to markets make these communities more vulnerable to food insecurity. These disadvantaged communities deserve special attention for priority development interventions. Having recognized the need of a fish restocking /stock enhancement programme to contribute towards food security of rural poor, the project provided six types of equipment and two software packages to set up a Geographical information System (GIS) within GBFRD to determine productive inland water resources conducive to fish re-stocking/stock enhancement.

A fish restocking/stock enhancement programme to be effective, it has to be supported with a community participatory management of inland fish resources. As inland fisheries offer livelihoods and food security for rural poor, the sustainable management of these fisheries is very important. As current management is considered insufficiently capable of managing the levels of exploitation and achieving equitable distribution of the resource, promotion of co-management measures and adoption of community participatory management strategies will be a way of addressing this issue. It is becoming increasingly recognized that fisheries and

aquatic resources can be better managed when fishermen and aquaculture farmers are more involved in the management. Such community participatory management strategies could be feasible if the provision of delegation of authority to community groups are provided within the legal framework in Iraq. The project noted that the principle deficiency in the legal framework with respect to inland fisheries and aquaculture development is there is no legal definition provided in the sector governing principle acts. Inland fisheries and aquaculture tends to be considered as part of national fisheries legislation. When a legal definition for inland fisheries and aquaculture is prepared, the collateral issues relating to the inland fishery practices and aquaculture facility or the product will be taken into account and covered by the appropriate legislation. Therefore, a legal definition will facilitate the regulation of inland fisheries and aquaculture industry through its whole chain of supply, which is not effectively in place in Iraq currently. Therefore, the project mobilized national expertise with inputs from international expertise to review institutional and legal framework with a view to make recommendations and assist the government to frame effective legislation to support and safeguard a sustainable aquaculture and inland fishery industry and to accommodate regulatory provisions to establish fisheries co-management mechanisms. Two consultative workshops which brought national and international expertise were held to accomplish this task. These workshops generated the outputs of a draft fisheries policy framework and set of recommendations with respect to aquaculture and inland fisheries facilitate the ongoing revision of fisheries law in Iraq.

The knowledge generated through the project interventions created an understanding among GBFRD officials which led to open a policy dialogue that the Primary role of the government to play a regulatory, facilitating and nurturing role rather than being a competitor to the private sector in the development of aquaculture and fisheries sector. It is also opened a policy dialogue to promote community participatory management mechanisms to manage inland fisheries resources.

The project generated several specific outcomes to address a number of elements in the NDS and ICI, viz, offered opportunities to create employment opportunities through demonstrating quality fish seed production to promote fish restocking/stock enhancement to increase inland fish production and thereby create livelihood opportunities for inland fishers and fish farmers, built capacity to generate new generation of researchers and extension workers by upgrading and updating of technical skills of GBFRD personnel, and built capacity to formulate and implement participatory inland fisheries resource management including wetland marshes. The most immediate contribution that the project outcomes have relevance to the achievement of the MDGs is thorough development of aquaculture and inland fisheries as a contributor to the eradication of poverty and hunger, outlined in Goal One of the eight MDGs. Clearly development of inland fisheries has the potential to contribute to the achievement of the MD Goals Four and Five by providing a source of high quality food source, rich in essential micronutrients.

Thus, the ultimate beneficiaries of this project are the inland fishers/farming communities, particularly the rural poor and marginalized communities. There are several direct and indirect beneficiaries. Inland fishers and aquaculture farmers including rural and disadvantaged communities, government line institution under MoA, GBFRD, including its resource

managers, researchers and scientists in fisheries and aquatic resources development sector and policy makers and planners will benefit directly from this project while other stakeholders such as NGOs and civil societies will have the indirect benefits. The several tiers of stakeholders benefit from the outputs of the project include:

- **Rural poor and communities associated with the inland water resources at the project sites:** Improved options for enhance livelihoods, food security and nutrition through aquatic food production, enhanced access to inland water resources and social capital through participatory management, enhanced human capital through improved knowledge,

- **Inland fishermen and aquaculture farmers:** Enhanced opportunities to enter into inland fishery and aquaculture practices, and thereby enhance income, livelihoods and nutritional and food security, empowerment of women through gender sensitive improved options for livelihoods through aquatic food production.

- **Governorate, district and local resource management and extension:** Technical and high potential strategy options to support the systems approach and implement to promote aquatic food production towards a sustainable inland fishery industry, improved knowledge on appropriate technologies to diversify fishery practices, institutional strengthening.

- **Policy makers at governorate/national level:** Awareness of value of aquatic natural capital and the direction of its management and conservation for food security.

- **Researchers and scientists:** Research in relation to technology development to offer opportunities for farmers and communities to enter into aquaculture and inland fishery practices, to take a systems approach to develop fishery practices towards its sustainability, suitability and adaptability of the approach to local situations, opportunities for further improvement of aquatic food production.

- **NGOs and civil societies:** Facilitating institutional arrangements in managing and conserving the natural aquatic resource capital and disseminating good management practices to enhance aquatic food production.

Outputs:

- i) In order to strengthen the productive capacity to restore fish seed supply, a hatchery was established for native carp and Chinese carp breeding and fry rearing at Tikri in Salah Al Deen Governorate. The hatchery complex consists of 10 ponds to raise brood fish and fish fry and fingerlings in addition to the fish breeding facilities. The hatchery has the capacity of producing 1.5 million fish fingerlings to stock in ponds and open water bodies at full operational capacity.
- ii) The project identified, specified, procured and delivered the equipment to strengthen the GBFRD capacity to monitor and maintain a fish disease free aquatic environment to increase inland fish production. In order for GBFRD to carry out a disease monitoring programme of the aquatic environment the project established a new fish disease diagnostic laboratory facility at the hatchery complex in Tikri, Salah Al Deen Governorate This laboratory equipment supplemented the equipment supplied under

the previous project on Restoration and modernization of fish production in Iraq (OSRO/IRQ/503/UDG) and further strengthened the GBFRD capacity to carry out a fish disease monitoring programme.

- iii) The project identified, specified, procured and delivered equipment to strengthen fish feed manufacturing and six types of equipment to analyse and test the nutritional quality of feeds.
- iv) The project also identified, specified, procured and delivered equipment and software packages to set up a GIS facility at the GBFRD.
- v) The project developed a draft fisheries policy framework and make recommendations to the ongoing revision process of Iraq Fisheries Law in order to ensure facilitation of aquaculture and inland fisheries development.
- vi) Updated and upgraded skills and knowledge of GBFRD scientists and technicians on innovative approaches to broodstock management and genetic screening, fish disease diagnosis, control and treatment and fish feed formulation and manufacturing for freshwater fish, through tailor-made training in China.
- vii) Strengthened capacity of GBFRD scientists on the application of GIS tools in aquaculture and inland fisheries development through tailor-made training for in Thailand.
- viii) Strengthened capacity of GBFRD personnel on planning and development of fish seed quality assurance, fish disease monitoring and fish feed development programmes and live fish food production with inputs from international consultants to initiate the preparation of fish seed quality assurance and fish disease diagnosis and fish feed development programmes in Iraq.
- ix) In order to support GBFRD to carry out local training activities to disseminate knowledge, the project produced six sets of training material on aquaculture practices (pond construction, good pond management practices and construction and operation of small-scale cages), fish breeding, eggs incubation and fry rearing and farmer-made aquafeeds.
- x) Using the acquired knowledge through exposure to international training and prepared training material by the Project, GBFRD trained 40 fish farmers to commence aquaculture activities.
- xi) To support to carry out participatory management of inland fishery resources and extension strategies, the Project prepared manuals on implementation of fisheries co-management and proven extension approaches, respectively.

Qualitative assessment:

Overall achievements:

Innovative approaches to aquaculture and inland fisheries development did not evolve in Iraq as capacity building initiatives among Iraqi fisheries and aquaculture scientists, extensionists and farmers were hindered as a result of being isolated from the international scientific community due to security situation and sanctions. This has led to lack of innovative approaches to manage inland fishery resources and thereby increase inland fish production in Iraq, which is an essential feature of a developed inland fishery sector. Despite the availability of diverse inland water resources in Iraq, inland fish production is limited to pond culture of common carp, with a limited culture of grass carp and silver carp and capture fisheries of same species from inland water bodies employing traditional practices without proper management. Progress in inland fish production development is hindered mainly due to lack of essential infrastructure and research and technical capacity. This also as a result of severe shortages in good quality fish seed and appropriate fish feeds and lack of diversity in aquaculture and inland fishery practices. In countries where diversified aquaculture and inland fishery practices exist, it has contributed to a major share in the national fish production and has also become a potential resource for improving household food security and supplementing family income of rural poor. Therefore, the project addressed the above constraints through institutional (GBFRD) and local capacity building so that the relevant state agencies and beneficiary communities to undertake jointly a sustainable development programme in aquaculture and inland fisheries. As a part of institutional capacity building, project exposed GBFRD personnel to innovative and appropriate technologies and in turn trained GBFRD personnel took the lead role in training local farmers.

Presently, those involved in poorly developed inland fisheries and aquaculture sector are the vulnerable and poor those who need to be assisted through innovative approaches. The developed capacity of GBFRD through this project in terms of skill development and infrastructure has the potential to help in easing the current level of unemployment rate of 30% as per NDS 2005-2007 by offering opportunities for livelihoods enhancement.

The utilization of aquatic resources for fishing and farming activities forms an integral part of the cultural and economic life of most communities associated with inland water bodies. Food security is a critical issue for communities associate with many inland water resources. Often remotely located with traditional cultivation practices and hardly any access to markets make these communities more vulnerable to food insecurity. These disadvantaged communities deserve special attention for priority development interventions. Unless changes are made in the development programmes to take into account the immediate and particular needs of these communities including capacity development improving knowledge and introduction of appropriate alternative fishing and farming practices, enhancing the status of women in the family and in the society, it is unlikely that significant changes can be made in the living standards of these communities despite large government investments. The capacity developed by the project enables to implement fisheries co-management strategies as a means of equitable access to aquatic resources by communities and fish restock/stock enhancement

programme as a means of make fish available as a nutritionally secured food were to address the above concerns. Moreover, the project supported through its regulatory framework review and support to enact regulatory provisions in the Iraqi fisheries law to implement such co-management strategies.

Partnerships:

The partnerships built with beneficiaries such as Iraqi association of fish production and universities of Basra, Anbar and Tikri through the project activities not only helped in deliver project activities but also laid the foundation to continue collaboration beyond the project. Universities of Basra and Anbar are collaborating with the GBFRD to use the GIS facility in determining productive areas for aquaculture and inland fishery development, while University of Tikri allocated a plot of land to build the hatchery complex which will also in house the fish disease diagnostic and fish feed nutritional analysis facilities and the fish feed mill. This allows GBFRD to work in close collaboration with the University of Tikri.

GBFRD developed a collaborative partnership with the Iraqi Association of Fish Production to develop a workable fish seed quality certification mechanism and fish feed development activities. This is a useful partnership as the Association is in a position to continue organisation farmer and fisher groups for local training activities and to adhere to certification and good management practices with technical inputs from GBFRD beyond project period.

Cross-cutting issues:

The project did not have any specific gender equality issues to address. However, the project had a special emphasis on gender balance, particularly involvement of women in the project activities and among beneficiaries. In Iraq, women are not involved in fish farming or fishing operations. Women do not necessarily own or manage fishing/fish farms by themselves, however, they are partners in fishing/fish farming alongside men. Owing to the qualities of inland fisheries and aquaculture practices that it can easily be incorporated into the livelihoods to diversify the family food production system with women participation, and spread risk, it has been accepted as a powerful production option for reducing rural poverty by providing family food security, empowering women and fighting malnutrition. GBFRD has been made aware of this aspect and to encourage women participating in training as well as resource management activities.

The project focused only on the species currently established in the local environment. The aquaculture practices that project dealt with were restricted to native and established species in the environment with a commercial value and thereby avoid adverse impacts on the biodiversity. Moreover, the project focused on small-holder freshwater aquaculture and inland fishery practices with known no negative impacts on aquatic environment.

The project interventions also have relevance to realizing the right to food that was first formally recognized by the United Nations in the Universal Declaration of Human Rights (UDHR) in 1948. Human rights are first and foremost about the individual who can de

mand the state to uphold them through political, judicial and administrative means. As a result, a human rights-based approach to development prizes the empowerment of the

individual which changes the way of satisfying people's needs, from acts of benevolence to entitlements that right holders can claim and duty bearers should respect, protect and fulfill. The goal of the human right to adequate food is to create an environment which enables all people, especially the hungry and malnourished, to feed themselves and their families by producing or buying food. The capacity developed by the project has relevance to above aspects of human rights.

ii) Indicator Based Performance Assessment:

Annex # 1 “Attached”

iii) Evaluation, Best Practices and Lessons Learned

Evaluation:

In line with FAO policies and procedures, monitoring and evaluation was done at all crucial stages of implementation of the project based on the measurable indicators and means of verification as identified in the logical framework. Moreover, the project progress was assessed against expected output delivery during PSC meetings and mid-term review. This helped the counterparts to understand constraints in the implementation of project activities and to make necessary changes in designs of the ongoing process and to take appropriate measures to make the project activities effective during the remaining project period towards achieving the set targets and goals. Bi annual project progress reports were sent to FAO and the government by project management. These were transmitted to the Cluster and submitted through UNDG to the donor as required.

There were no major adjustments in strategies due to evaluations. However, the original project governorates were changed from Anbar and Ninawa to Salah Al Deen to establish the hatchery complex due to unavailability of suitable sites and land availability in former governorates.

Best practices and lessons learned:

Project activities were implemented in one governorate. The main potential risk/constraint for the implementation of project activities is the general security situation in Iraq, which sometimes led to difficulties in mobilization of national project staff and resources into project areas.

Such mobilization constraints affected timely implementation of activities, which also prevented FAO staff and international consultants from visiting the required sites in Iraq as needed. Lessons learned from this project on timely implementation of project activities and to generate the expected outputs is to develop a team of capable national project management staff with identified Co-Implementing Agencies/ partners in the project areas to help the NPD and Project Coordinator in all technical requirements and reporting. Since NPD is working on the project on part-time basis and absence of FAO staff and international consultants at project sites, instead of a National Project Coordinator a full-time Project manager is needed. Branch offices of GBFRD in project districts should act as Co-implementing Agencies of the Project for their own districts. Each of these districts to depute a coordinator who will be responsible for coordination and implementation of project activities at the district level and below. To ensure an efficient and smooth operation of the project and timely implementation

of the planned activities at the district and lower levels, adequate authority to be delegated by the NPD to the PM so that he/she will be able to coordinate and supervise the implementation of activities in the field on behalf of the NPD. Each of the Co-implementing Agencies to prepare a quarterly plan of activities and submit the proposals to the PM. The PM in turn to examine and process the proposals under the guidance of CTA, make necessary changes as per advice of the NPD and CTA and submit to the FAO for the release of funds. By stationing management personnel to coordinate activities in the project areas, the project management structure will ensure to prevent or minimize the difficulties that may arise due to security situation, in the mobilization of persons and resources into project areas. This arrangement was partially implemented after the mid-term review of the project by increasing the time allocation of the National Project Coordinator to project work and identifying contact persons in project areas to work with.

To maximise the benefits of the project national project management staff should pay particular attention to: i) establish collaboration and linkages with other planned projects in the area; ii) ensure that the authorities effectively maximise employment opportunities and benefits to the people of Iraq; and iii) transfer ownership of equipment at the end of the project to relevant and correct institutions to put them into productive use..

An effective delivery mechanism should include national staff hired to establish project management structure at the ground and contracting relevant stakeholder research and academic institutions and national consultants in Iraq by FAO, supported by FAO Office in Iraq, and MoA counterparts.

Another implementation constraints experienced in the project was considerable delays in commencing construction work of the hatchery which led to extensions of the project period. Delayed construction work also hampered the timely implementation of fish restocking/stock enhancement of inland water bodies and local training activities. Therefore, it would be advisable to devote first three months of the project to prepare plans and designs for construction work and initiate required tender procedures. It is equally important that greater part of first year of the project to be devoted to capacity building of master trainers so that planned fisheries and aquaculture practices can take place according to the time plan together with local capacity building. Moreover, to ensure effective implementation, a monitoring and evaluation plan has to be incorporated into the project design. Based on the lessons learned from elsewhere, the projects in future should be designed to adopt an approach to offer opportunities to rural poor to enter into fisheries and aquaculture practices by taking their other livelihood opportunities into account and integrating fisheries/aquaculture with them where possible, rather than technology packaging. This approach together with implementation of project activities in participatory mode as a measure of local capacity building will ensure sustainability of project outputs.

In future aquaculture and fisheries development projects should have a clear exit strategy. Project's main exit strategy should not only include building of institutional and local capacity but also to include empowerment of communities and adopt community participatory management strategies in order to sustain project outcomes. Employed participatory approach in the project design to create on-the-job learning environment for farmers/fishermen to deviate from technology packaging and setting up demonstrations. Adopt a project approach

to offer opportunities for farmers and fishermen to enter into aquaculture practices and fishery practices by breaking up of fish life cycle and integration into their other livelihoods to ensure affordability and willingness to accommodate such practices. Moreover, Project design should incorporate approaches such as farmer field school with strong management tools into extension delivery and networking, which addresses livelihoods and empowerment of farmers with greater planning, monitoring and decision-making abilities. In this approach farmers discuss lessons learned through their own failure and successes and set their own research agendas for solving problems and, therefore depend less on institutional support on the long run.

When projects are designed with components to manage aquaculture and fishery resources, it is advisable to adopt an appropriate participatory conservation and management mechanism as an exit strategy to observe the sustainability of aquatic food and fish resources. Such an approach will sustain even without project support as it provides the sense of resource ownership to communities. It will also empower and provide a voice to disadvantaged groups and women, and an opportunity for different interest groups and actors to present their perspectives in planning, implementation and knowledge transfer. Such empowerment through their participation in this process will also enable better understanding of achievements the participatory conservation and management has made. The Project had an element to initiate fisheries co-management strategies as a means of sustainable management of inland fisheries. However, this could not be implemented due to difficulties on the ground to mobilise community groups.

An indicator based internal monitoring and evaluation system is suggested to incorporate into the project design in addition to other means of monitoring and evaluations. Half-yearly indicator based internal monitoring and evaluation system will track progress made half-yearly in achieving set outputs in terms of quantity and quality and facilitate a final overall impact evaluation and lessons learned during final stage of the project. This monitoring and evaluation is proposed to carry out on project's output to evaluate the specific successes and failures could be learnt. By conducting this process a greater understanding of what project has achieved on output basis towards the four objectives within the overall development objective is expected. Moreover such monitoring and evaluation will enable to understand what is still pending and what should be the priority actions needed to achieve the project objectives. It is also expected the counterparts to understand constraints in the effective implementation of the project and to make necessary changes in designs of the ongoing process and take appropriate measures to make the project activities effective during the remaining project period towards achieving the set targets and goals.

Five Project Steering Committee (PSC) meetings and many technically meeting were held to monitor the project progress and make recommendations and to monitor the implementation of recommendations made therein.

iv) A Specific Story (Optional)

No story due that there are no staff neither budget for 2013, on 2014 there will be budget and staff to work in the centre.

Problem / Challenge faced: as per work plan and the document to establish two centres genetic hatchery of fish in Nineveh and Anbar governorates, but only established one centre in Salah Al-Deen for these reasons:

- Budget: not enough to cover two centres.
- Location: change the location of the centre from Nineveh to Salah Al-deen governorate for security matters.

Result (if applicable): since the centre in Salah Al-deen University they agree on the importance of this centre so will start form 2014 train staff of MOA and students from the university on the genetic hatchery of fish and lessons for anyone interest on this matter.

Lessons Learned:

- The importance on using modern technology in order to develop the resources of fisheries quantity and quality.
 - Increase the production of fish will lead to increase demand on fish and improve nutrition.
 - Increase the income in rural area due the increase in number of fishermen in the area.
-

Annex 1

Objectives	Measurable indicators	Means of verification	Important assumptions
<p>Development Objective</p> <p>The long term development goal of the project is to contribute towards the sustainable development of inland fisheries, in order to meet the domestic demand of fish and to enhance livelihood and employment opportunities and food security among rural and disadvantaged communities of central to northern parts of Iraq.</p>	<ul style="list-style-type: none"> - Increased inland fish production. - Increased number of fishermen, farmers and households involved in inland fish production and increased livelihoods/employment in the fisheries industry - Active research and extension services supporting fish farmers. - Operational stocking programmes of native carps into inland water bodies - Established culture-based fisheries. - Operational community participatory management and conservation of inland fishery - Skilled fisheries professional and technical staff to undertake research, development and extension in inland fisheries development 	<p>Fisheries statistics on change in inland freshwater fish production, change in gear use by type and number in inland freshwater, and change in number of active fishermen in inland freshwater, existence of fisheries associations and co-management groups, GBFRD personnel capable of addressing technical issues, progress monitoring and final reports</p>	<p>Improved security situation and political stability, Cooperation among involved institutions and community groups at project sites</p>

Annex 1

Immediate Objectives:			(Immediate Objective to Development Objective)
<p>1. To build capacity of General Board of Fisheries (GBFRD) of Ministry of Agriculture to establish a fish seed supply network to reach remote and potential areas to support a sustainable inland fishery industry.</p> <p>2. To diversify inland fisheries practices that will contribute to national fish production and enhance employment/livelihoods of communities and to empower rural and marginalised communities by involving them in the planning, extension and development of sustainable inland fisheries.</p>	<p>Broodstock management programme is designed and in place</p> <p>Fish seed quality assurance system designed and in place</p> <p>A programme for fish feed research is developed and operational</p> <p>Stock enhancement/restocking programmes in place</p> <p>Fishermen involved in culture based fisheries</p> <p>Fishermen and farmers involved in quasi-culture methods</p> <p>Increased household income</p> <p>Established Fisheries associations</p> <p>Fisheries co-management strategies adopted</p>	<p>Number of broodfish maintained in stocks</p> <p>Number of fry and fingerlings produced</p> <p>Extension material prepared & disseminated</p> <p>Number of persons received extension support</p>	<p>Improved security situation and political stability, Cooperation among involved institutions and community groups at project sites</p>

Annex 1

<p>3. To strengthen extension services system reaching remotely located rural communities.</p> <p>4. To conserve and manage inland aquatic resources based on their importance for the ecosystem as a whole.</p>	<p>Extension programmes in place</p> <p>GBFRD personnel actively involved in extension programmes.</p>		
<p>Outputs:</p>			<p>(Outputs to immediate objective)</p>
<p>1.1 Broodstock development programme to maintain genetic quality established and GBFRD personnel trained.</p> <p>1.2 Two brood fish centre cum hatcheries located at project governorates Ninawa and Anbar to maintain broodstock and produce larvae/fry of native Barbus and to provide necessary training for hatchery operators on brood stock management are established and operational.</p>	<p>Genetically quality broodfish available and maintained</p> <p>Two hatcheries established and operational in Ninawa & Anbar governorates</p> <p>Number of hatchery operators trained by GBFRD</p>	<p>Number of brood fish produced and in use in breeding programmes, Hatchery records</p> <p>Hatchery records for number of spawning and number of larvae/fry produced, Progress reports, Financial reports</p>	<p>Improved security situation enabling mobility in project areas, timely supply of equipment and material, Timely mobilization of national and international consultants, persons trained as planned, timely construction of facilities</p>

Annex 1

<p>1.3 Two fry nursery rearing facilities located at the project governorates Ninawa, and Anbar operational as fry and fingerling supply centres and GBFRD personnel trained on current techniques.</p>	<p>Two fry nursery centres established and operational in Ninawa & Anbar governorates</p> <p>Number of farmers trained by GBFRD personnel</p>	<p>Number of fry and fingerlings produced, Nursery records, Progress reports, Financial reports</p>	
<p>1.4 Fish seed quality assurance system in place.</p>	<p>Fry and fingerlings are graded according to quality</p>	<p>Nursery records, progress reports</p>	
<p>1.5 Research facility on fish feed formulation and testing is established and operational.</p>	<p>Equipment installed and operational</p> <p>Equipment installed. Completed training of GBFRD personnel</p>	<p>Developed and tested fish feed formulae, progress reports, financial reports</p>	
<p>1.6 Fish disease diagnostic capacity enhanced.</p>	<p>Productivity assessment by using GIS</p> <p>Stock enhancement/restocking design</p>		
<p>2.1 Fish stock enhancement/restocking programme in Mousal (Ninawa governorate), Haditha and Tharthar (Anbar governorate) and Himreen and Alidaim (Dialya governorate) dams operational.</p>	<p>Co-management/community based management strategies adopted</p> <p>Prepared institute-community partnership research agenda</p>	<p>Disease diagnosis and treatment records and established control procedures, progress and financial reports</p>	
<p>2.2 Community participatory methodologies for conservation and management of inland fishery tested.</p>	<p>Management and development action</p>	<p>GIS facility installed, productivity assessment reports, Number of fish</p>	

Annex 1

<p>2.3 Plans prepared for community and institute based research actions by involving research, extension, development personnel and communities.</p>	<p>plans prepared</p>	<p>fry/fingerlings stocked in dams, progress & financial reports</p>	
<p>2.4 Community focused plans of action prepared for sustainable inland fisheries development in the project governorates on the basis of participatory principles and sub-sectoral review of resources, constraints, needs and policies of the government.</p>	<p>Review conducted</p>	<p>Number of fisheries associations established, reported illegal fishing reduced, Progress reports</p>	
<p>2.5 Reviewed regulatory framework to ensure sustainable inland fisheries development and recommendations made.</p>	<p>GBFRD personnel trained</p> <p>Extension system with participation of GBFRD, Department of Agriculture and inland fishermen/farmers operational</p>	<p>Community participatory appraisal workshops conducted, progress reports</p> <p>Community participatory appraisal workshops conducted, progress reports</p>	
<p>3.1 Trained and adequately oriented counterpart personnel who can catalyse the sustainable development of inland fisheries according to the needs and aspiration of communities.</p>	<p>Number and type of extension material prepared and</p>	<p>Review report, progress report</p>	
<p>3.2 A network of extension services system organised with government and community participation with its services reaching the rural areas.</p>		<p>Number of persons trained, progress reports</p>	

Annex 1

<p>3.3 Inland fisheries management extension material developed and disseminated.</p> <p>4.1 Indigenous fish diversity protected ensuring sustainable fisheries.</p>		<p>Number of extension programmes conducted, gender participation records, progress reports</p> <p>Number of beneficiaries and type of gender received extension support & material</p>	
<p>Activities:</p>	<p>Inputs:</p>		<p>(Activity to output)</p>
<p><i>1.1.1 Design and establish brood fish centres cum hatcheries, and train GBFRD personnel and farmers on broodstock management techniques.</i></p> <p><i>1.2.1 Design and implement a broodstock management programme for commercially important native Barbus species.</i></p> <p><i>1.3.1 Build capacity of GBFRD personnel and farmers on hatchery and nursery operations to make aware of the options and opportunities available to control diseases, and maintain the quality of broodstock and fish seeds</i></p>	<p>Budget: US\$3 000 007</p>	<p>Updated implementation plan, documentation of technical guidelines and action/programme plans, availability of distributed extension material, information on people trained, progress monitoring and financial reports</p>	<p>Improved security situation enabling mobility in project areas, timely supply of equipment and material, timely mobilization of national and international consultants, persons trained as planned, timely construction of facilities</p>

Annex 1

<p>1.4.1 Prepare practical and effective technical guidance for hatchery and nursery management together with strong management tools in order to facilitate decision-making on brood fish and fish seed quality, and breeding and culture environment.</p> <p>1.4.2 Prepare guidance to adopt a quality assurance of fish seeds.</p> <p>1.5.1 Equipment and facilities identified and established for fish feed formulation, testing and fish disease diagnosis.</p> <p>1.5.2 Design and implement a research programme for fish feed formulation and testing.</p> <p>1.6.1 Design and implement a disease diagnosis programme for inland fisheries and aquaculture industry</p> <p>2.1.1 Design and implement a pilot stock enhancement/restocking programme in order restore/enhance yields of native Barbus species in selected inland water bodies of project governorates to enhance livelihoods.</p> <p>2.2.1 Develop a practical and operational set of fishing ground management rules to implement a pilot fisheries co-management/community participatory strategy at selected inland water</p>	Personnel Cost	399 000		
	Contracts	1 100 000		
	Training	220 500		
	Equipment	855 150		
	Supplies and Commodities	91 000		
	Travel	25 000		
	Miscellaneous	80 720		
	Security	55 427		
	Agency Management Support Cost	173 211		
	Grand Total	3,000,007		
	Mobilizing international and national experts for technical advice			
	Equipment and material			

Annex 1

<p>bodies in project governorates</p> <p>2.3.1 Conduct a participatory resource/constraints assessment, planning and action taking exercises for technology development and dissemination at community level.</p> <p>2.4.1 Develop and implement community-institute partnership based research activities, to develop/fine tune the technologies, making them with the active participation of communities/households more appropriate to the local conditions.</p> <p>2.5.1 Undertake review of institutional and legal framework with a view to make recommendations and assist the government to frame effective legislation to support and safeguard a sustainable inland fishery industry.</p> <p>3.1.1 Equip extension officers at district level in project governorates with appropriate field tested extension material, manuals and management tools.</p> <p>3.2.1 Implement community based extension approaches, for fishermen/households on the following:</p> <ul style="list-style-type: none">• Issues and implications of environment, including negative consequences of over-fishing and the use of destructive fishing gear.			
---	--	--	--

Annex 1

<ul style="list-style-type: none">• Gender issues and gender sensitive approaches to aquaculture development.• Nutritional awareness and importance of fish, as food for mothers and children.• Entrepreneurship development in inland fisheries, record keeping, market information and economics. <p>3.2.2 Promote and encourage progressive inland fisherman as extension volunteers for the dissemination of knowledge that can assist government extension officers.</p> <p>3.3.1 Assist in the establishment of self-help groups/fisheries associations at village level.</p> <p>3.3.2 Document experiences and results of successful practices and lessons learned locally, as well as elsewhere, for further dissemination and transfer of knowledge to non-project areas.</p> <p>4.1.1. The proposed stock enhancement activities are restricted to native species with a commercial value thereby free from adverse effects on the local biodiversity as usually happens when stocking exotics.</p>			
---	--	--	--