

**AQUACULTURE DEVELOPMENT IN SISTAN BALUSCHESTAN
ITALIAN COOPERATION PROJECT**

SHRIMP REARING IN CHABAHAR

FROM PRACTICAL EXPERIENCES TO THE SECTOR STRATEGY

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The project "Aquaculture Development in Sistan Baluchestan" goes back to the 2000 and it is connected to the effort of the Italian Government for reinforcing political and economical relations with the Islamic Republic of Iran, in consideration of the reciprocal interest in the exploitation of Iran's raw materials and for exporting Italian technology, industrial products and consumer goods.

Italy has always considered the importance of Iran in the context of Middle East such as a crucial Country for this region. The Italian Government has always planned development projects and emergency initiatives with the purpose to contribute to the peace process in the Middle East and, for this reason, it is investing in local human resources, supporting the civil society and economic productive processes.

The Project Proposal for aquaculture development in Sistan Baluchestan has been approved by the Italian Ministry of Foreign Affairs (act n.49; 24/6/2003; N. aid 6945.01.3) as a grant of 3 millions Euro, proposing to UNDP to participate to the project. The agreement has been signed on the 24th of February. The Ministry of Jihad Agriculture – SHILAT Iranian Fisheries Organisation has been designated as the implementing agency and CIRSPE (Italian Fisheries Research Centre-Rome) as the contractor for providing technical assistance and training (budget of 1,7 million Euro), on the basis of an agreement with SHILAT on February 2004.

The project's main target is to strengthen and expand aquaculture activities in two areas of the Sistan Baluchestan Province, in terms of production, technology and economic results, in order to increase the socio-economic level of target groups. The project is expected to have impact on the living standards of people, as well as indirect socio-economic benefits for the local communities, and also to generate a model for provincial level replication.

This target can be achieved with the identification of valid appropriate production strategies and technologies, through operating strategies connected to the market.

Total Iranian fisheries production in Iran in 2005 was 486.700 tons, 351.000 (72%) of which from captures and 135.700 tons (28%), from aquaculture. The maximum share of shrimp from aquaculture was to 7% (8.930 tons) in the country in 2004. Presently the world production of shrimps stands at 1.5 million tons/annum, Iranian maximum contribution of which is 0,6%. Considering the Country resources, it is well capable to increase its share up to more than 10%.

This kind of farming started as a pilot activity with a production of 3,1 tons from 2,3 ha of water on 1992 and it reached up to 8.930 tons from 4.094 ha of water on 2004. Production in Gowater started with 68,6 tons from 41,7 ha (1,65 tons/ha) on 1999. Shrimp farming is being carried out as a commercial venture by private entrepreneurs in Gowater. Common facilities have been built by the department of aquaculture to promote farming as a profitable activity.

It reached up to 2.114 from 1007 ha (2,1 tons/ha) on 2003 in 5 years. After that the production reduced to 1.272 tons harvested from 600 ha water in 2004.

SHILAT started to analyze the critical factors and helped the shrimp farmers to get more profit and update the industry.

Annual Production in Gowater farms (tons)

1999	2000	2001	2002	2003	2004	2005	2006 prevision
68,6	355	1022	1276	2114	1272	1800	2400

Presently the Gowater complex has 1.920 ha of water ponds and, in the area, there are 7 hatcheries and 5 processing plants, near the rearing site.

Temperature range is suitable for 2 crops/year with properly management actions. This is one of the 3 pilot experiences executed, within the context of the Italian Project Technical Assistance, to have productive data useful for the sector strategy development.

This pilot experiences were carried out in four Gowater private farms (80 ha approx.) having a total water of 61,6 ha. Each of the four farms has 14 ponds (15.4 water/ha) each of 1.10 ha area available for the culture. All farms have started with a stocking of 180.000 seeds per pond (16.36 post larvae/sq.m) and using local made (IRI) feed brand "Chineh" Farm (Gowater farm code C2-03; C2-05; C2-26; C2-27). This rearing cycle started in June 2006 and it finished on September 2006. In each farm two ponds have been used during the period July/September such as nursery ponds for shrimp pre fattening stage, finalizing this rearing to the second crop. The stocking density in the nursery ponds can be very high (till 250 PL sq m); in the farm ponds has been of about 120 PL sq m.

On September, after the first harvesting for the market, the farmers have collected the pre fattened shrimps (about 3 gr) for a new stocking in ponds at 16 shrimps sq m for the second cycle. It finished at the end of November.

Although shrimps farming in Iran started recently in early 90s, it has expanded rapidly as is considered highly profitable with an enormous scope for foreign exchange and also to provide lots of employment opportunity for the locals. However, many farmers in Iran are not so happy anymore to go ahead with the international market.

According to the Italian project approach, in order to make shrimp farming economically more viable, farmers need to adopt 2 crops a year, through the nursery system stage, considering with attention the water temperature range during the period may-august-november (from 26°, to 33° to 22°).

During May-November technical assistance has been organised for the farms in order to supply guidelines for starting of nursery shrimp management. On job training was also conducted at this regard at the Shilat training Centre, Gowater, Chabahar.

Protocols have been prepared for fry stocking, taking into account simple practical methods that the farmers must adopt to achieve good results in the rearing: stocking and feeding; water control and harvesting methods reducing the stress factors.

The results obtained with the 2 rearing cycle (without technological support of aerators) are essentially positive, and the production per ha can reach 3.700 kg/ha. On the other hand, this can be of 2 tons/ha (16 PL sq m) or 2,5 (22 PL sq m.) (without aerators).

Anyway there are some important constraints in the area. For instance, the PL production of the hatcheries is not enough for Gowater demand. This year the stocking target was about 240 million PL and the real demand of 204 million with only 59% supplied from local hatcheries. This constrains can affect the two crops/year approach for which the demand can achieve about 600-700 millions PL.

Some private farms are not able to control water quality and feeding. There is the exigency to consolidate the extension service by SHILAT, and also to disseminate technology and technical approach. The Italian project aims at achieving this target, giving emphasis to the improvement of SHILAT human resources know how by training course organisation.

During the 2007, other pilot productive experiences will be organised (studying stocking density and technological supports such as the aerators), taking into account the main constrains of the farmers, such as the market, the bank interests and the products quality.