



# **Intervention report**

## **Local Value Chain Development of Ornamental Fish in Polonnaruwa**



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MDF-SA Colombo

## Table of Contents

1 Introduction and background	1
2 Enter-Growth plan	3
3 What actually happened	5
4 First signs of impact	8
5 Learning, conclusions and next steps	12

### Abbreviations and terms

DS	Divisional Secretariat
EDB	Export Development Bank
Enter-Growth	Enterprise Development for Pro-poor Growth, project by the ILO
GA	Government Agent
GTZ	Gesellschaft für Technische Zusammenarbeit
ILO	International Labour Organization
LOCA	Local Competitive Advantage
LVCD	Local Value Chain Development
MSE	Micro and Small Enterprise
NAQDA	National Aquaculture Development Authority of Sri Lanka
NARA	National Aquatic Research and Development Agency
NGO	Non Governmental Organization
PDEF	Polonnaruwa District Enterprise Forum
SBA	Small Business Association

# 1 Introduction and background

A Local Value Chain Development exercise concentrates on developing the value chain of which the producers are located in a limited geographical area (several divisions or at most a district). It considers the competitive advantages of the value chain in that area, and ways they can be strengthened. In particular, it considers five triggers of value chain development, i.e. system integration, improving productivity and quality, product diversification, improved working conditions. An LVCD aims at improving the sector in that area both for sustainable, future benefits by providing guidance for a strategic reorientation and tries to achieve quick wins by making recommendations to obtain quick returns. The project used an LVCD methodology it has developed itself. It involves local stakeholders as well as those further up in the value chain through a participatory approach comprising a series of workshops and interviews as well as background research. This results in a number of proposals which the stakeholders themselves are expected to implement.

The project's selection of a sector with development potential is generally based on the results of LOCA exercises<sup>1</sup> that consider the competitive sectors within a division. A sector with sufficient potential in a district can then be selected for a Local Value Chain Development exercise. The final selection is overseen by the District Enterprise forum. In Polonnaruwa, the District Forum selected the ornamental fish sector over the dairy sector.

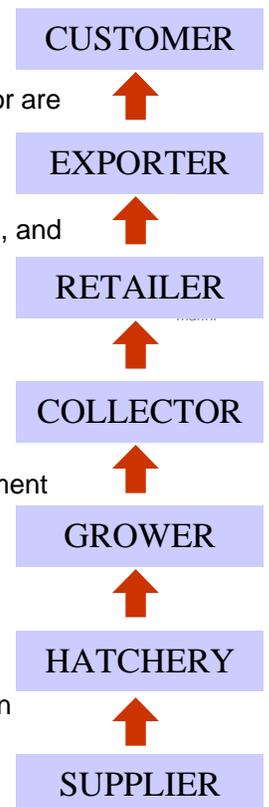
## Reasons for improving the Ornamental Fish Chain

In 2006, the Ornamental Fish Chain was selected for the development exercise primarily because of the combination of a large number of existing growers (around 500 farmers) together with a conducive environment for fish farming:

- there are near to 2,000 mud ponds in the Polonnaruwa district that can be or are already used for fish farming;
- the water has the required hardness, and is potentially easily available thanks to agricultural irrigation systems and huge water reservoirs
- weather conditions are optimal, as bright sunshine helps to develop colours, and temperatures are high and do not vary much;
- the red worm used for feeding the fish are ubiquitous in the region, as they are naturally present in the soil.

Also, an individual can start an ornamental fish business with a small investment, since marginal paddy fields can easily be converted into mud ponds, while profits are good. Further, there is an existing and established network of collectors, and there are support services present, provided by the National Aquaculture Development Authority of Sri Lanka (NAQDA) and the Fisheries Ministry of the North Western province. This is also a private sector dominated sector and the District Enterprise Forum offers good opportunities for public-private dialogue.

The industry seems to contribute a lot to the district's economy, but this was not recognized adequately. The value chain is underdeveloped and leaves much room for improvement. Some of the common problems for the various actors in the chain are:



<sup>1</sup> LOCA is worldwide known as PACA – Participatory appraisal of Competitive Advantage. It is a product of Mesopartners. For more information see: [www.mesopartner.com](http://www.mesopartner.com)

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## **Suppliers**

Suppliers are (wholesale) companies, often based in Colombo, who supply inputs to the fish breeders, such as nets, fish feed and medical and chemical products to treat the fish. There are not enough suppliers to meet the growing demand hence the prices of inputs are high. Moreover, the suppliers are often perceived as lacking interest and knowledge to properly supply the chain.

## **Hatcheries / fish breeders**

Hatcheries are parts of the ponds where ornamental fish are bred. Generally, the technological know-how is weak and breeders lack technical skills on effective fish breeding. The quality of the breeding is not always good and varieties of fish are limited. This is, amongst others, a result of wrong feeding methods and low technology to combat diseases. Also, it is difficult to find a stable labour force because most farmers are also occupied with paddy culture.

## **Fish growers**

Growers are those who purchase hatchlings and then grow them to become normal size fish. One problem they are facing is that hatchlings they purchase are of low quality and many of them do not grow into healthy fish. Also, growers do not always manage the ponds and feed the fish properly. Moreover, it is difficult and expensive for them to obtain proper equipment or inputs such as nets, polythene or good fish feed. Finally, market access is an issue, there are 3 markets in the districts but to reach markets outside the district there are transportation problems, cumbersome security checks and sometimes road blocks. It takes 10 hours to reach Colombo the main city and airport in the country.

Moreover, fish growers have a limited say in setting the selling price for their fish because collectors in the area (those to whom they sell the fish) actually have a lot of influence in setting the price leaving little profit for the breeders. Because they are not organized it is difficult for them to lobby or make a strong voice to negotiate for higher prices. They do not have a regular exchange about how they can improve the sector.

## **Collectors**

Collectors are those who buy fish from the growers and sell either in Sri Lanka or to exporters who sell it abroad, mainly Thailand, Middle-East and Europe. Their problems relate mostly to packaging and transportation. They often collect fish too soon after harvesting where fish have not yet been treated medically for injuries that happened during catching. As a result, many fish die soon after being collected. This combined with transportation issues and huge delays as a result of police check posts and harassment by police results in high wastages and high transportation costs. Moreover, there is a strong mistrust between collectors/buyers and growers about quality and prices.

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## **Exporters**

Most of the Polonnaruwa fish breeders are supplying national markets only. However it is interesting to note that the exports of ornamental fish over the last four years have consistently gone up, with a 12.5% growth of exports when converted into dollars. This growth is an indication of the importance of the sector for the country. Also, the Mahinda Chinthana programme, the government's vision for the development of Sri Lanka, identified the Ornamental Fish industry as a key industry for the development of the country. Table 1 gives the exports in Sri Lankan Rupees. The growers interviewed reported a turnover in the range of LKR 50,000-LKR 700,000 per month. One problem is that some of the local indigenous species varieties are in high demand abroad but they are not allowed to be exported because of wild-life restrictions. Another problem is that caused by long delays and restrictions when checking in for air cargo. The live fish has to go through the same checking process as other goods, and is not given priority.

**Table 1 - Exports of ornamental fish per year**

Year	Exports (rupees)
2004	742,000,000
2005	754,000,000
2006	(no data)
2007	906,000,000
2008	419,000,000 (until May)

## 2 Enter-Growth plan

After selection and endorsement of the ornamental fish sector by the District Enterprise Forum, Enter-Growth carried out the LVCD exercise between July and December 2006. The District Ornamental Fish Association took over as the host of the exercise. Firstly, the project and the Association did a stakeholder analysis to identify the most important key players. The Ministry of Fisheries of NCP, NAQDA, RPM of Welikanda Mahaweli Authority and Polonnaruwa District Chamber of Commerce were identified as the key stakeholders. These provided members to the team that conducted the exercise. The team also included VCD facilitators who were selected, trained and paid by Enter-Growth. Firstly, background information was collected and a 2-3- hour hypothesis workshop was conducted. This resulted in development of a basic value chain map and issues to be investigated over the exercise. This was followed by a large public event, called the start-up workshop in which district authorities, key members of the District Enterprise Forum, and important players of the ornamental fish sector participated.

After that a series of small workshops, focus group discussions and interviews were held with key actors in the value chain to identify strengths, weaknesses, opportunities and constraints of each segment in the chain.

Based on that information, proposals to tackle the problems and improve the sector were made in the event called results workshop. All facilitators and core stakeholders participated.

Finally, proposals were presented to a larger audience of stakeholders in the so-called results presentation workshop. The team then prepared a framework and started interventions according to it.

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Proposal	Reason or background	Status
1. Improve access and availability of information on market requirements	<ul style="list-style-type: none"> <li>Improve information on available fish to buyers / collectors</li> <li>Provide growers / hatchers with place to get information about buyers and markets</li> </ul>	Information centres established (see section on Information Centre)
2. Improve knowledge and skills of growers, collectors and hatchers.	<ul style="list-style-type: none"> <li>Promote better quality fish and more varieties (training breeders &amp; growers)</li> <li>Better packaging (train collectors)</li> </ul>	Training and financial assistance provided to farmers and growers but not to collectors (see sections on Training & Financial Aid )
3. Strengthen organization of farmers	<ul style="list-style-type: none"> <li>Increase bargaining power of farmers</li> </ul>	Association strengthened (see section Association)
4. Improve official recognition and promotion of sector	<ul style="list-style-type: none"> <li>Improve regulations and subsidies for nets &amp; equipments, or tax benefits for investors,</li> </ul>	Not done, was not feasible. No improvement in regulations because it would affect support to the inland fisheries industry. However, supply of nets to growers has started.

	<ul style="list-style-type: none"> <li>• Reduce delays in transport and limit security checks and harassment</li> </ul>	Discussions held with senior police but could not be solved
5. Improve industry supply and availability of financial resources (incl. insurance)	<ul style="list-style-type: none"> <li>• Improve availability and price of inputs and supplies of fish breeding materials (nets, feeding, chemicals) in the district</li> </ul>	<p>One company established a shop in district but closed after few months for lack of sales</p> <p>Supplier interventions were not taken up, no interest from suppliers. However, supply was increased through EDB's funding programme.</p>
6. Introducing new and high quality fish varieties	Did not happen wanted to introduce new varieties which are in high demand for export but people are only comfortable with existing varieties. The District OF Association has yet not given up the idea. The new chairman sees this as a priority.	
7. Increase trust and promote formalisation of relationships between buyers and growers	Collectors are not interested to cooperate, they do not see the need. If they cant get from Polonnaruwa they'll go elsewhere	
8. Promote additional Industry related business activities (aquarium plants farming, glass tanks, fish feed)	Not done / no need. However, some farmers who took part in the Nucleus Programme of GTZ organized by the Chambers of Commerce following the exercise have started aquarium plants farming. Almost all growers are using own produced fish feed, using rice bran, dried fish waste and an aquatic plant called kan-kun.	

### 3 What actually happened

To improve situation in the ornamental fish sector, four main interventions have been implemented; training, association building, financial assistance, and information centres. The remaining four have so far met with limited success only.

#### Training

Training has been carried out by NAQDA: the National Aquaculture Development Authority. NAQDA have set up a training station in Kurunegala, aimed at training growers. In 2007, 302 breeders were trained in 20 programmes, while up to June 2008, 201 breeders were trained in 11 programmes. Most of the trainees were existing small scale producers who wished to increase their knowledge or to upgrade their facilities. In addition, people from outside the industry who are considering taking up fish farming were trained as well as some civil servants.

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NAQDA has included a feedback and monitoring system in the trainings. A year after the training, a questionnaire is sent to the participants to get their ideas on the training, after which the training is sometimes amended. For example, trainees often requested more practical training sessions, after which the training was adapted to include more practical work.

The NAQDA training courses consist of technical advice, selecting quality brood stock, information on how to feed and knowledge on how to maintain fish and growing of aquatic plants. The director at NAQDA states that before this training centre was opened, there was no proper institute providing training: no vocational school offers ornamental fish breeding as a programme, and although there were a few farmer organizations conducting training, they did not have a good curriculum. There is one farmer's organization that is still conducting

their own training, but they did not oppose the training facility set up by NAQDA. Usually, producers would develop their skills and knowledge by copying their neighbours' practices.

NAQDA is not alone in providing trainings. Apart from NAQDA, the National Aquatic Research and Development Agency (NARA) also conducts trainings. NAQDA and NARA sometimes work together on trainings or research on endemic species, and NAQDA obtains know-how from universities when needed. There is also a programme to work together with the World Fish Centre in Malaysia. In Sri Lanka, mostly fresh water ornamental fish are cultured and only the sea horse is bred as a seawater fish. To expand the marine sector, technical expertise from countries like the Philippines and Thailand is needed.

Moreover, 21 fish farmers have also been trained under the GTZ/Nucleus programme, which was implemented by the district chamber of commerce. This program later became inactive due to the departure of the Nucleus counsellor from the chamber of commerce. The 21 fish farmers later joined the association.

One of the important differences in the way trainings are conducted is that NAQDA's trainings are residential, requiring trainees to stay at the training centre for ten days and nights. This allows people from around the country to come and participate at the training, and provides an opportunity to trainees to see the fish' behaviour at night and to see eggs hatch in the off-hours.

## **Association**

The formation of an association was proposed to increase the power of the breeders and minimize the influence of intermediaries.

The foundation of the association was done by NAQDA, in particular the NAQDA instructors, jointly with Fisheries Ministry of North Central Province. It was first established within with 60 people, and later expanded to 200 members, and now has over 500. The foundation of the association itself did not pose problems. The District Secretary and Chairman of the District Enterprise Forum as well as the Forum's secretary were appointed patrons of the society.

The association organized trainings for the members in Dambulla and Rambodagalle. It also supports other activities, e.g. it nominates suitable beneficiaries of grants and other assistance, actively participates in selecting them, support marketing of fish, makes political authorities aware of their problems, and represents the sector on the District Enterprise Forum.

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A programme to develop the Association into a company did not succeed due to inadequate trust between the IDA of North Central Province, which took the initiative, and the members.

The then secretary and two association members took part in a small business association training Enter-Growth and its partners conducted in early 2007.

## **Financial aid**

The proposal to provide financial assistance to growers and breeders was needed since the breeders, although they are in a business with good prospects, lack proper equipment such as netting and quarantine tanks, which hampers their development. Immediately after the value chain exercise and after the association was formed, grants became available from Fisheries Ministry of North-Western Province about 10,000 LKR to 35 farmers. This was a one off event to boost the sector.

After that, funds for the grants were allocated partly by funds from the Export Development Board (EDB), partly from a Dutch organization and partly from the National Chambers of

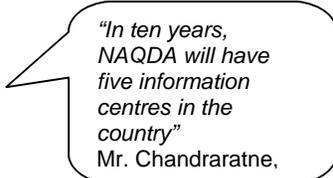
Commerce. These grants were given through the association to the beneficiaries and are given in the form of equipment and not in cash. The EDB keeps an eye on the process and sees that the funds go where they should. Also, a committee, consisting of NAQDA, EDB and the GA's office, will evaluate the grants given and see what has happened.

Initially, EDB planned to disburse 100 grants in equipment (nets, air pumps, tubes, shade and covering nettings to improve the ponds) to farmers, but in 2008 there was only money for 50 of the 100 farmers who were initially selected. A year later the other 50 farmers will get their grants. The grants amounted to 50,000 LKR: 25,000 LKR are paid for by the EDB, and 25,000 by other donors. The farmers themselves are expected to contribute 5,000 LKR which they have to deposit in the bank.

Only farmers who are member of the association were selected for the grants, and of these the 'best' ones, who were expected to be able to grow and develop into export companies. The smaller producers were not thought to have the capacity to develop into an export company. According to the EDB, there is a high production of fish, but the small growers' quality is usually not exportable and at the moment only a small portion goes to the world market. This is the reason that at the moment the EDB is not yet very interested in creating linkages between exporters and farmers, as the quality is not yet exportable. The EDB plans to select exporters in the future, who should be linked with the farmers through the association.

### Information centre

A few months prior to the value chain exercise, NAQDA had set up an information centre in the Ministry of Fisheries in Colombo. This was needed to make breeders and growers more aware of the demand. NAQDA discovered that there was also a problem with the market. Producers were not able to effectively search the market to know what buyers demanded.



*"In ten years, NAQDA will have five information centres in the country"*  
Mr. Chandraratne,

To inform breeders on the demand, a data system has been established in the information centre in Colombo containing specific information on breeders, on their fish breeds and on collectors who buy them. Breeders can get information either by telephone or by visiting the centre, and can leave a sample of their fish in the centre's aquarium so that breeders and other growers can see and study the fish. The data system is presently a card file system, but is in the process of being digitalized. Also, the station has a research programme to develop new varieties and has allocated LKR 90,000,000 to develop new strains and increase the selection of ornamental fish.

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As a result of the value chain development intervention, NAQDA is now also hosting an information centre in Polonnaruwa. Collectors who buy from the district use the centre to advertise and, for example, announce when their carps are ready to sell. Growers can visit or phone to get information on the demand.

With the long term goal of developing the ornamental fish market internationally, NAQDA has a ten year plan to establish these ornamental fish exchanges and information centres in four other districts: Puttalam, Hambantota, Kandy and Rathnapura.

### Green Channel

Though it was not among the original proposals, while activities were being implemented the concept of a green channel at the airport to speed up loading and transport of perishable and live goods was proposed by the stakeholders. The green channel concept has

meanwhile been approved. A terminal was allocated the International Airport and equipment has been purchased. However, the channel has not yet become operational, reportedly due to continued security concerns.

## 4 First signs of impact

The four main interventions in the ornamental fish value chain are clearly having an impact on the sector. To assess the impact, interviews with seven breeders / growers were held, most of whom have more than 15 years of experience in the industry. The interviewed breeders had all become members of the association and received training through NAQDA. They grow mostly gold fish and calf in various varieties and quantities, ranging from 50,000 to 200,000 hatchlings per month.

In addition, four buyers / collectors were interviewed and discussion with key actors were held, specifically from the Association of fish breeders, NAQDA and the Export Development Board. The following early signs of impact were found:

### Better quality fish

The buyers all commented that the quality of fish had improved over the last year. This is likely to be a result of the increased knowledge after training, the better equipment that some farmers have received, and the fact that buyers and growers are more aware of each others' wishes. This is a consistent finding among the different players in the value chain. Of the four growers interviewed in Polonnaruwa, three had received training from NAQDA, while one did not need this training since he had been a trainer at NARA himself. The growers reported learning things from the training like injecting hormones into fish, which has improved the lifespan and size of the fish. At the same time, they reported that they would like to receive follow-up training, especially on how to combat fish diseases.

*"The training has improved my knowledge and taught me how to inject hormones into fish." Grower.*



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Collectors also report effects of the training. Several collectors commented that the quality of the fish has gone up in the past year and that the growers are now more knowledgeable. Also, they are using newer techniques and have more varieties available. However, this has not yet led to increasing the number of exporters, as at the moment still only a small portion goes to the world market. According the EDB the quality and quantity produced by the small scale growers has not yet reached export quality level. Moreover, many exporters are reluctant to buy from Polonnaruwa due to the many security checks along the way. Other, more accessible parts of the country also supply ornamental fish.

### Increased competition

Virtually all farmers and buyers report that competition has increased in the ornamental fish trade since 2007. Yet none of the interviewed growers or buyers considered this a major problem. They believe that the competition of new businesses is not threatening their undertakings. Increased competition in the sector is also pushing for better quality fish.

### New producers in the sectors

The training programmes conducted by NAQDA are also impacting on the number of growers or producers in the ornamental fish sector. NAQDA reports that of those who were new to the industry and were trained in 2007, a quarter had started production by 2008. At least 20 new people have started ornamental fish businesses. This number is likely to increase as some people from the 2008-trained batch (201) may also start their fish growing activities. The increased attention to the sector by the government also contributed to the expansion of the sector. While on the one hand the growth of the sector is good, other people commented that there are currently perhaps too many producers, as a result of which collectors pay lower prices for the fish.

### Improved networking opportunities and idea exchange

Another positive side-effect of the trainings organized by NAQDA, is that growers have (had) the opportunity to share ideas about the fish industry as well as to discuss their challenges. During the training they shared for example tips on how to combat diseases with traditional medicine.

*“Recently we experienced the ‘sleeping disease’, an illness of calf fish. Now everybody knows how to manage this disease because of the better communication with each other.”*  
collector



The improved networking impact is also found as a result of the association which has been formed to increase the power of the breeders and minimize the influence of intermediaries.

*“Individually we can’t solve most of our problems, especially because we cannot individually supply the market demand”*  
(grower)

Interviewees reported that the association is successful and effective. The growers are now accessible to each other, and contact and help each other with problems. Some growers observed that since the growers are organized, they have become more aware of demand and can better share their experiences. However, fish breeders also reported that in terms of price setting the main voice is still with the collectors.

Buyers and collectors also appreciate that they can now more easily contact the growers. One collector (picture) gave the example of a disease of calf fish, which all colleagues now know how to fight as a result of the better communication with each other. Another collector noticed that prices are fluctuating less than before, which he attributed to the better organization of the growers.

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Lastly, the two information centres (Colombo and district-based) are contributing to improving the networks within the ornamental fish sector. Its director observed that before the information centre was there, small market producers were complaining that there was not enough demand for their produce. Through the information centre small producers can find buyers, and there are no more complaints about insufficient demand.

### Improved access to resources

#### Water

Another tangible result of the association is the solution to a long lasting conflict on water usage between fish growers and paddy farmers. The LOCA exercise conducted prior to the VCD exercise, resulted in a major improvement for the sector. It found that breeders were denied access to water from irrigation canals, which was reserved for agriculture. This was solved by the Forum, which approached the Mahaweli Authority which is responsible for irrigation water distribution. Two relevant ministries were involved as well. In non-Mahaweli

areas the District Secretary and Chairman of the District Enterprise Forum had farmers associations informed that water should be made available for the fish growers.

### *Equipment*

The grants scheme issued by the Export Development Board aims at giving growers the opportunity to overcome hurdles in their growth by providing them the equipment to develop into exporters. One of the major effects reported as a result of this access to finance is the presence of cooling trucks which allows growers to transport a wider variety of fish than before. Other benefits include proper nets, transportation means that were previously not available and quarantine tanks. Though interviewees were unable to quantify the effects of these equipments, they all agree that it has benefited the quality and variety of fish. The effects and outcomes of the grants will be evaluated in more detail by a committee, consisting of NAQDA, the EDB and the GA's office at the end of 2008.

The giving of the grants has however also led to friction among breeders. The error in planning with the number of grants—first 100 breeders were selected for grants, after which there were only funds for 50—has caused some friction among the members of the association, and according to some interviewees this has led to a split within the association. Those who were first selected for a grant and then removed from the list of beneficiaries did not understand why they were taken off the list and were angry and jealous of the beneficiaries still on the list. A manager at the Industrial Development Board was of the opinion that EDB has not selected the right growers to receive the grants in the first place, as a result of political interference.

Finally, there are also micro credit schemes available for farmers through the EDB, but because of the interest rate of 14.5%, farmers do not want to take these loans.

### **Overall impact**

The most prominent impact appears to be the increase of quality within the entire value chain. Farmers observed that the quality of their supplies has increased, while buyers noted that the quality of fish they bought had gone up as well. This increase in quality, and hence the increased demand on the whole can be attributed to any or all of the four proposals made. in the value chain. The training has brought better knowledge and skills in growing fish. The grants, given in the form of equipment have contributed to the quality, while the association has led to better communication both among growers, allowing them to learn from each other, and between growers and buyers, making them better aware of their wishes, demands and possibilities. Finally, the presence of the information centre lets buyers or farmers find more appropriate partners for their businesses.

*"The farmers now have enough knowledge to produce quality fish. We can now buy more varieties than before." Buyer*



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The ongoing conflict in the North and the security situation in the country, are probably factors that contributes to this progress not yet having been translated into demonstrably higher sales and profits. Security restrictions in Polonnaruwa and on the long road between the district and the main markets, including the airport, are heavy. Enter-Growth reports that many collectors and large buyers have therefore shifted their activities to other districts. It is especially the smallest (and usually poorest) growers who are mostly affected. Some have been put out of business. The larger breeders, and those breeders who are associated with them through outgrowing relationships, are better placed to survive this difficult period.

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## 5 Learning, conclusions and next steps

### **Synergy of proposals**

A salient learning point from this Value Chain Development is the synergy of the proposals. The proposals are complementing each other beautifully and the outcome of all proposals is better than the sum of the individual proposals might suggest. The proposals sometimes have different goals or are backed by institutions with different agendas or aims, but they create synergy so that they are more effective together than they would have been in isolation. Different players have different aims. The EDB is interested primarily in the somewhat larger growers, who have the potential of developing into exporters. NAQDA's training, on the other hand, is relevant both for starters in the trade, existing small growers and for more experienced growers.

### **Stakeholder commitment**

A second learning point is the commitment of the stakeholders. They are working actively together in implementing the proposals: the grants were given by the EDB, yet through the association. The trainings were conducted by NAQDA, paid for by the EDB, and participants were sent through the association. A problem like the water dispute was solved by an intervention of the association and the District Enterprise Forum and the relevant authorities.

The proposals have ownership clearly defined. Proper identification of ownership makes it clear what is expected and puts responsibility at the local authority. Commitment has also been strong since the roles the different stakeholders played were conform to their mandates or missions and the government had recognized the sector as highly potential as well.

### **Sustainability**

Finally, the fact that the proposals were in line with the agendas of the different implementing parties and all proposals were carried out by local players, enhances the effects and ensures that the process of strengthening the value chain will continue when facilitation Enter-Growth ends. Sometimes funding from foreign donors was given, but the organization and funding mainly happened through Sri Lankan authorities. The EDB and NAQDA, both government agencies, have a clear vision on how and why the ornamental fish value chain should be improved, and there is government emphasis on developing the ornamental fish sector. Their commitment makes it likely that training facilities will continue and will expand, and that grants will be made available in the future as well. NAQDA has committed itself to expanding the number of information centres in the country.

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Of course the sustainability of the VCD's achievements depends to a large extent on improvement of the security situation in the country in general, and the district in particular. At the moment, the Polonnaruwa ornamental fish sector risks losing its competitive edge over other districts which are closer to the main markets and further away from the conflict.

### **Recommendations**

The findings, early signs of impact and the conclusions lead to three main recommendations to continue to improve the sector:

#### **Continue to promote linkages between actors**

The impact of the information centre is less visible than that of the other proposals. Where the other proposals were often concerted actions, conducted by more than one stakeholder and integrated with other proposals, the information centre seems a more isolated proposal.

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Possibly, the information centre will show more impact when NAQDA works more closely together with the EDB or the association in the setting up of the information centre.

### **Organize or supervise financial aid in a clear, transparent way**

Grants were given in a non transparent way, selecting 100 farmers and later excluding half of the recipients who were first selected. Although potential beneficiaries who will not receive a grant can be expected to be disappointed, conflicts and jealousy can be minimized by formulating clear criteria for the beneficiaries, ensuring that there are enough funds for the grants, and by making the process transparent so that beneficiaries do not feel that they suffer from political machinations.

### **Continue upgrade to exportation levels**

Although the number of producers in the sector has been boosted, as well as the quality of the fish, there has not yet been impact at the export-end of the value chain. EDB intends to select a few of the larger size fish growers with the potential to export and work with them to upgrade their production levels. NAQDA has suggested that the EDB formulate criteria for producers to get a licence for their farms. The biggest problem for exporters is the lack of a green gate, this is the channel at the airport for the fast processing of live and fresh produce. They have to spend a long time at airport. Although a green gate has been approved, it has not become operational.

At the moment, there are no restrictions for setting up a fish farm; exporters, for example, are not required to have a quarantine facility and can produce and export fish more cheaply than bigger farms that do have these safety facilities.

### **Conclusions**

In short, first signs of an effect of the value chain proposals to boost the ornamental fish sector in Polonnaruwa are seen in the several effects of the proposals, with the improvement of the quality of the fish, the increased number of growers in the sector and better networking and exchange opportunities among the actors in the chain as the most salient.

The factors which contribute to this success are the synergy created by designing complementary proposals, in the field of technical training, association set-up, provision of grants through equipment and set-up of the information centre. Approaching the constraints from different angles through different players in the value chain has been fruitful in this case. Moreover, there is good ownership and commitment demonstrated by the local authorities that all have clear mandates to promote the sector. However, sustainability of the effects is threatened by the fragile security situation in the country in general, and the district in particular. For the time being, fish breeders located nearer to the main markets and further away from the conflict, have a competitive advantage, in spite of natural conditions being optimal in Polonnaruwa.