



**WorldFish**  
C E N T E R



# Review of Training for the Period 1999 – 2009

WorldFish Aquaculture Research  
and Training Center, Abbassa, Egypt

## INTRODUCTION

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**The WorldFish Aquaculture Research and Training Center** is located outside Abbassa, a typical village in Egypt's Nile delta. It is nestled beside the Ismailia Canal in Sharkia Governorate, approximately 70 km northeast of Cairo and 25 km east of the city of Zagazig. The Nile delta is the most fertile region in Egypt, the soil consisting of a rich layer of river-borne silt. The land has little elevation; some depressions are even below sea level. The average annual rainfall is slightly higher than in Cairo at 25 to 50 mm and the temperature range wider, from a low of 4°C during the cool season November to March to a high of 40°C during the hot summer May to September.

The village of Abbassa used to play a prominent role in ancient times and was visited by kings who enjoyed hunting for game and fishing. It is believed to be named after the son of Ahmad Ibn Tulun, who was called "Abbass". Ahmad Ibn Tulun (835—884 AD) founded the Tulunid dynasty that ruled Egypt briefly between 868 and 905 AD.

The WorldFish Center launched its regional research and training activities here in 1998. The site was chosen because Abbassa was already a centre for fish farming and aquaculture research. An agreement between the Egyptian government and the United States Agency for International Development (USAID) in 1978 had led to the establishment of the National Aquaculture Center and later the Central Laboratory for Aquaculture Research (CLAR) at Abbassa. Building on this foundation the Egyptian government invited WorldFish to establish its Aquaculture Research and Training Center at Abbassa and pursue its work there in partnership with CLAR and others at national and regional levels.

From three courses in 1999, the program at the WorldFish Center has grown substantially, to 15 in 2009. A total of nearly 1,320 students from 98 countries have been trained over the past eleven years. The growth in training over this period reflects the growth in aquaculture in Egypt and globally, the need for trained technicians, and the growing reputation of the Center in this field. The unique location of Abbassa, the clean and quiet environment, and the variety of efficient facilities have been utilized by the dedicated staff to carry out one of the most successful series of training programs in the region.



## THE COURSES

Course topics have evolved in response to changing training needs as aquaculture has developed both in Egypt and internationally. From an initial focus on enhancing the productivity of fish farms and hatcheries, later courses have addressed emerging issues of importance such as:

- Management of genetic resources
- Fish health
- Fish nutrition
- Water quality management

In addition, specialized courses have been provided to advance other skills needed for aquaculture development, including:

- Quality and safety of fish and fish products
- Aquaculture engineering
- Enhancing managerial capacity in fish farming
- Courses for academic staff and “training of trainers”
- Environmental impacts of aquaculture

A key element in the transfer of technology from researchers to end users has been the quality of the extension services. A special course on aquaculture extension methods has been arranged for extension agents to upgrade their skills and provide the necessary support.



## PARTNERSHIPS

Partnership is key to the preparation and execution of our courses. Programs have been developed in conjunction with the EC/Egyptian Multi-Sector Support Program (MSSP), Egypt’s Social Fund for Development (SFD), the Food and Agriculture Organization (FAO), Egyptian International Center for Agriculture (EICA), Arab Organization for Agricultural Development (AOAD), the Egyptian Fish Council (EFC), and US Grain Council, among others. Visiting lecturers from universities and research institutes as well as field trips to private sector farms and related enterprises bring important knowledge and perspectives to the courses.

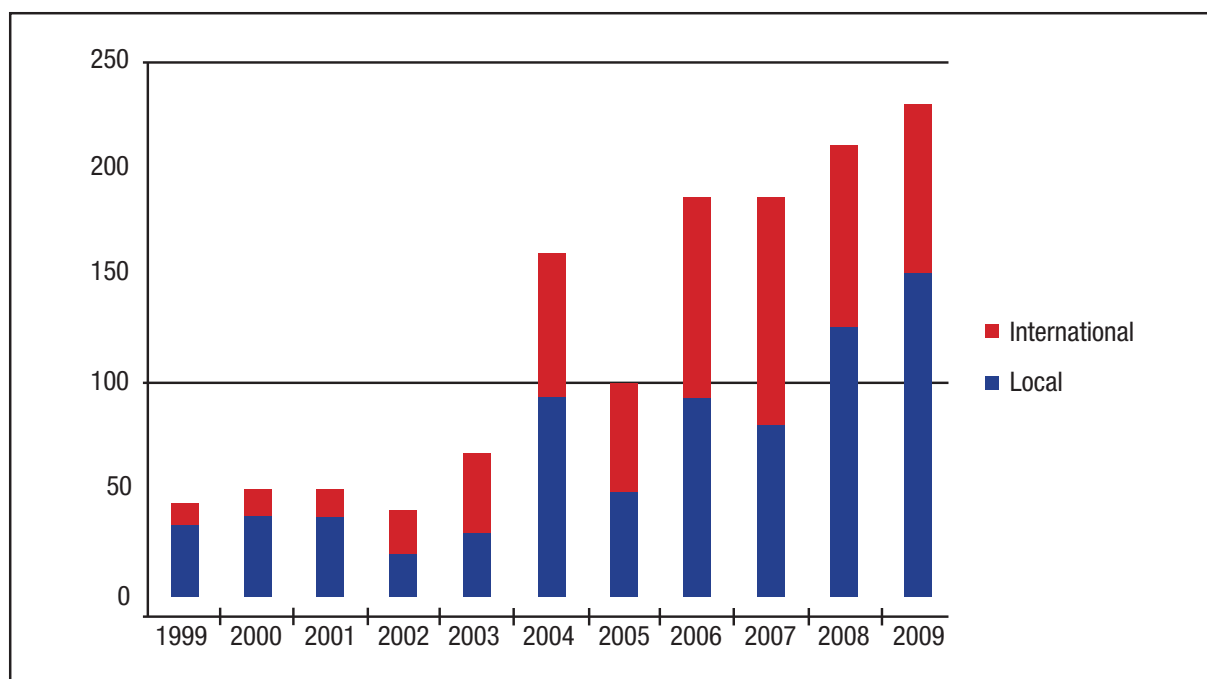


Courses are residential, generally lasting from 5 to 12 days. Students live in apartments on-site, which enables them to work together on group projects and facilitates interaction with other trainees.

From three or four courses and 40-50 trainees a year for the first few years, the training program has expanded rapidly to exceed 150 trainees a year through the involvement of a variety of new partners. In 2008, five international and eight local courses were offered with a total of 211 participants, increasing in 2009 to six international and nine local courses with a total of 230 participants (Figure 1).

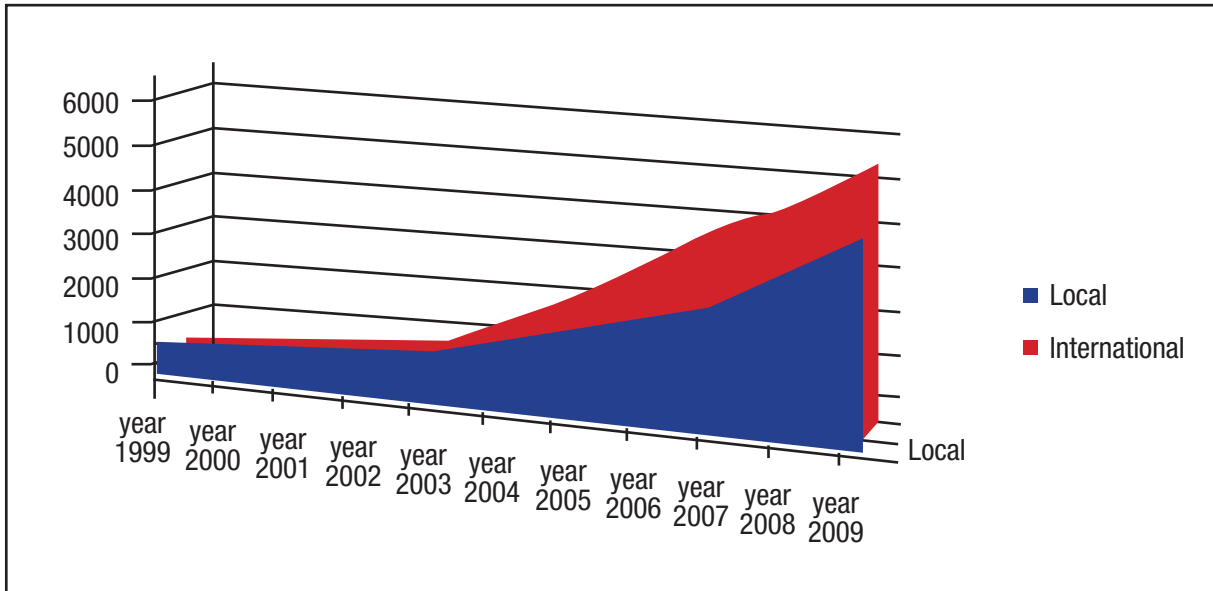
The Center also regularly hosts high school interns who have been awarded the prestigious Borlaug-Ruan International Internship. This is an opportunity for young people to participate in original research projects with acclaimed international scientists while getting a firsthand view of pressing food security issues and nutritional problems in the developing world.

**Figure 1. Number of local and international trainees during the period 1999 – 2009.**



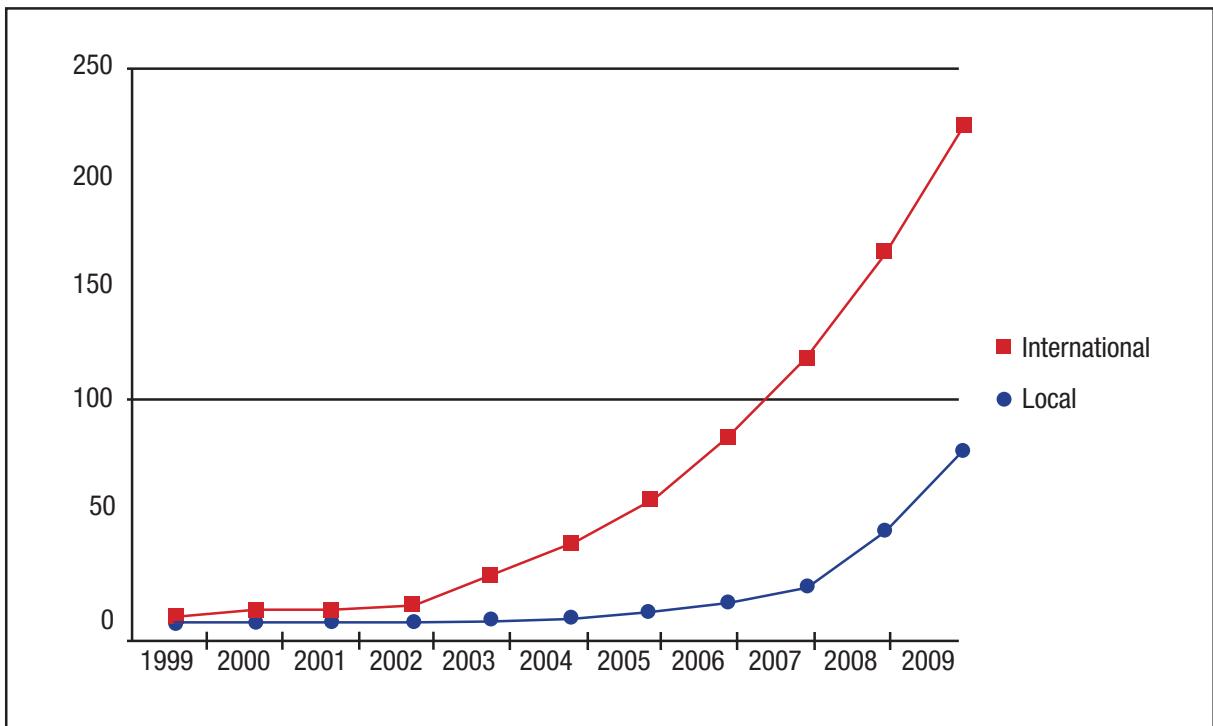
As the number of international courses increased, the average course duration, and number of trainee days per year, also increased (Figure 2).

Figure 2. Trainee-days over the period 1999 – 2009.



Female participation has increased considerably (Figure 3), reaching 25% in 2009 when 58 female trainees participated in training courses.

Figure 3. Cumulative totals of female participants in national and international training courses over 11 years (1999 – 2009).



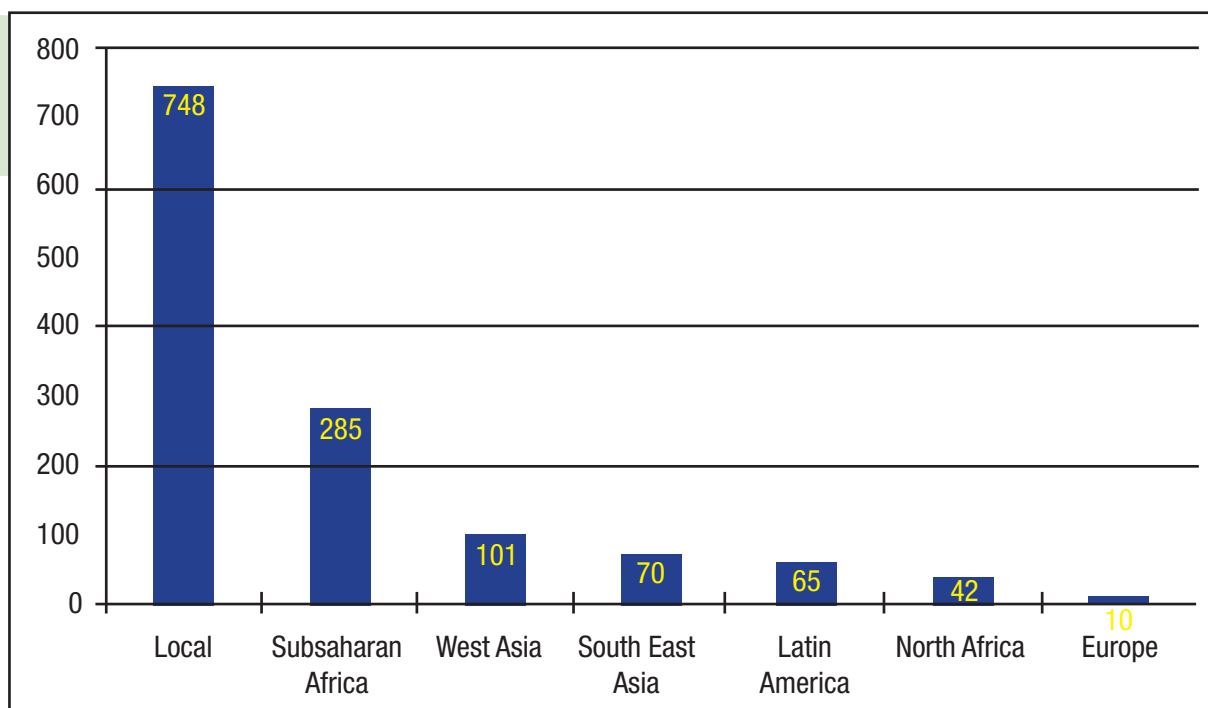
## ACHIEVEMENTS

In order to ensure high-quality, effective training, we systematically collect feedback from participants and maintain contact with them after the course. This allows us to respond to further queries they may have and to monitor the impact of the courses based on updates from the trainees about the methods they are using to apply the knowledge and techniques that they have learned.

*"I wish you to appreciate the joy that fills my heart whenever I read your mail. I still feel very good when I remember my experience in Egypt. Every lecturer was unique. Please extend my regards to all."*

Trainees, who have come from Africa, Asia, Latin America and Europe as well as Egypt (Figure 4), have gone on to hold high-level fisheries, aquaculture, and rural development posts in their home countries and internationally. Many undertake research and development activities applying skills they learned during their time in Abbassa, and it is not uncommon for former students to send emails asking for technical advice or literature recommendations for their work or further studies.

**Figure 4. Regional origins of trainees who participated in WorldFish training programs in Abbassa during the period 1999 – 2009.**



## MATCHING THE COURSE TO THE TRAINEE

Early on, local trainees were primarily working in fish production, in farms and hatcheries, and the regional or international trainees came from government departments or research institutes. One notable exception was a training course arranged for fish farmers from Malawi.

Two approaches have been used to ensure that trainees receive the maximum possible benefits from the courses offered. Firstly, whenever possible, the educational standard and experience required for the course is announced in advance to ensure that participants have a sufficient academic and practical background. This guarantees that the trainees will be neither overwhelmed by course complexity nor bored by repeating earlier studies. This has been of high importance for specialized courses such as those in fish health.

*I'm very happy to hear from you. Now, we are in Sinai and all is right here. I want to say to you thanks a lot for your gift (my birthday celebration) before we left Abbassa. I think that I will never forget this day. So take care of yourself and see you next week. God bless you.*

*"I was very happy when I found your message. The trip went very smoothly and we arrived safely in Gabon. Our family is very well and I am so happy to say 'thank you' once again. I began my work today and I will try to experiment first on natural catfish reproduction in order to improve this fish in our country."*

Secondly, as programs developed and topics diversified, courses have been prepared to target specific audiences. For example, in 2005 we developed a course in partnership with FAO targeting academic and research staff in Egyptian universities. The objective was to upgrade their knowledge and capacity in the field of aquaculture which would in turn be passed on to their students. The very positive feedback from this course led us to repeat the approach in three subsequent courses.



## TRAINING METHODS

Depending on the course content, a variety of approaches are followed including lectures, laboratory training, field training, demonstrations and field trips. The Center has a range of technical and laboratory facilities that allow many different but effective training strategies to be employed. During practical training sessions, trainees get the opportunity to practice under the coaching of dedicated trainers. This is highly appreciated by trainees who benefit by upgrading their technical and practical skills. Learning is not limited to daylight hours. Night training on dissolved oxygen management has been provided in aquaculture related courses so that trainees get acquainted with the many factors affecting the levels of dissolved oxygen in fish ponds.





## DUAL ROUND TRAINING

Some training programs extend over longer periods. A two-stage course was conducted for participants from Gaza (Palestine). Following clear identification of the training course objectives, a detailed training agenda was tailor made to meet their requirements. Eight trainees enrolled on a two week course in 2006 and then returned home to apply their new skills.

A year later, in 2007, most of the same group revisited the Center to attend a second two week advanced training course. Most importantly they brought along with them the experiences they had encountered, the difficulties they had faced and the successes they had achieved in the application of the technology learnt.

In order to disseminate the technological package further, local training courses have been organized in Gaza for the benefit of local Palestinian farmers. Trainers in these courses came from the group who received their training at the WorldFish Center during 2006 and 2007. Through six local courses that covered all the governorates of Gaza, 120 participants received training.

This targeted two-phase training program had significant local impacts. Sixteen major fish farming projects were established along with three hatcheries for the production of fish fingerlings. About 100 small farming initiatives were also started in water reservoirs. As a result, about 200 tons of fish were produced in 2008.



## QUALITY CONTROL FOR THE TRAINING PROGRAM

Ensuring that the high quality of training has been maintained over the lifespan of the program has been accomplished through different means:

**Selecting trainers:** Nominating trainers experienced with the course topics is fundamental to achieving the best quality. Center experts contribute to the courses based on their areas of expertise. Considerable support has also been provided by experts from national universities, research institutes, and resource persons from the private sector. International experts have contributed to particular courses, notably, quality and safety of fish products, genetics, nutrition, and marine hatchery technology.



**Evaluation:** Continuous informal feedback always takes place throughout each training course and appropriate actions are taken if required. An overall evaluation is circulated before the end of the program in order to collect responses from trainees concerning all elements related to the course. Careful analysis of this feedback is done to resolve issues and improve the content and delivery. From time to time, sharing comments raised by trainees takes place through meetings with staff.



## TRAINING LOGISTICS AND WELFARE



Trainees learn best when their daily needs—shelter, food, transport, communications—run smoothly. Taking care of each participant’s safety, wellbeing and personal interests contributes significantly to the positive outcomes of the programs.

**Housing:** A new three story building has been allocated for trainee residence. A maximum of two persons share a large air-conditioned bedroom furnished with two beds and other bedroom furniture. Whenever possible, single residencies are attempted. For female participants, separate housing facilities are provided.

**Food:** In order to ensure the best quality, a professional cook and serving team are contracted to cover training periods. Participants are encouraged to provide us with their dietary restrictions if any. Usually, the quality and quantity of the food has been highly appreciated.

**Transportation:** Safe, comfortable vehicles are available. Regional and international course trainees are met at the airport. All transport for field trips during the courses is provided.

**Health care:** The Center’s resident physician provides the first level of health care and medical advice.

**Computer and Internet services:** The Center building and all residencies have Internet access. This allows participants to carry out personal communication during their free time as well as to use it for their technical work, group assignments or field trial analyses. A sufficient number of computers and printers is available for the general use of all participants.

**Course documents:** The training manual for each course is prepared ahead of time and is available for distribution on the opening day. Additional material that arises during the course is delivered to participants during the closing session, either in hard copy or on compact disc.

*Just to “thank you” for everything you did to make our stay pleasant and to your great training center. Abbassa remains unforgettable in my memory. Through your expertise and thanks to the teachers at the Center, I have gained much theoretical and practical knowledge that will allow me to make my contribution to the development of aquaculture in my country. Once at home, I’ll always be in touch with you forever by continuing to learn.*

**Group assignments:** The residential nature of the training programs has encouraged the use of group projects as part of the teaching/learning strategy. Three to four groups may be formed according to criteria and group numbers. Work is usually carried out in the evenings and results are delivered to all participants and trainers. This improves understanding of the course material and develops confidence and presentation skills.



**Interactions among course participants:**

Residential courses provide an excellent opportunity for the exchange of information between trainees. Evening sessions are held for the presentation of country reports. The format for these country reports is forwarded to participants in advance allowing time for their preparation. During local training courses, nominated participants are requested to present their personal experiences related to the course topics.



**Field trials:** Due to the time constraints involved in running field trials, these are only used for courses of long duration, or when participants can return to the site at intervals. For example, a training course hosted by the Egyptian International Center for Agriculture (EICA) required trainees to stay at Abbassa for one week, return to EICA for further studies, and then revisit the Abbassa site for a second and later a third week. The field trials are designed to give trainees hands-on practical experience of project design, execution and the presentation of trial outcomes.



## REVIEW OF TRAINING FOR THE PERIOD 1999 – 2009

**Additional training:** Knowing the background and experience of all the trainees in advance it is often possible to recognize specific course topics where some participants may need extra support. Time slots within the training agenda are usually set aside during which one or more trainees can receive additional training on the identified topic if he or she so desires. This approach has been found helpful to meet the training needs of all course participants.



**Course languages:** Most courses are delivered in a single language, Arabic for local courses and English for international courses. However, due to the facilities available at the Center it is possible to provide simultaneous translation and French and Spanish interpretation has been provided for some courses.

**Recreation and social events:** Recognizing the truth in the proverb 'all work and no play makes Jack a dull boy', the Center has established some recreational facilities within the grounds and organizes off-campus trips to visit cultural attractions. The most popular sport has been football, and the most requested heritage trips include the pyramids, the National Museum and old Cairo (Khan el Khalili). Trips, usually held on a Friday, often conclude with dinner at a restaurant or on a Nile cruise.



## THE WAY FORWARD

The training programs offered by WorldFish at Abbassa Center have received critical acclaim. The founder of the Center's training program, Dr. Abdel Rahman El Gamal, retired in 2010. During his eleven years of leadership he built enduring partnerships and a firm foundation for future program management. These responsibilities have been passed on to a new generation of Center staff, many of whom have been part of Dr. El Gamal's team. The established partnerships and accumulated experience bode well for future growth and development. The training program is expected to expand to match the increased demand for technical training including more specialized courses addressing emerging issues within the aquaculture industry. Building on the successes of the past, Abbassa aims to continue to develop as a centre of excellence for training in the use of technologies for the development of freshwater aquaculture.



*You should be the one to be thanked after all you did for us yesterday. Your kind welcome and generosity will never go unrewarded. Silver and gold I do not have to offer you, but I pray that Almighty God should reward you abundantly. Amen. Thank you very much. I will miss you.*

*"I finally began to see how the research all came together at the WorldFish Center and the purpose of the work. The fish health department compares different medicines, their effectiveness, and cost. The genetics department focused on improving growth rates and yields. The fish nutrition department makes cost effective feed to lessen the impact of food expenses and directly enhance the growth of the fish. The hatchery work is important because fry are the seeds of the fish crop, and strong, healthy fry are essential to producing tilapia effectively. The chemistry lab maintains stable water conditions in which the fish thrive and grow to their full potential. All of these areas put a lot of effort into training programs to spread these methods to fish farmers across the continent. Even more fascinating is how this knowledge is spread again by word of mouth around the region when these training courses are completed. The impact of the combined efforts in the WorldFish Center is a strong force in the fight against poverty and hunger by improving fisheries and aquaculture practices around the world."*

Excerpt from the research report by Tim Sprick:  
The World Food Prize Foundation  
Borlaug Ruan Internship Summer 2008  
in Abbassa, Egypt



*Dedication of the auditorium in recognition of Dr. El Gamal's leadership of the Center's capacity building program, 10 June, 2010, WorldFish Center, Abbassa.*



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