

Are we doing enough?

THE MORAL RESPONSIBILITY OF A SCIENTIST

Herminio R. Rabanal, Ph.D.

Fisheries Biologist (ret.)
8 Basilan Road, Philam Homes
Quezon City, Philippines

BACKGROUND

When the Chief of SEAFDEC/AQD, Dr. Rolando Platon, invited me to render the Dean Domiciano K. Villaluz Memorial Lecture for 1999, I was very reluctant to accept the task for a number of reasons. First, because I have been out of research work now for the last several years so that I could not possibly render the new high tech advice that this cream of fisheries scientists would probably want to hear; second, I found out from your reports that you have now certainly achieved much in your work; and third, and more importantly, I also found out that what I had hoped to tell you are precisely what your Department has recently initiated. So what is there more to say?

However, because it is for the memory of a dear friend, Doming Villaluz, I am compelled to answer your call and I am indeed pleased to be with you today. As I can now remember, Dean Villaluz shared his ideas readily and his time lavishly during his lifetime.

Dr. Platon suggested a topic for me to discuss, namely: "The Social Responsibility of a Scientist to Transfer Technology to End Users." Today, I would rather deviate and talk to you on the subject: "Are We Doing Enough?: the Moral Responsibility of a Scientist."

PAST PERFORMANCE OF SEAFDEC/AQD

To start with, I have witnessed at close range the founding and early beginnings of SEAFDEC/AQD. I observed that after its establishment in the early '70s, the Department infrastructure was rapidly put

Delivered as Dean D. K. Villaluz Memorial Lecture for 1999 on the occasion of SEAFDEC's 26th anniversary celebration, July 9, 1999

up and selected technical and administrative personnel were quickly organized. Within a relatively short period, fisheries research and development work went in full gear and research results were quickly accomplished. The achievements centered mainly on shrimp and milkfish. A milestone was achieved when the complete cycle of the life of the "supgo," the jumbo tiger shrimp, was completed. This subsequently formed the basis of the very successful hatchery technology in the years that followed. Meanwhile, the domestication of the milkfish breeder was being worked out to form the basis of hatching this important aquaculture species under controlled conditions. As staff of this Department, you are in a better position to make a systematic and comprehensive listing of the achievements during that period.

RECENT AND NOTEWORTHY PROGRAMS

Recently in the '90s, and particularly from 1996, I noted that innovations were initiated in the Department which can be considered very timely and noteworthy. These include the following:

- (1) *Establishment of the Technology Verification and Extension Unit*, a newly revitalized unit in the organization.

This should form the major linkage of developed technology with the end user.

- (2) *Construction and completion of the Marine Fish Hatchery Complex* in 1997/1998 at the Tigbauan Main Station. This hatchery should spearhead hatchery technology to produce good quality and commercial quantities of milkfish fry.
- (3) *Initiation of environment-friendly aquaculture production projects*. The pen culture of mudcrab in mangroves is a good example and there should be more of this type of projects.
- (4) *Establishment of community fisheries management projects*. The experience in the Malalison Island project and those put up in Honda Bay and other places in Palawan should be multiplied.
- (5) *Studies on various sustainable aquaculture initiatives*. These are in the form of researches and training programs which the Department has put up and continues to update in keeping with recent advances.

EDITORIAL BOMBHELL FROM THE MEDIA

While all these were happening, an editorial bombshell recently appeared in the media. On the 20 March 1999 issue of the *Manila Bulletin*, one editorial writer, Mr. Romeo Pefianco, in his column which he titled "Studying fishery method and gain" stated, and I quote relevant portions:

☞ next page

"The incredible news story last week was a blow to our aquaculture technology and pride in our inland fishery that produces bangus or milkfish reputed to be the world's best.

If the government has indeed allowed the importation of *bangus* it is almost a certainty to state that the purpose is not to compete with local bangus producers but to fill an acute need and shortfall, like our annual insufficiency in sugar, rice, beef and pork, to name only a few basic items.

Years ago we sold bangus fries to our neighbors, especially Taiwan, but this is now prohibited for a reason reportedly other than in the interest of national economy despite the earnings in dollars. It is clearly unbelievable for a country like Taiwan (36,000 sq.km. or about one-third the size of Luzon, 104,688 sq.km.) to produce milkfish with enough surplus to supply Filipinas (300,000 sq.km.) which is known to export the same fish -- fresh and processed -- to the US."

The writer, Mr. Pefianco continues ...

"If *bangus* from Taiwan is indeed sold in our public markets and *talipapa* it is an unkind commentary on our primitive technology, inefficient ways and our superstitious reliance on good luck. Our country has one of the longest shorelines in the world and this fact alone can support our bangus culture without need of investing countless millions in the highly unreliable and artificial method of breeding fries in 'bathtubs.'

Despite the millions of dollars poured by friendly countries on the artificial method of breeding fries, the result has disappointed the more affluent donor countries that stopped their contribution to

this wild and unproductive experiment. This venture of tinkering with the process of natural breeding started in the 1960s. After more than 30 years of experiment only expense and persistence could be seen as the direct result.

If enough *bangus* fries have been produced by this experiment the howl against bangus importation would not have been heard. Raising milkfish in a fishpond, like any enterprise, faces ever increasing cost. We don't know the number of hectares nationwide devoted to bangus production.

If we re-direct our efforts to learning modern fishery technology in lieu of shouting ourselves hoarse to protest or condemn importation of bangus we can still learn a few lessons against complacency."

Our columnist, Mr. Pefianco, further continues ...

"We have repeated the same fishpond technology employed in the last 50 years, because producers assume that large fishponds, say 100 hectares, no longer require integrated productive methods. In countries with limited fishpond area what our 100 hectare pond can produce may be supplied by a 15 hectare pond with intensified feeding, deeper water and other modern methods in fish culture.

If years ago our bangus producers had taken the bother of making an on-sight observation and study of how the Taiwanese manage their milkfish culture there is a likelihood that considering the vastly large area of our fishery we can still reverse the situation by exporting the fish to Taiwan, Japan and the US.

Efficiency and technology are

two basic factors smaller countries study and apply with perfection."

And, our writer concludes ...

"Let's desilt and dig deeper fishponds, build a stronger dike, protect the pond against seasonal flooding during the monsoon months, select robust fingerlings and invest in the most up-to-date method of feeding to insure an early harvest. Or let's swallow our pride by hiring a young Taiwanese fishery expert or technician to teach us how to make a bangus fishpond more profitable. Let's not berate the government for importing something we cannot give or sell to our people."

To me the article is hurting. It is an affront to all of us. We can readily see that some of the ideas are inaccurate and some data are in error. The trouble is, it is published for public consumption and can influence public opinion. We cannot judge ourselves, we are judged by others, the people around us and the public. When I first read the article I was hoping that some of you, aggressive young scientists, should have written a very sharp rejoinder.

I am sorry that this happened but it might as well be. Other writers have also written articles glorifying the fruitful achievement of the fisheries scientists and their contributions to our people especially the fisherfolk. This should balance the ledger of this very negative report.

ARE WE DOING ENOUGH?

The inevitable question then that comes to mind us: Are we doing enough? Yes, it must be emphasized that we are doing the things we are supposed to do, but are they enough? What more do we need to do to fully serve our clientele?

Here are a few points that I wish you will bear in mind :

1. First of all, the needs of the industry

should be clearly identified so that once a technology is developed there is a ready end user for it.

No longer is the scientist fully free to choose a problem of his choice because of personal interest or fancy for it. This need can vary from place to place and also with the character of the people.

2. Products of research should be packaged into a technology to be tested and verified in the farm or in the natural environment in collaboration with end users to whom this technology should be extended.

Usually the scientist alone could not do this but the institution where he belongs should ensure that this is followed.

3. There is a strong profit motive once a technology is developed and its results can be disastrous like degradation of the environment and the occurrence of insurmountable disease problems.

The scientist being more aware of these phenomena than others, it is his moral duty to prevent such occurrence by all means in his command rather than helping further aggravate the situation such as by promoting unrestrained intensification. The sugpo culture industry in many countries in the region is a good example of this. Here, we can also see that because of the bold initiatives taken by Thailand in the environmental problems of their shrimp culture, that country has remained a production leader in this field.

4. In the competition for existence such as in the aquaculture industry, the big and usually the rich producers get all the help and attention he needs using the scientist freely as his consultant.

It is the moral duty of the scientist to extend greater effort to help the small operators despite lesser amenities so that he can also enjoy the fruits of a technology derived through research.

5. Years ago, we were great exploiters of natural resources which at that time

abound. It has now been realized, however, that we have to protect the environment to sustain its productivity for the generations who will come after us.

Being better informed, it is the moral duty of the scientist that in his work he should keep this into consideration.

6. In general, scientists are productive in their work and could achieve many worthy accomplishments in their lifetime. However, there are instances when he suffers many distractions which greatly lessens his capacity for service.

To cite a few of these distractions: (a) dishonesty -- a scientist should be frank and strictly honest in his work and in reporting his results so that his product is reliable and of good quality and (b) unhealthy disagreements with fellow scientists, co-workers, etc. -- this can cause much waste of time and demoralization. A social observer stated in the Latin saying "*Corrupto optimi pessimi est*" which means "The corruption of the best is the worst." Did you not notice that when scientists, professors, high ranking officers quarrel, they quarrel long and hard?



Dr. Herminio Rabanal is a foremost Filipino scientist and aquaculture specialist. He studied at the University of the Philippines (1940), Harvard University (1948), and Auburn University (1960). He has received many awards, including the John Guggenheim Foundation Science Fellowship Award in 1958 and the Honorary Life Member Award of the World Aquaculture Society in 1987. He has published around 200 articles and reports.

7. Develop a positive attitude in your work. If your attitude is negative you will tend to find faults with the work of your fellow scientists; then soon you may even find your work also to be faulty. Nothing seems to work right. On the other hand, if you maintain positive attitude in your work especially if you couple this with honesty and hard work, you will almost be certain of attaining brilliant success.

8. Be a part of the community. Integrate into the community where the institution you work for is located. There is every chance that some individuals, groups or institutions in your community may be suitable end-users of your work. Then you can have an ideal testing ground of the technology you may have developed.

9. Finally, a scientist should have a vision, a mission in his work and be obsessed about it and work hard for its attainment always bearing in mind service to God, country, community, family and lastly himself.

Finally, I would like to conclude this lecture by quoting Fr. Bel San Luis, in his 7 July 1999 *Manila Bulletin* column paying tribute to the legacy of business tycoon Geny Lopez, and I quote: "His passing away should make us pause and ponder about the ultimate meaning of life. It should remind us that we do not live forever in this world, what matters in the end is not our wealth, our fame, our position, and our political connections" (add: the number of papers we published, the conferences we attended), "but our relationship to the Almighty and our service to fellowmen."

Dr. Rabanal with his former student Dr. Lucila Hosillos