

SHARKS, PIGS, & COCONUTS: ECONOMIC DEVELOPMENT AND MENTAL
HEALTH*

Paul R. Polak, M.D.**

The most effective mental health program in a poor country is the initiation of successful economic development programs. By economic development I do not mean the large-scale grafting of high technology and dollars to village cultures that is so typical of U.S. foreign aid policies. Economic development to me implies much more of a process in which technology and dollars are changed around so that they fit into the cultural realities of the country in which the economic development takes place. I regard this type of economic development, which concerns itself with improving the supplies of food, housing, self esteem and income of poor people and poor countries, as a basic science for the practice of psychiatry.

Some 16 years ago when I finished psychiatric residency in Denver, I was fascinated by psychoanalysis and the intra-psychic processes that I felt determined behavior. Two years ago I started a program which developed better ways of catching, processing, and selling salted and dried shark meat in Belize, Central America. What I would like to do today is tell you something about the process which led me from an intra-psychic, psychoanalytically-oriented view of mental health problems ¹to a position which sees economic development as a basic science for

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**Executive Director, Southwest Denver Community Mental Health Services, Inc., 1611 South Federal Blvd., Denver, CO. 80219.

psychiatry, and to describe some of the initial economic development projects I am involved with.

When I left residency and went to work at Fort Logan Mental Health Center in Denver as Director of Research, I was concerned with the evaluation of treatment effectiveness of psychiatric hospitals. I quickly found out that people didn't end up in the state hospital just because they were crazy. There were many people with crazy symptoms who never got close to a psychiatric hospital.

For those who did end up in the state hospital, a major conflict in the patient's family or primary living group was almost a prerequisite.

As I gained more experience with the social process leading to hospitalization both at Fort Logan and later at Dingleton Hospital in Scotland, I came to believe that a social disturbance

in the patient's family typified by several unresolved crises a more significant determinant of admission than the patient's psychiatric symptoms, and I began to evaluate and treat patients routinely in the context of their families in their real-life settings. I did not abandon the intra-psychic model at that point;

I was just enormously impressed by the very significant interaction between what was going on inside the psychotic patient and what was going on between him and family or primary living group.

After four years' experience with the crisis intervention service at Fort Logan Mental Health Center in which we routinely saw the family of the patient in a real-life setting, I was convinced that no patient being admitted to a psychiatric hospital can be treated competently unless there is a direct evaluation of and intervention in the social forces pertinent to

the reasons for treatment. Direct evaluation of families and other pertinent social systems within the patient's natural environment became an integral part of the routine treatment of seriously disabled psychiatric clients.

After a series of subsequent research and clinical studies, I became convinced that the relationship people have to basic aspects of the physical environment is an important determinant of the fate of small social systems in the same way that families and small social systems are important determinants of what happens to individuals. I am referring to such basic survival issues as food, shelter and clothing, and the jobs and income that make them available.

More recently, we have initiated a comprehensive system of community treatment in southwest Denver which has essentially replaced psychiatric hospitalization. It is impossible to work routinely with psychotic clients outside institutions, and especially with chronic clients, without being impressed by the enormous impact of food, housing, self esteem, and income on their lives. It is quite obvious that these variables are much more important than exposure to any standard psychiatric treatment program. It is just these variables, and the very significant problems of human organization that are required to improve food, housing and income, that are the essence of economic development programs.

I am convinced that these variables are more important determinants of the well being and mental health of an individual than is psychological makeup or the characteristics of his family.

In any case, individual variables, social systems variables, and environmental variables all interact significantly with each other.

Family stability and individual makeup very significantly influence the ability of a family to maintain adequate supplies of food, shelter, clothing and income. However, when a whole culture routinely is faced with deprivation in relationship to meeting these basic human needs, much higher proportions of physical and psychiatric illness take place even in the presence of significant individual and family strengths. It takes the most exceptional individual and family to survive productively under these circumstances.

ECONOMIC DEVELOPMENT

Economic projects work directly to develop culturally relevant procedures to improve the food, shelter, income, and self esteem of a poor country or a poor population. By carrying out such projects, I believe it is possible to learn a great deal about basic processes that determine mental health and mental illness, and how some of these processes can be influenced. That is why I think economic development should be regarded as a basic mental health science.

What I would now like to do is describe briefly some past and present economic development projects. I should point out that what I like to do best is to build practical working models. It took about 15 years to develop, test, and finally put into practice a whole system of treatment modalities that has essentially replaced psychiatric hospitals. That system is now in place in southwest Denver, and it works.

In contrast, I have only been working on economic development projects for the past three years. This means that we are only at the stage of building, testing, and learning from our first generation of pilot projects in economic development.

What I will now present is a brief status report on four economic development projects, our current approach to long-range financing, and our plans for the future.

The first of these projects was the development of a shark fishing and processing project in Belize, Central America. The second was the development of a small pig rearing operation, also in Belize.

The third is the initiation of a fish processing plant in British Columbia, and the fourth is the development of an oil well drilling program, which is being utilized to finance all of these projects.

I'll start with the first of these, that is, the fishing operation.

SHARK FISHING OPERATION

I wish I could say that I got involved in economic development because it was a logical, rational outgrowth of my work in psychiatry. The fact is that I got involved in my first economic development project because I like scuba diving, and the connection with mental health only became apparent later on. I'm an avid scuba diver and was on a diving vacation in British Honduras, which has the second largest reef in the world, with my friend, Harry Groom, who is a commercial fisherman. In Belize we met Willard Young, who was at that time lighthouse keeper of Half Moon Key, a beautiful island 50 miles off shore. He invited us to come back with our families, and we became good friends.

Willard added to his small income as a lighthouse keeper by catching fish, and during Lent he always sold a few hundred pounds of dried shark meat. During the Lenten season, salted and dried shark meat is a preferred form of fish in Central

America. Harry, the commercial fisherman from Vancouver, thought he could improve Willard's catch rate, and I thought I could develop new markets for byproducts. So after a lot of discussion we all decided to explore the feasibility of a commercial shark fishing operation in Belize.

Belize, with its population of 130,000, is about as undeveloped a country as you can get. Whereas most third-world countries are struggling to progress from primarily an agricultural economy to an industrial one, Belize is still struggling to develop and agricultural economy. Over 80 percent of the food raised in Belize is produced by Mennonites living in separate communities. The native Belizians lack the capital, know-how, and work ethic required to produce significant amounts of food. The end result is that many foods that could be raised in Belize are currently imported from other countries, adding an additional burden to the balance of payments problem.

I took a three-month leave of absence from work to get the shark fishing operation started. We had no idea when we started the commercial shark fishing operation that it was quite impossible to develop a full-scale fishing, processing, and marketing operation in the short period of three months. Because we didn't know that it couldn't be done, we found we actually were able to accomplish all three quite nicely. With our Belizian partners, who, by the way, had majority control of the enterprise, we established a fishing operation which caught 1,000 - 2,000 pounds a day of sharks. We established processing procedures for salting and drying the meat, and markets for the meat in Spanish Honduras. We processed the livers into a cod liver oil type product for the local market. We cured the skins and shipped them to the U.S. to be made into leather. We designed, manufactured and sold jewelry from the teeth.

However, we made some very basic and painful mistakes. We found we had to quickly abandon both complicated fishing machinery and all complicated fish processing procedures described in standard textbooks. People in Belize just don't know how to operate machinery and keep it operating. A very basic simplified technology that would work had to be created for each operation. For example, in place of a steam boiler that extracted oil from shark livers, we simply minced livers into green garbage cans and let them heat in the sun to get the same result.

The main problem with this project was that the total fish life on the reef was not large enough to support enough sharks to maintain an extensive shark fishery. Warm waters simply do not support a large fish population, compared with cold waters where upwelling currents bring up large quantities of plankton that fish feed on. On the west coast of Canada, more fish are thrown away every day than the total fish population of the Belizian reef. This was to lead eventually to the establishment of a fish processing operation in British Columbia.

Meanwhile, a byproduct of the shark fishing operation developed into a second, small economic development project in Belize.

SHARKS, PIGS, & COCONUTS

Although salted and dried white shark meat is a highly prized source of food, for some reason people in Central America don't eat the red meat found just under the shark's skin. So we set up an experiment to see if we could use the red meat as a protein source for raising pigs.

The original idea came from Willard Young, who told us how his father had often raised one or two pigs on the islands,

feeding them occasional fish scraps and coconuts. We decided to try bringing several purebred pigs out to Half Moon Key to see if the traditional practice of raising one or two pigs on an island could be expanded and organized into a larger-scale food rearing operation.

There are over a thousand unoccupied islands on the reef in Belize, and most of them have coconut groves on them, with an unused coconut crop. It takes two or three years to grow a coconut crop from a planted coconut, and this is a relatively easy thing to accomplish. Small-scale fishing is a way of life on the islands, and there is always a supply of fish scraps. Fish provides an excellent source of essential amino acids for monogastric animals who cannot manufacture their own essential amino acids. If a pilot project raising pigs on coconuts, fish scraps, and a green weed that grows naturally on the coral islands of Belize was possible, a series of small pig rearing operations at different locations on the reef could be considered.

We decided to start by bringing two purebred pigs to Half Moon Key. Now you may think that getting two purebred pigs and taking them out to an island should be a relatively easy thing to accomplish. The problem is that everything that is normally taken for granted in a so-called civilized country becomes incredibly complicated in a poor country. First of all, the only place where purebred pigs could be bought in Belize is in the government experimental station, which is a three-hour drive from the capitol.

Since it was impossible to reach the experimental station by telephone, Willard got a taxi driver friend of his to take him out to pick up two pigs. After a terrific amount of negotiating, he was able to buy two pigs, and get them back to town in the taxi.

But then another problem came up.

Willard goes from Belize to his island in his sailboat. Usually the trip out to the island is against the wind. Because he ran into rough headwinds, Willard gave the two pigs for safekeeping to a friend of his who had his outboard operating. Unfortunately, this friend only delivered one pig to Half Moon Key, which was not an auspicious beginning for a pig rearing operation.

The story was that during the storm on the way across the ocean, one of the pigs jumped out and drowned. A more likely interpretation is that one of these pigs jumped into a cooking pot.

I attempted to remedy this situation by coming out a month or two later after having made the same trip to the experimental farm, using a borrowed truck, followed by a rented motor boat, and delivering to Willard's island eight purebred pigs, all of them females. Now we had enough breeding stock, with the one pig already deposited on the island being a male, but we had another problem. Nine pigs were far too many for Willard to handle.

Our intention was to start with a culturally acceptable idea, that is, one or two pigs, and simply expand the idea to a larger size. The jump from one or two pigs to three or four pigs is quite acceptable. A jump from one or two pigs to nine pigs is almost unacceptable, and the project was almost aborted because of my overambitiousness.

I mentioned this to point out some of the difficulties and some of the problems in making an economic development project culturally acceptable. In spite of this rocky beginning, the pig project proved to be successful; the pigs both survived on the experimental diet and were able to produce young. Since that time, Willard has been transferred to another lighthouse and was

able to move his growing retinue of pigs by making four trips on his sailboat. At last count 30 pigs are now alive and well.

If this project continues to survive our plan is to expand it in size and scope. Our biggest problem will be not that of buying pigs or organizing the technology to raise them. It will be the problem of how to organize partnerships with Belizians in such a way that rearing pigs will be workable.

THE VANCOUVER FISH PROCESSING PLANT

It is impossible to become seriously concerned with problems of food, income, and economic development in one country without becoming immediately aware of world-wide food and energy resources, and how they are being used. Schumacher, in his book Small is Beautiful, lucidly described how wealthy countries are using up a vastly disproportionate share of the world's supplies of both food and energy. Schumacher and others have convincingly pointed out that the incredible waste of food and oil, which has become a routine part of life in countries like the United States, is becoming a standard for poorer countries to strive for.

What led to the establishment of a fish processing plant in Vancouver was the realization that more fish was thrown out in one day off the west coast of Canada than was represented by the total fish population of the 200-mile tropical reef off of Belize. The amount of high quality fish that is routinely wasted by the fish industry off the west coast of Canada and the United States is staggering.

On a recent twelve-day fishing trip a 60-ft. dragger operating out of Vancouver threw out a million pounds of turbot. The turbot was caught, killed in the process of catching, and thrown overboard because no processor in the Vancouver area

would buy it. Such wastage is a routinely accepted fact in the fishing industry in spite of the severe protein shortage in many underdeveloped countries. In fact, about one-half of all the fish caught by fishermen is thrown overboard because there are no current profitable markets for it. Simply processing the turbot thrown out by that one dragger on one 12-day fishing trip could supply 500,000 pounds of salted and dried fish for the Belizian market, which is the equivalent of over three pounds of fish for every resident of Belize.

The fish company that we have established in Canada has as its primary objective the processing and utilization of the species of fish that are currently being wasted. As an example of what we are doing, I will describe our current involvement in the herring roe fishery.

In the month of March during the herring roe fishery on the west coast of Canada, 75,000 tons of herring will be thrown out. This is 150,000,000 pounds of edible fish or more than one-half pound of fish for every person of the United States. The reason such a staggering amount of good food is wasted is simply because herring eggs are expensive, and the herring itself is cheap. Of the 86,000 ton annual quota of roe herring for the west coast of Canada, 8 - 10,000 tons of eggs will be sold to Japan for a price of 110-150 million dollars. The meat has a potential economic value of only 5 - 10 million dollars, so the fish themselves are handled very poorly, and 150 million pounds of edible herring are turned into fertilizer in reduction plants.

As I am describing this to you today, our fish processing plant in Canada is attempting to pioneer ways of handling and processing roe herring so that the carcasses of the female herring can be used as a source of food. We have an initial purchase order from Germany for 300 tons of marinated herring to

be made from female herring after the eggs have been removed. This operation has a high degree of risk, but if it can be carried out successfully, it could have a major impact on world food stock.

A second objective of the Vancouver project is the utilization of the vast quantities of unutilized or under utilized species of fish, such as turbot, hake and dogfish shark. We plan to set the technology of the fishing industry on the west coast back-wards by 50 to 100 years by instituting salting and drying procedures for these species of routinely wasted fish similar to those we used in processing shark meat in British Honduras. The salted and dried fish will then be sent to Central America for final processing and sale.

ECONOMIC JUDO -- AN APPROACH TO FINANCING

The funding source for the fish processing plant and other economic development projects relies on a process which I refer to as economic judo. Judo is a way of using the already existing momentum of a larger opponent to your own advantage. It is my contention that human stupidity in the over use and waste of resources is predictable and will continue. I am making use of this predictability to generate the funding for projects which will, in effect, recycle some of those wastes.

The price of oil is certain to rise at a meteoric rate because of the predictable pattern of its continued overuse and because the supplies of oil are finite. Therefore, I got involved in a partnership that drills, produces, and sells oil in rural Kansas. These little wells, called stripper wells, are only about 800 feet deep, and each produces only a few barrels of oil, so the big companies have not shown much interest in them. However, they routinely produce for 30 to 50 years. This

means that our little oil wells, which are economically feasible now, will increase meteorically in value over the next 30 to 50 years, and it is this increase in value which will be used to finance future economic development projects. The turbot, hake, and dogfish shark that will be salted and dried will be bought and processed using oil revenues.

It will then be sold in low protein countries, with the proceeds used to finance local economic development projects like the pig rearing operation.

WORKING PRINCIPLES

The biggest problems we have encountered so far in our economic development projects are not related to money and technology but to people and cultural differences.

I cannot overemphasize the vast cultural differences between the people in rich countries, who plan economic development projects, and the people in poor countries, who end up working in them. The people in rich countries make assumptions that arise quite naturally out of their own environmental context. Unfortunately, most of these assumptions are totally inapplicable to the people of the poor country they are dealing with.

When I suggested to Willard that he raise three or four pigs instead of one or two pigs, he quickly agreed to it. When I came blundering to his island with eight pigs, a number which to me was really not very large, I pushed Willard almost to the point where the project became unworkable.

The economic projects that have the best chance of success are those which start within the culture of the country itself, and are carried out simply by adding a small amount of money, a small amount of technological assistance, and a huge commitment

to working out the problems of human organization that will make the projects work.

I would like at this point to list a few basic working principles for economic development projects that come out of initial experiences.

1. Cultural relevance. The economic development project should be culturally relevant and culturally acceptable.

2. Structure of economic development projects. 50-50 partnerships, evolving eventually to majority control by local residents work best

3. Funding. It is best to spend as little as possible to get a project started, and let it grow gradually.

4. Technology. Small-scale technology as outlined by Schumacher is usually far more workable than large-scale technology in third-world countries. Systematic dismantling of complex technology to make it fit the culture is far more practical than trying to make a local culture adapt to an inappropriate technology

5. Profit. Economic development projects must eventually make enough profit to be self sufficient. To accomplish this, the skills of a businessman-entrepreneur are far more important than those of a social worker/professional helper.

SUMMARY & CONCLUSIONS

The evidence is overwhelming that poor people experience much more psychiatric and medical illness than people who are well off. That this is directly related to access to food,

shelter, and other environmental conditions for survival is obvious.

I have described several pilot projects in economic development, how they are financed, and some initial working principles. I am struck with how relevant some of the principles derived from economic development projects in poor countries are to working with populations such as chronic psychiatric patients in community settings. I hope that our continued work will produce more practical information about some of the environmental forces that contribute to mental health problems, and what can be done about them.