# Assessing the Human Capital Impacts of the PD/A CRSP: A Conceptual Framework

*Eighth Work Plan, Adoption and Diffusion Research 1 (ADR1)*

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## Introduction

The Pond Dynamics/Aquaculture Collaborative Research Support Program (PD/A CRSP) functions to increase the use of aquaculture in developing nations. The project's mission is to improve the sustainability of aquaculture production systems of indigenous, noncommercial fish farmers so that food supply and human nutrition are enhanced. An implicit goal in the CRSPs mission is to improve the nutritional levels of the rural poor in collaborating nations. It will accomplish this through establishment of fish ponds on individual farms or through improvement of commercial fish farms. Another goal is to give small- to middle-sized farms an alternative cash crop, avoiding dependence on a single agricultural crop for survival. Large farms may use PD/A CRSP results to increase the overall supply of fish, provide fingerlings for area farmers, and increase export earnings for the nation. Fish farming can be a full-time livelihood for individuals with the time and resources to pursue the enterprise. For many others, aquaculture is a means to diversify a farming system, utilize underexploited resources, or augment family nutrition and income on an occasional basis.

One significant consequence of a development intervention like the PD/A CRSP is the human

capital that is put in place to sustain the benefits of fish culture for the long-term. The aim is to train farm operators, technical personnel, and professional staff who will establish and staff farms, industrial firms, extension organizations, and research stations in the field of aquaculture. The PD/A CRSP hopes to fulfill these goals while laying the foundation for these nations to continue the work.

One aspect of the project supports graduate and undergraduate education plus non-degree training in aquaculture for students in the chosen countries. The intent is that eventually these countries will become self-sustaining, able to conduct their own research and extension programs to benefit the people within their countries. The strategy of funding students relies on those students continuing their careers in private firms, as well as public research or extension agencies. These occupations benefit the aquaculture industry in multiple ways—as farmers, commercial fishery technicians, managers, educators at the university level, researchers or extension workers.

Schuh (1989), a leader in the field of development, has observed that the students associated with programs similar to the PD/A CRSP do not always utilize their education to the benefit of the industry. For reasons unknown, the students may not be finding work in research, education, or extension after program completion. This study will endeavor to determine the extent to which this assertion is true. It will employ multiple data sources that may begin to show the private industry, research, and extension career paths followed by the students. The focus of the study will be threefold. First, to profile the social and demographic backgrounds of students associated with PD/A CRSP activities. Second, to ascertain student perceptions of the value of their education and the career aspirations that drive their endeavors. Third, to assess the extent to which developing country personnel, trained by the CRSP, remain in the aquaculture industry and to document the nature of their employment.

**Context**

United States policy has tended to support projects that promote the development of certain industries and countries. This is not the only government or organization to do so. Among these projects, a trend has begun to focus on developing human capital. Human capital is the cognitive ability, physical ability, and training that allows an individual to become a productive member of society. The programs that wish to improve the standard of living of persons use a strategy that impacts one or all of the aspects of human capital, theorizing that those individuals will in turn be able to aid others. In this manner, the program can eventually be phased out without fear of collapse of that aspect of society.

The objectives for human capital development through association with an aquaculture research project are often very general. Therefore, it is necessary to develop a conceptual model for comparison purposes. The expected impacts on educational institutions, the public sector, and private industry are manifold and diverse. Previous research has shown that the impacts of the PD/A CRSP are only indirectly telegraphed to farm level. The most direct impacts are, and should be expected to be, on the individuals with direct interaction and exposure to PD/A CRSP personnel and their activities.

**Human Capital Development**

In the human capital literature, one finds several patterns and trends. Most human capital development projects were agricultural in nature. Most approached their projects in much the same fashion—research, education at the college level, and extension services. Most articles reported their results in terms of the success of the research conducted. Some went as far as to report on the changes in the standard of living of participants. No literature reported on the results of the education aspects of their projects. No articles announced success in disseminating large amounts of information throughout the societies they aided. No article could be found that traced the knowledge from the school to the outside world.

This is what brought this proposal idea to the forefront: a need to know where the knowledge goes. Once in the head of the student, the knowledge does not stop moving. According to the ideal model for human capital development, the knowledge is passed on to others. Is it really? Alternatively, is it stagnating, going unused? Certain researchers have made their own nonscientific observations on education effects of these projects. One report even pinpointed education as an area for further study.

G.E. Schuh (1989), in *Human Capital and Agriculture Development in Latin America*, suggested many

reasons for studying graduate students and the effects of funding graduate education. He suggested that many of the students funded for graduate school would not have chosen agriculture as a field had they not been offered scholarship. He further suggested that these students use their graduate degree to advance their own careers in the private sector, and that their education never benefited those for which it was intended—the rural poor of those countries. He cited various reasons for this. First, the students who reached graduate level in school were predominantly from urban areas and returned there after school. Second, many students who studied abroad never returned home but found employment abroad instead. Third, very few wage-earning jobs were available in the rural areas to hold the graduate students there. It is not clear whether these assertions hold for aquaculture students.

All of Schuh's ideas were purely speculative. He suggested further study be done on the effects of education of projects such as the PD/A CRSP that bring both financial and technical resources to the poor. Schuh felt that not enough evaluation of aid projects was being done to build a complete picture of their effectiveness in attaining their goals.

## Methods and Materials

The objective of the current study is to profile the human capital impacts of the Global Experiment in terms of training, advancement, and the technology transfer consequences of developing-country nationals affiliated with PD/A CRSP research sites. This objective will be addressed by analysis of PD/A CRSP reports, interaction with PD/A CRSP personnel, and intensive interviews with PD/A CRSP counterparts, students, employees, and others associated with PD/A CRSP scientists. A data matrix will be defined that encompasses all sites by year of operation. A draft version of this matrix will be available for review by PD/A CRSP participants at the Annual Meeting. Data will be obtained from Program Management Office records, Annual Reports, and other available information. Based on previous research and the literature on training and capacity development associated with international research and development efforts, a series of indicators of impact will be defined that summarize the annual site data matrix. A report will be prepared that presents the data in tables and graphs portraying the relative and cumulative human capital impacts of the PD/A CRSP—overall and by its various sites.

## Anticipated Benefits

Many development projects attempt to measure success in terms of crop increases, monetary figures or population data usually only quantitative in nature. The qualitative and exploratory nature of this study promises new and interesting literature. No study found to date has endeavored to reach back into a student's mind prior to schooling to trace his/her goal intentions through school to a career. Programs such as PD/A CRSP and universities alike often either neglect to trace their students after graduation or simply do not publish their findings in a meaningful manner. To trace students from prior to program entry through schooling through their careers could provide useful predictors for future testing.

For the PD/A CRSP, this study will provide evidence of knowledge dissemination. Tracing where and how knowledge travels from the students, if at all, will be valuable not only to the PD/A CRSP but also to human capital development programs in general. Once traced, the line of knowledge flow can be directed and shaped to make development programs self-perpetuating.

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## Literature Cited

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