DETERMINANTS OF RICE FARMERS' PRODUCTIVITY UNDER NATIONAL AND COMMUNAL IRRIGATION SYSTEMS IN NUEVA ECIJA, PHILIPPINES

ABDUL AZIZ PAHLWAN

Submitted to the Faculty of the Institute of Graduate Studies,
Central Luzon State University, Muñoz, Nueva Ecija,
Philippines, in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE
(Rural Development)

MARCH, 1986

This thesis entitled, DETERMINANTS OF RICE FARMERS' PRODUCTIVITY UNDER NATIONAL AND COMMUNAL IRRIGATION SYSTEMS IN NUEVA ECIJA, PHILIPPINES, prepared and submitted by ABDUL AZIZ PAHLWAN in partial fulfillment of the requirements for the degree of Master of Science in Rural Development, is hereby accepted.

SOLEDAD S. MINA
Member, Advisory Committee

3-31-86
Date Signed

JOSE C. ALONZO
Member, Advisory Committee

3-31-86
Date Signed

HONORATO L. ANGELES
Member, Advisory Committee

3/31/86
Date Signed

ROMEO L. SAPLACO
Adviser
Chairman, Advisory Committee

3-31-86
Date Signed

Accepted in partial fulfillment of the requirements for the degree of Master of Science in Rural Development.

ROMEO L. SAPLACO
Dean
Institute of Graduate Studies
Central Luzon State University
Muñoz, Nueva Ecija, Philippines

3-31-86
Date Signed

ACKNOWLEDGMENT

The author wishes to express his sincerest and heartfelt gratitude to the following:

Dr. Romeo L. Saplaco, major adviser and chairman of his advisory committee and Dean, Institute of Graduate Studies (IGS), Central Luzon State University who deserves the author's special expression of appreciation and thanks for his valued guidance and expert advice since the beginning of the author's academic work and stay in CLSU; Dr. Jose C. Alonzo, Dr. Honorato L. Angeles, and Dr. Soledad S. Mina, members, for their able guidance, invaluable help and constructive criticisms for the betterment of this manuscript;

Dr. Vivencio Esteban, Chairman of his thesis defense committee, and Prof. Pastora S. Coloma, representative, IGS for their criticisms, comments and valuable suggestions for the improvement of the thesis.

Dr. Soledad S. Mina whose guidance in the statistical analysis and interpretation deserves a special recognition, and Prof. Estefania Wangdali-Kollin, for her editing assistance;

His professors, Dr. Romeo L. Saplaco, Dr. Jose C. Alonzo, Dr. Rodolfo C. Undan, Dr. Honorato L. Angeles and Dr. Soledad S. Mina with whom he took academic courses; and Dr. Eduardo C. Paray for his help, suggestions, and cooperation on all academic matters;

The Government of Bangladesh, and BARC/IADS/USAID/Winrock International Institute for Agricultural Development for providing the scholarship grant enabling the author to gain professional

experience in both the educational and cultural aspects at the Central Luzon State University, Muñoz, Nueva Ecija, Philippines;

Dr. Kazi M. Badrudozza, former chairman, BARC; Dr. Ekremul Ahsan, Chairman, BARC; Dr. M. Motlubur Rahman, Director General, BARI; Mr. N. I. Khan, P.S.O., BARI; Dr. J. Abeddin, E. and R. P. BARI; and Dr. A. Hamid, P.S.O., BARI, for their help and moral support;

Mr. Ahmed Hossain, Director, Training, BARC, Dhaka for administering his scholarship;

Mr. Dominador V. Santos, Municipal Mayor, Muñoz, Nueva Ecija; Mr. Avelino Andres, Municipal Mayor, Sto. Domingo, and Engr. Manuel L. Collado, Chief, District I, NIA, for their kind permission and help in the conduct of the study within their jurisdiction;

Mr. Angelo C. Abellera, President, CUSARICA Irrigators' Association and all the members of the Irrigators' Associations (Baloc-Boasao and CUSARICA) for their cooperation and much needed help in the conduct of this study;

Mr. Eduardo T. Gabriel, Mr. Crisanto D. Nerona and Mr. Edilberto G. Saturno for their sincere services and help in the data gathering;

Mrs. Luz C. Nazar for her kind cooperation and assistance;

The author's Bangladeshi friends: Mr. Nazrul Islam, Mr. M. Mosiul Hoque, Md. Nozrul Islam, Mr. Rafiqul Islam, Mr. Samsul Alem, Mr. Mustafizur Rahman, Mr. Ismail Miah Bhuyan, Mr. S. Uddin, Mr. Pranob K.S.R. and Bangladeshi families, who in some ways encouraged and helped the author to accomplish his research study;

Miss Digna S. Avellanoza, Mr. Edgardo P. Mateo, Miss Elizabeth M. Montero, and Mr. Nonilo C. Delfin for their patience in typing all papers including thesis manuscript and drawing of figures.

His father, Md. Ershad Ali Pahlwan; mother, Mrs. Samsunnahar Pahlwan; brothers, sisters, and other membersof his family to whom the author owes deepest gratitude for their blessings, encouragement, and moral support;

Finally his wife, Dr. Hamida, who sacrificed a lot to stay with the author in the Philippines during the period of his study and who provided understanding, moral support and inspiration; his son Abdul Hasanat Mustafa Pahlwan (Luzon), who was born in the Philippines and who provided indispensable source of inspiration and moral courage for his study abroad;

Over and above all, the Almighty Allah for giving him the courage, strength and wisdom to pursue and complete his graduate studies.

ABDUL AZIZ PAHLWAN

BIOGRAPHICAL SKETCH

ABDUL AZIZ PAHLWAN is the son of Md. Ershad Ali Pahlwan and Mrs. Samsun Nahar Pahlwan. He was born on February 17, 1950 at Vill-Gullah, P.O. Karatia, Dist. Tangail, Bangladesh.

He completed his primary education at the R.H. Madrasha and his secondary education at the H.M. Institution, Karatia, Tangail, Bangladesh in 1960 and 1966, respectively. His Bachelor of Science (Hons) degree in Agriculture and his Master of Science in Agronomy were obtained from the Bangladesh Agricultural University, Mymensingh in 1971 and in 1972, respectively.

He joined the Soil Conservation Project, Dabiganj, Dinajpur, under the Bangladesh Agricultural Research Institute (BARI) as Agronomical Assistant in 1973. Then, he joined the Central Research Station of BARI at Joydeppur, Dhaka in 1975 as Scientific Officer (Farm).

In 1977, he had the opportunity to participate in a four-month training on farm management at Centro Internacional Majoramiento de Maize y Trigo (CIMMYT), Mexico. In the same year, he was promoted as Senior Scientific Officer, Agronomy Division, BARI, Joydeppur, Dhaka in 1977.

Through the BARC/USAID/IADS/Winrock International Institute for Agricultural Development, which granted him the scholarship, he pursued his Master of Science in Rural Development at the Institute of Graduate Studies, Central Luzon State University, Muñoz, Nueva Ecija, Philippines in November 1983 to March, 1986.

He is happily married to Dr. Hamida Pahlwan and is blessed with a son, Abdul Hasanat Mustafa Pahlwan (Luzon), who was born in the Philippines

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDIX TABLES

LIST OF FIGURES

ABSTRACT

PAHLWAN, AZIZ A., Institute of Graduate Studies, Central Luzon State University, Muñoz, Nueva Ecija, Philippines, March, 1986. DETERMINANTS OF RICE FARMERS' PRODUCTIVITY UNDER NATIONAL AND COMMUNAL IRRIGATION SYSTEMS IN NUEVA ECIJA, PHILIPPINES.

Major Adviser: Dr. Romeo L. Saplaco

The study sought to determine the relationship of the rice productivity of farmers and some socio-demographic characteristics, input availability, and contact with change agents of farmers using the national(NIS) and communal irrigation systems (CIS) in Muñoz and Sto. Domingo, Nueva Ecija, Philippines.

A total of 200 respondents equally representing both systems were randomly selected. An interview schedule was the sole instrument used. Pearson Product Moment Correlation Coefficient, multiple regression analysis, and t-Test were used in the analysis of relationships between the independent and dependent variables.

Results revealed that only educational status and household size had significant relationship with rice productivity under NIS but not under CIS. All the other variables did show significant relationship with rice productivity either under NIS or CIS.

Among input variables both under NIS and CIS, adequacy of fertilizers showed highly significant relationship with rice productivity. Adequacy of irrigation water and farm tools and machineries showed significant relationship with farmers' rice productivity under CIS only.

Farmers' contact with extension workers, visit to field demonstrations and discussion with friends and neighbors were not significantly related with the rice productivity of farmers in both systems. But listening to radio agricultural programs showed significant relationship with rice productivity under CIS but not under NIS.

NIS farmers obtained significantly higher productivity (10.79 cavans/ha) than the CIS farmers. Insufficient irrigation water, high cost of production, low cost of products, financial problems, drainage problem, weed infestation, natural calamities, insect pests and diseases were the common problems of farmers in both systems.

LITERATURE CITED

ALIX, J. and E. M. RAMOS. 1970. Requirements of an integrated area development program: Results from three socio-economic surveys. An integrated area development and agricultural diversification and markets. L.R. Peñalosa and M.S. GAPOD (Ed) CPDS, UPLB, College, Laguna. p. 47.

ANGELES, H.L. 1983. Community-managed irrigation system. CLSU, Muñoz, Nueva Ecija, Philippines. p. 2-3.

ANIEVAS, G.T. 1975. A study of copra marketing practices on the farm level in Surigao del Norte. An abstract of the results of research projects, UPLB, College, Laguna.

ANTONIO, J. 1982. Landless workers and rice farmers: Peasants subclass under Agrarian Reform in the Philippines villages, Los Baños, Laguna, IRRI.

BARNETT, W.E. and S.C. MAYO. 1952. North Carolina Agricultural Extension Service. Progress Report No. 14. June.

BATTAD, F.A. 1973. Factors associated with the adoption of rice technology in Cotabato. Unpublished Ph. D. Thesis, UPLB, College, Laguna.

BRIJ, M.S. 1981. Estimating water movement through flooded soil during crop growth in irrigated lowland rice field: A Programs Report. Irrigation Water Management Department. IRRI. Los Baños, Laguna, Philippines.

CARLOS, D.I. 1979. Operationalizing the concept of participants. Manual on the participatory approach in communal irrigation project. NIA. pp. 30-31.

CASTILLO, G.T. 1966. Profitability to invest in agriculture: Observations from a developing country, the Philippines, UPCA, College, Laguna.

_____, 1969. Impact of Agricultural Innovation patterns of Rural Life. (Focus on the Philippines) Agricultural Revolutions in Southeast Asia, SEADG XL, p. 13

CHU, E.C. 1973. High-yielding rice varieties at the cross-roads: Three post-trial alternative decisions among farmers. Unpublished MS Thesis. UPCA, College, Laguna.

COLOMBO, U., D.G. JOHNSON and T. SHISHIDO. 1978. Reducing malnutrition in developing countries: Increasing rice production in South and Southeast Asia. The triangle paper 16. The trilateral commossion.

COVAR, P.R. 1960. The Masagana/Margate System of planting rice: A study of Agricultural Innovations. UP CDRC Study Series No. 5. p. 90.

De DATTA, S.K. 1981. Principles and Practices of Rice Production. New York. John Wiley and Sons.

DERAGONGAN, M.B. 1973. The rice production on program in a Maranaw Community. Unpublished Ph. D. Dissertation, UPCA, College, Laguna.

DOUGHLAS, M. 1965. Fidelity of communication between farm management technicians and farmers in Leyte, Philippines. Unpublished M.S. Thesis. Cornell University, Ithaca, New York.

DOMINGO, Z.T. 1981. Communication technology for rural education: An explanatory study on the use of a multi-media approach in non-formal education. In: Support communication for Rural Development Programs. FFTC Book Series No. 21, p. 85.

GARCES, R.C. 1983. A methodology to evaluate the performance of irrigation system: Application to Philippines National Irrigation. Ithaca, New York. Cornell University. p. 47.

GROSS, N. and M. TALES. 1952. Characteristics associated with acceptance of recommended farm practices. Rural Sociology 17 (4) p. 321-327.

GUALHATI, N.D. 1958. Worldwide view of irrigation development. Proc. Am. Soc. Civil Eng'g. No. 1951.

GUZMAN, DE A.M. 1973. Corolan rice farmers' response to change in cropping patterns: A Case Study. (Mimeograph) p. 94.

HILL, F.F. 1964. Developing agricultural institutions in underdeveloped countries. Agricultural Science for Developing Nations. Washington, D.C. American Associations for the Advancement of Science. p. 141.

JULIANO, P.A. 1977. Farmers characteristics, adoption of recommended rice technologies and tenure status among Laguna farmers. Unpublished Ph. D. Dissertation, UPLB, College, Laguna.

LU, H.U. 1968. Some socio-economic factors affecting the implementation at the farm level of rice production in the Philippines. Unpublished Ph. D. Dissertation, UPLB, College, Laguna.

MADIGAN, F.G. 1968. The farmer said no. UP CRDC. Second Printing. p. 147.

MANDAC, F.B. 1984. Evaluation of the technology dissemination programs under the Cagayan Integrated Agricultural Development Project. Unpublished Ph. D. Dissertation, UPLB, College, Laguna.

MARSH, C. and A.L. COLEMAN. 1955. Differential communication among farmers in Kentucky country. Rural Sociology Journal. 20.

MIRANDA, S.M. and G.L. LEVINE. 1978. Effect of Physical Water content parameters on lowland irrigation water management. Irrigation policy and management in Southeast Asia. IRRI, Los Baños, Laguna, Philippines. p. 77-91.

PAHUD, S.L. 1969. Some factors associated with the adoption of recommended rice practices. Unpublished M.S. Thesis. UPCA, College, Laguna.

PAMPEL, F., JR. and J.C. VAN ES. 1977. Environmental quality and issue of adoption research. Rural Sociology Journal. 42.

PASCUAL, N.P. 1971. The adoption of some recommended corn production practices among corn farmers in Leyte. Unpublished M.S. Thesis. UPCA, College, Laguna.

REISS, A.J., JR. 1961. Occupation and social status. New York. The Free Press.

RIVERA, F.T. 1976. The production-consumption behavior of farmer cultivation households in six Nueva Ecija barrios. Unpublished Ph. D. Dissertation. UPLB, College, Laguna.

ROSE, R.L. 1982. Communication flow and utilization of agricultural engineering technology in two rice farming communities of Nueva Ecija. Unpublished Ph.D. Dissertation, UPLB, College, Laguna.

SITISARA, A. 1972. Factors associated with the adoption of rice farm practices in Kampangsaen Secondary School in Thailand. Unpublished M.S. Thesis, College, Laguna, p. 26.

STOGHILL, R.M. 1962. Intergroup and intragroup theory and research. In Masaraf Sherif (Ed), intragroup relationship and leadership. New York: John Wiley and Sons, Inc. p. 56.

SYLVIA, MA. G. 1983. Manual on the participatory approach in Communal Irrigation Projects. (Preconstruction Phase). National Irrigation Administration. p.4-5.

WEN, T.C. and H. HSI-HUANG CHEN. 1980. Agricultural development planning: Taiwan experience. Extension Bulletin No. 144. Food and Fertilizers Technology Centre, Taiwan. p. 9.

WILKENING, A.E. 1955. Informal sources in the acceptance and use of fertilizers in Iowa. TVA, Division of Agriculture Extension Services.