

P15-ABK-683

93695

**Promotion of the Role of Information
Technology (IT) for Decentralized Development
in the Philippine Government**

Project Proposals

March 1990



NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY



DEVELOPMENT ACADEMY OF THE PHILIPPINES

**Promotion of the Role of Information
Technology (IT) for Decentralized Development
in the Philippine Government**

' This project was completed through the assistance of the Training and Development Issues (TDI) Project , a United States Agency for International Development (USAID) assisted project being implemented by NEDA . The TDI Project aims to improve the capability of the Philippine government and other national institutions to analyze development issues and to make sound and timely development related decisions.

The views , expressions and opinions as contained in this report are the author's and are not intended as statements of policy either NEDA or USAID. '

F O R E W O R D

This report contains the major output of the project: Promotion of the Role of Information Technology (IT) for Decentralized Development in the Philippine Government.

To support rural/decentralized development in the Philippines, the following proposals are hereby presented:

- o The Landholding Database: An Integrated Approach
- o The Use of Microcomputers for Decentralized Development in the DLG
- o Agricultural Supervision and Information System (A/SIS)

-oOo-

**PROJECT TITLE: THE LANDHOLDING DATABASE:
AN INTEGRATED APPROACH**

PRESENTED BY : DEPARTMENT OF AGRARIAN REFORM (DAR)

BACKGROUND/RATIONALE

The Comprehensive Agrarian Reform Program (CARP), which is described as the "very heart of the countryside development program of the present government" was implemented which embodies the following goals:

1. to revive and develop the full potential of Philippine agriculture;
2. to pave the way for national industrialization;
3. to provide opportunities to enhance the dignity of the Filipino farmers;
4. to improve the quality of life of the farmers through greater agricultural productivity; and
5. to promote social justice in all phases of national development.

All sectors of the government bureaucracy are required to participate in the program, thus all cabinet level departments are represented in the Presidential Agrarian Reform Council (PARC), the policy-making body of CARP. The key agencies, however, are those involved with land tenure improvement or land transfer and with providing direct support services to CARP beneficiaries. These

agencies are the DEpartment of Agrarian Reform (DAR), which is the lead agency, the Department of Environment and Natural Resources (DENR), the Department of Agriculture (DA), the Department of Justice (DOJ-NALTDRA) and the Land Bank of the Philippines (LBP).

DAR is responsible for land acquisition, land valuation and distribution/transfer of agricultural lands. It is also responsible for the survey, administration and development of about 700,000 hectares of resettlement areas.

The DENR is responsible for lot survey, identification and delineation of lands in the public domain suitable for agriculture or agroforestry and mapping.

The DA is responsible for providing post-transfer support services to CARP beneficiaries, both in agriculture and agroforestry/ISF areas.

DOJ-NALTDRA is responsible for registration of titles of land transferred to CARP beneficiaries, while LBP is responsible for administering compensation to landowners, collecting payments from and providing credit to farmer-beneficiaries.

Activities for CARP of the above-mentioned agencies are interdependent. Examples are: lot survey cannot be

undertaken unless land and farmer-beneficiary are identified first; lot survey first before land valuation; land valuation first before land transfer; land transfer certificate first before title; title first before credit; land transfer first before provision of agrarian support services; and many others. Critical in these interdependencies is data generation for each activity and flow of data to the users. Activities could only move as fast as data are generated and made available for use. It must also be noted that most of the CARP activities take place at the municipal and provincial levels. These activities are performed in coordination with BARC which includes the following:

1. identification of agricultural lands and qualified farmer-beneficiaries;
2. collection of copies of pertinent documents for acquisition and distribution process:
 - a. copies of Tax Declaration may be taken from the Office of the Municipal Treasurer/Assessor or Provincial Assessor's Office.
 - b. copies of Certificate of Titles may be collected from the Register of Deeds.
3. determination on the suitability/productivity of land to be acquired;
4. determination of initial land value; and
5. assistance to DENR-LMS on the conduct of perimeter/boundary survey.

Considering the short timetable set for accomplishing tenurial improvements for 5.5 million hectares that are spread all over the Philippines, the need to introduce technology in any way to improve data generation and flow has become an imperative. In cognizance of the need stated above, it is therefore, proposed that a computerized system be created at the municipal or provincial level.

OBJECTIVE/S

To improve the generation and flow of data for CARP implementation, DAR is proposing to establish a computerized landholding database system with the following specific goals:

1. Complete identification of agricultural lands within the province/municipality.
2. Fast retrieval of pertinent documents.
3. Established document tracking tool.
4. Efficient planning of resources.
5. Established accurate accomplishment statistics.
6. Deterred corruption potential within the agencies concerned.

Also, the following agencies/offices could use the system with the following objectives:

- Assessor's Office: Complete and updated database on Tax Declaration Documents.
- BIR (DOF) : a. Effective and efficient tax collection within the municipality.

- b. Monitored tax evaders.
- DENR : Effective planning of resource allocation especially on land surveys.
- ROD (DOJ) : Improved titling records.
- DA :
 - a. Improved provision of support services to farmer-beneficiaries.
 - b. Complete and updated record on the classification of agricultural lands.
- DLG : Effective land use planning.

DESCRIPTION OF THE PROPOSED SYSTEM

The proposed system would be described as follows:

1. The proposed system shall be land-based. Meaning, data shall be collected per title or landholding basis.
2. Data to be collected and inputted in the computer should include the following:
 - a. Landowner Information
 - b. Farmer-beneficiary Information
 - c. Land Information
 - d. Land Valuation Data which may include Comparable Land Transactions and Consumer Price Index
 - e. Land suitability/productivity data
 - f. Land records data which includes Tax Declarations, Certificate of Titles and Real Property Taxes
3. Collection of data shall be done at the municipal and/or provincial level.
4. A provincial/municipal data center shall be organized which will initially be participated by representatives

of the following offices: DAR, DENR, DA, Assessor's Office, ROD, Office of the Treasurer and DLG.

5. The data center shall have the following functions:
 - a. Data necessary for the landholdings database shall be stored in the computer installed in the data center.
 - b. Coordinate with the different offices involved in land acquisition and distribution process for data update.
 - c. Responsible for the quality of data added to the system.
 - e. Link of information to the region and/or head office of agencies needing the data.
6. Hardware set-up could be a choice of the two described below:
 - a. 3 PC/XTs distributed among the following offices:
 - 1 unit - DAR, DENR and DA
 - 1 unit - Assessor's Office and ROD
 - 1 unit - DLG/Office of the Treasurer
 - 1 PS/2 or PC/AT for the provincial/municipal data center
 - b. 1 PS/2 with more than a hundred MB hard disk capacity shared by the different offices involved. This computer would be installed at the data center.
7. In case 6.a is preferred, data would be transferred using diskette files from one agency to the data center.
7. Each agency involved should be encouraged to set-up their own systems which would both be necessary to the landholding database system and their own office.

9. To cope with the technology being proposed, trainings should be conducted to the users, data entry operator and officials.

-oOo-

PROJECT TITLE : AGRICULTURAL SUPERVISION AND
INFORMATION SYSTEM (A/SIS)

PRESENTED BY : DEPARTMENT OF AGRICULTURE

A. The Problems Addressed

1. The present agricultural extension system cannot provide effective supervision over its farmer-clientele. Some reasons include:

a) Extremely high farmer to Agricultural Production Technician (APT) Ratios. There are 12,909 APT's serving some 4,149,306 farm households, or per 321 farm households per APTs. Compared to the 2,089,660 rice farmers, there is a ratio of 162 rice farmers per APT.

b) Farmer supervision is barely done, as it is just a minor role of the APT in the current setup. Per DA extension manual, the APT's primary extension objectives regard him as an educator, communicator, resource linkage and institution builder. His secondary extension objectives see him doing research, planning, monitoring and evaluation. Because of the sheer number of farmers under his scope, planning, monitoring and evaluation, which constitute effective supervision, is given only second priority.

2. Agri-statistics a major and separate effort. At present, the Department of Agriculture requires a large and separate pool of manpower to collect agricultural statistical information from the field. APTs who are also required to gather statistics spend an inordinate amount of time preparing summary reports from data generally extrapolated from their quantified perceptions of their farmer-clientele's production.

B. The Proposed Intervention: A/SIS: Agricultural Supervision and Information System

A/SIS is a comprehensive manual and computerized solution to the above-cited problems in agricultural extension and agricultural statistics. It seeks to rationalize the supervision of farmers by APTs through:

1. the design of a functional Farmer Supervision Handbook to be used for recording farmer production data;

2. the provision of a computerized system (approximately one computer per ten APTs) to contain the production data of farmer-clients;
3. the inclusion of a computerized Expert System to evaluate the production data, providing both diagnosis and prognosis; and
4. the addition of consolidation, summary and analysis hardware and software systems and manual procedures to provide municipal, provincial, regional and national statistics as a byproduct of the system.

C. The intervention is expected to

1. One Computer per 10 APT's
2. PT Handbook
3. Expert System
4. Management Information System
 - a) Crops planted
 - b) Effectivity of Extension Services
 - c) Inventory of Standing Crops
5. Reports
 - a) Action List per Farmer
 - b) Activity Input Form
 - c) Harvest Forecast
 - d) PT Production Report
 - e) Stage of Cultivation Report
 - f) Farmer Production History
 - g) PT Weekplan
6. Files
 - a) Farm Profiles
 - b) Resource Profiles
 - c) Packages of Technology

7. Future Systems

- a) Input Requirements Analysis/Consolidation
- b) Forward Buying
- c) Related Systems
 - 1) DA MIS
 - 2) Agri-sources Information System
 - 3) Manual System for PT. This includes the planning forms and binder used by the PT in monitoring the different farmers. This is much like a sales binder carried by route salesmen. Some of its tabs could be: 1) Packages of Technology. 2) Resource Allocation Forms/Schedules. 3) One Tab per Barangay, with farm profiles and Action Lists of the different farms.

D. Benefits

1. General Benefits

- a) Springboard for a Common IT Architecture for the Agricultural Sector
- b) Facilitate Transport and Storage Planning

2. To Farmers

- a) Increased Farmer Productivity
- b) Minimize Middlemen
- c) Poverty Alleviation

3. To the DA

- a) Increased Government Responsiveness
- b) Increase Agricultural Productivity
- c) Increase PT Efficiency
- d) Implementation of a Highly Reliable Empirical Database of Agricultural Production
- e) Automate Monitoring PT Productivity
- f) Accurately Determine Effects of Disasters on Standing Crops
- g) More Rational Implementation of the Most Applicable Package of Technology per Farmer.
- h) Simplify Information Consolidation and Analysis at Regional and National Levels

4. To PCIC

- a) Simplify Crop Insurance Claims Verification
- b) Can become the foundation of a more responsive crop insurance system where premium rates are based on actual farmplot production history rather than national averages
- c) Reduce claims from controllable causes
- d) Provide a higher degree of control over 1st sales of agricultural crops.
- e) Higher Farmer Insurance Coverages.

5. NFA

- a) Accurately project grain harvests
- b) Simplification of Buying, Warehousing and Transport of Grain

6. Lending Institutions

- a) Loan Offsetting Arrangements with Lending Institutions
- b) Higher Repayment Rates

7. Farmers Cooperatives

- a) Facilitate lower prices through coordinated bulk buying
- b) Orderly Scheduling of Mechanical Assistance
- c) Better Crop Prices through Diversified Planting
- d) Produce Offsetting Arrangements with Input Suppliers

8. Simpler Dissemination/Implementation of Agricultural Policies

9. Better Basis for Post-Harvest Facilities Planning

E. Charts

1. Agreement Cycle between Farmer and PT on Action List

- a) Accomplishment of Farm Profile by Farmer, with help from PT
- b) Accomplishment of Resource Availability by PT (resources available to farmers under his supervision). Resources may be tractors, lending institutions, input requirements such as seeds, fertilizer, pesticides, produce

buyers, transport facilities, warehouse facilities, farm labor. Entered in the format Resource, availability constraint (hours, pesos kilos, fixed availment dates, etc.). System can print a report of farms arranged by resource, with a chronological or reference no. arrangement, as well as availment itemization and totals.

- c) Selection of Packages of Technology for Crops Feasible in Area.
- d) Data Entry of a), b) and c)
- e) Automatic Generation of Action List by Computer per Farmer. The computer has a standard Action List. The computer tries to apply this action list, one at a time to each farm. In so doing, it checks out available resources as well as constraints posed by the farm and its environment. It picks out alternate packages of technology in case the default POT is not applicable.
- f) Discussion, Review, Modification and Sign-off of Action List by Farmer and PT.
- g) Rentry of Changes in Action List into Computer.
- h) Reprinting of Action Lists. Printing of PT Itinerary.

F. Required Hardware

1. Unit of Computerization

- a) approx. 10 PT's
- b) approx. 1,500 farmers

G. System Development Schedule

1. Feasibility Study

- a) Identification of Component Modules
- b) Identification of Pilot Areas
- c) Identification of Hardware Requirements
- d) Identification of Project Costs
- e) Identification of Organizational Requirements
- f) Identification of Manpower Requirements
- g) Identification of Agency Linkages

- h) Identification of Legislative Support Requirements
- i) Recommendations on Module Prioritization
- j) Development of Detailed Implementation Schedule

2. Implementation for Version 1.0 of Module

- a) Module Systems Analysis
 - 1) Manual Systems Functional Specification
 - 2) Computer Systems Functional Specification
- b) Module Systems Design
- c) Design Validation with Project Owners
- d) Design Validation with Pilot Areas
- e) Program Development
- f) Pilot Area Program Validation
- g) Pilot Area Training
- h) Pilot Area Implementation
- i) Module Maintenance
- j) Begin Version 2.0

-oOo-

**PROJECT TITLE: THE USE OF MICROCOMPUTERS
 FOR DECENTRALIZED DEVELOPMENT
 IN THE PHILIPPINES**

PRESENTED BY : DEPARTMENT OF LOCAL GOVERNMENT

THE PRESENT SITUATION

One of the major objectives of the Department of Local Government is the enhancement and development of the capabilities of local government units for development.

In late 1988, the department acquired a number of microcomputers which were distributed to the Regional Offices and to some units in the Central Office. With the package, came a training component allowing two representatives from each regional office to be trained in the use of microcomputers in word processing (Wordstar), spreadsheets (Lotus), and database functions (DBase III+). Most of the participants had no previous acquaintance with microcomputers and thus, after the one to two month training period ended many could still not be expected to effectively apply what they were trained for. Follow-up training is being done by Central Office staff on a regional basis. Most regional offices are now starting to establish databases for their use and to computerize some data processing and the generation of reports.

The department has the Electronic Data Processing Services unit at the Central Office which is in charge of servicing the electronic data processing requirements of the various units in the Central Office.. In addition, various units which were assigned microcomputers, have their own staff who take charge of the computer requirements of their particular units. EDPS supports line operations and staff support services. Databases on local government profiles, local government officials, and non-governmental organizations are slowly being established and are being expanded as more information become available from other agencies or from other units within the department. The EDPS assists in the computerization of accounting, personnel, supplies, and records services. It also assists the Presidential Action Line System (PALs) in keeping track of communications and action taken on proposals/requests that were submitted into the system.

In addition to the EDPS, there are various units in the department which have partly computerized operations. Databases on current and proposed projects have been established and are regularly being updated. Some units have development software geared towards more efficient processing of data from the field level. These are used to provide the regular reports needed on the status of projects being administered by the department.

Although these activities are not primarily for the development of local government units, any activity which makes operations more responsive to their development. In addition, the decentralization of computer activities within the department makes the flow of information faster and this will also be reflected in more prompt action on LGU needs.

PERCEIVED NEEDS

A detailed study of the DLG system identifying the specific areas where computers will be of use is a must. On the results of this study a more rational program for the acquisition of equipment, training, establishment of databases can be done. The department shall coordinate with the National Computer Center which is at present making studies along this line.

There is a need to educate the department's people to make them aware of the advantages of computerization. This is especially true for higher level administrators and managers many of whom do not really understand the capabilities of the computer resources in the department. The present hardware is only partially utilized not only because of lack of trained personnel but more because of the lack of awareness among the managers of what can be done. There are equipment which are hardly used because they are not needed while there are others which always seem to be

operating and could stand some upgrading. Some computers are used mostly for word processing. In some cases, even when databases are available and information may be extracted from them using the computer, processing is still done manually. Many reports which might be made better and faster using available computer programs are still laboriously prepared by hand. Because of the lack of coordination among the various units using computers, databases are sometimes duplicated and precious time is lost encoding data which have already been encoded by another unit.

Many local government units, especially those which are urbanized, have started computerizing operations. It is a necessity, in view of the mandate of the department, to assist these local government units in their computerization efforts and to encourage the use of microcomputers in other units. In addition, the department must initiate programs towards coordinating the efforts of these units for optimum use of available resources.

PROPOSALS

1. **Training.** Local executives and also DLG personnel should be made aware of the needs and advantages of computerization. The training should focus on the capabilities of computers, the minimum requirements for

computerizing, available assistance from the department and other agencies. The department is planning to conduct such seminars for provincial representatives next year through the Local Government Academy.

2. **Establishment of Baseline Information System.** One of the common complaints of local executives is irrational planning and programming of projects, especially those which are implemented by or through the national government. Towns are granted funds for the construction or repair of infrastructure which they actually do not need. Often they need the funds for some other more pressing needs. These inconsistencies stem from the fact that there is a dearth of information, especially on the national level, about the needs of local units. Local development councils identify and prioritize the needs of their area but they do not participate in the planning for national programs which affect their areas.

3. **Establishment of Regional and Provincial Information Centers.** One form of assistance that the department could give to local government units could be to establish information centers easily accessible to the people. This could be an inter-agency effort where information on projects, fund sources, proposals,

policies, technical assistance can be made available. The National Economic Development Authority (NEDA) coordinates the activities of the local development councils. It also has access to the information that would be most relevant in these information centers. It could be made the lead agency in this effort.

4. Development of Project Development System. This would focus on resource allocation, project identification, and fund sourcing. It would basically be a decision support system specifically for province and municipal levels. There are existing models on which we could pattern such a system and the National Computer Center has done studies on this area which could be used as a basis for the development of the proposed system.

-oOo-