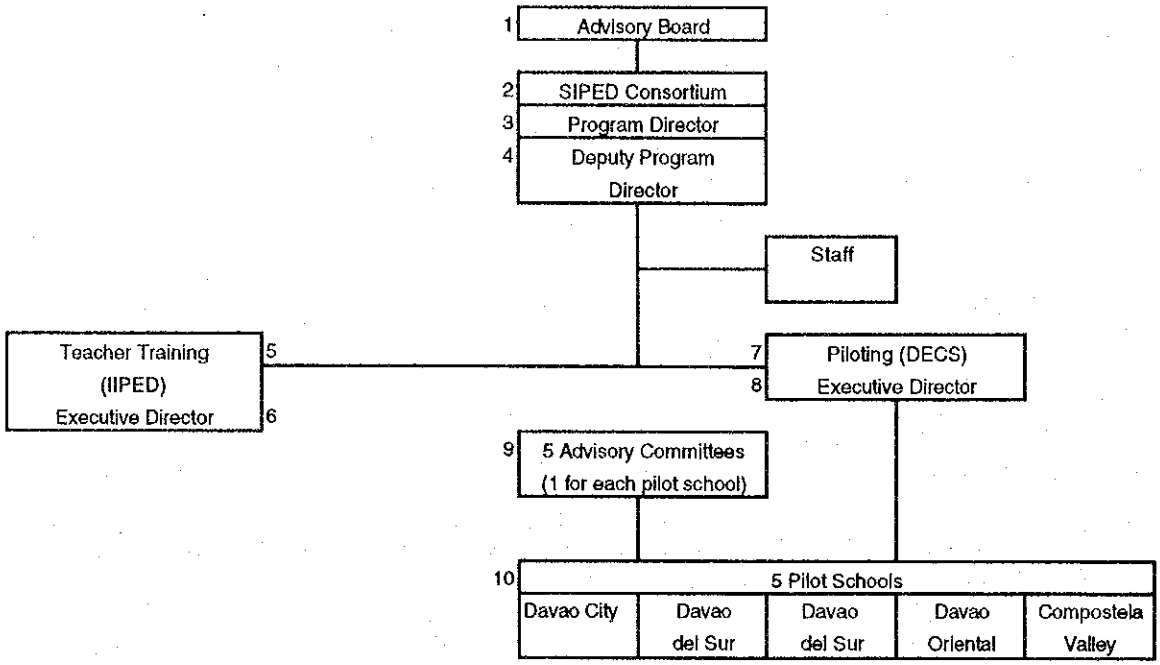
## 7. Implementing Arrangements

Implementing arrangement are shown in the attached organization chart.

**Proposed Organizational Structure, Special Indigenous Peoples Education Program (SIPED)**




Note: Ad Hoc Committees/Bodies may be formed on a project to project basis

**Explanatory Notes:**

*1. Advisory Board*
DECS XI Director as chairman
NCIP XI Director as vice-chairman
AHEI-Davao President as member
SIPED Consortium Chairman as member
CHED XI Director as member
TESDA XI Director as member
DIDP-PMO/DIDA Board Chairman

*2. SIPED Consortium*
Institutional Members:

| | |
|---|---|
| USEP | NCIP |
| ADDU | DIDA/DIDP |
| HCDC | DECS XI |

Cooperating institutions
DOSCST
St. Mary's
Cor Jesu

*3. Program Director*
To be appointed by the SIPED Consortium

*4. Deputy Program Director*
To be appointed by the SIPED Consortium

5. IIPED - A consortium of
Ateneo de Davao Uniersity
University of Southeastern Philipplnes
Holy Cross of Davao College

*6. Executive Director (IIPED)*
To be appointed by the IIPED consortium

*7. Piloting*
To be implemented by DECS XI

*8. Executive Director (Piloting)*
To be appointed by DECS XI

*9. Five Advisory Committees*
One committee for every pilot school/area to be composed of the following:
1) DECS Superintendent
2) Prov'l. Board member in-charge of education
3) NCIP provl. Director
4) Mayor of town where school is
5) District supervisor
6) Cooperating institution head
7) Piloting Executive Director

*10. Pilot Schools*
One per province city

## Common Service Laboratory Facilities Development Project (SO-10)

### 1. Background and Rationale

Like most educational systems in developing countries, Philippine education suffers from rising costs, budgetary constraints, lack of textbooks and inadequate supply and use of teaching aids. This has led to low quality and low efficiency of education, slow response in providing education relevant to development goals and inadequate access to good education for many groups, especially the rural poor and the disadvantaged.

Relative to the above, some issues in higher education have evolved which warrant the attention of educators and policy makers in the Philippines. They are the following: a) finding appropriate and effective measures to enhance quality, relevance and efficiency of education, and b) strategies for mobilizing more effectively additional material and human resources for educational development and optimal utilization of available resources.

The above issues, seen against the backdrop of enormous costs of higher education in the Philippines, deserve serious thought and attention. A strategy for upgrading the quality of tertiary education in the DIDP Area has to be sought. One strategy is to promote networks taking advantage of existing strengths and complementarities of higher education institutions in the Area. Promoting complementarities among HEIs could produce economies of scale, thus this project proposal for common service laboratory facilities in the Davao Gulf Area.

The need to provide adequate laboratory facilities as requirements for quality instruction is imperative. In practically the whole of the DIDP Area, there is the shortage of well equipped laboratory facilities to support instruction and research. If there are, often they are inadequate, obsolete or antiquated. Overall, HEIs in the Davao Gulf Area lack appropriate educational equipment on account of resource constraints.

The idea of a common service laboratory facilities designed to serve an area rather than a single institution is not new. In Region XI, for example, DOST XI has pioneered in the idea when it initiated the Southern Mindanao Consortium of Analytical Laboratories (LABCON XI) of various agencies such as DOST XI, DA XI, DENR XI, MGB XI, BPI XI, UIC, DOLE (Philippines), ADDU and NDMU. Moreover, the sharing of laboratory and library resources and facilities has long been a practice among universities and colleges in the United States and other countries.

### 2. Objectives

*General*: To develop a group of higher education institutions in order to adequately and competently train expert manpower, conduct research and develop suitable technologies along fields of discipline needed for the development of the Davao Gulf Area.

*Specific*:

(1) To support and facilitate the development of a wider range of research activities and academic programs in the sciences and technology among higher education institutions in the Davao Gulf Area.

(2) To upgrade the field and analytical laboratory facilities of the recipient institutions of higher education and at the same time enhance the quality of higher education in the Davao Gulf Area and Mindanao.

(3) To upgrade and develop the faculty, staff and physical resources in the physical sciences, geological sciences, engineering, fishery and marine sciences and

maritime transportation.

(4) To develop suitable technologies through collaborative researches with scientists of other higher education institutions.

(5) To undertake researches and extension services along the fields of discipline represented by the laboratory facilities.

(6) To maximize scarce educational resources through a consortium of higher education institutions.

(7) To help make and promote the Davao Gulf Area a center of science and technology education in the BIMP-EAGA.

## 3. Expected Impact and Benefits

There are several economic advantages inherent in the shared-time and shared-facilities concept. First, it enables the establishment of facilities to meet the training needs of students for a number of institutions at a minimum of total expense. Furthermore, the cost of operation of the central facility can be shared by all. Beyond that, the facility permits extended use of the facility for continuing education and industrial or educational activity of a general nature.

A non-quantifiable benefit would be the upgrading of institutions of higher learning in the Davao Gulf Area which shall devote themselves to the provision of highly trained manpower and the development and adoption of appropriate and new technologies in fields of discipline relevant to the development needs of the Davao Gulf Area. Higher education institutions, therefore, can serve effectively as catalysts of growth.

Another possible benefit stands out. This is the creation of experts at the host institutions and in the private sector who will provide advanced manpower training in the sciences and technology covered by the Laboratory, conduct researches to address important problems of the Davao Gulf Area, develop new and improve existing technologies and promote their application.

A significant outgrowth of this would be the development of academic programs along the disciplines for which the laboratory facility have been set up through the cooperative partnership in sharing instructional resources, including those of the experts, between and among HEIs in the Area.

In the global scene, the laboratories will spur the development of strong academic programs which would make the Davao Gulf Area the center of tertiary and advanced education in the BIMP-EAGA.

## 4. Project Costs

### (1) The Foreign Assistance Component — US$7,470,000

Major indicative components of the foreign assistance requested are the following:

1) Field, Laboratory and Computer Equipment — US$4,000,000
   Analytical equipment
   Field and laboratory equipment
   Computer and peripherals
   SOLAS & simulated-based equipment

2) Space Requirements — US$2,600,000

3) Laboratories
   New (4 – USEP, DNSC, HCDC and DOSCST)
   Renovation/improvement (1 – ADDU Laboratory)
   Ship/vessel with laboratory equipment for on-sea analyses
   Offices
   Demonstration/Audio-Visual room

4) Operating expenses of expatriate professors/experts (salary, housing, field expenses, communication, etc.) — US$$700,000

5) Training/Study Visits Abroad (for laboratory and faculty support staff) — US$$70,000

6) Others — US$100,000
   Printing and copying facilities for journals and monographs, etc.
   2 Speedboats
   2 Vehicles for transport of equipment and personnel
   5 sets Audio-visual equipment

**(2) Local Counterpart Component**

CHED and, perhaps, some line agencies like DOST, DA, DENR, DOTC, and the recipient institutions shall contribute to the Project personnel, support faculty, and maintenance and operational costs.

| | Year | | | | | |
|---|---|---|---|---|---|---|
| *COE (5 Labs)* | *2000* | *2001* | *2002* | *2003* | *2004* | *Total* |
| *(In thousands of Pesos)* | | | | | | |
| *Personal Services* | | | | **3,980** | **3,980** | **7,960** |
| 1) Administrative/Technical Support | | | | | | |
| 10 Administrative personnel | | | | 678 | 678 | 1,356 |
| 5 Laboratory Aide | | | | 339 | 339 | 678 |
| 5 Research Specialists | | | | 615 | 615 | 1,230 |
| 10 Science Research Assts. | | | | 968 | 968 | 1,936 |
| 2) Support Faculty | | | | 1,380 | 1,380 | 2,760 |
| *Maintenance & Operating Expenses* | **100** | **110** | **200** | **1,000** | **1,200** | **2,610** |

1) Laboratory supplies
2) Chemicals
3) Utilities
4) Electricity and water
5) Repair and maintenance of equipment and vehicles
6) Oil and lubricants
7) Janitorial services
8) Security services
9) Communications
10) Travel expenses
11) Books and Periodicals

**(3) Estimated Cost per Laboratory (Buildings and Equipment Only)**

| | | |
|---|---|---|
| a. | USEP Laboratory | ₱70,000,000 |
| b. | DOSCST Laboratory | ₱45,000,000 |
| c. | DNSC Laboratory | ₱45,000,000 |
| d. | ADDU Laboratory | ₱35,000,000 |
| e. | HCDC Laboratory | ₱80,000,000 |

## 5. Implementation Schedule

**Phase 1** (First 6 months) - *January to June 1999*

- Organizing of 5 host institutions into the Davao Gulf Area Common Service Laboratories Consortium (CSLC-Davao) and CSLC-Management Committee (MANCOM).
- Review of the proposal and formulation of semi-detailed proposal with CHED.
- Presentation of proposal to the Association of Higher Education Institutions in the Davao Gulf Area (AHEI-Davao).
- Finalization of proposal and submission to NEDA and JICA through the DIDP Board.
- Review of existing academic programs and institutional plans of 5 host institutions and planning in anticipation of establishment of laboratories. Manpower component should be given attention.
- Consultations with NEDA and JICA.
- Lobbying with DENR, DA, DOTC, DOST, DTI and CHED for financial support of the Project.

**Phase 2** ($7^{th}$ to $24^{th}$ month) - *July 1999 to December 2000*

- Conduct of pre-feasibility study by JICA and finalization of proposal.
- Preparation of proposed annual budgets of government line agencies and host institutions to incorporate some allocation for maintenance and operating expenses (MOE) of the proposed laboratories in their Year 2002 budget.
- On-site visit of JICA to proposed sites

**Phase 3** ($25^{th}$ to $36^{th}$ month) - *January 2001 to December 2001*

- Start sending abroad faculty and staff of host institutions for training through NEDA along relevant disciplines both in degree and non-degree programs.
- Negotiations between GOP and the Government of Japan.
- Site preparation.

**Phase 4** ($37^{th}$ to $48^{th}$ month) – *January 2002-December 2002*

- Public bidding of buildings and structures.
- Construction/renovation of buildings and structures.
- Procurement and foreign public bidding of equipment.
- Continue training and scholarship of faculty and staff in Japan and other countries.
- Organizing laboratory staff in each host institution.
- Each host institution initiate organization of would-be clients in the academe, industry and line agencies, including other HEIs in the BIMP-EAGA.

**Phase 5** ($49^{th}$ to $60^{th}$ month) – *January 2003 to December 2003*

- Completion of buildings and structures.
- Turn-over, launching and start of operations of all laboratories.
- Foreign experts start coming for local training and advisory activities.

**Phase 6** ($61^{st}$ month and onward) – *January 2004 and onward*

- Foreign and local experts continue training, advisory and consulting activities and research.
- CSLC-MANCOM conducts periodic project review and evaluation for necessary adjustments and reports to AHEI-Davao and CHED.
- Continuance of full operation of the laboratories.

## 6. Project Scope and Description

The Project is a network of advanced laboratory facilities in the sciences and technology and maritime transportation established following the concept of a 'common facility' which use shall be shared by all higher education institutions in the Davao Gulf Area. The laboratories are situated in five (5) institutions of higher education (HEIs) all in the Davao Gulf Area—one in the *physical sciences and biotechnology*; one in *tool and die and machine fabrication*; one in the *geological sciences*; one in *maritime transportation*; and, one in *fishery and marine science.*

More specifically, the laboratories are the following:

- At USEP : Engineering/Tool and Die and Machine Fabrication
- At DOSCST : Geological Sciences
- At DNSC : Fishery and Marine Sciences
- At ADDU : Physical Science and Biotechnology
- At HCDC : SOLAS and Simulated-Based

The laboratories are designed to upgrade and strengthen higher education and research in the Davao Gulf Area as a response to the challenge of optimizing human and material resources of the Area while promoting economic development. All are envisioned to spur the development of the disciplines and fields they represent and at the same time develop new academic programs and activities. Thus, they are not simply 'laboratories' *per se* but shall be expected to perform related functions, such as research and extension, in order to maximize their impact and use. To ensure the sustainability of each laboratory, production activities are a requirement.

Generally, all five laboratories shall pursue similar program components, such as in instruction, research, extension and production/income generation for sustainability of the Project.

(1) *Instruction.* Each laboratory shall basically be a common laboratory facility accessible to all higher education institutions who are willing to abide by its users' guidelines and other regulations for use. The Davao Gulf Area Common Service Laboratories Consortium (CSLC), through the MANCOM, shall promulgate the users' guidelines.

(2) *Research.* The research projects of the laboratories shall be developed by the host university/college and the consortium in consultation with the line agency/ies whose mandate covers the discipline/field addressed by the laboratory. The design and focus shall be in line with the needs of the Davao Gulf Area.

(3) *Extension Services.* Extension services may consist of short term training, consultancy services and commissioned researches. The resident faculty and visiting experts, in consultation with concerned line agency/ies and the consortium shall determine the extension intervention. Extension services shall be directed to assist pertinent government institutions and interested private entities.

(4) *Production/Income Generation.* Sustainability of the Project can be assured by creating the CSLC Laboratory Fund (CSLC Fund) for each laboratory with regular appropriation for partial support built into the yearly budgets of the Mines and Geosciences Bureau-DENR, Bureau of Fisheries-DA, Department of Environment and Natural Resources (DENR), Department of Trade and Industry (DTI), Department of Science and Technology (DOST), Commission on Higher Education

(CHED) and the Department of Transportation and Communication (DOTC).

(5) Another strategy would be channeling income from various services offered by the Laboratory to the Laboratory Fund of each institution. This income could come from the following activities/sources:

1) Consultancy and commissioned research done by competent staff of the Laboratory/HEI.
2) Users' fees can also be collected from participating HEIs, GOs and industry using the facilities and channeled to the fund for operations.
3) Fees for training and advisory services of experts.
4) Production of pamphlets, monographs, brochures, manuals, journals and the like.
5) Guided tours/visit of facilities.
6) Regular/special budgets of line agencies and the host institution.

## 7. Implementing Mechanism

The Project shall be known as the Davao Gulf Area Common Service Laboratory Consortium (CSLC-Davao). It shall consist of a network of five laboratories bound together by a common mission each with its own laboratory personnel, equipment and facilities at ADDU, USEP, HCDC, DNSC and DOSCST.

### 7.1. Policy formulation

The internal management of each laboratory shall be vested in the institution itself but policies of a general nature shall be evolved by a management committee to be known as the CSLABFP-Management Committee (MANCOM). Its membership shall be composed of the presidents/heads of the five institutions hosting the laboratories and assisted by an Advisory Committee (ADCOM). The latter shall have for its members the heads or representatives of cooperating line agencies, the Director/Chairman of DIDP-PMO/DIDA, CHED and the President of AHEI-Davao.

The MANCOM shall have the following functions:

(1) Overall, it shall ensure that the laboratory facilities are adequately manned and perform as expected and mandated under the terms set by the funding agencies/donors.

(2) Act as the policy-making body of the Project.

(3) Determine the research and extension service thrusts of the Project in consultation with the TWG and the ADCOM.

(4) Help secure funding for necessary research projects, training programs and extension services initiated by the Project.

(5) Report once or twice a year to the AHEI-Davao.

(6) Conduct periodic evaluation of the Project.

(7) Seek international linkages and assistance.

The CSLC-MANCOM shall be assisted by a technical working group (CSLC-TWG) which shall be composed of the five (5) Laboratory Directors. The TWG shall also act as the secretariat of the CSLC.

### 7.2. Management

The internal management of each laboratory shall be vested in the institution itself but pursuant to the policies set by the MANCOM. The day to day operations of the

Laboratory shall be managed by a laboratory director who shall be designated from among the qualified faculty of the institution. He/she shall be assisted by a support staff of administrative personnel, laboratory technicians, researchers and extensionists. Working with him/her on a project-to-project basis shall be the expatriate experts and local experts. He/she reports directly to the head of the institution.

Aside from his/her usual duties, the laboratory director is expected to promote the interests of the Project by initiating the establishment of local and international linkages.

### 7.3. Support fund for operations

Each laboratory shall put up a Laboratory Fund to finance the continuing operation of the laboratory. This shall consist of pertinent regular budgetary outlay of cooperating line agencies, such as the DENR, DOST and others, donation and income from consultancy, commissioned research, production sales, users' fees and other services.

Pursuant to auditing rules and regulations, the laboratory shall be treated as an income generating project (IGP). All income therefore derived therefrom shall accrue to the Laboratory Fund of the institution and can be used only for that purpose.

## Basic and Teacher Education Systems Evaluation Project (SO-13)

### 1. Background and Rationale

A significant number of educational policy analysts claim that improvement of school quality should supersede enlarging educational access as the most important item on the agenda of educational reform. The rationale for this in a significant number of developing countries in part is the belief that school quality has a much greater effect on student test scores and that, in the long term, may be more important for the future economic prospects of the country than access to *poor* quality education.

In the DIDP Area as in the rest of the Country, the pursuit of equity/access and quality of basic education are equally important in the educational agenda premised on the belief that if the *quality* of schools were to be improved, the chances of children of marginal populations of completing basic education would be greater, and the *effectiveness* of the schools would improve considerably.

Equity is less elusive as a goal than quality partly because of the difficulty in defining operational measures of quality which have predictive validity. Very often, therefore, quality of schooling is analyzed in terms of its productivity or outcome, using achievement or cognitive attainment as a criterion variable and therefore the measure of quality.

One of the critical observations often made regarding basic education in the Philippines is low academic performance of students. This conclusion appeared in the EDCOM Report and more recently affirmed by the results of the *Third International Mathematics and Science Survey* where the Philippines failed to make it to the first 41 countries that scored high on the achievement tests. Similarly, achievement tests given by the Department of Education, Culture and Sports (DECS) annually provide ample data to support the observation of low competency of basic education graduates not only in science and mathematics but also in other subjects, as well. Obviously, these results are indicative of symptoms of underlying problems affecting the basic education sector and, by affinity, the problem of tertiary teacher- education programs which produce the teachers, as well.

In spite of the importance of the said issues confronting basic education, it is apparent that, at best, the underlying causes of low academic performance in basic education could only be conjectured. Low academic performance has often been attributed to the presence of a significant number of teachers who could not teach or have inadequate training or competency in teaching. Blame is also being placed on the lack of facilities and textbooks, management and other institutional inadequacies, and also on the pupils themselves. Surprisingly, there are inadequate data to support these conclusions.

Accordingly, although one of the reasons of low academic performance often cited is low teachers' competency, there is no hard data available to indicate why these teachers cannot teach, what they need in order to upgrade their teaching competencies to acceptable levels and in what environments should they operate to get maximum results. After all, a 1984 study has shown that ". . .the task of improving quality is one of changing teacher behavior." Indeed, even a broad-spectrum solution, like training, could suffer from lack of focus because of the inadequacy of data to determine who exactly should be trained and the training needs of those who should be trained.

Questions on the capability of basic education teachers necessarily place corresponding questions on the proficiency of institutions that produce these teachers. In other words,

an evaluation of basic education teachers will not be complete if there is no corresponding evaluation of teacher education programs offered by both public and private teacher-training institutions. In particular, there is a need to assess also the teacher education curricula for both elementary and secondary teacher education.

The proposed study is directed towards finding answers to the issue of poor academic performance of basic education in the DIDP Area and how this is related to tertiary teacher education and the quality of teachers in the system. It will also attempt to recommend strategies and policies related to improving academic performance of students in basic education and improving tertiary teacher education and training.

## 2. Objectives

**To assess the level of competency of basic education teachers relative to the levels of achievement of pupils/students;**

**To identify the factors associated with *instructionally effective* schools;**

**To assess the teacher-education programs of higher education institutions with respect to the degree of competence of their graduates; and**

**To identify corrective measures and policy recommendations to improve the quality of basic education, if any.**

## 3. Expected Effects

The results of the study will serve as a decision tool that would not only inform but more importantly guide education policy makers and planners in making policy decisions intended to raise academic performance levels of students as an indicator of quality education.

In the medium- to longer-term, the project should result in the upgrading of the quality of basic education not only in the DIDP Area but in the Philippines, as well. It is expected that the results of this study will generate the necessary impetus for education decision makers to look at basic education in the whole Country more seriously and take appropriate action based on well-researched data and well-founded policy recommendations.

On the economic aspect of education, the results of the study will show us how much additional money is appropriate for schooling and where in schooling should the money be put in order to boost efficiency and effectiveness of the system.

## 4. Project Costs

| | | |
|---|---|---|
| | **Total COE** | **₱5,042,000** |
| (1) | ***Funding Agency* (CHED,DECS,FAPE) *Counterpart*** | ₱4,336,000 |
| | Personal Services | 2,836,000 |
| | *Honoraria* | |
| | 1 Project leader for 12 months | 240,000 |
| | 1 Asst. Project leader for 12 months | 216,000 |
| | 3 Research staff for 6 months | 1,080,000 |
| | Management staff/other honoraria | 100,000 |
| | *Wages* | |
| | 25 Enumerators for 6 months | 1,200,000 |

| | |
|---|---|
| MOE | 1,500,000 |
| Travel | 1,000,000 |
| Other Services | 500,000 |
| *USEP Counterpart* | 706,000 |
| Personal Services | 336,000 |
| *Wages* | |
| 1 Utility for 12 months | 96,000 |
| 2 Encoders for 12 months | 240,000 |
| MOE | 370,000 |
| Transportation (Rentals) | 300,000 |
| Gasoline, oil, lubricants | 70,000 |

## 5. Implementation Schedule

**Implementation Schedule. Basic and Teacher Education Systems Evaluation Project**

| Phases/Activities | Months of 5 weeks each | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| **I. Pre-Implementation** | ****** | ****** | ****** | ****** | ** | | | | | | | | | |
| a. Organizing the project staff | ** | | | | | | | | | | | | | |
| b. Organizing management committee | * | | | | | | | | | | | | | |
| c. Finalization of proposal for submission to funding agency | *** | | | | | | | | | | | | | |
| d. Lobbying for funds | * | ** | | | | | | | | | | | | |
| e. Preparation of detailed proposal for implementation | | *** | | | | | | | | | | | | |
| f. Tasking | | ** | | | | | | | | | | | | |
| g. Release of funds | | | | | ** | | | | | | | | | |
| **II. Implementation** | | | ****** | ****** | ****** | ****** | ****** | ****** | ****** | ****** | | | | |
| a. Preparation of interview schedule and questionnaire | | | ****** | | | * | ****** | | | | | | | |
| b. Study 1 | | | | | *** | ** | | | | | | | | |
| c. Study 2 | | | | | | | | ****** | ****** | | | | | |
| c. Study 3 | | | | | | | | ****** | ****** | | | | | |
| **III. Report writing** | | | | | | | **** | | | ****** | ****** | ** | | |
| **IV. Submission of report to DECS, CHED, Educ Comm of Senate & House** | | | | | | | | | | | | | ** | |
| **V. Conduct of symposia on research findings** | | | | | | | | | | | | | ***** | |
| **VI. AHEI-Davao prepares policy recommendations** | | | | | | | | | | | | | | ***** |

## 6. Project Scope and Description

The major components of the Project are the following:

### (1) Determination of Standards or Set of Standards

This involves specifying standards or set of standards on the levels of achievement of each grade or year level of basic education. Accordingly, another set of standards shall be specified for the expected level of competence of elementary and secondary teacher education graduates.

Determination of standard of achievement level for each grade level will use the Delphi sequence. Two groups of experts will be used: one for grades One to Six of the elementary level, and another for years One to Four of the secondary schools. The Minimum Level of Competency (MLC) and the Desired Level of Competency (DLC) of DECS for elementary and secondary levels, respectively, will be used. Validation of the results will be made.

### (2) Determination of school context and environmental factors to be evaluated

**Study 1**

To draw these factors, a component study may be conducted to compare two groups of schools—one group of *instructionally effective* schools and another group of *typically achieving* schools–on selected school effectiveness variables. Instructionally effective schools may be those that have consistently for at least three years performed significantly better than other schools of similar socioeconomic composition. The variables are those that are associated with higher achieving classrooms and schools identified in previous studies.

The *first* set of variables may include the nature and scope of the curriculum, how time is allocated and used, and how teachers instruct. The *second* set of variables may those factors that describe school level policies and practices which support the ability of the teachers to instruct in a more effective fashion. The *third* set are those school factors which influence the attitudes and behaviors of the school staff and students towards student achievement.

A list is drawn of a school context descriptive of instructionally effective schools to be used as a basis for the construction of a survey questionnaire for *Study 3.*

Most of the requirements for vital facilities are based on ratios. These ratios, generally known also as planning standards, are available at DECS or at the National Economic Development Authority (NEDA). The study will essentially use the standards adopted by DECS. It will also compare state of basic education facilities with the standards used by UNESCO and countries similarly situated.

**Study 2**

The study would be a survey of the competence and proficiency of graduates of teacher education programs of higher education institutions as seen in the level of achievement of their students. This will be related to the quality of the institution from which they graduated, quality being that described by a set of criteria formulated by a recognized accrediting body for teacher education.

### (3) Formulation and pre-test of survey questionnaire

The study requires at least two to three separate sets of survey questionnaire based on the results of *Study 1* and *Study 2*. One set is intended to draw data that would describe the

'school context' of each school. Another would gather relevant data on teachers and students.

**(4) Training enumerators and conduct of Study 3**

This component of the study will involve the training of enumerators who will do the field survey, including the pre-test. Stratified random sampling design will be used for the basic education survey of schools with the sample size proportional to the number of schools in the Davao Gulf Area. Under this scheme, schools are divided into *urban* and *rural*. In turn, urban and rural schools are divide into *public* and *private*, and further down, public and private schools are divided into *secondary* and *elementary* levels.

A random sample of at least 30 percent of the elementary and high school teachers distributed equally among grade levels will be covered by the survey. All school principals/directors of sample schools will be automatically survey respondents to a questionnaire specifically constructed for them. Achievement test or an evaluation test will be administered to representative grade levels of each sample school.

A complete enumeration of all higher education institutions (HEIs) offering teacher education will be conducted. All faculty members of the teacher education programs of these HEIs will be covered by the survey. Time series data from each of these HEIs related to past performance in national board examinations, employment data of graduates, qualifications of faculty members, curriculum, library facilities, laboratory equipment, etc. will be collected.

**(5) Processing and analysis of data**

Data will be processed at the USEP Institute of Computing and analyzed by researchers.

**(6) Submission and dissemination of study results**

Results of the study will be submitted to DECS and CHED and will be made available to all interested parties. Particularly, a series of symposia will be organized not only in the DIDP Area but also in the rest of Mindanao and Manila to present the results of the study. Educational policy makers, educators, students, LGUs, NGOs and all stakeholders in education will be invited to the symposia.

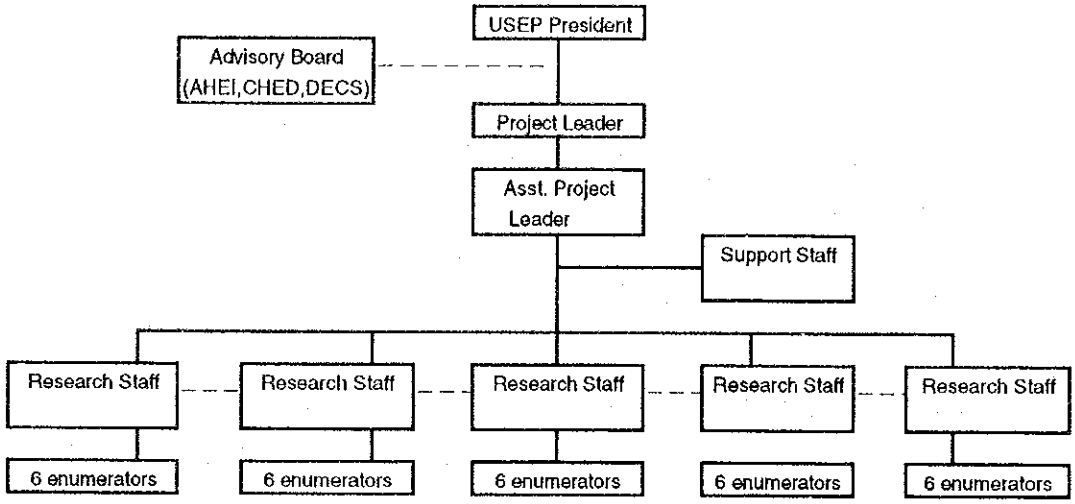
The Association of Higher Education Institutions (AHEI-Davao) can pick up from where the study leaves off and prepare an agenda for reform of basic education and teacher education in the DIDP Area in collaboration with DECS and CHED. Reforms can then be piloted in the DIDP Area for the rest of the Country.

**7. Implementing Arrangement**

The principal implementing agency of the Project will be the University of Southeastern Philippines (USEP) through its Research Division. However, the project staff may be composed of researchers from the faculty of other teacher-training institutions (TTIs) like Ateneo de Davao University, Holy Cross of Davao College, University of the Immaculate Conception, University of Mindanao and others.

The Project Organization Chart follows.

**Figure 1 Organization Chart, Basic and Teacher Education Evaluation Project**



## Health Financing Programme (SO-22)

### 1. Rational/Background

The most critical and major structural and functional changes in the health care system was introduced in 1991. The local Government Units (LGUs) were given new responsibilities for delivering public health services, and a large number of LGUs have been suffering from financial constraints after the full implementation of devolution in 1993. The rapid population increase together with reduction in the health budget results in very small health budget per capita in majority of areas. Unfortunately most LGUs had to cut the health budget especially for primary health care (PHC) services.

In terms of the share in the health budget of rural health units (RHUs) and hospitals, the portion for personnel services is the largest. In some cases, almost 90% of a health centre budget goes to personnel services. Therefore the allocation for drugs and implementation of PHC services/activities have become so small and there is no way to procure the needed amount of drugs or to carry out the PHC activities.

The National Health Insurance Programme (NHIP) enacted into law in 1995, aims to strengthen the health services by sharing the cost of services among income groups, age groups, and persons of differing health status, residing in different geographical areas. Although it is recognized that the NHIP is a tool to ensure health services to be affordable, acceptable, available and accessible for all citizens of the Philippines, the implementation of the Programme has not been materialized at the local government level. In most LGUs of the DIDP Area, there seems also no concrete stepwise approach being undertaken to implement the programme. There is a need to establish a mechanism to implement the programme and to finalize the detail implementation plan for the Area.

### 2. Objectives

The overall goal of the programme is to promote the improvement in the quality of health services and to ensure affordable, acceptable, available and accessible health care services for all citizens in the Area. Specifically, the programme will promote the implementation of the National Health Insurance Programme (NHIP) by establishing a mechanism to implement it strengthening the planning and implementation of health insurance plans established by LGUs and by community based health care organizations.

### 3. Project Description

The programme contains five components as described below.

#### (1) National Health Insurance Programme (NHIP) Support Project

This project aims to establish an implementing mechanism of the NHIP in the Area, cooperating with the Philippines Health Insurance Corporation (PhilHealth). It includes: establishment of the Local Health Insurance Office (LHIO) in provinces and cities; preparation of an implementation plan in the next 20 years by conducting Health Finance Policy Research at local level (**under project (2) and (3)**); establishment of collecting mechanism, strengthening of hospital based financing mechanism (**under project (4)**) and strengthening of Management Information System (**under project (5)**). In the first phase of implementation plan (five years), the NHIP support project will conduct various pilot operations and researches to classify communities and to make suitable health insurance plans for various economically and socially different communities. Also the project aims to make a basic minimum package of benefits, to conduct Means Test to determine indigents and to conduct seminars and workshops to

enhance the implementation of the NHIP.

**(2) Municipality Based Health Insurance (pilot) Project**

This project is a part of Health Finance Policy Research to develop a broad conceptual framework for implementation of the NHIP and also to identify a feasible approach to implement a municipality based health insurance plans in areas of varying economic development. This project will also support already existing local government initiatives and will replicate those efforts to the other places, if the plan works well. The project also improve the quality of Primary Health Care (PHC) services by training and by providing equipment and medical supplies.

**(3) Community Based Health Care Organization Project**

A community based health care organization is an association of indigenous members of the community organized for the improving the health status of that community through preventive, promotive and curative health services. Botika Binhi (Community Drug Insurance), is an example of community based health care organization, which aims to ensure drugs affordable, accessible and available in barangays, and also to improve community's administrative and technical capabilities.

Botika Binhi is one of personal prepayment financing schemes for securing drugs. The contribution from each member is not necessary in cash but commodities as well. Botika Binhi is a supplemental programme for existing health services especially in those areas where public and private health services are not accessible due to physical isolation from populated areas.

**(4) Hospital Based Health Financing Project**

The project aims to introduce adequate "Fee for Service" financing schemes to all hospital services. The Fee for Service has been partially implemented in existing hospital services; however, the fee collected has not been allowed to be retained by individual facilities. As a result, such revenues are not used to maintain or upgrade equipment, plant or facilities.

The project first determines adequate fees for hospital services and also aims to change the regulation to allow individual facilities to retain their revenue from the provided health services. The project will look into also the quality of health care services provided by hospitals and train hospital administrators on hospital financing and management to improve their skill to manage.

**(5) Management Information System Project**

It is one of the critical elements for establishing the NHIP to set up a functional management information system. Local Health Insurance Offices have to have sufficient management information to support the Corporation. Also along with the implementation of the NHIP, more accurate data on various aspects such as demography, epidemiology of sickness, drug consumption, and other more useful data will be gathered. It will be most useful if those data will be linked to the existing health information system, LGUs health care providers, and related NGOs.

The project aims to establish an efficient health insurance management information system and also further network health information system among health care providers, government offices, and health care related institutions to optimize the use of gathered information in the sharing the health resources.

## 4. Expected Effects

- National Health Insurance Programme implemented
- Support mechanism of NHIP strengthened
- Community based health organizations established/strengthened
- Well established hospital financing, and better hospital management
- Affordable, acceptable, available and accessible health care services for all citizens of the Area
- Better quality of health care services provide in every level

## 5. Project Schedule

### (1) Phase 1 : Project Design (1 year)

- Establish the Local Health Insurance office (LHIO) in provinces and cities
- Establish project implementation units and a steering committee
- Make implementation plans for each project
- Make operational plans for Phase 2

### (2) Phase 2 : Project Implementation (5 years)

- Classify communities by the strength of community participation
- Implement pilot projects in different communities in terms of economic and social conditions
- Implement Means Test
- Make operational plans for Phase 3

### (3) Phase 3 : Project Implementation (5 years)

- Implement projects (integration and replication)
- Evaluate phase 2
- Make operational plans for Phase 4

### (4) Phase 4 : Project Implementation (5 years)

- Implement projects (integration of whole area)
- Evaluate phase 3

### (5) Phase 5 : Evaluation (2016)

- Evaluate the impact of the programme
- Make recommendations

## 6. Implementing Arrangements

Implementing agencies are DOH, PHOs(CHOs), LGUs, communities, and Local Health Insurance office coordinated with Philippine Health Insurance Corporation (PHIC). A project implementation unit for each project and a steering committee consisted of different agencies from different levels will be formulated. The steering committee will be chaired by Local Health Insurance Office.

## 7. Required Experts

Experts in the following areas may be required to prepare the implementation plan.

**(1) Health Care Financing**

**Health Insurance**

**Community Health Service Support (promotion, social mobilization)**

**Health Management and Information Systems**

**Hospital Operation and Management Systems**

## 8. Project Inputs

### (1) Project type cooperation for 16 years

**1) Input:**

experts, equipment, training, workshops and seminars

**2) Activities:**

Planning

- Information, Education, Communication (Produce educational material)
- Provide Equipment for communication and information system
- Carry out Workshops and seminar
- Carry out Health Insurance Policy Research

Training

- Community health service provider (BHWs, other)
- Hospital Administrator
- Community people

### (2) Implementation of Means Test

**Activities:**

Training

Survey implementation

### (3) Information Management System

**1) Input:**

Equipment, computers (hard and soft wares)

**2) Activity**

Training

## MBN-based Bottom-up Planning System Establishment Project (GO-1)

### 1. Background and Rationale

Part of the reasons for the ineffectiveness of past efforts at poverty alleviation is the failure to clearly identify, and much less focus on the target clientele and then design projects tailored for specific target groups.

With the use of the Minimum Basic Needs (MBN) approach, a more refined identification of clientele is made possible, i.e. down to the household/community level, using household specific indicators. Since community participation and local planning are key principles in the approach, projects will be "owned" by the beneficiaries thus more likely to be on a scale and design that is manageable by themselves, as they grow in skills and capability. Thus the major strategy of poverty alleviation or the Social Reform Agenda is the full oprationalization of the MBN Approach in local development management.

Some parts of the DIDP Area have started implementing the MBN approach with support from the Mindanao Task Force on Poverty Alleviation (MTFPA) and the Institute of Primary Health Care (IPHC). For the full operationalization of the MBN approach in all barangays in the DIDP Area where Community-Based Information Systems are installed and used as basis for program interventions, there is an emerging need to localize the expertise which IPHC has demonstrated in the past. This means the full commitment and involvement of the SRA Provincial/Municipal/City Technical working Groups and their counterparts at the barangay level.

Within the DIDP Area, the provincial, city and municipal governments have demonstrated different levels of support to the installation and use of the MBN approach. While Davao Province had identified this as major approach designed to complement its push for economic development, this has been largely ignored by other LGUs.

Those who support this approach recognize the various functions of the system. It is seen as a tool for:

a. community participation;

b. focus targeting (to ensure that investments are made where the needs are greatest);

c. mobilizing resource;

d. bringing about convergence of efforts of various development organizations; and

e. a mechanism for community-LGU-NGO-PO monitoring of poverty and the service agencies' performance (in terms of delivery of basic services).

### 2. Project Objectives

At the end of three years the following objectives will be attained:

i. Promotion of understanding and support to the full implementation of the MBN among LGUs, NGAs, NGO and POs in the entire DIDP Area;

ii. A fully operationalized MBN approach installed in all barangays of the DIDP Area;

iii. Provincial, municipal and barangay teams trained to manage the full implementation of the MBN approach (not just the community-based information system);

iv. A poverty map updated annually based on the MBN indicators for the DIDP Area; and

v. Increased support for programs designed to increase access to MBN.

## 3. Project Activities

To attain the project objectives, the following activities will be carried out:

(1) Situational analysis

A project team will be organized to categorize LGUs according to current levels of MBN implementation and jointly prepare a plan of action detailing activities for each level.

*(Note: this should be done to take into consideration activities carried out prior to approval of project)*

(2) Promotional/advocacy activities

This activity will be carried out all through out the three years. It will include:

1) Orientation and other promotional activities conducted to ensure common understanding of the MBN as an approach (not just a data system) for different groups (partner organizations and co-trainers, LGUs at all levels, other NGOs);

2) Quarterly report to the DIDP Board and the Local Chief Executives; and

3) Public information activities to promote understanding and support for the activities; this will include providing information through the various media outlets.

(3) Capability building for installation of the system at the barangay level

**Partner agencies:** Each module will be carried out with partner agencies as participants who will carry out their practicum in the presence of coaches from the training institution. A total of 1,152 barangay captains (or representatives) and 230 BHWs (one for every five barangays) will be trained to manage the process at the barangay level

**Barangay level:** At least 10 barangay council members and other community leaders will be trained in each barangay. Bigger barangays will be divided into sitios that will be counted as barangays for purposes of counting the number of trainees.

*Module 1:* MBN data will be gathered and community-based information system installed;

*Module 2:* Analysis of data gathered and preparation of barangay project implementation plan to improve access to unmet MBN;

*Module 3:* Resource mobilization activities will be carried out to increase LGU, NGA, community and donor support for delivery of basic services; and

*Module 4:* Implementation and monitoring of community plans and evaluation of its results in the community (second round MBN data gathered).

(4) Preparation of computerized MBN maps

Computer program prepared based revised (enhanced) MBN forms;

1) Training on the use of computer program given to data encoders at the municipal and provincial level;

2) Conduct of workshop for consolidation of data (also the venue for preparing the DIDP-wide map-two annual cycles to demonstrate program that compares data of at least two years); and

3) Preparation of a DIDP-wide map indicating levels of access to MBN in each municipality (when compared to standards)

(5) Preparation of handbooks and other resource materials support (this includes research required as input to handbooks)

Handbooks on the following are prepared, pre-tested reproduced and distributed:

1) Advocacy materials for LGU leaders to promote understanding of the MBN approach;

2) Simplified Visayan version of "How to collect and use MBN data in a barangay" (CBIS and community planning guide);

3) Resource information handbook (what agencies support MBN, what resources, programs and projects are available to support community-planned response to their unmet basic needs);

4) A barangay council's guide to project implementation;

5) A community guide for using MBN to evaluate the effectiveness of the MBN approach in their barangay; and

6) A municipal guide to computerized tabulation of MBN data and the production of MBN maps towards measuring changes in number of families without access to basic services; and how to use MBN data for assessing performance of service agencies.

(6) Overall management of the project

The project team coordinated by ASDAR will have a project management and steering committee that will carry out project monitoring activities. The secretariat will take charge of preparing project reports required by the DIDP and resource agencies.

## 4. Implementing Arrangements

ASDAR XI will serve as the project coordinator. It will provide the secretariat support required by the project. The project steering committee will be drawn from its co-implementors from the government, the private sector, and participating NGOs and POs.

As a project holder, ASDAR will identify and contract other resource organizations or individuals as may be required to carry out commitments outlined in this project. ASDAR will likewise be responsible for managing and reporting on funds made available for the project.

# Institute for Local Government Administration (ILGA) Strengthening Project (GO-2)

## 1. Background and Rationale

The congressional enactment of the 1991 Local Government Code represents a major shift in local governance. It mandates the devolution to LGUs (local government units) of many functions previously discharged by central government agencies, higher LGU share in internal revenue taxes and national wealth. It also allowed greater autonomy to LGUs to allocate their resources to meet various local needs.

In brief, it mandated that LGUs be granted the powers and the resources to transform their communities into progressive, self-reliant and productive communities. It aimed to bring the government closer to the people and make them serve as catalysts in bringing about a strong civil society.

With these powers came increased responsibilities, such as, optimally managing resources to address the needs of the clientele and assuming greater accountability to their constituents. While DILG, particularly in Region XI, has made significant strides pursuing its critical responsibility of building LGU capability through its Integrated Capability Building Program (ICBP), experience in local governance, however, during the last few years has shown us that our LGUs were not quite equal to these expectations.

In the face of the responsibilities confronting LGUs, LGUs nationwide will require continuous upgrading of skills, knowledge and attitudes in local governance.

DILG XI actively pursued the task of establishing provincial ILGAs in 1994. Its efforts gave birth to a provincial ILGA in every province of Region XI and one in Davao City. Every provincial/city ILGA was given seed money of ₱100,00 to start with. Varied problems, however, were encountered in the implementation of the program. Most of these were administrative in nature. It seemed like private institutions were not used to the accounting and auditing rules of the government. Some institutions, however, experienced relative success while others did not.

This and other difficulties met influenced DILG-LGA to take a second look at the scheme. One regional center centralized in operations is being proposed.

## 2. Objectives

(1) To enhance the capability of ILGA to perform its training mandate.

(2) To expand the ILGA concept to include other frontline workers in the government, such as health, social and environment workers.

(3) To enhance the functional capabilities of various institutions tasked to implement development such as local governments, NGOs/POs, etc.

(4) Through its projects and activities, assist in developing relevant frameworks for policy formulation.

## 3. Expected Effects

The likely effects of empowered LGUs and local people are the following:

(1) Increased people participation at the local level.

(2) LGUs are capable of generating additional resources and using them more efficiently.

(3) Improved administrative and technical capability of regional and local organizations.

(4) Enhanced private sector participation.

(5) Institutionalization of regional and local planning and administration.

**4. Project Costs**

| | |
|---|---|
| *(1) Foreign counterpart* | **₱64,450,000** |
| Capital costs: | |
| - Main building with function rooms, multi-media center, administrative offices, laboratories, plenary hall, library; 150-bed dormitory with cafeteria, recreation area, etc. | ₱57,000,000 |
| - Installation of Geographic Information System (GIS) | ₱850,000 |
| - Laboratory equipment for Center for LGU Environment Capability Building | ₱1,000,000 |
| - Other equipment | ₱1,000,000 |
| - Two (2) vehicles | ₱1,600,000 |
| *(2) Local counterpart* | **₱5,000,000** |
| Personal services: | ₱3,000,000 |
| Honoraria of project director, consultants, coordinators for training and development, research and publication, and environmental capability building training for LGUs; Wages and salaries of encoders/administrative assistants, research aides, training assistants utility, accountant, lab assistants, drivers, messengers, librarian, dormitory manager, etc. | |
| Maintenance and Operating Costs (mobility funds for two years) | ₱2,000,000 |
| *(3) USEP counterpart* | **₱44,000,000** |
| Land/site of buildings (2,000 sq.m.) | ₱40,000,000 |
| Salaries/wages, etc. | ₱4,000,000 |

**5. Implementation Schedule**

Implementation schedule is indicated in the attached.

**6. Project Scope and Description**

The ILGA is a strategy to accelerate the delivery of capability-building programs for responsive local governance. It is a partnership between the Local Government Academy (LGA) and the DILG Regional Office, on one hand, and the academe or NGO on the other following the "town and gown" approach. The local institutions shall serve as anchor of the ILGAs to enable them to serve as a conduit of LGA in delivering training, technical assistance, etc.

USEP-School of Governance and Management (SGM) shall be the designated regional Institute for Local Government Administration for Region XI and the DIDP Area. The use of the University will expand the reach of the LGA and fast-track the delivery of capability-building interventions to the LGUs.

## Implementation Schedule for the Institute for Local Government Administration (ILGA) Strengthening Project

| Tasks/Activities | Year | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| **1. Organization** | | | | | | | | | | | |
| a. Forging of MOA with USEP | * | | | | | | | | | | |
| b. Creation of ILGA operating structure. | ** | | | | | | | | | | |
| c. Tasking | ** | | | | | | | | | | |
| d. Forming provincial/city committees | *** | | | | | | | | | | |
| e. Orientation of LGUs on ILGA | ** | | | | | | | | | | |
| f. Policy reviews | | | *** | | | *** | | | *** | | |
| **2. Planning & administration** | | | | | | | | | | | |
| a. Preparation of detailed proposal for funding. | ** | | | | | | | | | | |
| b. Preparation of detailed building plans & estimates. | *** | | | | | | | | | | |
| c. Submission of proposal to JICA/funding agency. | * | | | | | | | | | | |
| d. Budget preparation for local fund sourcing. | ** | | | | | | | | | | |
| e. Sourcing funds from local sources. | ** | | ** | ** | ** | ** | | | | | |
| f. Organizing trainor's pool | | **** | | | | | | | | | |
| g. Policy/ies formulation | | | ** | | | ** | | | ** | | |
| **3. Construction and procurement** | | | | | | | | | | | |
| a. Conduct of pre-f by JICA/funding agency. | | *** | | | | | | | | | |
| b. Bidding of construction | | | **** | | | | | | | | |
| c. Construction | | | | ****** | | | | | | | |
| d. Acquisition of equipment | | | | ***** | | | | | | | |
| **4. Training program delivery** | | | | | | | | | | | |
| a. Pre-training | | | | | | | | | | | |
| TNA, identification of ILGA projects by province/municipality | | ****** | | | | | | | | | |
| Signing of project agreements | | ** | | | | | | | | | |
| Writing of modules, preparation of materials | | ***** | | | | | | | | | |
| b. Training Proper | | | | | | | | | | | |
| Conduct of short trainings | | | ********** | ********** | ********** | ********** | ********** | ********** | ********** | ********** | ********** |
| Advanced degree programs | | | | | ********** | ********** | ********** | ********** | ********** | ********** | ********** |
| **5. Research, monitoring and evaluation** | | | | | | | | | | | |
| a. Planning for monitoring andevaluation | | ***** | | | | | | | | | |
| b. Periodic monitoring | | | *** | | | *** | | | *** | | |
| c. Impact evaluation | | | | | **** | | | **** | | | |
| d. Impact studies/researches | | | | | **** | | | **** | | | |

Note: Every asterisk (*) represents one month.

The USEP-ILGA will implement the 5 core programs of DILG-LGA ICBP (Integrated Capability-Building Program) and, in addition, a sixth program, the LGU Environmental Management Capability Building Program, a flagship project of the DIDP Master Plan. The core programs, therefore, are the following:

(1) Management systems,

(2) Local financial administration,

(3) Development planning,

(4) Local legislation,

(5) Community mobilization, and

(6) Environmental management.

The target participants of the ILGA are the following:

(1) Local officials and functionaries,

(2) Members of NGOs/POs/Cooperatives involved in local governance, particularly members of special bodies,

(3) Members of the local learning institutions, and

(4) DILG and other NGA personnel.

**7. Implementing Mechanisms**

(1) Regional Coordinating Board.

A body prescribed by DILG, it is the policy determining structure of ILGA in the Region. It is composed of the following:

| | | |
|---|---|---|
| Chairman | : | DILG XI Regional Director |
| Members | : | President of USEP |
| | | Provincial Governors/City Mayors |
| | | LGA Regional Coordinator |

Its functions are:

a. Formulate the vision, mission and goals of the ILGA partnership.
b. Provide policy directions.
c. Monitor the plans and projects implemented by ILGA.

(2) Regional ILGA Executive Board.

The Board shall be composed of the following:

| | | |
|---|---|---|
| Chairman | : | USEP President |
| Co-Chairman | : | LGA Regional Coordinator |
| Members | : | Dean, USEP-SGM |
| | | Chairman, DIDP Board |
| | | LGA Provincial Coordinators |

Its functions are:

a. Recommend to LGA the programs/projects for implementation by the ILGA based on identified priority training needs of LGUs.
b. Recommend to the LGA for accreditation the trainors/specialists of the local learning institutions and local government units, to ivlude recognized experts/practitioners in local governance who will implement the ILGA programs.
c. Recommend to the Board of Regents of USEP for accreditation of DILG trainors

and specialists.

d. Monitor the LGA plans and programs implemented by ILGA.

(3) Management Committee

The Management Committee shall be composed of the following:

| | |
|---|---|
| Chairman | Senior faculty/director designated by the President of USEP upon recommendation of the SGM Dean |
| Co-chairman | DILG representative designated by DILG director |
| Members | (As may be designated by the Regional Executive Board). |

The primary functions of the committee are the following:

a. Assist LGA in the assessment of capability building needs of LGUs;
b. Prioritize projects based on the capability building needs of the LGUs;
c. Develop and recommend programs to the Regional Executive Board for its approval;
d. Establish network with other local institutions to generate greater pool of resources;
e. Recommend to the Regional Executive Board sources of funds;
f. Recommend ILGA programs for integration into the local institution's regular extension programs for LGUs; and
g. Develop or source training materials for specific modules of approved programs.

(4) ILGA Coordinator

The LGA Regional Coordinator shall be the Institute's overall coordinator. Among his functions are the following:

a. Manage the actual implementation of ILGA programs and ensure that these are in accordance with LGA policies and standards;
b. Submit reports on ILGA activities to LGA; and
c. Perform such other tasks as may be assigned to him/her.

## LGUs Environmental Management Capability Building Program (EN-1)

### 1. Background

Some of DENR's functions to manage the environment have been transferred to LGUs by the Local Government Code of 1991. However, LGUs lack human resources and the capability to perform these functions. Most of the LGU's environmental personnel are foresters. In the near feature, environmental problems of the DIDP Area will be progressively changed into new types of environmental problems, such as air and water pollution, ecosystem degradation, industrial wastes generation including hazardous toxic wastes and others. If nothing is done, LGUs will not be able to face up to the new challenges raised by these environmental problems. It is urgent, therefore, that the environmental management capability of LGUs is developed in preparation for these challengers.

### 2. Objectives

The objective is to establish LGU Environmental Training Center in the Institute for Local Government Administration (ILGA) including the development of effective training courses, curriculum and training materials for capability building of LGUs.

### 3. Project Concept

The Department of Interior and Local Government (DILG) established the Institute for Local Government Administration (ILGA) as its training arm for capability building of LGUs in local governance. ILGA is based on the concept of partnership in training with Higher Education Institutes (HEIs) in the provinces/city. Provincial ILGAs were established with HEIs in Davao Oriental and Davao del Sur in the DIDP Area. However, they have limited courses and equipment for training. ILGA is useful for training of LGUs so that the existing system of local governance and autonomy will be enhanced.

### 4. Project Description

#### (1) Project components

The project consists of four components as follows:

- establishment of Environmental Training Center in ILGA,
- development of training courses, and
- production and publication of information and education materials.

#### (2) Establishment of Environmental Training Center

An Environmental Training Center will be established in ILGA which is the site of Institute for Local Government Administration Strengthening Project (GO-2) in Davao City. The Center has the following functions:

- training for LGU staff,
- environmental education and dissemination for people,
- collection and provision of environmental data and information, and
- accommodation for trainees.

1) Targets of Environmental Training Center

The Center provides training courses for the following:

- middle level officers belonging to provincial and municipal governments, and

- Barangay Environmental Managers.

It is expected that trained officers will take on the job of teaching and training. The Center will also provide necessary knowledge to decision makers such as governors and mayors as well as agencies, and coordinate seminars to related agencies and people.

2) Organization

The organization chart of the Center is shown in Figure 1.

Committee of Environmental Training Center

The committee members consist of DILG, DENR, DECS, Association of Higher Education Institute (AHEI), provincial governors, city mayors, Mayor League and DIDP Board Chairman. The Committee guides operation of the Center in consultation with the ILGA Director and DILG-LGA (Local Government Academy).

Administration Section

- Manage the Center including maintenance, and
- Prepare training schedule and coordinate training courses and curriculums.

Training Section

- Conduct training programs, and
- Develop training materials.

Training Materials Development Section

- Prepare education materials for training courses, and
- Issue pamphlets and brochures for dissemination and enlightenment.

Information Section

- Manage a library, and
- Collect necessary data and information.

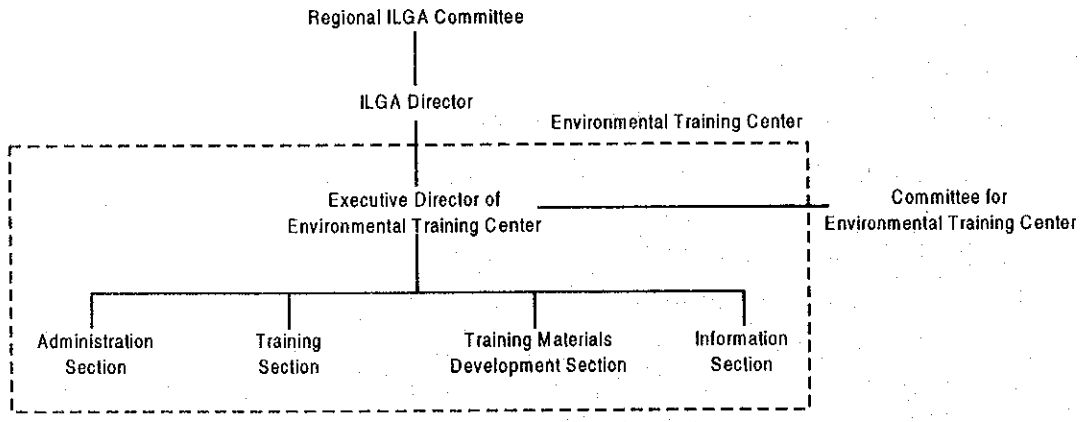



**Figure 1 Organization Chart of Environmental Training Center**

3) Building facilities

The following facilities and equipment are required:

**1. Buildings**

1) Main building (RC 2 floors)

| | | |
|---|---|---|
| Office room | 1 room | 70 m2 |
| Staff room | 2 rooms | 200 m2 x 2 rooms |
| Seminar room (12 px/room) | 4 rooms | 60 m2 x 4 rooms |
| Seminar room (25 px/room) | 2 rooms | 125 m2 x 2 rooms |
| Seminar hall | 1 room | 200 m2 x 1 room |
| Library | 1 room | 80 m2 |
| Chemical laboratory | 1 room | 80 m2 |
| Biological laboratory | 1 room | 80 m2 |
| Computer room (12 px/room) | 1 room | 60 m2 |
| storage | 1 room | 50 m2 x 2 rooms |

2) Forest nursery Center

| | | |
|---|---|---|
| Building | 1 building | 150 m2 |

3) Lodging house (RC 2 floors)

| | | |
|---|---|---|
| Bed room | 40 room | 450 m2 |
| Kitchen | 1 rooms | 20 m2 |
| Dining room | 1 rooms | 50 m2 |

4) Car park

| | | |
|---|---|---|
| for 2buses, 20 cars | 1 car park | 800 m2 |

**2. Equipment**

| | | |
|---|---|---|
| Audio visual equipment | 7 sets | |
| Chemical analysis equipment | 1 set | |
| Biological analysis equipment | 1 set | |
| Forest nursery equipment | 1 set | |
| Topographic survey equipment | 10 sets | |
| Geographic Information System | 1 set | |
| Computer system | 1 set | |
| Global positioning system | 10 sets | |
| Mobile Environmental IEC System (wagon type vehicles, audio visual equipment) | 3 sets | |

4) Implementing agencies

This Center will be managed by DILG in consortium with an HEI. However, DENR and academic organizations will support technical aspect such as providing lectures and training materials. It is expected that foreign aid agencies will assist in the construction of building and necessary equipment.

## (3) Development of training courses

1) For middle level officers

Two main courses for middle level officers are proposed: Basic Training Course for Environmental Management and Subject-Oriented Training Course.

Basic course

The basic course will include Philippines or DIDP environmental management policy and background on the environmental situation including minimum environmental skill for young middle level officers. It may be a 4-day course. Officers who took a basic course can advance to Subject-Oriented Training Course. The following curricula are proposed:

- Philippine environmental regulations,
- Philippine EIA system,
- Environmental conditions (including terrestrial environment, marine environment and environmental problems),
- Basic terrestrial environment,
- Basic marine environment,
- Basic field survey technique including field works, and
- Introduction of data analysis.

Subject-oriented training course

Subject-oriented training course is for middle class officers who took already the basic course. They are advanced courses for environmental management. Field works and laboratory works should be comprised in subject-oriented training course. These courses provide not only knowledge but also practice work through case studies, laboratory works and field works. Lecturers give exercises to be solved by trainees. It is expected that trained participants will extend skills learned to their colleagues and staff members. The following courses and curricula are included:

- Land use planing,
- Environmental management planning,
- Terrestrial environment (this course is the same as university education level),
- Marine environment (this course is the same as university education level),
- Forest management,
- Watershed management including slope protection,
- Protected area management including wildlife conservation,
- Pollution control,
- EIA (related regulations, procedure, methodology),
- Topographic survey including field work,
- Field survey technique for terrestrial environment,
- Field survey technique for martine environment,
- Geographic information system, and
- Community organizing.

2) For Barangay Environmental Manager

A barangay Environmental Manager (BEM) proposed by the JICA Study Team will be appointed by the Barangay Captain from the community. BEMs have functions such as monitoring of their environment, reporting to the municipal government and dissemination of information to the people. Proposed training program is to promote desirable environmental conditions in their Barangay, primer on the functions of BEM system, and appropriate and necessary action on environmental problems.

For this course it is not necessary that BEMs come to the Center. The Center sends lecturers and audio-visual unit to the municipality by Mobile Environmental IEC (EN-4c). The municipal government arranges the course for BEMs in the municipality.

The following curricula are proposed:

- Barangay Environmental Manager System (including purposes, functions, activities),
- Report on environmental conditions and problems by BEMs,
- Cases of community based environmental management, and

- Community organizing

### (4) Development of training materials

It is required that lecturers present effective lessons so that training materials should be developed. Training materials are included visual text books and video programs.

### (5) Publication of information and education materials

The Center prepares pamphlets, brochures and booklets for government agencies, the people, private sector and NGOs for dissemination and enlightenment and promotion of environmental awareness.

## 5. Implementing Schedule

**Table 2 Implementing Schedule**

| Year | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|
| Feasibity Study | | | | | |
| Detail Design | | | | | |
| Environmental Impact Study | | | | | |
| Construction of the Center | | | | | |
| Development of Training Course | | | | | |
| Operation of Training | | | | | |
| Publication | | | | | |

## 6. Project Cost

**Table 3 Cost Estimate for LGUs Environmental Capability Building Program**

| Items | No. | Unit Cost | Cost |
|---|---|---|---|
| F/S, D/D | L.S | | ₱1,065,000 |
| EIA | L.S | | ₱1,200,000 |
| Construction of Training Center | 1 | | ₱23,700,000 |
| Equipment | 1 set | | ₱42,520,000 |
| Total | | | ₱68,485,000 |

## Tagum-Libuganon Multi-Purpose Water Resources Development Project (EN-10a)

### 1. Background

The Project is one specific component of the Integrated Watershed Management Program (EN-10).

The Tagum-Libuganon Basin has a total population of some 500,000 at present, covering seven municipalities, namely: Asuncion, Carmen, Kapalong, New Corella, Santo Tomas, Tagum and Sant Vincente. The area is endowed with the huge potential irrigable area and has been developed as a major granary of Mindanao Island. Of total 74,000 ha irrigable areas, however, only 50 % area has been irrigated so far.

Meanwhile, the Tagum-Libuganon river has caused periodical flooding with huge damages for agricultural land and urban areas, especially in Asuncion, New Collera and Tagum, in the left bank area. This is because only a limited length of the left bank has been partially completed by DPWH and no other major flood control works have been done. On the other hand, a 20 km right bank of the main river was constructed by NIA supported by ADB. The fundamental solution to such floods is a prerequisite for the sustainable socio-economic development in the Project area, especially in the left bank area.

The Project is intended to provide necessary and proper measures mainly in the left bank area of the Tagum-Libuganon basin.

### 2. Objectives

The Project is envisioned to attain maximum and sustainable water use mainly in the left bank area of the Tagum-Libuganon river basin, aiming:

- To control or mitigate flooding in the Tagum-Libuganon river and improve stormwater drainage of encompassed urban areas, and
- To provide year-round irrigation to the upper Saug area and generate hydro-electric power with the construction of multi-purpose dam.

### 3. Project Description

### 3.1. Project Scope

#### (1) Project area

The Project covers mainly the left bank area of the Tagum-Libuganon river in Davao del Norte. It is bounded on the north and the east by Compostela Valley, on the west by the right bank area of the Tagum-Libuganon river and on the south of Davao Gulf. It comprises the municipalities of New Collera and a part of Tagum and Asuncion with the land area of some 35,000 ha. Unlike the right bank where there is only one tributary, there are many tributaries and creeks joining the left bank, namely Magatos, Ilog, Sauga, Mankilam, Magugpo, San Miguel and Pagtabakan Creeks as shown in Figure 2.

As compared with the right bank, the area of the left bank is currently provided with only 12 km-length dike in the lower reach, and therefore is still suffering serious flooding, which occurs every two years on the average.

The upper Sauga area which has a vast potential agricultural land is currently lacking reliable irrigation water source, relies mainly on rainfalls.

In terms of power supply, this area has been quite vulnerable, relying on scanty generation facilities for major portion of power supply.

## (2) Project components

Dike construction

The existing dike system protecting the left bank of the Tagum-Libuganon river has been seen to be far insufficient, especially in the upper reach. In order to prevent the river from overflowing, the earthen dikes with total length of 25 km, as shown in Table 1 and Figure 2, are required along the Tagum-Libuganon river, Saug river and Maltibog creek.

**Table 1 Salient Features of Planned Dikes**

| No | Location | Length (m) |
|---|---|---|
| 1 | Left bank of Tagum-Libuganon River, at the crossing point with National Road | 1,400 |
| 2 | Left bank of Saug River, at the upper end of the existing dike | 1,400 |
| 3 | Left bank of Maitibog Creek, at the meeting point with Saug River | 2,100 |
| 4 | Right bank of Maitibog Creek, at the meeting point with Saug River | 1,500 |
| 5 | Left bank of Saug River, at the meeting point with Maltibog Creek | 6,300 |
| 6 | Right bank of Saug River, at the meeting point with Maltibog Creek | 12,000 |
| | Total | 24,700 |

Stormwater drainage

The urban area in the Project area encompassed by the National Highway and the lower reach of the Tagum-Libuganon river has been frequently submerged due to insufficient drainage. To avoid this inundation, the construction of open channels with some 16 km in total length are planned along the National Highway and the existing dike. In addition, the rehabilitation and improvement of urban drainage in the built-up areas in Tagum and New Corella are proposed, using open ditches and embedded concrete pipes.

Multi-purpose dam, irrigation and power generation

The Project is envisioned to provide year-round irrigation water to some 10,000 ha land, to install the capacity of 1,000 kW, and to cut a peak flow of flood discharge during heavy downpour by the construction of a multi-purpose dam.

The candidate dam site is located at Buan Barangay about 22 km north from Tagum along the Saug river, a tributary of the Tagum-Libuganon river. The Project involves the dam construction of a 45 m-height and 250 m-span storing water of 121 million $m^3$ (MCM) with 232 $km^2$ of catchment area. The dam would be an earthfill zone-type embankment, as shown in Figure 1. The dam crest at elevation 115 m will have a width of 10 m. Its slope of 3:1 will be adopted on the upstream face of the dam and 2.5:1 on the down stream face. The dam are planned with the sediment storage volume of 26 MCM.

The power generation plant will be installed at the right bank, a few meters downstream from the toe of the dam. Excess water coming from the bypass and penstock would be released back into the river through a tailrace channel.

The irrigation network consisting of main and lateral canals will be strategically located such that a maximum area could be reached with irrigation water. The canals will be designed for specific discharge capacities and service roads will be provided on one side of the canal embankments for the selected main and lateral canals.

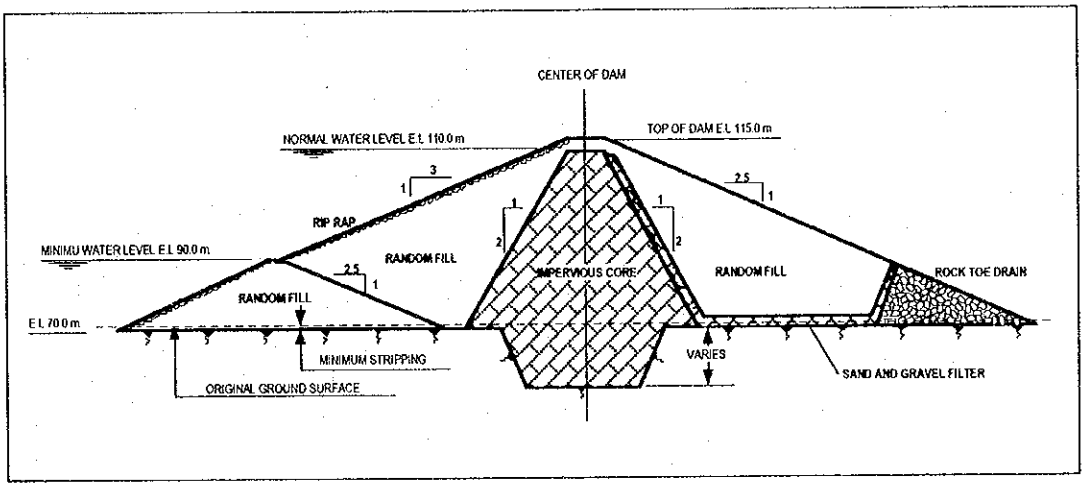
## 3.2. Implementing Schedule

The Project is envisioned to be proceeded according to the following step-wise phase:
Phase I (1999 - 2002) : Engineering study and feasibility analysis for selected priority components,

Phase II (2003 - 2005) : Implementation of selected priority components consisting of dikes and drainage channels, and

Phase III (2006 - 2016) : Implementation of dam and reservoir, hydro power generation and irrigation systems and others.

**Figure 1 Cross Sectional View of Planned Dam**




## 3.3. Institutional Arrangement

The provincial government of Davao del Norte will be involved directly in the Project. Some parts of the structural measures such as drainage along the National Highway and anti-flooding measures with major rivers belongs to DPWH. NIA is also responsible for irrigation. In the light of efficient and smooth implementation, a sole representative unit for project execution should be organized, including concerned parties such as the provincial government, DPWH, NIA and others. Through the representative unit, well-coordinated cooperation between institutions concerned would be expected over the period of planning, construction and maintenance/operation.

# 4. Project Assessment

## 4.1. Project Cost

The project cost required for the implementation at each phase are roughly estimated as follows:

Phase I : ₱ 50 million

Phase II : ₱ 255 million

Phase III : ₱ 1,335 million

## 4.2. Expected Benefit

The Project is envisioned to provide wide-range benefits to the Project area, resulting from flood protection, irrigation, hydro-power generation, etc. A series of measures undertaken under the Project would prevent or alleviate flooding in the Project area. By the adequate provision of stormwater drainage and flood control measures, infrastructure facilities such as roads, bridges, electricity cables and transport piping of water supply would be saved from damages. Damages of such properties as houses, furniture and appliances caused by inundation and submersion would be saved by the Project, also. In addition, as a result of the betterment of environment sanitation, the incidence of water-born diseases would be significantly reduced.

The expanded irrigation area would contribute directly to the increase of agricultural produce.

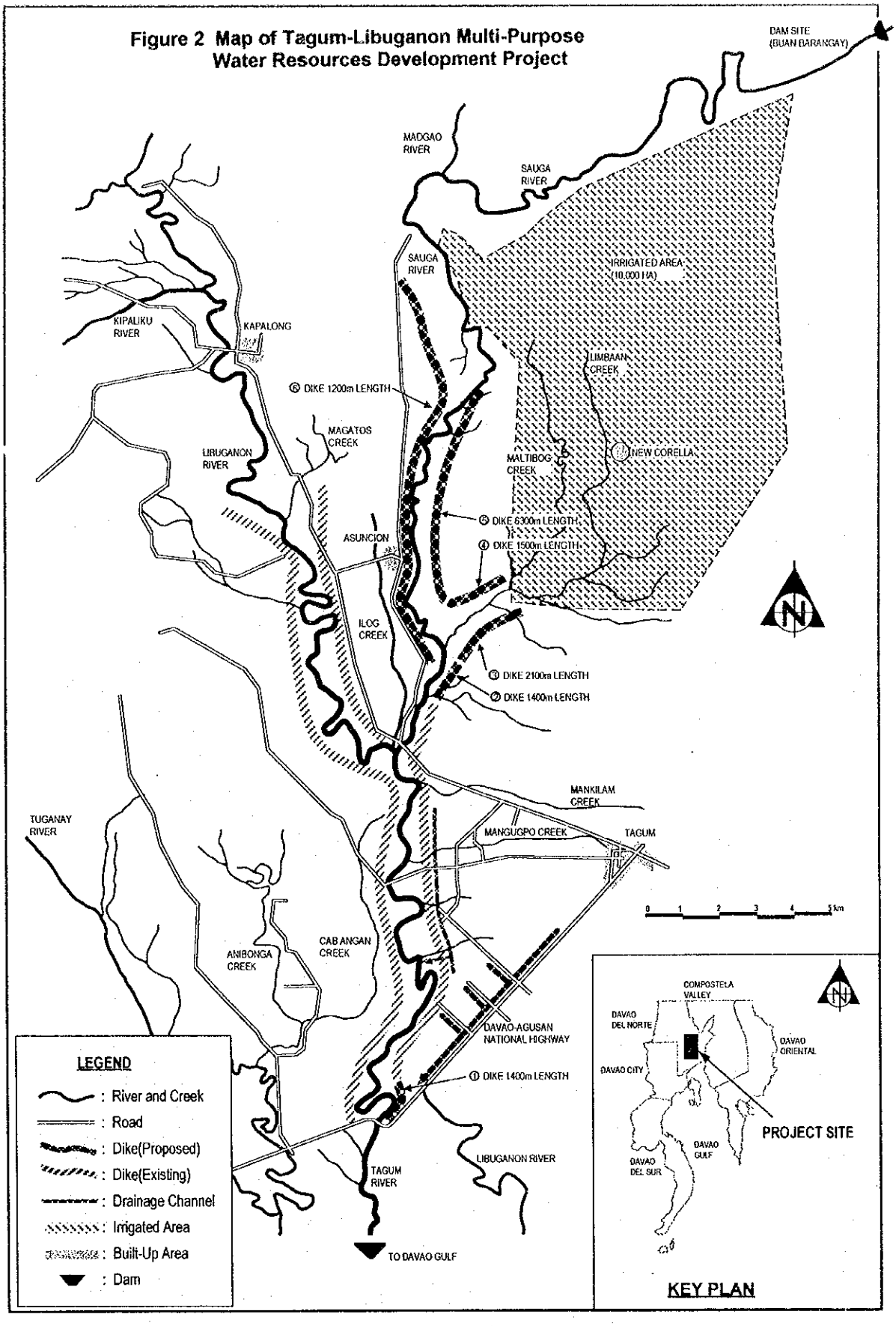
In the term of the economic rationale of the Project, NIA previously conducted a pre-feasibility study for the multi-purpose dam construction and irrigation, indicating 16% of the EIRR.

## 5. Recommended Action

The upstream area of some 1,800 ha would be submerged by the completion of the dam and reservoir. The initial evaluation for the impacts in terms of natural and social environment thereof should be initiated, especially in areas to be submerged.

Because the Project requires huge investment cost over the long term, this may cause an excessive financial burden in the Central Government and LGUs. A possible solution to this is to apply proper selection of priority projects and to be technically and financially aided by ODA.

## Figure 2 Map of Tagum-Libuganon Multi-Purpose Water Resources Development Project



# Upper Agusan Flood Control and Drainage Improvement Project (EN-10b)

## 1. Background

The Project is one specific component of the Integrated Watershed Management Program (EN-10a).

The Agusan River with a total drainage area of 11,500 $km^2$ runs and drains the area from Compostela Valley to Agusan del Norte. The Upper Agusan river basin is located in Compostela Valley and it has a total population of some 300,000 at present, covering six municipalities, namely: Monkayo, Compostela, Montevista, Nabunturan, New Bataan and Maragusan.

The Upper Agusan basin has been developed as a major supply source of food in the region like rice, coconut, banana, etc., which some crops are exported with or without processing. It has about 13,000 ha of rice field mostly located in the flood prone area. Approximately 5,000 ha is irrigated and the remaining area is rainfed. Gold mining has been extensively developed in the watershed area since 1980's.

The Upper Agusan basin is oftentimes besieged by flood problems caused by the overflowing of the banks of the Upper Agusan river and its tributaries mainly due to heavy siltation in some sections of the river and its tributaries. Erratic hydraulic characteristics of main stream and its tributaries has aggravated the flooding in the area. The flooding has caused the extensive destruction and damages to farm crops, livestock and other urban properties, almost every rainy.

The Project is intended to address flood mitigation by providing necessary and proper measures.

## 2. Objectives

The Project is envisioned to provide the Upper Agusan river basin with necessary and proper measures, aiming:

- To control and mitigate the flooding of the Upper Agusan river and its tributaries, and
- To improve stormwater drainage in urban centers of the Project area.

## 3. Project Description

### 3.1. Project Scope

#### (1) Project area

The Project covers the Upper Agusan basin that occupies an area of 160,000 ha within Compostela Valley. The river originates from the mountains and runs through the Compostela valley, enters the narrow gorge at Monkayo and empties into Bunawan Marsh. It is bounded on the north by Agusan del Sur, the east by Davao Oriental, the south by Maragusan Municipality, and the west of Davao del Norte. The climate of the basin is characterized by no dry season with very pronounced maximum rainfall from December to February. The annual rainfall is estimated at nearly 4,000 mm in a normal year.

The Compostela valley in the river basin with an estimated maximum flood-prone area of some 20,000 ha has been seriously affected by habitual and serious floods every year. The river channels of the Upper Agusan have been heavily silted due to excessive sediment runoffs and have been further worsen by the gold mining activities in the watershed. Meanwhile, drainage in urban centers are substandard and degraded due to

aging in significant parts.

To lessen the flooding in the Composetela valley area, a certain part of construction works for flood control had been implemented since 1980's through local funding. Actually, substantial improvement, however, had not been seen due to financial shortage.

**(2) Project components**

The Project comprises of the following components as shown in Figure 1:

Cut-off channel and related works around Kalaw bridge

A heavily meandering portion of the Agusan river around the Kalaw bridge has been proved to serves a barrier and causes backflow that affects Monkayo and other areas in the upper reach. It is imperative to cut this section by a channel to flush the flood flow quickly. On the other hand, accumulated sediments along the river course are heavy, obstructing the channel flow of the river, and the flood water eventually overflows on its river banks, and finds its way to the lower areas of the Compostela valley.

Hence, the cut-off channel works at the Kalaw bridge and the improvement and dredging are required. The following combined works in the downstream of the Kalaw bridge , are proposed as shown in Figure 2:

- Cut-off channels : Some 1,035 m in total length, phased by the section of 420 m-length and 615 m-length,
- Dredging works : Some 2,700 m-length from the Kalaw bridge to the inlet of the proposed cut-off channel.

Of the above works, a limited portion is ongoing by a local fund.

Dike construction and channel improvement works

In the upstream beyond the Kalaw bridge, a series of the following works are proposed along the mainstream of the Agusan river and its tributaries such as the river of Manat, Batutu:

- Dike construction works : some 50 km in total length, and
- Channel improvement : some 21 km in total length, including dredging works.

Improvement of stormwater drainage in urban centers

Drainage facilities are observed to be insufficient due to aging in significant parts, resulting in inundation in a significant part of urban centers even at the small rainfall. The improvement works of drainage in the urban centers of Monkayo, Montevista and Nabunturan are planned.

Sabo dam and small impounding dam construction

In the long-run, the Project is envisioned to include the following dams to prevent an excessive inflow of silts and also to cut the peak flow:

- Sabo dam : Total two places at the upstream of the Agusan river and the Manat river, and
- Small impounding dam : Total three places at the upstream of the Agusan river, the Urip river and the Naboc river, partially for the purpose of irrigation water supply.

### 3.2. Implementing Schedule

The Project is envisioned to be proceeded according the following stepwise phasing:

Phase I (1999 - 2002) : Engineering study and feasibility analysis, and detail design of priority components,

Phase II (2003 - 2005) : Construction works of urgent works in the cut-off channel and improvement works for the downstream of Kalaw Bridge,

Phase III (2006 - 2016) : Urban drainage improvement works and dike construction and channel improvement works, and construction of sabo dams and small impounding dams.

### 3.3. Institutional Arrangement

While DPWH which is responsible for the management of the Agusan River will be involved directly in the Project, some parts of the structural measures such as drainage and anti-flooding measures along tributaries belongs to Compostela Valley Province and municipalities concerned. In the light of efficient and smooth implementation, a sole representative unit for project execution should be organized, including concerned parties such as DPWH and LGUs. Through the representative unit, well-coordinated cooperation between institutions concerned would be requested over the period of planning, construction and maintenance/operation of the Project.

In the relation of the entire Agusan River Basin, the Cotabato and Agusan River Basin Development Project (CARBDP) has been already inaugurated and a certain part of mitigation measures with the zoning of the Lower Agusan Basin and the Upper Agusan Basin has been started. Thus, the planning and implementation of this Project will have to be carefully coordinated in the effective and efficient way with the precedent projects.

## 4. Project Assessment

### 4.1. Project Cost

The project costs required for the implementation at each phase are roughly estimated as follows:

Phase I : ₱40 million

Phase II : ₱220 million

Phase III : ₱800 million

### 4.2. Expected Benefit

A series of measures undertaken under the Project would prevent or alleviate flooding in the Project area. As a result, agricultural land would be prevented from submersion, infrastructure facilities such as road, bridges, electricity cables and transport piping of water supply would be saved from damages.

Damages of such properties as houses, furniture and appliances caused by inundation and submersion would be saved by the Project, as well. In addition, the incidence of water-born diseases would be significantly reduced as a result of the betterment of environment sanitation.

## 5. Recommended Action

Because the Project requires huge investment cost over a long period, this may cause an excessive financial burdens in the Central Government and LGU. A possible solution to this is deemed to apply proper selection of priority projects and to be technically and financially aided by ODA.

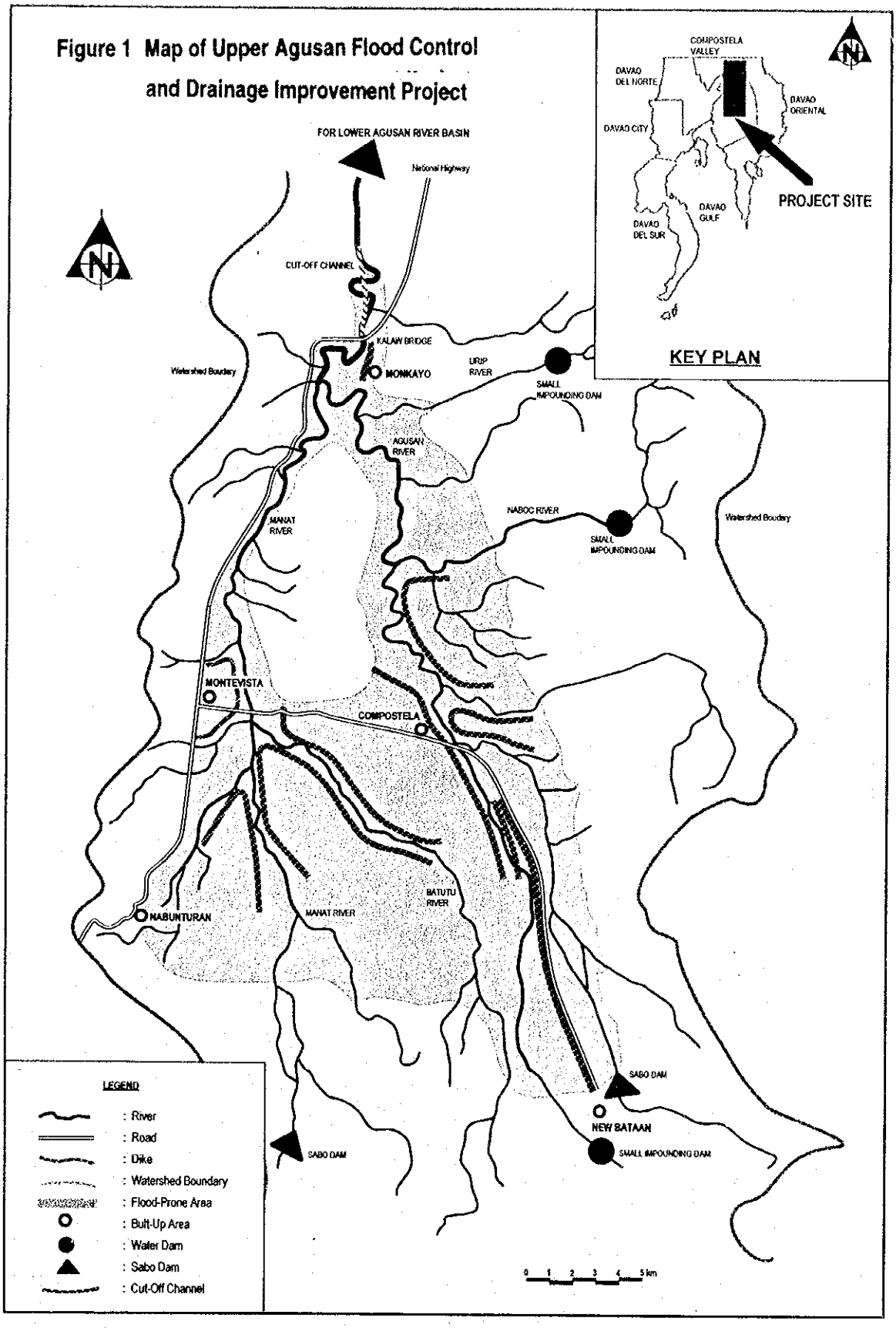
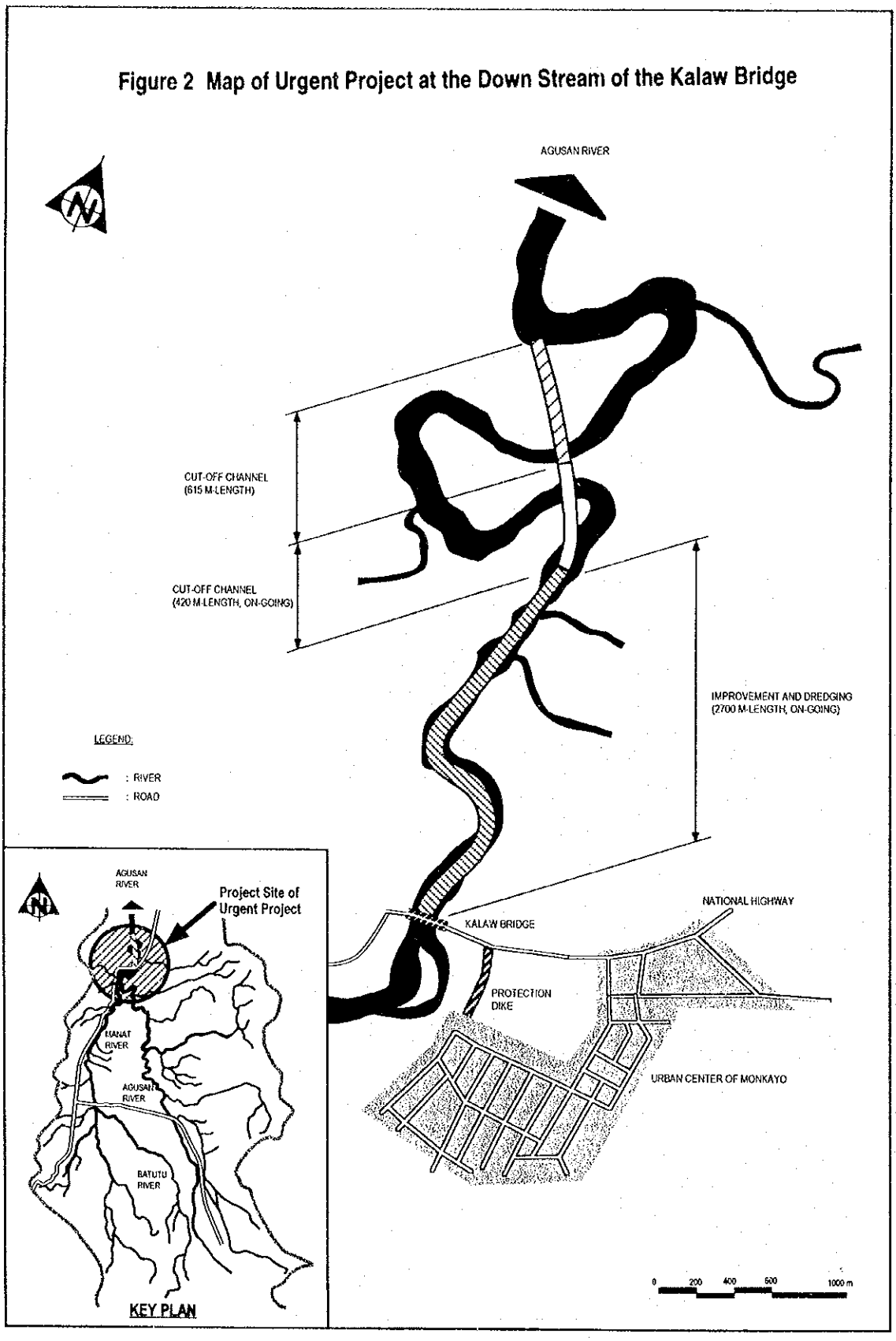


Figure 1 Map of Upper Agusan Flood Control and Drainage Improvement Project
FOR LOWER AGUSAN RIVER BASIN
National Highway
CUT-OFF CHANNEL
KALAW BRIDGE
MONKAYO
Watershed Boudary
URIP RIVER
SMALL IMPOUNDING DAM
AGUSAN RIVER
MANAT RIVER
NABOC RIVER
SMALL IMPOUNDING DAM
Watershed Boudary
MONTEVISTA
COMPOSTELA
NABUNTURAN
MANAT RIVER
BATUTU RIVER
SABO DAM
NEW BATAAN
SMALL IMPOUNDING DAM
SABO DAM
0 1 2 3 4 5 km
COMPOSTELA VALLEY
DAVAO DEL NORTE
DAVAO ORIENTAL
DAVAO CITY
PROJECT SITE
DAVAO GULF
DAVAO DEL SUR
KEY PLAN
LEGEND
: River
: Road
: Dike
: Watershed Boundary
: Flood-Prone Area
: Built-Up Area
: Water Dam
: Sabo Dam
: Cut-Off Channel

## Figure 2 Map of Urgent Project at the Down Stream of the Kalaw Bridge



# Upland Model Villages Establishment Project (EN-11)

## 1. Background

### 1.1. General

Degradation of the watershed area is a common concern in the DIDP Area. Mountain side has been denuded, and large areas are presently covered with cogon grass (Imperata cylindrica). Such a vegetation has less capacity of water recharge into underground, while increases peak run-off which will cause flooding hazard in the downstream area.

Farmers living in upland area, or watershed area, widely plant corn as their foodstuff as well as the main source of income. There are 29 municipalities/districts in the DIDP Area, in which more than 30% of the crop area, or more than 5,000 ha is under corn, as shown below.

**Table 1 Major Corn Planted Area in the DIDP Area**

| Province<br>Municipalities | Share of corn in total crop area (%) | Corn area (ha) |
|---|---|---|
| **Davao del Norte** | | |
| Kapalong | 38% | 9,745 |
| New Corella | 42% | 5,276 |
| Island Garden City of Samal | 26% | 5,373 |
| **Compostela Valley** | | |
| Mabini | 38% | 5,052 |
| Maco | 44% | 4,653 |
| Monkayo | 36% | 9,018 |
| Nabunturan | 30% | 4,531 |
| New Bataan | 42% | 4,643 |
| Pantukan | 39% | 8,463 |
| Maragusan | 35% | 6,856 |
| San Vicente | 35% | 11,688 |
| Montevista | 61% | 7,664 |
| **Davao City** | | |
| Marilog | 28% | 5,484 |
| Paquibato | 28% | 6,053 |
| **Davao del Sur** | | |
| Malalag | 62% | 5,490 |
| Magsaysay | 45% | 6,959 |
| Kiblawan | 66% | 11,865 |
| Jose Abad Santos | 30% | 6,376 |
| Sulop | 55% | 6,548 |
| Sta. Maria | 49% | 9,779 |
| Padada | 39% | 1,648 |
| Matanao | 35% | 6,146 |
| Malita | 55% | 22,064 |
| **Davao Oriental** | | |
| Lupon | 35% | 6,591 |
| Manay | 35% | 6,011 |
| Mati | 33% | 13,620 |
| Tarragona | 53% | 8,521 |
| Gov. Generoso | 27% | 4,980 |

Source: The JICA Study Team based on Census of Agriculture 1991

Being living remote rural areas without good access, they are generally marginalized in terms of economy and pursuing subsistence farming. They usually burn the area before starting cultivation to ease planting. Surface soils which contains most nutrients including minerals and organic materials are often eroded by intense rainfall at this time.

Combined with the use of less amount of fertilizer, after several years of continuous cropping, soil fertility is depleted until when farmers hardly harvest corn, when they abandon the land and move to other area. Even if they know that tree crops are more appropriate to cultivate on slopes, they hesitate to do it as they are in many cases not owner-farmer. Those farmers do not have other livelihood than farming, and are difficult to find other sources of income. Their nutrition conditions have been reported to be fallen in the worst category.

### 1.2. About Sloping Agricultural Land Technology (SALT)

SALT was developed in 1978 by Mindanao Baptist Rural Life Center (MBRLC), a NGO in Bansalan, Davao del Sur. The fundamental feature of this technology is the establishment of contour hedge rows using perennial leguminous crops at certain intervals on sloping land. Main crops are grown in between. While the contour hedge rows contributes to prevent soil erosion after their establishment, they also provide nitrogen to soils through symbiotic nitrogen fixation by nodules in their root system. Periodical trimming of hedges will also provide nitrogen and organic materials to soils by mulching trimmed stems and leaves on soils. Mulching will prevent unnecessary evaporation from soil surface and weeds. Although relatively large areas have to be sacrificed by the contour hedge rows, increased yield offset the loss of area, or even bring about more production.

The results of the long term experiment on SALT have revealed the effectiveness of the technology on sustainable crop production. SALT has been appreciated by international agencies such as Food and Agriculture Organization (FAO) of the United Nations, and has been introduced in other countries like Nepal, which has similar problems in upland areas.

SALT has further developed to have various options including SALT 2 (Simple Agro Livestock Technology), SALT 3 (Sustainable Agroforest Land Technology), and SALT 4 (Small Agrofruit Livelihood Technology), within the context of SALT concept of Simple, Applicable, Low cost and Timely.

### 1.3. Challenges

Although applicable, not large areas has been developed under SALT.

Challenge is to change the cultivation habit of farmers who in general persist on their traditional farming practices.

Establishment of contour hedge rows will take some half an year and needs tedious work, which may discourage farmers from adopting the technology.

It is essential for those farmers to realize that SALT will surely contribute to the increase in crop production. Persistent efforts to encourage them to adopt the technology are unavoidable. They may include: dialogue, demonstration, study tour, etc.

## 2. The Project

### 2.1. Overall View of the Project

The project aims to improve the living standard of upland farmers as well as to stop further degradation of soils in upland areas/watershed area of the DIDP Area, through intensive extension of the world-famous improved upland farming technology, the Sloping Agricultural Land Technology (SALT) which was originally developed in the DIDP Area.

The project will be implemented by two phases. In Phase 1, model villages will be established to promote SALT based on the baseline survey. Farmers in model villages will be trained in order for them to recognize the importance of environmental conservation, especially of soil conservation, and to introduce SALTs to their farms. SALT demonstration farms will be established by the farmers of the model villages. Individual farmers will also introduce SALTs on their cultivating land. Land tenurial condition will also be improved. Phase 1 will last six years starting 1999.

Phase 2 will be succeeded with modification of the Phase 1, based on the post project evaluation.

## 2.2. Project Area

The project area will cover the upland/hilly areas of the DIDP Area where farmers cultivate crops including corn in traditional way. As seen in the previous table, 29 municipalities/districts in the DIDP Area planted corn as major crop. Of these municipalities/districts, priority areas will be selected by their strategic location in watershed and topographic conditions.

Another priority areas are those areas proposed by a NGO consortium for upland development. They are barangays in San Isidro and Mati of Davao Oriental, and New Corella in Davao del Norte.

## 2.3. Project Component

The project consists of three major components: (i) training, (ii) credit, (iii) model village construction with SALT demonstration farm, and (iv) monitoring and evaluation. More specifically the project includes the following.

### (1) Baseline survey

Baseline survey will be conducted to grasp the current conditions of farmers' socio-economic situation and development needs and to select several villages as show cases for promoting SALTs. Certain criteria such as crop yield, farmers' willingness to adopt SALTs, etc., will be established for the selection.

### (2) Training

Intensive training will be conducted for the farmers in model villages and extension workers assigned to those villages. Training on SALT will be conducted at MBRLC. Study tour will also be carried out to see improved conditions of the areas where SALT has been introduced.

Other trainings will also be planned for environmental education putting emphasis on soil conservation.

Also extended will be the training on home gardening where various kinds of vegetable and herbal plants will grow to improve farmers' nutrition conditions.

### (3) Model villages construction with SALT demonstration farm

Land tenurial problem of farmers in the model villages, will be solved by giving a certificate for cultivation. A demonstration farm for SALT with an area of some 10 ha will be established in each of the model villages. All SALTs (SALT and SALTs 2 to 4) will be demonstrated in each of the model villages. Farmers in model villages will also be encouraged to introduce SALTs on their farm. Home garden will be established at every house in the model villages. Other infrastructure such as water supply system, farm-to-market roads will also be constructed.

### (4) Loan provision

Initial investment costs such as seeds for both contour hedge and crops, seedlings, goats, etc. will be credited at free interest. One year consumption equivalent foodstuffs will also be provided as a loan in order for farmers to survive until SALT has successfully been established. A SALT promotion fund may be established.

### (5) Project monitoring and honor

The project will be monitored annually in terms of area under SALT, farmers' income level, crop production, etc. Change in farmers attitude will also be monitored. Factors for which farmers find difficulty in introducing SALTs will be analyzed, if any.

### (6) Project evaluation

The project will be evaluated at five years after the implementation. Outstanding farmers who have successfully developed SALT to improve their living conditions will be awarded to give incentives to other farmers.

## 2.4. Institutional Arrangement

The overall project will be coordinated by NGOs and DIDP-PMO in cooperation with LGUs and DENR. MBRLC will play a crucial role to train farmers and extension workers on SALTs. The division of works on the above project components are as summarized below.

**Table 2 Division of Works by Relevant Agencies**

| Components | DIDP-PMO | NGO | LGUs | DENR | MBRLC |
|---|---|---|---|---|---|
| Overall coordination | ● | ● | | | |
| Baseline survey | ● | ● | ● | ● | |
| Training | | ● | ● | ● | ● |
| Issuance of farming certificate | | ● | | ● | |
| Demonstration farm | | ● | ● | ● | |
| Loan provision | ● | ● | ● | | |
| Infrastructure | | | ● | | |
| Project monitoring | | ● | | | |
| Honor of outstanding farmers | ● | ● | ● | ● | |
| Project Evaluation | ● | ● | ● | | |

## 2.5. Implementation Schedule

The project will be implemented during six years from 1999 to 2004 as phase 1 stage. Phase 2 and Phase 3 will be succeeded in another six years each, based on the post project evaluation of the previous phase of the project. Overall implementation schedule of the Phase 1 is summarized as follows.

Table 3 Project Implementation Schedule

| Component | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|
| Overall Coordination | | | | | | |
| Baseline survey | | | | | | |
| Training | | | | | | |
| Issuance of farming certificate | | | | | | |
| Demonstration farm | | | | | | |
| Infrastructure | | | | | | |
| Credit | | | | | | |
| Monitoring and honor | | | | | | |
| Evaluation | | | | | | |

## 2.6. Project Costs

Total Project Costs will be ₱330 million in 18 years, which consists of ₱15 million for training, ₱100 million for production credit, another ₱150 million for infrastructure including construction of demonstration farm, water systems and roads, and ₱65 million the rest for baseline survey, project monitoring and evaluation and other administrative expenses.

## Davao City Integrated Waste Management System Development Project (EN-15)

### 1. Background

In Davao City, economic activities are rapidly growing in recent years. Although amount of garbages is increasing rapidly, the Davao City government does not have a long and medium term solid waste management plan. It is estimated that only 180 tons/day of wastes are handled from total solid waste generation of 330 tons/day. Large volume of generated solid wastes is scattered at vacant lands, road sides and rivers. The existing dumping site is not appropriate from environmental viewpoint. A solid waste management plan is required immediately.

### 2. Objectives

The project aims to improve the solid waste management system of Davao City. Living environment will be improved through appropriate solid waste management. Also aimed is to win "Clean and Green Award" within three years from starting implementation of the project.

### 3. Project Concept

The ultimate goals of solid waste management in Davao City is to upgrade the sanitary level. However, high technology is not appropriate from viewpoint of sustainability because of high cost and difficult operation and maintenance. Although LGUs have adequate disposal site, the disposal site can become full easily without waste reduction. Therefore, waste reduction at source level is required.

To implement and continue appropriate solid waste management, the following should be considered:

- appropriate solid waste management system,
- sustainable operation of solid waste management,
- promotion of public participation in solid waste management, and
- promotion of recycling and source recovery.

Solid waste management consists of the following:

- collection and haulage,
- intermediate treatment, and
- final disposal.

The existing system and proposed system is shown in Table 1.

**Table 1 Existing Solid Waste Management System and Proposed System**

| Sub-System | Existing Conditions | Proposed System |
|---|---|---|
| Collection and Haulage | • door to door collection<br>• dump track is dominant collection vehicle | • establishment of waste container in high densely populated areas<br>• introduction of compactor car and mini-dump track for urban area<br>• establishment of transfer station |
| Intermediate Treatment | non | • introduction of source separation for recycling<br>• promotion of compost |
| Final Disposal | open dumping | sanitary landfill |

## 4. Premise

### (1) Forecast future waste generation

Future waste generation is roughly estimated without a waste generation survey as follows.

According to City ENRO, generation waste volume is 332,128 $m^3$/year in 1997 from urban area where 87 barangays with 886,019 persons (1995 Census data). It is estimated that 770 ton/day of wastes will be generated in Davao City in 2106 based on the data (Table 2).

**Table 2 Estimate of Waste Generation in Davao City**

Existing Waste Generation
(data: waste volume, population - 1997, City ENRO)

| | | |
|---|---|---|
| Urban Area | | |
| Collected waste | 332,128.40 | m3/year |
| Population in collected are | 886,019 | persons |
| Conversion rate | 0.2 | kg/l |
| Collection ratio | 0.8 | |
| Waste Generation | 342 | g/person/day |
| Rural Area | | |
| Waste generation ratio (based on urban area) | 0.8 | |
| Waste Generation | 274 | g/person/day |
| Total Waste Generation | | |
| Urban Area | 264 | ton/day |
| Rural Area | 64 | ton/day |
| Davao City | 329 | ton/day |

| | | 1995 | 2000 | 2004 | 2010 | 2016 |
|---|---|---|---|---|---|---|
| Waste Generation per Person | | | | | | |
| Urban Area | g/person/day | 329 | 363 | 393 | 443 | 499 |
| Rural Area | g/person/day | 266 | 286 | 304 | 332 | 363 |
| growth rate | Urban area: | 0.02 | Rural area: | 0.015 | | |
| Population | | | | | | |
| Urban Area | persons | 771,844 | 922,500 | 1,046,600 | 1,237,100 | 1,354,000 |
| Rural Area | persons | 234,997 | 238,500 | 221,700 | 169,000 | 167,500 |
| Davao City | persons | 1,006,841 | 1,161,000 | 1,268,300 | 1,406,100 | 1,521,500 |
| Waste Generation | | | | | | |
| Urban Area | ton/day | 254.0 | 335.1 | 411.6 | 547.8 | 675.3 |
| Rural Area | ton/day | 62.5 | 68.3 | 67.4 | 56.2 | 60.9 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

### (2) Targeted collection coverage

According to City ENRO, 70% of wastes generated from urban areas is collected. However, it is assumed that 60% of generated wastes may be collected based on conditions of scattered wastes. It is also supposed that 80% of wastes generation from urban areas is generated from rural areas.

The collection coverage of the Davao City government is necessary to achieve the target collection coverage of 90% in urban areas or 370 ton/day and 60% or 40 ton/day in rural areas in 2004, and 100% or 5,748 ton/day in urban areas and 80% or 45 ton/day in rural areas in 2010 (Table 3).

**Table 3 Targets of Waste Collection Volume and Ratio in Davao City**

| | Present | | Targets | | | |
|---|---|---|---|---|---|---|
| | | | 2004 | | 2010 | |
| | Volume | Ratio | Volume | Ratio | Volume | Ratio |
| The whole city | 158 | 48 % | 410 t/day | 86 % | 593 t/day | 98 % |
| Urban area | 158 | 60 % | 370 t/day | 90 % | 548 t/day | 100 % |
| Rural area | 0 | 0 % | 40 t/day | 60 % | 45 t/day | 80 % |

## 5. Project Description

### 5.1. Collection and Haulage

#### (1) Establishment of waste container in high density populated areas

The Davao City government uses dump-tracks as waste collection vehicles. It is difficult that collection vehicles enter densely populated areas especially squatter areas due to narrow roads and obstruction. Door-to-door collection is not effective. In urban areas of Davao City, there are scattered garbages at vacant land, rivers, creeks and roadsides, thereby deteriorating sanitary and aesthetic conditions. Garbages are scattered also around collection sites on the roadsides until collection because of no facilities. It is indispensable that communities support collection of garbages at no service areas and service areas. Community participatory waste collection is promoted.

Communal containers are set on waste collection stations outside of populated areas (Figure 1). Residents bring wastes to a waste collection station. Collection vehicles collect wastes at waste collection stations. Waste collection stations should be managed by communities. An example of useful waste container is recommended as shown in Figure 2. Size of waste container is based on community size, frequency of collection and location.

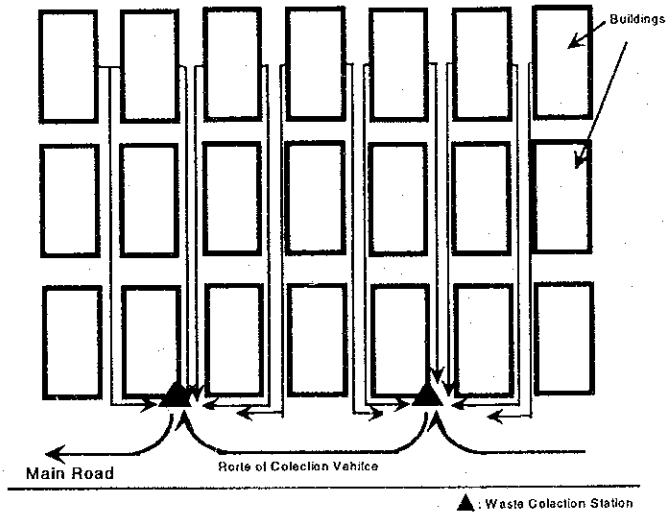



**Figure 1 Waste Collection System in No-Service Area**

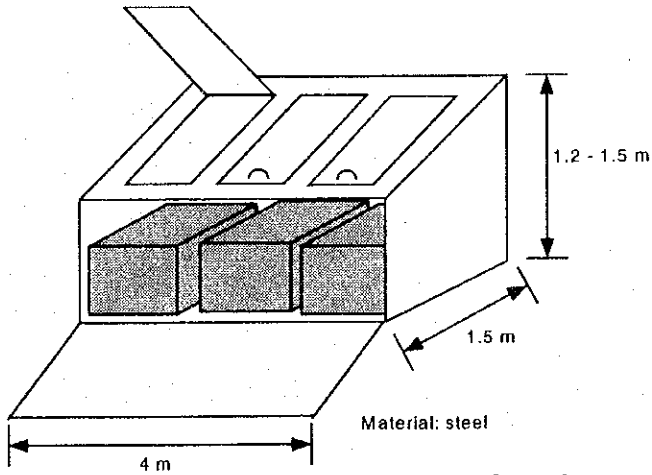



**Figure 2 Sample of Waste Collection Container**

### (2) Introduction of compactor cars for urban areas

A compactor car and mini-dump track (6 $m^3$) are very useful collection vehicles for urban areas. A dump track is used for collection of wastes from markets, condominiums, and rural areas. The following collection vehicles are combined based on collection areas and waste types.

**Table 4 Recommendable Waste Collection Vehicles by Areas**

| | Compactor Car | | Dump Track | |
|---|---|---|---|---|
| | 8 $m^3$ | 15 $m^3$ | 6 $m^3$ | 18 $m^3$ |
| Urban area | √ | | √ | |
| Rural Area | | √ | √ | |
| Market | | √ | | √ |
| Condominium | | √ | | √ |
| Sub-Division | √ | √ | √ | |
| Street Sweeping | | √ | | |
| Large-sized discarded | | √ | | √ |

### (3) Establishment of transfer station

A compactor car and mini dump track are recommended for urban areas. However, the number of trips will increase because of volume of wastes so that a transfer station is proposed. A proposed concept of the transfer station is shown in Figure 3, and platform of transfer station is shown in Figure 4.

Waste segregation can be added as a function of the transfer station(s), if there are not residential and commercial areas around the transfer station. Segregation area requires concrete floor and leachate treatment facilities. A waste picker will be employed from a closed open dumping site from viewpoint of social consideration.

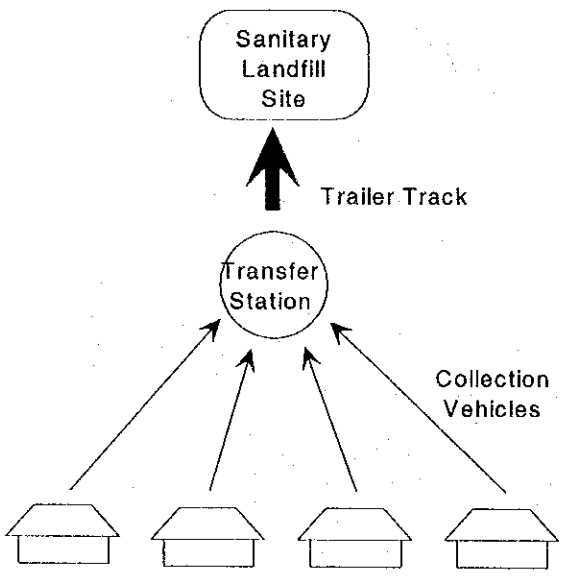



**Figure 3 Concept of Introduction of Transfer Station**

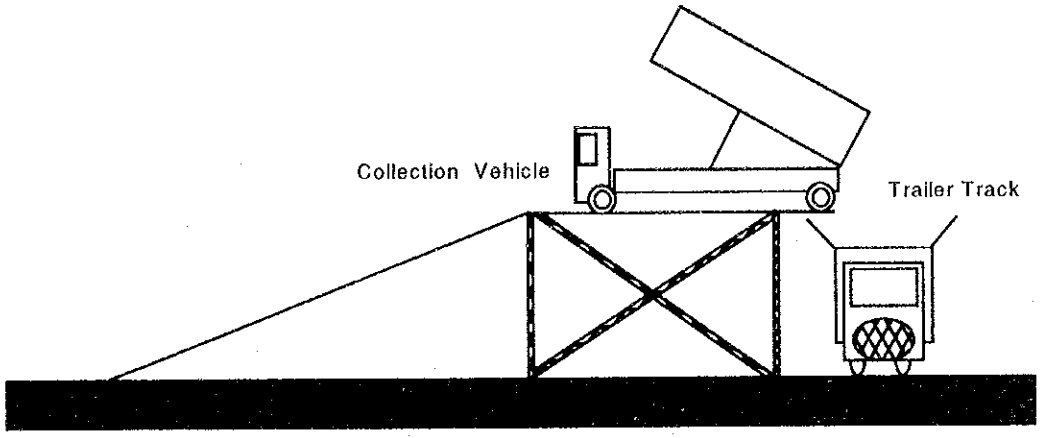



**Figure 4 Proposed Transfer Station**

## 5.2 Intermediate Treatment

### (1) Introduction of source separation for recycling

Recycling is very important activities for solid waste management. Recycling contributes to reduction of wastes, conservation and effective use of natural resources, raising of consumer consciousness of lifestyle, and shifting to sustainable economic growth. Waste segregation is minimum requirement for recycling and at the household level. Un-segragated wastes are garbages, while segregated wastes become resource. Household wastes are segregated into recyclable wastes and un-recyclable wastes. Recyclable wastes include glass bottle, broken glass, news paper, carton box, copy paper, steel cans and aluminum cans, plastic and food waste.

However, this is just half the recycling. In order that the whole process is proclaimed successful, there should be a market for it. Therefore, education and enlightenment should be enhanced to people and business sector for promotion and continuation of recycling.

Food wastes from restaurant can be used for feed for hog raising and compost. It may be recommended that feeding and compost be reproduced from food wastes in the DIDP Area.

Compost of market wastes and livestock industrial wastes should be promoted. Vegetables, fishes and dung can be composted. Organic fertilizer is used widely in the DIDP Area.

## 5.3 Final Disposal

### (1) Type of landfill site

Sanitary landfill is adopted for Davao City. The following facilities are constructed.

- storage facilities (storage of waste for landfilling),
- leachate control facilities,
- stormwater drains,
- leachate collection and discharge facilities,
- leachate treatment facilities, and
- gas control facilities.

## 6. Implementing Schedule

**Table 5 Implementing Schedule**

| Year | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|
| Master Plan Study | | | | | |
| Feasibity Study | | | | | |
| Detail Design | | | | | |
| Environmental Impact Study | | | | | |
| Construction of Disposal Site | | | | | |
| Improvement of collection System | | | | | |
| Construction of Transfer Station | | | | | |
| Others | | | | | |
| Promotion of Community based Collection | | | | | |
| Promotion of Recycling | | | | | |

## 7. Project Cost

**Table 6 Cost Estimate for Solid Waste Management for Davao City**

| Items | No. | Unit Cost | Cost (₱1,000) |
|---|---|---|---|
| M/P | | | 4,000 |
| F/S, D/D | | | 1516 |
| EIA | L.S. | 3500,000 | 3,500 |
| Construction of disposal site | Ha | | 27,320 |
| Construction of transfer station | 1 | | 3,000 |
| Mini dump track (6 cu.m) | 30 | | 30,000 |
| Waste steel container | 50 | 60,000 | 3,000 |
| Recycling center | 20 | 160,000 | 3,200 |
| Total | | | 75,536 |

## 8. Project Assessment

Social environment

Living environment will be improved. However, traffic volume will increase on access roads to disposal site and transfer stations. It is required that residents will be resettled, if there are inhabitants in the site.

Natural environment

It can be foreseen that construction of the landfill will cause the forest to vanish and other terrestrial and aquatic resources to degrade. Cut and fill works will give rise to deterioration of landscape. If the City government mismanages the landfill site, serious environmental impact will result.

## Inter-regional Roads Upgrading Project (IN-1)

### 1. Background

Among the policies in the current Medium Term Plan for the infrastructure sector are the following related more to growth centers and urban infrastructure.

- Strengthen infrastructure support to socially dispersed areas and to growth centers and areas with the highest growth potential; and
- Adopt the integrated area development approach in the planning, programming and implementation of complementary support infrastructure (e.g. roads, irrigation facilities, water supply, etc.) for regional growth centers, tourism areas, and identified poverty areas.

Spatial development of Mindanao has been pursued by two distinct approaches: countryside agri-industrial development and the development of East ASEAN Growth Area. The basic ideas of these approaches are respectively as follows:

- Promoting greater complementary between the urban growth centers and rural areas through processing agricultural products and indigenous raw materials; and
- Strengthening direct trade and economic links with the East ASEAN Growth Area, Brunei Darussalam, Indonesia and Malaysia (BIMP-EAGA including Philippines), and other parts of the world.

There are seven Area Development Zones (ADZs) defined in Mindanao. The ADZs could be further consolidated into the economic growth clusters on the basis of products, marketing, infrastructure and natural resource endowments. The three economic growth clusters are defined as follows:

- North Coast Agri-Industrial Corridor and gateway to the domestic market;
- Southern Mindanao Food Triangle and agri-industrial hub of EAGA; and
- Western Mindanao Marine Center and trading hub of EAGA.

Under the agri-industrialization strategy, 7 Provincial Agri-Industrial Centers (PAICs), designated in the DIDP area, would be engines to accelerate the economic growth through agri-industrialization and BIMP-EAGA cooperation.

The existing urban and spatial system in the DIDP Area may be characterized by 1) High primacy of Davao City with the urban population of 771,844 in 1995 accounting for 57% of the total DIDP urban population, 2) Lack of sizable urban centers other than Davao City nor any urban cluster, 3) Limited access of good conditions from neighboring regions in Mindanao.

These conditions may work as constraints to integrated socioeconomic developments of the DIDP Area and Mindanao.

North Coast Agri-Industrial Corridor area belongs to the Cebu economic sphere and has relatively weak economic relationship with the DIDP Area.The DIDP Area has road connection with no pavement with other regions except CARAGA region through the Pan-Pacific Highway. Even road connection with the region, the highway has been suffered by deteriorated condition.

An efficient arterial road network is an engine for accelerating economic growth, improving the social service delivery and integrating the regions utilizing the rich natural resources. In this context, regional arterial road should be immediately strengthened for the DIDP Area and the Mindanao Island.

## 2. Objectives

The objectives of the project is to integrate the regions and to promote socio-economic growth through widening and upgrading inter-regional roads.

## 3. Project Description

### 3.1. Project Scope

#### (1) Project roads

The project includes widening and/or rehabilitation of primary inter-regional roads connecting major urban centers in the DIDP Area with surrounding regions in Mindanao. A well developed road network will serve efficient movement of people and goods in the Area. Half to one third of road sections are basically paved by concrete with two lanes except Davao City - Tagum - Agusan road. Some parts of roads have been widened to four lanes, especially in urbanized municipal centers. Remaining sections should be widened and rehabilitated.

Specific road sections for the project and its improvements are as follow.

1) Davao City – Tagum – Agusan road: this road is entirely paved with concrete; some sections have been widened from two to four lanes; remaining sections should be widened and rehabilitated. The project is financed by OECF and the central government funding.
2) Davao City – Digos – G. Santos City road: the restoration works are going on as the Philippine Flagship Project financed by IBRD, especially for sections in upland areas; after the project, road widening to four lanes should follow.
3) Davao City – Bukidnon road: the restoration works are on-going under the Philippine Flagship Project financed by IBRD; after the project, road widening to four lanes should follow.
4) Digos – North Cotabato road: this road is entirely paved with concrete; widening to four lanes is to be started. The project is financed by the central government.

#### (2) Scope of works

The project will cover rehabilitation, concrete pavement and widening to four lanes as shown in the attached Table 1. Detailed design and implementation works of the following four roads will be carried out in the Project.

**Table 1 Current Status of the Inter-regional Roads**

| Project | Length (km) | Estimated Project Cost (P million) | Paved Condition (km) | | Implementation Schedule | | | Budget Source |
|---|---|---|---|---|---|---|---|---|
| | | | | | 1998 | 1999 | After 1999 | |
| | | | | | a) length (km) b) amount (₱ million) c) status/progress (%) | | | |
| | | | Paved | Un-paved | | | | |
| 1 Davo City - Tagum – Agusan (Rehab./Conc. Paving of add'l two lanes) | 133.96 | 1,105.36 | 133.96 | - | a) 16.29<br>b) 94.86<br>c)30.00%<br>28.46 | a) 48.00<br>b) 364.5<br>c)Proposed | a) 60.00<br>b) 600.00<br>c)Proposed | OECF/ Local Funding |
| 2 Davo City - Digos- GSC (Rehab./Asphalt Pavement) | 143.35 | 660.04 | 111.90 | 31.45 | a) 33.33<br>b)160.00<br>c)74.31%<br>118.90 | a)<br>b) 94.69<br>c)Proposed | a)<br>b) 291.22<br>c)Proposed | IBRD |
| 3 Davo City - Bukidnon (Rehabilitation) | 80.90 | 604.27 | 34.92 | 45.99 | a) 9.24<br>b) 60.08<br>c)87.98%<br>52.86 | a)<br>b) 36.67<br>c)Proposed | a)<br>b) 475.97<br>c)Proposed | IBRD |
| 4 Digos - North Cotabato (Rehabilitation) | 32.14 | 220.75 | 32.14 | - | a) 1.70<br>b) 6.03<br>c)15.00%<br>0.90 | a) 48.00<br>b) 364.5<br>c)Proposed | a) 25.03<br>b) 188.43<br>c)Proposed | Local Funding |

### 3.2. Implementation Schedule

The remaining sections of the above first three roads was already committed for fiscal year of 1998 by OECF and IBRD. The implementation schedule is envisioned to be proceeding the following phases:

Phase 1 : Davao City - Tagum - Agusan road, Davao City - Digos - GSC and Davao City road - Bukidnon road; and

Phase 2 : Digos - North Cotabato road.

## 4. Project Assessment

### 4.1. Project Cost

Total project cost for the study is estimated to be ₱2,073 million. The breakdown is shown as follows:

| | Total Cost | Cost required After 1999 |
|---|---|---|
| 1) Davao City – Tagum – Agusan road: | ₱1,105.36 million | ₱964.50 million |
| 2) Davao City – Digos – G. Santos City road: | ₱660.04 million | ₱385.91 million |
| 3) Davao City – Bukidnon road: | ₱604.27 million | ₱512.64 million |
| 4) Digos – North Cotabato road: | ₱220.75 million | ₱210.00 million |

Phased project cost is considered as follows:

| | |
|---|---|
| Phase 1: | ₱1,863 million; and |
| Phase 2: | ₱210 million. |

### 4.2. Expected Benefit

The project will generate the following benefits: 1) saving in travel time, 2) reduction of vehicle operation cost, 3) strengthening economic linkages among the regions, and 4) improvement of higher order social service delivery.

## 5. Recommended Action

Other road sections outside of the DIDP Area also shall be continued to be completed for formulation of an efficient arterial road network in the Mindanao Island.

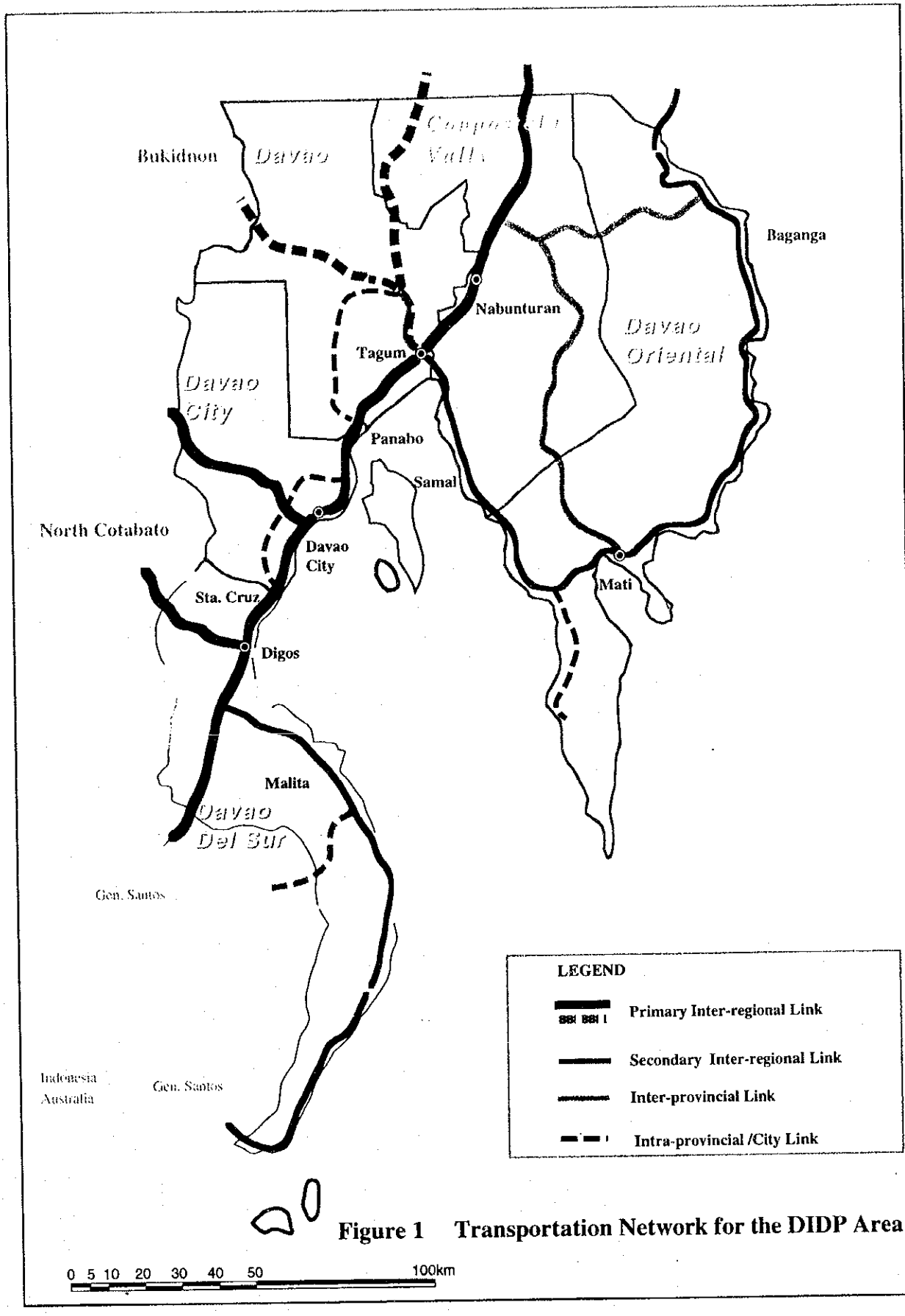



**Figure 1 Transportation Network for the DIDP Area**