- 5. EXISTING SECTOR ARRANGEMENT AND INSTITUTIONAL CAPACITY
- 5.2 Sector Reforms

A. IMPLEMENTATING RULES AND REGULATIONS

IMPLEMENTATING RULES AND REGULATIONS OF NEDA BOARD RESOLUTION NO.4 (SERIES OF 1994), CLAUSE (G)

PREFACE

The following Implementing Rules and Regulations (IRR) of Clause (g) of NEDA Board Resolution No. 4 (series of 1994) was prepared with assistance from the World Bank, upon request of the Philippine Government, through the Department of the Interior and Local Government (DILG). It is an update of the earlier draft prepared in August 1995 and incorporates the developments that have occurred in the sector since that time. The intention is to provide a comprehensive and consistent set of IRR that reflects evolving policies in the sector to address basic service deficits. In particular, it attempts to translate the global sectoral principles of managing water as an economic good and managing services at the most appropriate level, into rules and regulations that can be understood and implemented by the local government units. This IRR reflects the following policies currently being developed by the Government:

- a. Encouraging LWUA lending rates to local water districts to be aligned to market rates;
- b. Providing national government grants for source development of Level I systems in support of a national objective of poverty alleviation;
- c. Developing a national sector plan that will provide the basis for provinces and cities/municipalities to plan and implement water and sanitation investments based on what communities want and are willing to pay for;
- d. Instituting a framework for economic regulation of the water supply and sanitation sector and defining the role of the LGU in this framework; and
- e. Instituting a system of public performance audit of public and private water utilities, so that consumers feedback on service coverage and reliability is available at the national and local levels of Government.

A major development was the creation of the Presidential Task Force on Water Resources Development and Management in October 1996, which has the objective of streamlining the regulatory environment of the sector, that is, linking resource regulation with the economic regulation aspects. A proposed bill prepared by the Task Force has been filed with Congress in July 1997 for the creation of a Water Resources Authority of the Philippines (WRAP) to undertake these regulatory functions, among others. Once this is approved by Congress and passed into law, the IRR may have to be revised to reflect the major institutional changes, particularly with regard to the roles of national government agencies in the sector.

RULE 1 PURPOSE AND OBJECTIVES

Article 1. Title. These rules shall be known as the Implementing Rules and Regulations of clause (g) of NEDA Board Resolution No. 4, (series of 1994).

Article 2. Purpose. The purpose of these rules and regulations is to implement clause (g) of NEDA Board Resolution No. 4, (series of 1994), and is in support of NEDA Board Resolution No. 6, (series of 1996) which defines the executing agency arrangement for devolved infrastructure activities/facilities, including water supply, where national government assistance is provided. Clause (g) of NEDA Board Resolution No. 4 (series of 1994) states that:

"Level I (point source system), Level II (command faucet) and Level III (house connections water supply projects may be implemented by the concerned LGUs within their jurisdiction. LWUA shall implement only financially viable Level III water supply projects in areas outside the MWSS jurisdiction. DILG's participation will consist of general administration and institution building, such as assistance to LGUs in the formation of Rural and/or Barangay Waterworks and Sanitation Associations (RWSAs/BWSAs) as well as in the identification of water supply systems. MWSS will be responsible for Level III water systems in Metro Manila and adjacent areas. DPWH, together with DILG and DOH, will provide technical assistance (within a period of about two years) to LGUs in the planning, implementation, and operation and maintenance of water supply facilities."

Annex C presents NEDA Board Resolution No. 6, (series of 1996).

Article 3. Objectives. The objectives of the Implementing Rules and Regulations are as follows:

a. To definite the role of local government units (LGUs) in the provision of water supply services and the assistance to be made available to them by national government agencies concerned;

- b. To provide guidance to the LGUs in the development and implementation of viable and sustainable water supply projects, to the extent feasible, supporting the principles espoused by the sector of managing water as an economic good, promoting a demand-oriented approach in the provision of services and management to be made at the most appropriate level, and greater private sector participation in service delivery; and
- c. To identify institutional strengthening needs of LGUs to further develop their capacity to adequate perform their agreed functions in the sector.

RULE 2

SCOPE

Article 4. Scope. These Implementing Rules and Regulations shall apply to water supply projects to be implemented and managed by LGUs where national government assistance is provided.

RULE 3 DEFINITION OF TERMS

- Article 5. Definition of Terms. For purpose of these Implementing Rules and Regulations, the following terms shall be construed to mean as follows:
- a. Levels of Service. Based on NEDA Board Resolution No. 12 (series of 1995), approving the common definition of terms relative to water supply, sewerage and on-site sanitation, levels of service are defined as follows:
 - Level I (Point Source) a protected well or a developed spring with an outlet but without a distribution system; generally adaptable for rural areas where the houses are thinly scattered. A Level I facility normally serves an average of 15 households.
 - Level II (Communal Faucet System or Standposts) a system composed of a source, a reservoir, a piped distribution network, and communal faucets. Usually, one faucet serves four to six households. It is generally suited for rural and urban fringe areas where houses are clustered densely to justify a simple piped system.

Level III (Waterworks System or Individual House Connections) — a system with a source, a reservoir, a piped distribution network and household taps. It is generally suited for densely populated urban areas.

b. A financially viable water supply system refers to a system wherein its revenues can cover for all costs related to capital and operation and maintenance, including providing for reasonable reserves for future expansion. For those systems managed by water districts, a financially viable system in one that is able to generate revenues directly from user payments sufficient to cover all costs. For LGU-managed directly systems, capital and operations and maintenance costs shall be recovered through a combination of user fees, general municipal taxes and other incomes available to the LGUs.

RULE 4 ROLE OF LOCAL GOVERNMENT UNITS

Article 6. General. The Local Government Code of 1991 mandates the decentralization and devolution of authority to LGUs in providing for certain basic services, which include safe potable water. At the local level, the LGUs are responsible for providing reliable water supply to their constituents, whether these are in the form of Levels I, II or III systems, depending on the expressed demand by the community for these services. LGUs may both directly provide and finance these services, or involve the private sector to participate in both provision and financing through concession, management or service contracts.

Article 7. Financing and Cost Recovery. In financing water supply investments, the LGUs may tap their Internal Revenue Allotment and/or locally generated revenues, or leverage these resources to borrow from government and private financial institutions. The amount that an LGU can borrow, including the required equity, is dependent on its current and expected revenue performance, as well as the amount of user charges and equity contributions from the community. The amount shall be a local decision of the LGUs concerned.

For any national government grant that may be provided for the development of Level I systems, the LGU and beneficiaries, concerned shall be required to provide any remaining amount as equity to the

The Department of Finance is considering aligning the LWUA lending rates to local water districts toward market rates to allow for a more efficient use of scarce resources, as well as to provide for consistent policy on lending to LGUs by government financial institutions.

investment. No subsidies from the national government shall be provided for Levels II and III systems.²

In providing for Level III service, the LGUs may opt to form a water district or an LGU company, provide a franchise to a private party or participate in a joint venture with a private party. Except in areas with water districts, LGUs shall maintain overall responsibility for ensuring consumer satisfaction through the exercise of institutional and/or contractual regulatory powers over local water utilities³, in collaboration with other national regulatory agencies, and by instituting a system of public performance audit.

Cost recovery through user payments shall be encouraged for both capital and operation and maintenance costs. However, at the minimum, user payments shall be required to cover the operation and maintenance costs in all services levels. For LGU- owned, operated and/or guaranteed systems, any shortfall in revenues required for loan repayment shall be financed by the LGU from its Internal Revenue Allotment and/or locally-generated revenues, following a process of negotiation between the LGU and the beneficiaries concerned on the level of user payments.

For systems managed by local water districts, full cost recovery, through user charges, is required by LWUA.

In areas where there are existing local water districts, LGUs may finance rehabilitation works and/or expansion of the existing waterworks system on the following conditions:

- a. The local water district concerned is not in LWUA's current program of assistance, that is, it is not included in any loan of LWUA with a financing institution, and
- b. Endorsement by the local water district concerned should have been secured.

In the event that the local water district is servicing a loan from LWUA, the local water district shall seek clearance from LWUA prior to entering into an agreement with the LGU concerned on any program of system expansion.

This policy has been approved by the Investment Coordination Committee of the NEDA Board.

As per Presidential Decree No. 198 (Provincial Water Utilities Act), LWUA regulates the technical standards and the tariffs of local water districts, based on its requirement to issue a certificate of conformance on every loan disbursed to the latter. Source regulation is done by the National Water Resources Board. At the moment, there is no recourse by the LGU in case of non-performance by the local water district. This is an issue that needs to be addressed by Government.

Article 8. Management of Systems. LGUs shall adopt commercial principles in the operation and management of water utilities in order to provide cost-effective and reliable services to consumers, whether management of the system is a direct responsibility of the LGU or is contracted out by the KGU to the private sector. An LGU may also consider amalgamating or consolidating its system with that of its neighboring LGUs in order to benefit from economics of scale that could expand water supply services to consumers at the lowest possible cost.

For the operation and management of Level I and II systems, the LGUs shall initiate the formation of Barangay and Rural Waterworks and Sanitation Associations (BWSAs/RWSAs), respectively, through a participatory approach involving consultation with all stakeholders (Article 20) and assist in their registration with the appropriate authorities (Article 21). Upon request, LGUs may accredit duly registered RWSAs/BWSAs in order to enable them to avail of financial assistance form local governments. LGUs shall have a overall supervision of RWSAs and BWSAs.

Article 9. Project Planning and Development. Provinces and cities/municipalities shall be required to prepared, and update on an annual basis, provincial and city/municipal sector plans that are consistent with a national sector plan⁴. These sector plans shall be integrated into the local investment programs. Water supply projects shall be identified from the local investment program, a financing program of foreign and nationally/locally-generated resources, including private sector resources, shall support the local investment program.

Article 10. Approval and Award of Contracts. The LGUs shall be required to conduct public bidding, in accordance with the provisions of Law, including Presidential Decree No. 1594, as amended, Executive Order No.302 and other applicable laws, and shall have the final authority to approve and award contracts for water supply and sanitation projects within their jurisdictions.

Article 11. Application for Water Rights. LGUs or the concerned water utility shall apply for water rights from the National Water Resources Board prior to implementing a project that would require extraction of water.

Article 12. Public Performance Audit. The LGUs shall establish a system of public performance audit for public and private water utilities focusing on critical performance indicators. Upon request of the LGUs, DILG may provide technical assistance for this purpose, in coordination with appropriate national government agencies.⁵

ADB is assisting the preparation of a National Sector Plan for Water Supply, Sewerage and Sanitation for 1999-2004

This system shall be pilot-tested in Metro Manila by the MWSS with World Bank financing.

RULE 5

ROLES OF NAITONAL GOVERNMENT AGENCIES

Article 13. Department of the Interior and Local Government (DILG). The DILG shall have the following responsibilities in the sector:

- a. Raise awareness of LGUs on opportunities relating to the sector, within the framework of relevant government policies, such as financing schemes and available assistance from local and foreign financing institutions, technological breakthroughs, management and institutional arrangements, etc.;
- b. Facilitate transactions between LGUs and communities and lending institutions by preparing water supply investment packages, assisting in the financial, economic and institutional and environmental data collection and analysis, etc., in coordination with appropriate national government agencies;
- c. Build capacity of LGUs and BWSAs/RWSAs in the general areas of planning, implementation, management, monitoring and evaluation, and regulation, upon agreement with the LGUs, and as required by financing institutions, in coordination with national government agencies such as DPWH in the case of the engineering aspects;
- d. Develop and maintain a national data management system of LGU-managed water systems to include data on extent of service coverage, cost recovery, collection efficiency, size of water systems, nature of water resources, among others, in coordination with appropriate national government agencies;
- e. Establish a system for monitoring strategic performance of LGUs in relation to the sector, including compliance with technical standards established by LWUA and DPWH;
- f. Upon agreement with the LGU, provide technical assistance in the establishment of a system of public performance audit, in collaboration with appropriate national government agencies;
- g. Coordinate sector activities of LGUs vis-a-vis other national government documents and issue regular bulletins;

- h. Monitor the implementation of this IRR, including the formulation of monitoring and evaluation parameters and reporting requirements; and
- i. Act as the coordinator for projects funded by the National Government per NEDA Board Resolution No. 6 (series of 1996).

Article 14. Local Water Utilities Administration (LWUA). The LWUA shall have the following responsibilities in the sector:

- a. Act as a specialized lending institution for local water districts:
- b. Provide technical assistance to local water districts in the areas of operation, maintenance, personnel training and fiscal practices;
- c. Upon agreement with the LGU, provide technical and financial assistance in the conduct of engineering studies;
- d. Approve tariffs of local water districts;
- e. Establish and update, as and when necessary, the technical standards for local water utilities, including LGU-managed systems;
- f. Monitor and evaluate the performance of local water districts; and
- g. Registered RWSAs and furnish all registration documents to DILG.

Article 15. Department of Public Works and Highways (DPWH). The DPWH shall have the following responsibilities in the sector:

- a. Set and/or update, as and when necessary, technical standards for engineering surveys, design, construction and operation and maintenance of Level I systems;
- b. Upon agreement with the LGUs, assist in the conduct of engineering surveys and in the preparation of plans, specifications and programs of work, through its District Offices;
- c. Upon agreement with the LGUs, assist in construction management, through its District Offices; and

d. Conduct technical researches in coordination with the LGUs.

Article 16. Department of Health (DOH). The DOH shall have the following responsibilities in the sector:

- a. Set and/or update, as and when necessary, standards on water quality testing, treatment and surveillance, and sanitary practices;
- b. Provide technical assistance to the LGUs in the conduct of periodic water quality control and surveillance-related activities; and
- c. Monitor and evaluate, on a regular basis, health and hygiene education programs implemented by local health offices, particularly in areas where waterworks systems are expected to be constructed.

Article 17. National Water Resources Board (NWRB). The NWRB shall have the following responsibilities in the sector:

- a. Regulate the use of water resources through the issuance of water rights;
- b. Regulate tariffs of privately-run water system; and
- c. Establish and manage a user-friendly water resources data management system.

Article 18. Metropolitan Waterworks and Sewerage System (MWSS). The MWSS shall be responsible for water systems in Metro Manila and its adjacent areas.

RULE 6

RURAL/BARANGAY WATERWORKS AND SANITATION ASSOCIATIONS

Article 19. General Provision. A Rural/Barangay Waterworks and Sanitation Association shall be formed to manage public water systems and sanitation facilities: RWSAs for Level II systems and BWSAs for Level I systems. RWSAs/BWSAs shall initiate/assist in site identification, planning, implementation and evaluation of water supply projects as well as guide the construction and/or maintenance of household and community latrines (toilets).

Article 20. Organization of RWSAs/BWSAs. RWSAs and BWSAs shall be organized upon initiation of the LGU. A participatory approach shall be adopted in the formation of RWSAs/BWSAs with the LGU concerne3d taking the lead and non-government organizations (NGOs) providing technical assistance, as necessary. Prior to the formation of RWSAs/BWSAs, dialogues shall be conducted with and among all stakeholders such as women's groups, civic and religious organization, health practitioners, NGOs and other people's organizations.

Article 21. Registration Requirements. RWSAs/BWSAs shall register with DILG. BWSAs shall be encouraged to associate with other BWSAs or the RWSAs prior to registration. DILG shall keep a record of all registration documents.

Article 22. Powers. Every duly registered RWSAs/BWSA shall be autonomous and shall have the power and capacity to:

- a. Award and enter into a contract(s) with private contractors for the delivery of necessary services or the supply of materials, in the course of managing a public water and sanitation facility, subject to existing laws, rules and regulations;
- b. Oversee the implementation of project undertaken by private contractors;
- c. Own and mange the operation of th4e water facility in a sustainable manner, including providing for adequate reserves for maintenance and repair, setting appropriate levels of user fees, and implementing billing and collection schemes;
- d. Handle the activities required of any lawful business transaction entered into by the Association;
- e. Enter into agreement with other RWSAs/BWSAs for any merger or consolidation as may be proven advantageous to their operations;
- f. Convene meetings of water users for the purpose of information dissemination, consultation, public hearing on water rates and other activities deemed important;
- g. Initiate improvements in operations found to be advantageous and favorable to the communities concerned;
- h. Decide on matters found to be advantageous and favorable to the communities concerned; and

i. Prepare an annual report on its operations.

Article 23. Capability Building of RWSAs/BWSAs. RWSAs and BWSAs may request assistance for capability building form LGUs and/or DILG, DPWH and other concerned agencies, through the LGUs.

RULE 7

PROJECT DEVELOPMENT AND IMPLEMENTATION

Article 24. Sector Planning. Planning and development of water supply investment shall be made within the framework of national policies, and shall implement specific targets in the provincial and city/municipal sector plans. These plans shall define the strategies, policies and approaches in sector development at different levels of government. A National Sector Plan for Water Supply, Sewerage and Sanitation shall be prepared, and updated, on a regular basis, by the National Economic and Development Authority (NEDA), in coordination with the concerned oversight water agencies, and shall provide the national policy framework. At the provincial level, the LGUs, through their respective Provincial Planning and Development Offices, shall prepare, and update, on an annual basis, the Provincial Water Supply, Sewerage and Sanitation Sector Plans. At the city/municipal level, a similar sector plan shall be prepared and updated, on an annual basis, by the LGUs, through their City/Municipal Planning and Development Offices. The respective Local Councils shall approve the provincial and city/municipal sector plans.

Article 25. Project Identification. On the basis of the provincial and city/municipal sector plans, water supply investments shall be identified and developed into a local investment program that includes an appropriate financing plan. The Local Council concerned shall approve the local investment program. The proposed investments shall then be developed according to a demand-driven approach that would allow beneficiaries to select from among cost-effective technical options and from among financing options. The LGUs may avail of technical assistance from the DILG in the preparation of these project packages (Rule 5).

Water supply investment shall be developed tot he principles of managing water services at the most appropriate level and providing services based on what local consumers want and are willing to pay for. This means that LGU systems shall be constructed on the basis of choosing among technical options that are affordable through the financial resources made available by users, communities and LGUs. The process of determining demand for a particular service delivery shall be concluded through a negotiated agreement between the LGU, water utility and the users, on how the costs will be shared at the town, barangay and household levels.

Article 26. Technical Aspects. Technically feasible options shall be developed, particularly for a Level II service level. These options may include varying levels of operation (in terms of operating hours), which may have substantial implications on capital and operating and maintenance costs. In addition, the operation and management (O&M) cost of a technical option is strongly influenced by the management mode chosen by an LGU, economies of scale factors and the size of the service area. Thus, for any Level III service, at least two technical options shall be explored; those of an inter-LGU service delivery organization involving amalgamation of service areas and of singled LGU management systems. The former option shall be explored and developed further only upon agreement with the LGU concerned.

In the conduct of the engineering work (i.e., feasibility studies and detailed design), the LGUs may tap the services of the private sector, using their internal resources or may request the DILG, DPWH and/or LWUA for financial and/or technical assistance.

Article 27. Financing and Management Options. A range of options is available to the LGUs on financing and management of Level III systems. They include, but are not limited to, the following options:

Options 1: The LGU may finance the system from its internal resources or may borrow from a financial institution. It may then create a profit center within the LGU office with a separate cost accounting system. Under this arrangement, the LGU may directly manage the system or may enter into a management contract with a private party or a service contract with a private party to handle billing and collection and/or repair and maintenance. In these types of management arrangements, the LGU retains the responsibility for providing the service and assumes the commercial risks. Institutions such as neighboring water districts, cooperatives and other private institutions may be tapped by the LGU for these types of contracts.

Option 2: The LGU may enter into a lease contract with private party to operate and manage the system. Under this arrangement, the LGU finances the capital expenditures from its internal resources or from borrowings. The LGU then leases the facility to a private party, which assumes the commercial risks and the responsibility for operation and maintenance. the private of the LGU, any other charges contributing to the repayment of a loan which the LGU may have taken on behalf of the users.

Option 3: The LGU may enter into concession contract with a private party. Under this arrangement, the private party assumes the operations and management of the assets of the LGU, and

undertakes to expand and finance the services according to the terms and conditions of the contract. The private party is then allowed to operate the system, and recover its costs and earn a reasonable return on its investment from user fees. The private party also assumes the commercial risk. After the concession contract expires, the system reverts to the LGU, or may be contracted out again by the LGU.

Option 4: The LGU may create a local water district, in accordance with Presidential Decree No. 198, as amended.

Option 5: The LGU may form a water company to handle the provision of the service.

The LGU appoints the Board of Directors to be tapped from the private sector who would manage the company along commercial principles.

Options 6: The LGU may enter into contract with a private party under the Build-Operate-Transfer scheme or any of its variants, per Republic Act No. 6970, as amended, for the whole water system or a component of it (i.e., source development or distribution).

Option 7: The LGU may enter into a **joint venture agreement** with a private party in providing the service. Under this arrangement, both parties share in the risks of the project, as well as operate the water supply system through a shared management and organization structure.

In the contracts of LGUs with private parties, performance standards shall be stipulated including remedies for non-performance that are consistent with national regulatory laws.

The DILG, in its role of raising awareness of LGUs on opportunities in the sector, shall be responsible for informing the LGUs of these schemes, and in facilitating the implementation of the preferred option. Annex D provides a matrix of these various schemes.

RULE 8 COORDINATION AND COLLABORATION MECHANISMS

Article 28. Inter-LGU Collaboration. Provinces, cities, municipalities and barangays may assist, coordinate and collaborate with each other, as far as practicable, in the effort of improving the delivery of services to the Filipino people. The DILG shall take the lead in coordinating among the LGUs.

Article 29. Coordination Between Local and National Governments. LGUs may avail of the technical, financial and institutional expertise of national agencies like LWUA, DPWH, DILG, NWRB, DOH and DENR. DILG, as appropriate, shall coordinate with other national agencies on behalf of the LGUs.

RULE 9

TRANSITION ARRANGEMENTS

Article 30. Ongoing Projects. The DPWH, DOH and DILG shall continue to implement ongoing foreign-assisted Level I projects until the completion of such projects.

Article 31. Pipeline Projects. Projects in the pipeline shall conform to the provisions of this IRR to the extent possible.

RULE 10

MISCELLANEOUS PROVISIONS

Article 32. Applicability Clause. The application of this IRR shall be without prejudice to existing and future laws, rules, regulations, and/or international agreements entered into by the Philippine Government.

Article 33. Effectivity of the IRR. These Implementing Rules and Regulations shall take effect upon its approval by the NEDA Board, on recommendation by the Infrastructure Committee. It shall then be published in at least two national newspapers of general circulation.

NEDA Board Resolution No. 5 (series of 1998)

APPROVING THE IRR ONTHE DELINEATION OF RESPONSIBILITIES IN THE DEVELOPMENT AND IMPLENTATION OF WATER SUPPLY PROJECTS

On motion duly seconded,

BE IT RESOLVED, as it is hereby resolved, to approve as it is hereby approved, the Implementing Rules and Regulations (IRR) on the Delineation of Responsibilities in the Development and Implementation of Water Supply Projects.

UNANIMOUSLY APPROVED, 17 March 1998.



APPROVING THE RECOMMENDATION OF THE INFRASTRUCTURE COMMITTEE (INFRACOM) ON THE REFORMS IN THE WATER SUPPLY SECTOR

On motion duly seconded,

BE ITS RESOLVED, as it is hereby resolved, to approve and confirm, as the same is hereby approved and confirmed the following recommendations of the INFRACOM:

- a. Registration with the National Water Resources board (NWRB) of all drilling and the extraction o9f water therefrom, irrespective of the use of extracted water and ownership of the land where the well is to be drilled. Amendment to Article 6 of the Water Code (PD No. 1067) shall be initiate by NWRB to this effect. Subsequently, NWRB shall formulate rules and regulations for the effective enforcement of this requirements within sixty (60) days after approval of the proposed amendment.
- b. Strengthening of the NWRB staff in order to effectively cope with the planning, monitoring and implementation activities of the water resources sector. NWRB shall submit an action plan to this effect to INFRACOM for review and endorsement to the President of the NEDA Board.
- c. Reorientation of the Local Water Utilities Administration (LWUA) to its original corporate mission as a "specialized lending institution" financing only viable water supply projects with tariff levels formulated towards full cost recovery. LWUA shall therefore upgrade its banking and finance expertise and immediately complete its financial restructuring. Further, it should radically improve its collection efficiency as well as its database and accounting systems.
- d. Privatization of all existing Water Districts (WDs) should be vigorously pursued whenever feasible and large commercially viable water services areas like Metro Manila, Cebu, Zamboanga, Davao should be formed or converted into SEC-style private water corporations, independent of LWUA and other government funding institutions by subject to regulation by NWRB.

- e. Procurement needs of WDs should bed provided based on a competitive basis and not centrally imposed.
- f. LWUA shall submit an action plan to INFRACOM to effect the recommended reforms for review and endorsement.
- g. With respect to the delineation of responsibilities in the sector, NEDA Board Resolution No. 5 (series of 1998) is proposed to be amended to allow local government units (LGUs) to implement all levels of water supply projects consistent with government's decentralization and devolution process, mandating LWUA to implement only financially viable projects and further defining the roles of the agencies in the sector. The proposed amendment is as follows:

"Level I (point source system), Level II (communal faucet) and Level III (house connections?) water supply projects may be implemented by the concerned LGUs within their jurisdiction. LWUA shall implement only financially viable Level III water supply projects in areas outside the MWSS jurisdiction. DILG's participation will consist of general administration and institution building, such as assistance to the LGUs in the formation of Rural and/or Barangay Waterworks and Sanitation Associations (RWSAs/BWSAs) as well as in the identification of water supply systems. MWSS will be responsible for Level II water systems in Metro Manila and adjacent areas. DPWH, together with DILG and DOH, will provide technical assistance (within a period of about 2 years) to LGUs in the planning, implementation and operation and maintenance of water supply facilities".

UNANIMOUSLY APPROVED, 15 March 1994.

NEDA Board Resolution No. 6 (series of 1996)

APPROVING THE RECOMMENDATIONS OF THE INFRASTRUCTURE COMMITTEE (INFRACOM) ON THE EXECUTING AGENCY ARRANGEMENT FOR THE DEVOLVED INFRASTRUCTURE ACTIVITIES/FACILITIES

On motion duly seconded,

BE IT RESOLVED as it is hereby resolved, to approve and confirm as the same is hereby approved and confirmed, the following recommendations of INFRACOM on national government (NG) assistance to Local Government Units (LGUs) in the implementation of devolved infrastructure activities/facilities under the Local Government Code in support of national priority programs in order to ensure efficiency, effectivity and more focused implementation consistent with the Government's decentralization and devolution objectives:

- a. DILG, which has administrative supervision over LGUs, shall be the lead national government agency (NGA) to oversee/administer NG assistance to LGUs in the implementation of devolved infrastructure programs/projects with the collaboration/participation of other concerned agencies. The identification and formulation of infrastructure programs/projects devolved to LGUs proposed for NG assistance shall therefore be coordinated with DILG to rationalize their development;
- b. The implementation of identified devolved infrastructure programs/projects shall be undertaken by the LGUs with DILG providing assistance in institution, capacity and capability building of the LGUs and with DPWH and other technical agencies providing and transferring technical expertise to the LGUs as necessary. The levels of capacities and capabilities of LGUs shall be determined by the DILG in coordination and collaboration with DPWH and other concerned agencies to determine, among others, the extent of support and assistance that these national agencies should provide in order to effect the successful implementation of devolved NG-assisted infrastructure programs/projects:
- c. DILG, as the lead agency, shall include in its annual budget the financial requirements necessary for the implementation of the identified and approved devolved infrastructure programs/projects. This shall be without prejudice to any future funds arrangement that the national government may

adopt with regard to NG assistance to LGUs for devolved projects particularly funds source from foreign loans and grants;

- d. For on-going and already committed devolved infrastructure programs/projects with NG assistance, the same shall be implemented with the previously identified NGA as lead in order not to disrupt is prosecution. However, there shall be phasing in at DILG and LGUs in the implementation arrangements for these devolved infrastructure projects in accordance with the provisions of this Resolution for purposes of policy and operational consistency and thus, effect a smooth transition;
- e. To efficiency and effectively implement the provisions of this Resolution, the INFRACOM shall formulate and periodically review the guidelines, rules and regulations that will already define the specific roles of the various concerned agencies in the implementation of NG assistance to LGUs for devolved infrastructure activities/utilities as well as the appropriate implementing mechanisms. In addition, INFRACOM shall likewise formulate the criteria and program for phasing out NG assistance to LGUs for devolved infrastructure activities/facilities;
- f. To carry out its tasks, the INFRACOM may request for financial and technical assistance form participating government agencies as well as from multilateral and bilateral sources; and
- g. The provisions of this Resolution shall apply to all NG assistance for devolved infrastructure activities/utilities unless otherwise explicitly provided for under the existing and future laws, such as the General Appropriations Act (GAA).

UNANIMOUSLY APPROVED, 12 March 1996.

MATRIX OF FINANCING AND MANAGEMENT OPTIONS

Option	
LGU-Financed and Managed	

Description

The LGU finances the investment from its income and other resources available to it (e.g., URA, locally-generated taxes, grants) or borrows from a financial institution. It then establishes a profit center within the LGU office with a separate cost accounting system. Under this arrangement, the LGU directly manages the operations of the system. The LGU assumes the commercial risk.

The LGU finances the investment and directly operates and manages the system. It enters into contract with a private party to undertake billing and collection and/or repair and maintenance activities for a fee. The LGU maintains a profit center within the LGU office and assumes the commercial risk.

The LGU finances the investment and enters into contract with a private party to manage the system. The private party collects the water tariffs set by the LGU, operates and manages the system and in turn, is paid a management fee by the LGU. The LGU maintains a profit center within the LGU office and assumes the commercial risk.

The LGU finances the capital expenditures and leases the facility to the private sector. The private sector assumes the commercial risks and the responsibility for operation and maintenance. To recover its costs, the private party is allowed to collect user fees as well as any other charges on behalf of the LGU.

The LGU enters into contract with a private party to undertake the investment. The private party assumes the assets of the LGU and undertakes to expand the services according to the terms and conditions of the contract. The private party is allowed to operate the system and to collect user fees to recover its costs and earn a reasonable return on its investment. After the contract expires, the system reverts to the LGU or may be contracted out again by the LGU.

The LGU may create a local water district. The local water district finances the investment from a loan from the Local Water Utilities Administration (LWUA) and operates and manages the system. The local water district is then supervised by LWUA.

The LGU may form a water company to handle the provision of the service. The water company shall be duly

Service Contract

Management Contract

Lease Contract

Concession Contract

Creation of a Local Water District

LGU Company

registered with the Securities and Exchange Commission (SEC) and shall have share holdings which can be sold to the private sector in the future. The LGU appoints the board members to be selected from the private sector who would then manage the company along commercial principles.

Build-Operate-Transfer or any of its variants (per RA 6970 as amended)

Under the BOT scheme, the private sector finances the investment, operates it for a certain period of time after which the asset is transferred to the LGU. The private party is allowed to collect user fees to recover its costs and earn a reasonable rate of return on its investment. The LGU and the BOT proponent negotiate on the risk sharing.

Joint Venture Agreement

Under a joint venture agreement, the LGU and the private party share in the risks of the project and operate the system through a shared management and organizational structure.

NEDA BORD RESOLUTION No. 5 (s. 1994)

NEDA BOARD RESOLUTION No. 5 (s. 1994)

APPROVING THE RECOMMENDATION OF THE INFRASTRUCTURE COMMITTEE (INFRACOM) ON THE NATIONAL POLICY, STRATEGY AND ACTION PLAN FOR URBAN SEWERAGE (LIQUID WASTE) AND SANITATION

On motion duly seconded,

BE IT RESOLVED, as it hereby resolved to approve as the same is hereby approved and confirmed the following recommendations of the INFRACOM:

A. NATIONAL POLICY

- Provision of improved sewerage/sanitation services in urban areas shall be considered a high priority.
- 2. On-site sanitation facilities for all urban households/establishments readily adaptable to further sewerage systems shall be required.
- All new subdivisions/housing developments shall provide simplified or conventional sewerage system/sanitation facilities.
- Conventional or low-cost sewerage for central business districts and for potentially highincome residential areas where economically and financially viable shall be provided.
- 5. Treatment of industrial as well as collected city/municipality wastewater to established standards set forth by the DENR prior to disposal into the drainage system shall be required.
- 6. Provision of services shall be based on consumer demand and willingness to pay.

B. NATIONAL STRATEGY

 A sanitation/sewerage program and a Central Sanitation/Sewerage program Support Office (CPSO) to coordinate subsector activities at the national level and to assist LGUs to plan and manage sanitation/sewerage programs at the community level shall be established. External sources of assistance shall be explored provided as may be appropriate to enable Municipal Development Fund (MDF) facility or other financing sources to extend loans to LGUs for sanitation and sewerage projects.

3. LGUs shall primarily be the implementors of the sanitation/sewerage programs with the national government providing assistance to develop their capacities in the following areas: community participation, sub-sector planning, program management, regulation of development, selection of technologies, financial management, construction supervision, O&M, monitoring and reporting.

C. ACTION PLAN

1. A CPSO shall be created and housed at LWUA with the LWUA Board exercising over-all jurisdiction over its operations. An Inter-departmental Advisory Committee (IAC) composed of representatives from DPWH, DOH, DILG, DOF, DBM, LWUA, DENR, MWSS and NEDA shall likewise be created and act as the coordination body in the implementation and monitoring of urban sewerage and sanitation programs particularly the five (5) pilot areas (Davao City, Calamba, Dagupan City, Roxas City and Cotabato City). The representatives to the IAC shall preferably be Asst. Sec. or Dir. level. The Chairman of the IAC and the Dir. of the CPSO shall be appointed by the LWUA Board.

2. LWUA shall fully staff the CPSO from within its existing manpower as soon as possible. An international institutional development consultant shall be engaged to assist the CPSO to design and implement the activities. The CPSO shall exist for a period of about 3 to 5 years or until after its functions have been fully devolved to the LGUs.

UNANIMOUSLY APPROVED, 15 March 1994.

Certified true copy:

FORTUNATO R. ABRENILLA
Acting Board Secretary
and Director, Legal Staff

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7. WATER SOURCE DEVELOPMENT

7.1 GENERAL

Table 7.1.1
Water Source Information

Provinc	ial Water Supply, Sewerage And Sa	nitation Sect	or Plan (PW4SP)		Page: 1 of 1
	: Water Source - General Inform		4203		Date:
		Province No.	ne: Agusan Del Sur		Filename: Water Source xls
	Type of Water Source	TOVINCE IVAL	Shallow Well	Deep Well	Form Number: P.4.1
	Total number of water sources	Number	1,271	328	Spring 266
L	Government Agency	Number	590	286	214
1251	Private Private	Number	681	42	2
	Level 1	Number	1,271	323	182
5	Level II	Number		ì	57
8 1	Level III	Number	. ===	4	27
	Water District	Number	· · · · · · · · · · · · · · · · · · ·		
	MEO/CEO	Number		2	
	RWSA	Number		11	
did	BWSA	Number		15	50
Ownership	Institution	Number			
ð	Commercial Establishment	Number			
	Industrial/Agricultural Undertakin	Number			
	Public (Domestic)	Number	590	271	197
	Private (Domestic)	Number	681	45	
	Submersible/Turbine	Number		2	
tion	Centrifugal	Number		7	
Abstraction	Handpump	Number	1,155	319	
₹	Bucket & Rope	Number	116		
<u> </u>	Free Flowing	Number			266
1	Drinking	Number	1,271	328	266
ي ا	Washing/Bathing	Number	1,271	328	266
Usage	Gardening/Irrigation	Number	1,271	328	266
	Big-Scale Irrigation	Number	·		
	Production	Number			
	No Quality Problem	Number			
. >	High Iron/Mag. Content	Number			
Water Quality	High Chloride Content	Number		 	
Ö 5	Turbidity/Colored/Smell	Number			
₩aţ	Polluted/Contaminated	Number			
	Chlorinated	Number	247	85	
<u></u>	Treated	Number			1
	Seasonal Production	Number			
tion	Average Capacity < 100 m ³ /day	Number	1,271	34	176
Production	Average Capacity >= 100 m ² /day	Number		4	25
Ę	Number of Household < 5	Number			
	Number of Household >= 5	Number	10,405	4,490	9,942

	ial Water Supply, Sewerage And Sani		Plan (PW4SP)				Page: 1 of 1	47.1
	t: Water Source - General Informat	ion	In	1303			Date:	
	Number: XIII		Province No.: Province Name				Filename: Wate	
	Name of Municipalities	Character	Sibagat	. Agosti tato		Bayugan	Form Number:	P.4.1
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	87	2000	47	643	31	46
άů	Government Agency	Number	25			187	28	45
Imple- mentor	Private	Number	62			456	3	
	Level I	Number	87		32	643	31	37
Level	Level II	Number			14	···	i	
.1	Level III	Number	1					2
	Water District	Number					ļ 	
	MEO/CEO	Number						
	RWSA	Number					i	
ď.	BWSA	Number			14	-1:		9
Оwпетяльр	Institution	Number						-
ð	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number					†···• · · · i	
	Public (Domestic)	Number	25		47	187	28	37
	Private (Domestic)	Number	62			456	3	
	Submersible/Turbine	Number						
e e	Centrifugal	Number				-	1	
Abstraction	Handpump	Number	87			643	31	
Abs	Bucket & Rope	Number						
	Free Flowing	Number			47		[]	46
ı	Orinking	Number	87		47	643	31	46
e.	Washing/Bathing	Number	87		47	643	31	46
Usage	Gardening/Imigation	Number	87		47	643	31	46
_	Big-Scale freigation	Number						
	Production	Number	<u> </u>					
ł	No Quality Problem	Number						
>-	High Iron/Manganese Content	Number			! !			
Nater Quality	High Chloride Content	Number		ļ	İ	.		
Q I	Turbidity/Colored/Smell	Number			ļ			
Wat	Polluted Contaminated	Number						
	Chlorinated	Number		i	<u> </u>			
L	Treated	Number	<u> </u>		<u> </u>		<u> </u>	
	Seasonal Production	Number						
ion	Average Capacity < 100 m ³ /day	Number			47		<u> </u>	- ,
Production	Average Capacity >= 100 m ³ /day	Number			<u> </u>			
Ę	Number of Household < 5	Number			L			
1	Number of Household >= 5	Number	1,022		1,053	3,261	423	915

	icial Water Supply, Sewerage And Si		ctor Plan (PW4	ISP)			Page: 1 of 1	
	nt: Water Source - General Informat Collection Level: Provincial	ion	· · ·	1252			Date:	
	n Number: XIII		Province No :	1303 e: Agusan Del :	· · · · · · · · · · · · · · · · · · ·		filename: Wat	
	Name of Municipalities	Character	Prosperidad	c. Agusaa DCI .) iii. Tarayan makaba	Rosario	Form Number:	17.9.1
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	21	5	26	10	11	13
ų ģ	Government Agency	Number	21	5	26	4	13	13
mentor	Private	Number				6	: i	
	Level I	Number	21	5	22	10	11	9
Level	Level II	Number						2
1	Level III	Number			4			2
	Water District	Number			1	-	1	
	MEO/CEO	Number			1	-		1
	RWSA	Number					! i	
ģ	BWSA	Number	• • • • • • • • • • • • • • • • • •		1			2
Ownership	Institution	Number						
δ	Commercial Establishment	Number						
	Industrial/Agricultural Undertakin	Number						
	Public (Domestic)	Number	21	5	22	4	11	10
	Private (Domestic)	Number				6		
	Submersible/Turbine	Number						
tion	Centrifugal	Number						
Abstraction	Handpemp	Number	21	5		10	11	
₹	Bucket & Rope	Number			· 			
	Free Flowing	Number			22			13
	Drinking	Number	21	5	26	10	11	- 13
g,	Washing/Bathing	Number	21	5	26	10	1.1	13
Usage	Gardening/Irrigation	Number	21		26	10	11	13
	Big-Scale Irrigation	Number						
	Preduction	Number						
	No Quality Problem	Number		.				
<u>.</u>	High Iron/Manganese Content	Number	<u></u>					
riler Til	High Chloride Content	Number					i	
Water Quality	Turbidity/Colored/Smell	Number	<u> </u>		<u>.</u>			
Wat	Polluted Contaminated	Number		į				
	Chlorinated	Number	.]		<u> </u>	10	1)	
	Treated	Number					ļ	
	Seasonal Production	Number		ļ 1	l		ļ	i
9	Average Capacity < 100 m³/day	Number		<u> </u>	23		ļ	9
Production	Average Capacity >= 100 m ³ /day	Number	.l		3		· •	4
ā.	Number of Household < 5	Number	.		<u></u>		, . .	<u>.</u>
	Number of Household >= 5	Number	476	75	3,613	150	165	810



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Data C	nt: Water Source - General Inform collection Level: Provincial		Province No.:	1303			Date: Filoname: Wa	ter Source.x
Region	n Number: XIII		Province Name	e: Agusan Del	Sur		Form Number	
ŀ	Name of Municipalities	Character				Esperanza		
	Type of Water Source Total number of water sources	Number	Shallow Well		Spring	Shallow Well	Deep Well	Spring
, a		Number Number	8	15 15	19	132	48	5
P 8	Government Agency				IS	101	41	5
- E	Private	Number			4	31	7	;
[c]	Level 1	Number	8	15	11	132	46	: • • • • • • • • • •
[,cve]	Level	Number			⁷			
	Level III	Number			1	<u></u>	2	·
	Water District	Number			<u> </u>			;
	MEO/CEO	Number					1	
	RWSA	Number			7		1	
did	BWSA	Number		İ			4	5
Ownership	Institution	Number			l]
Ó	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	8	15	11	101	40	
•	Private (Domestic)	Number				31	7	
	Submersible/Turbine	Number			ļ		1	
E	Centrifugal	Number			<u> </u>		1	
ract	Handpunip	Number	8	15		132	46	
Abstraction	Bucket & Rope	Number			<u> </u>			
1	Free Flowing	Number			19		 	
ļ	Drinking	Number	8	15	19	132	48	5
	Washing/Bathing	Number	8	15	19	132	48	
Usage	Gardening/Irrigation	Number	8	15	19	132	48	5
ž	Big-Scale Irrigation	Number		·	i			5
	Production	Number	·	 	·}·	-		
	No Quality Problem	Number	 	 	 		 	
1	High Iron/Manganese Content	Number		·			·	
Ξ̈́	High Chloride Content	Number	-	 	 			*
Water Quality		Number	-	· 			. į	- j
ا زد	Turbidity/Colored/Smell	Number						1
⋛	Polluted/Contaminated	Number	.	ļ				1
	Chlorinated			-	19			
!	Treated	Number	4	-	-		 	<u> </u>
ے	Seasonal Production	Number		.			ļ	.l
Production	Average Capacity < 100 m ³ /day	Number	.		-		2	5_
ğ	Average Capacity >= 100 m ² /day	Number	-	·	. }			
<u>~</u>	Number of Household < 5	Number					ļ	
R	Number of Household >= 5	Number	120	225	j 545	1,552	772	255

	al Water Supply, Sewerage And		Sector Plan (P	w45P)			Page: 1 of 1	
	Water Source - General Inform Hection Level: Provincial	ia (ION	Province No.:	1303			Date: Filename: Wa	ter Covers el-
	Number: XIII		Province Name		Sur		Form Number	
C BIOIL	Name of Municipalities	Character	San Francisco	c. Agasan Dei	041	Sta. Josefa	promitation	. 1 . 7 . 1
	Type of Water Source	Number	Shallow Well	Deep Well	Spring		Deep Well	Spring
	Fotal number of water sources	Number	32	43	29	18	14	4
ა გ	Government Agency	Number	31	19	28	18	14	4
Imple- mentor	Private	Number	18	24	1			
	Levell	Number	32	43	12	18	13	
Level	Level II	Number				-	j ;	
A :	Level (II	Number	·		17	-	1	
	Water District	Number			1	T		
	MFO/CEO	Number			3	• • • • • • • • •	1	
	RWSA	Number	l			1		
d. G	BWSA	Number				-		
Ownership	Institution	Number	T	i				
ó	Commercial Establishment	Number						
	IndústriaVAgricultural Underta	Number			L			
	Public (Domestic)	Number	32	19	12	18	13	4
	Private (Domestic)	Number		24				
	Submersible/Turbine	Number		 	.		1	
tion	Centrifugal	Number						
Abstraction	Handpump	Number	32	43		18	13	
Ϋ́	Bucket & Rope	Number	.]					
	Free Flowing	Number			28		<u> </u>	
	Drinking	Number	32	43	28	18	14	4
9,	Washing/Bathing	Number	32	43	28	18	14	4
Usage	Gardening/Irrigation	Number	32	43	28	18	14	4
-	Big-Scale Irrigation	Number		ļ	ļ ·			
Ĺ	Production	Number			ļ	_	1	
	No Quality Problem	Number		<u> </u>		_		
>	High Iron/Manganese Content	Number				_		
ualit	High Chloride Content	Number						
ter Quality	Turbidity/Colored/Smell	Number			. <u> </u>			
W.utc	Polluted/Contaminated	Number			ļ			i
	Chlorinated	Number			l			
	Treated	Number			1			<u> </u>
	Seasonal Production	Number						
Lion	Average Capacity < 100 m ³ /da				25		! !	<u> </u>
Production	Average Capacity >= 100 m ³ /c				4			
7.	Number of Household < 5	Number						ļ <u></u> .
H	Number of Household >= 5	Number	г 482	312	3,395	277	195	75



rovinc	ial Water Supply, Sewerage And Sa	nitation Sec	ctor Plan (PW4	SP)	· · · · · · · · · · · · · · · · · · ·		Page: 1 of 1	
	t: Water Source - General Informati	on	<u> </u>				Date:	
	ollection Level: Provincial Number: XIII		Province No.:		-		Filename: Wat	
C gioit	Name of Municipalities	Character	Province Nam Talacogon	e: Agusan De	(Sur	-	Form Number	: P.4.1
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Trento Shallow Well	Deep Well	C
	Total number of water sources	Number	20	24	12	159	41	Spring 8
ပ် ပြ	Government Agency	Number	20	24	12	43	39	
Imple- mentor	Private	Number				116	2	
	Level I	Number	20	23	7	159	40	
Level	Level II	Number		1	5		i	
Ü	Level III	Number					1	<u>.</u>
	Water District	Number			<u></u>		 	
	MEO/CEO	Number			·			
	RWSA	Number		2	5			
ğ	BWSA	Number						
Ownership	Institution	Number		, -	i			
ó	Commercial Establishment	Number					:	
	Industrial/Agricultural Undertakin	Number		·			·	
	Public (Domestic)	Number	20	23	7	43	39	8
	Private (Domestic)	Number		, -		116	2	
	Submersible/Turbine	Number		l				·
Ş	Centrifugal	Number					6	
Abstraction	Handpump	Number	20	23			35	
\$ \$	Bucket & Rope	Number						
	Free Flowing	Number			: 12			8
	Drinking	Number	20	24	12	159	41	8
ည့	Washing/Bathing	Number	20	24	12	159	41	8
Usage	Gardening/Irrigation	Number	20	24	12	159	41	8
	Big-Scale Irrigation	Number						
	Production	Number					1	
	No Quality Problem	Number		-				<u> </u>
	High Iron/Manganese Content	Number						
filer	High Chloride Content	Number			1		1	
Water Quality	Turbidity/Colored/Smell	Number						
₩a	Polluted/Contaminated	Number						
	Chlorinated	Number	20	24	1		1	•
	Treated	Number				1]	
	Seasonal Production	Number	,					
tion	Average Capacity < 100 m ³ /day	Number	1	2	12			8
Production	Average Capacity >= 100 m ³ /day	Number			1			
P	Number of Household < 5	Number		[
	Number of Household >= 5	Number	300	395	175	762	572	130

	cial Water Supply, Sewerage And S		Sector Plan (PV	V4SP)			Page: 1 of 1	
	nt: Water Source - General Information Collection Level: Provincial			1301			Date:	
Region	Number: XIII		Province No.: Province Nam		l Suz		Filename: Wa	
	Name of Municipalities	Character		C. Agusan DC	J OUI	La Paz	Form Number	. 1.4.1
	Type of Water Source	Number	Shallow Well	Deen Well	Spring		Deep Well	Spring
	Total number of water sources		15	12	19	21	19	4
	Government Agency	Number	15	12	19	14	13	4
EE	Private	Number				7	6	
	Level I	Number	15	12	10	21	19	4
Level	Level II	Number			9			
	Level III	Number						
	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number				ļ	j ;	
shìp	BWSA	Number		t	10		2	
Ownership	Institution	Number						
ð	Commercial Establishment	Number						
	Industrial/Agricultural Undertakin	Number				İ	ļ	
	Public (Domestic)	Number	15	11	10	14	11	4
	Private (Domestic)	Number				7	6	
	Submersible/Turbine	Number						
Ş	Centrifugal	Number						
Abstraction	Handpump	Number	15	12			19	
₹	Bucket & Rope	Number					i	
	Free Flowing	Number			19			4
	Drinking	Number	15	12	19	21	19	4
U	Washing/Bathing	Number	15	12	19	21	19	4
Csage	Gardening/Irrigation	Number	15	12	19	21	19	4
	Big-Scale Irrigation	Number	L				<u> </u>	
	Production	Number	<u></u>					
i	No Quality Problem	Number			<u> </u>			
	High Iron/Manganese Content	Number			<u> </u>			
Ailer	High Coloride Content	Number					Í	
Water Qu	Turbidity/Colored/Smell	Number						
₩at	Polluted/Contaminated	Number	<u> </u>					
	Chlorinated	Number		1	İ			
ļ	Treated	Number						
	Seasonal Production	Number			l	_		
tion	Average Capacity < 100 m³/day	Number			13			4
Production	Average Capacity >= 100 m ³ /day	Number		<u> </u>	6			
å	Number of Household < 5	Number				_		
	Number of Household >= 5	Number	225	180	321	217	201	60

Casta	cial Water Supply, Sewerage And S	anitation S	ector Plan (PW	/4SP)			Page: 1 of 1	
Conter	at: Water Source - General Information Level: Provincial	ion	IS				Date:	
Region	Number: XIII		Province No.:	1303 nc: Agusan Del			Filoname: Wat	
	Name of Municipalities	Character	Loreto	ic. Agusan Det	Sur	10 .	Form Number:	P.4.1
	Type of Water Source	Number	Shallow Wel	Deep Well	Spring	San Luis Shallow Well	Deep Well	Spring
	Total number of water sources		34	31	12	71	34	opring 22
Imple- mentor	Government Agency	Number	34	31	9	69	34	22
\$ 8	Private	Number		1	3	2		
	Level I	Number	34	31	8	71	34	
Level	Level II	Number		T	4		- '	19
Bred	Level III	Number	···	j }	-		· ···	
	Water District	Number	ļ	†··			i	
	MEO CEO	Number			·· - · ·			
	RWSA	Number					i	
ë.	BWSA	Number		· · · · · · · · · · · · · · · · · · ·	4		8 ,	
Ownership	Institution	Number			**			4
ð	Commercial Establishment	Number						
	Industrial/Agricultural Undertakin	Number						
	Public (Domestic)	Number	34	31	9	69	26	
	Private (Domestic)	Number		·	3	2		18
	Submersible/furbine	Number				 		
Ë	Centrifugal	Number						
Abstraction	Handpump	Number	34	31		71	32	
₹	Bucket & Rope	Number						
	Free Flowing	Number					2	22
	Drinking	Number	34	31	12	71	34	22
e,	Washing/Bathing	Number	34	31	12	71	34	22
Usage	Gardening/Irrigation	Number	34	31	12	71	34	22
	Big-Scale Imigation	Number						771
	Production	Number				· · · · · · · · · · · · · · · · · · ·		
	No Quality Problem	Number						
ъ.	High Iron/Manganese Content	Number					·	
) je	High Chloride Content	Number					ļ i	
Water Quality	Turbidity/Colored/Smell	Number					·i	
¥aş	Polluted Confaminated	Number				·	·	
	Chlorinated	Number				71	34	
	Treated	Number				· · · · · · · · · · · · · · · · · · ·		—··+-··-
	Seasonal Production	Number				T		
tion	Average Capacity < 100 m ³ /day	Number				71	34	22
Production	Average Capacity >= 100 m ³ /day	Number				· · · · · · · · · · · · · · · · · · ·		·
4	Number of Household < 5	Number					· · · · · · · · · · · · · · · · · · ·	
	Number of Household >= 5	Number	524	465	270	1,037	510	325

7 - 8

Table 7.3.1 Major References

Š	REPORT/INFORMATION	AGENCY/AUTHOR	CONTENTS	REFERENCE DATA/DESCRIPTION	OUTPUT
<u>]-</u>	Topographic Map (1:250,000)	NAMRIA	topographic contours, natural	highest peak, major river basins	nver networks, base maps,
		-	waterways, road, etc.		nver basins of province
2	Rapid Assessment of Water	NWRB	groundwater availability, well	well description, specific capacity,	grounwater potential
i	Supply Sources		data and inventory	static water levels, well depths	area map
٠,٠	Individual Well Information	NWRB	well location, well information	well depths, water levels, well	individual well location
;	Database			location	map
4	ater Resources	NWRB	groundwater availability area,	resistivity survey results, potential	potential area for high
:			salt water intrusion,	area for high yielding wells, salt	yielding wells, salt water
			resistivity results	water intrusion	intrusion areas
ν	Geological Map of the	BMGS	lithologic distribution and	geologic formations of the province	provincial geologic maps
	Philippines		structural features of the		
		3	A ming position	A prosessing and a party and	niver discharges in the
હ	Philippine Water Resources	NWKB	SITCAIN 110W and 14KC and	ייוס א וקור זיווסים ווייסים ווייסים אינויסים	
	Summary Data		niver stage	drainage areas of major nivers of	province
				the province	
~	Road Network Map of the	DPWH-DEO, PEO,	municipal boundaries	municipal boundaries, location of	base maps, municipal
<u> </u>	province	PPDO		barangays	boundaries
~	Feasibility Study of Surigao	SMWD/LWUA	recommended water sources	well data information, water level	groundwater potential
<u>.</u>	Metro Water District(SWWD)		for MSWD		атеа тар
٥	Water Quality Analysis Result	QMMS	water quality results	water quality	water quality map
<u> </u>	1	SWWD	extent of mercury pollution	environmental pollution caused by	water quality report
	5	Surigao City 1996	of Sungao River and its	small scale gold mining in the area	of Surigao City
	surface waters and nearshore		environment		
	environment of Sungao City				
=	Individual Well Inventory	DPWH-DEO,	well location, well information	well depths, water levels	individual well location map
2	sult	Agusan del None	water quality results	water quality evaluation	water quality map
<u></u>		DPWH-DEO,	well location, well information	well depth, water levels	individual well location map
4		Agusan del Sur	location of springs, discharge	spring data analysis	spring inventory report

continue next page

Table 7.3.1 Major References (Cont.'d)

No.	REPORT/INFORMATION AGENCY/AUTHOR	AGENCY/AUTHOR	CONTENTS	REFERENCE DATA/DESCRIPTION	OUTPUT
<u>۸</u>	Individual Well inventory	DPWH-DEO,	well location, well information well depths. Water levels	well depths. Water levels	individual well location map
Ġ.	Spring Inventory	Davao del Sur	location of springs, discharge	spring discharge, location	spring inventory report
.	Well Log Records		geologic information	geologic formations of the province	groundwater potential
ŵ	Water Quality Analysis Result		water quality results	water quality	water quality map
٥.	Well Drilling Log Records	DPWH-DEO,	geologic information	geologic formations of the province	groundwater potential
Ö	Individual Well Inventory	Davao Oriental	well location, well information	well location; well depths	individual well location map
:	Pumping Test Data		pumping test results	pumping test data	potential area for high yielding
~	Water Quality Analysis Result		water quality results	water-quality	water quality maps
ω,	Assessment of the Domestic	NEDA Regional Office	NEDA Regional Office general information of	surface water, groundwater resources,	surface water source,
	Water Supply and Sanitation	November 1997	water resources	water quality and quantity	groundwater source.
	Facilities in Southern Mindanao				water quality reports
	Vol. III Water and Sanitation,				-
	Davao Oriental				

concluded page

Table 7.3.2 Well Inventory by Municipality

MUNICIPAL	LOCATION	WELL NO.	3147		(mbes)	(sdl)	(E)	(m/sdn)		
		(mbgs)		(1111)),a					
						000				
		RPW76212		18.29	0.92	ck.u				
Bayugan	Paiducco	0203 (7)		21.34	3.66	0.50	2.38	0.2.0		
Bayugan	Bayugan	Dr.W10370		15.85	0.92	0.19				
Bayugan	Вауидап	BPW26231	7 27 7 7	20.02	457	0.63	0.61	1.030		
Beyondan	Bayugan Central E/S	BPW37607	08/13/76	10.11		0.44				
Day us	Bourgan School Site Bocac	BPW37616	11/27/76	30.48		5 6	10.1	ONEO		
Hayugan	Dayugali Selicot cite, come	313CEWGB		59.76	1.83	0.44				
Bayugan	Bocaue Bayugan E/S	STATE OF THE PARTY		14.63	4.57	0.63				
Bayugan	Old Bayugan	Brw20134	20000	95 VC	3.66	96.0		0.620		
	Poblacion Market Site	BPW 3760	02/10/70	05.70	39.5	96.0	1.55	0.620		
	Poblacion Market Site	BPW37606		24.37	200	EY 0				
Bernices	West Bayugan Elementary School	BPW37612		16.77	2.03	130	01.5			
Dayagar		BPW37615	12/15/76	11.59	2.05	10.0			-	
Dunawan	V	BPW10172		85.37	16.77	0.70				
Bunawan	Mamoann	50915Waa		24.39						
Bunawan	Mambalili	Brw31003		27.13	4.57	4.0	2.53	0.150		
Bunawan	Market Site	BPW37602		27.031	2 74	0.63	0.91	0.690		
	National Agricultural School	BPW-7004		77.0/	11.13	178		0.620		
	National Amenitural School	BPW10171		45.12	10.77	200				
Dullawali	VIII TELEVISIONE	4PW7005		19.21	5.18	1.20				
Bunawan	National files serious	מטעב ווופים		31.49	3.66	0.69		0.80		
Bunawan	Poblacion	Dr.w-1002		89 67	4.87	0.63	3.50			
Bunawan	Poblacion	BPW-7003		12 37	27.6	0.44				
Fancranza	Andanan	NWS26033	04/13/60	100	100	0 32				1
Fsperanza	Bayanakon, Mabutay	BPW73935		10.37	27.17	0.50		0.200		
Ton from 170	Ваморап	BP169760	05/18/57	21.54	2.00					
Laprim was	0	NW816972	08/0257	20.42	3.65	44.0			-	
Esperanza	Dayogan	BPW26234		14.02	0.92	0.63				
Esperanza	Benianon	77.77.11da	73/57/20	32,01	2.74	0.37	0.90	0.410	- - 	
Esperanza	Dakutan	Dr W 14377		20 12	4.57	; ;				
Esperanza	Duang-an	Brw20233	2010011	27.75	6.40	4,0		0.480		
Esperanza	Gundalupe	NWS16975	1 1/08/27	18.79	60.9	0.63	1.54	1 0.410		
Esperanza	Mahayahay	NWS26031	00/60/70	00.01	12.20	0.44	19.0	0.780	i	
		7/69 Nau	01/16/58	18.27	12.20					

MUNICIPAL	LOCATION	WELL NO.	DATE	n (a)	(mbgs)	(lps)	(E)	(m/sdi)	
		(mogs)	22101100	12 20	1 83	0.32	1.52	2 0.210	
Buenavista	Rizal, Crossing Cogon	BPW14168	08/18/20	14.20	3	500			
Buenavista	Sacol	BPW14169	12/0085	10.97	1.21	70.0			
D. serration	Sacol	BPW-9095	03/12/56	60.97	3.04	1.20			
Ducilavista	Name Cabulacan	BPW14171	11/10/56	11.58	2.13	0.63	1.85	5 0.340	
Guchavista	Sacor Cacamana High Cohoo!	9201WPB	07/07/56	89.79		3.15			
Butuan City	Agusan Agneullulai 111gii Sellooi	611767740		47 68	0.92	0.16			
Buruan City	Agusan Agneultural School	Dr. W 2011?	10,000,00	21.12	6 10	1.33			
Butuan City	Agusan High School	BFW-9472	CC/07/01	41.15	5 6	36,	00.4	0 300	
Buthan City	Agusan Pequeno	BPW-9077		96.09	7.32	07.1			
Rutuan City	Alviola	W# 1	11/01/78	91.00	1.59	50.78		\ \ \ \	
District City	וייסון	W#2		134.00				1	
Durinan Cary	Cu vota	NWC19877	04/12/59	27.43	1.52	0.31			
Butuan City	Ambago	2007001111	09/21/90	59 55	60.9	0.31	1.55	0.200	
Butuan City	Amparo Elementary School	CC0075 & N	00/13/00		100	0.31			
Buman City	Ampayon	BPW-5111	09/25/49	49.78	0.71	100			
Burtish Orly	Ampayon	NWS25932	08/31/59	48.78	3.05	0.63			
Bunian City	Amnayon Health Center	BPW21842		63,42	2,44				
Putnam City	Ampayon Km. 5	NWS20162	04/18/58	63.41					
During Oth	Ampayon Km 8	BPW26214		56.40	3.05				
Buttan City		BPW-8466	07/22/55	62.49	5.80	1.26			
Duman City	American Colypoion	BPW26224		36.59	2.13				
Buman City	Milipayon, Salvacion	PPW-8471	01/12/56	53.96	0.30	0.50			
Butuan City	Antongaton	VIII WOODE	10/04/59	19 61	16.0	0.63	1.85	5 0,340	
Butuan City	Antongalon	NW323933	100001	30 90	02. 3	29.0	2.1.	0.180	
Butuan City	Aupagan	BPW-2641		33.96	3.77	0.30			
Butuan City	Aupagan	BPW10784	08/11/26	6.10	1.77	0.30			
Butuan City	Baan	BPW-4709		76.83		ą.v.			
Buhian City	Baan Km. 34]	BPW-8467	07/31/55	73.17	Flowing				
(i) in (ii)		NWS20168	01/15/59	74.69	1.83	3.79			
Column Cary	Door Piverside	BPW16979	: ;	84.15	Fr. Flow				
Sutum City	December 19. Personal	NWC2K121	03/15/61	88.41	0.61	0.94			
	Daan, Summyin	171070 W. 1	05/63/20	54 87	2.13	1.58			
Butuan City	Babag	N W SZUZU	20,000	23 66	2 44				
Butuan City	Bacling	BPW26116		-	1	25.0			
	Bading	BPW-5109		_	Fr. Flow	0.70			
	Bancasi	BPW25912		65.55	4.57				
	Denoted	RPW26113		75.00	1.83	1.89			

	Km. 1.13 1.12 1.12 n	(mbgs) BPW-2632 BPW10407 NWS19874 BPW19875 BPW21771 NWS26013 BPW-2661 BPW-2661 BPW-2661 BPW-2661 BPW-2661 BPW-2661 BPW-2661 BPW-2661 BPW-2661 BPW-2661 BPW-2661 BPW-2661 BPW-2661	02/22/56 08/25/58 09/29/58	(m) 82.32	(mbgs) 1.52 3.04	(ips) 0.57	(m)	(m/sqr)		
	Km. 1.13 1.12 1.12 n	BPW-2632 BPW10407 NWS19874 BPW19875 BPW21771 NWS26013 BPW-2661 BPW-2661 BPW-5737 BPW-6750 NWS20206 BPW15201	02/22/56 08/25/58 09/29/58	82.32	3.04	0.57				
	Km. 1.13 1.12 1.12 0.0	BPW10407 NWS19874 BPW19875 BPW21771 NWS26013 BPW-2661 BPW-2661 BPW-5737 BPW-6750 NWS20206 BPW15201 BPW15201	02/22/56 08/25/58 09/29/58		3.04					
	Km. 1.13 1.12 1.12	NWS19874 BPW19875 BPW21771 NWS26013 BPW-2661 BPW-2661 BPW-5737 BPW-6750 NWS20206 BPW1520516 NWS20516	08/25/58	42.69		2.52	4.94			
	n n	BPW19875 BPW21771 NWS26013 BPW-2638 BPW-2661 BPW-5737 BPW-6750 NWS20206 BPW26225 BPW15201	09/29/58	60.97	-2.13	0.44				
	r. 12 r. 12 n	BPW21771 NWS26013 BPW-2638 BPW-2638 BPW-5737 BPW-6750 NWS20206 BPW26225 BPW15261 NWS20516		89.63	0.61	0.19				
	n n	NWS26013 BPW-2638 BPW-2661 BPW-5737 BPW-6750 NWS20206 BPW26225 BPW15261 NWS20516		14.63	1.22					ļ
	С	BPW-2638 BPW-2661 BPW-5737 BPW-6750 NWS20206 BPW26225 BPW15261 NWS20516	03/22/60	64.02	4.57	2.83				÷
		BPW-2661 BPW-5737 BPW-6750 NWS20206 BPW26225 BPW15261 NWS20516 BPW76721	1.	64.02	3.05					
		BPW-5737 BPW-6750 NWS20206 BPW26225 BPW15261 NWS20516 BPW75731		189.02	2.13		1.88	0.170		
		BPW-6750 NWS20206 BPW26225 BPW15261 NWS20516		58.23	0.61	0.32				1
		NWS20206 BPW26225 BPW15261 NWS20516	07/14/55	85.38	0.91					*
		BPW26225:: BPW15261 NWS20516	05/02/20	64.02	-1.22	9.47				
		BPW15261 NWS20516		75.00	4.27	0.63	:			
		NWS20516	04/27/57	36.58	-6.10	5.05	-			
		1009CMda	09/24/58	48.78	1.53	0.31	1.55	0.200		
				16.46	1.52					
		ונאני עומם						ļ		
		1/07 W JG		56.40	3.05	3.78				
		CC07-W-7G	03.3.	20 60	190	69.0	1 53	0.410	-	
		BPW16977	03/15/58	53.04	10.0	000	100			
		NWS16978	08/28/58	50.34	0.00	0.65	16.0	0,090,0		
		BPW20202		97.56	0.61					
		BPW26310	03/18/60	12.50	4.57	0.63	0.30			
		NWS26011	09/15/59	60.97		0.50	1.21			_f= 3.50
Harban City Pinamanculan		NWS-2591		102.74	19.81	0.25	5.00	0.050	-	7.0
	lant	BPW-2662			92	1.89				
		BPW-5101	09/15/49	76.21	1.83	3.16			_	
		BPW19873	,	2.74	1.52				_	
		NWS21841	06/20/61	94.51	16.0	0.57	1			
1		BPW26115	02/01/20	73.19	2.13	2.21				
		NWS26113		74.99	-1.83	2.84				
		BPW-8474		79.26	5.49	1.26				
		BPW-5102		83.84		5.04				
	ta Camp	BPW26263	::	19.82	1.83	26.0		•		
		BPW-5088		76.83		96.0	0.29	089'1		

San Vicente EPW-6749 0524/55 (m) (mbgs) (m) San Vicente BPW-6749 0524/55 15.85 0.30 0.50 1.32 Siad-blean BPW-6749 0524/55 1.67 1.32 0.30 1.32 Siad-blean BPW-5622 1.126/49 3.65 6.71 0.50 1.22 Similiton BPW-56212 1.126/49 3.74 -0.50 0.50 Sumiliton BPW-56212 1.126/49 3.74 0.50 0.50 Sumiliton BPW-56212 1.126/49 3.74 0.50 0.50 Tagabaca NWS26112 0.50,50 1.22 0.50 0.50 Tagabaca NWS26012 0.50,20 1.26 1.52 0.50 0.50 Taligaman NWS26012 0.50,20 1.13 0.50 0.50 0.50 0.50 Taligaman Shool Site BPW-36217 0.50,20 0.50 0.50 0.50 0.50 Taligaman Shool S	MINICIPAL	LOCATION	WELL NO.	DATE	DEPTH	SWL	DISCHARGE	DRAWDOWN		USAGE REMARKS
y San Vicente BPW-5749 052445 1585 0.30 0.50 1.52 y Skar Vicente BPW-5084 052445 1587 0.32 1.52 y Skid Juagao BPW-20222 11.2649 36.59 6.71 0.50 1.52 y Skid Juagao BPW-5142- 11.2649 37.49 -1.22 0.50 0.51 y Skid Juagao BPW-5142- 11.2649 37.49 -1.22 0.50 0.61 y Sumilhon BPW-5142- 11.2649 37.49 -1.22 0.50 0.61 y Tagabaca NWZSG12 0572561 76.24 1.52 1.26 0.51 y Taligaman NWZSG12 0572055 11.1460 3.15 1.05 0.51 1.47 y Taligaman NWZSG12 11.02649 3.15 0.30 0.63 1.53 y Taligaman NWZSG12 11.03/58 3.15 0.30 0.63 1.43 y Taligaman School Site BPW-3572 11.112460 3.15			(sgqm)		(m)	(mbgs)	L		() C)	
y Sian/vicence BPW-5058 44.21 3.05 1.26 1.52 y Siad-buan BPW-525.1 1.067 1.52 0.32 1.52 0.32 y Stad-buan BPW-525.1 1.126.49 37.49 1.12 0.50 1.52 0.50 y Samilileon BPW-521.2 1.126.49 37.49 1.22 0.50 0.50 y Tagebac BPW-521.2 0.50 1.22 0.50 0.61 1.47 y Tagebac NW2261.2 0.50 1.45 1.22 0.50 0.61 1.47 y Tagebac NW22501.3 1.1/14/0 33.59 4.57 0.50 0.61 1.47 y Tagebac NW22501.3 1.1/14/0 33.59 4.57 0.50 0.61 1.47 y Taligeman NW22501.3 1.1/14/0 33.54 4.57 0.50 0.61 1.47 y Taligeman NW22501.3 1.1/14/0 3.13 0.10 1.13 1.47 y Taligeman NW22501.3 1.1/	Butnan City	San Vicente	BPW-6749	05/24/55	15.85	0.30	05.0	1.52		
y Siladbuan BPW26216 10.67 1.22 0.32 y Skid Tungao BPW26222 11.0649 36.99 6.71 0.50 y Skid Tungao BPW45422 11.0649 37.49 -1.22 0.50 y Surmilhon School Site BPW45422 11.0649 37.49 -1.22 0.50 y Tagathar NW526012 11.14460 37.49 4.57 0.50 0.61 y Tagathar NW526024 11/14460 37.59 4.57 0.50 0.61 y Taligaman NW526021 11/14460 37.59 4.57 0.50 0.61 y Taligaman NW752501 11/1579 4.27 0.50 0.63 1.47 y Taligaman NW752501 11/1579 4.27 0.50 0.63 1.53 y Tunampi BPW25217 0.50/1055 4.27 0.23 1.53 0.63 y Tunampi BPW352517 11/15759 <td>Butuan City</td> <td>San Vicente</td> <td>BPW-9098</td> <td></td> <td>44.21</td> <td>3.05</td> <td>1.26</td> <td>7</td> <td></td> <td></td>	Butuan City	San Vicente	BPW-9098		44.21	3.05	1.26	7		
y Skid Tungao BPW26222 11/26/49 36.59 6.71 0.50 y Sumilhon: BPW26142 11/26/49 37.49 -1.22 0.50 y Sumilhon: BPW26112 0.512/5/61 1.52 0.50 0.61 y Tagabar: NWS26024 11/16/60 3.55 4.57 0.50 0.61 y Tagabar: NWS26024 11/16/60 3.55 4.57 0.50 0.61 y Tagabar: NWS26034 11/16/60 3.55 4.57 0.50 0.61 y Taligaran NWS26034 11/16/60 3.55 0.50 0.53 1.53 y Taligaran NWS26013 11/16/59 2.13 0.53 0.63 1.53 y Tunampi BPW26217 0.60/10/59 2.13 0.53 0.63 0.63 0.53 y Tunampi BPW26217 0.60/10/59 3.14 0.23 0.63 0.53 0.63 0.63 0.63 0.63 0.63 0.63 0.63 0.63 0.63 0.63	Butuan City	Siladbuan	BPW26216		10.67	1.52	0.32			
y Sumilibon. BPW-55142. 11/26/49 37.49 -1.22 0.50 y Sumilibor. BPW-55142. 11/26/49 37.49 -1.22 0.50 y Tachlo St. BPW-36215 11/14/60 33.59 4.57 0.50 0.61 y Tachlo St. NWS26103. 11/14/60 33.59 4.57 0.50 0.61 y Talgathan NWS26103. 11/14/60 33.59 4.57 0.50 0.61 y Taligarnan BPW-36470 09/20/53 11/15/59 4.27 0.50 0.61 y Taligarnan School Site BPW-36470 09/20/55 3.13 0.92 2.13 0.92 2.13 0.92 0.65 0.	Butuan City	Skid Tungao	BPW26222		36.59	6.71				-
y Sumilibor School Site BPW26215 45.73 2.44 0.95 y T. Calo St. NWS26024 10.266 1.26 1.26 0.61 y T. Calo St. NWS26024 10.266 1.26 0.63 0.61 y Talgabar BPW26013 11.0359 3.65 2.13 0.63 1.26 y Talgaman NWS25034 11.0359 3.182 0.30 0.63 1.53 y Talgaman NWS25033 11.0359 21.34 0.92 1.26 y Talgaman NWS25033 11.0359 2.13 0.50 0.63 1.53 y Tunamph BPW26217 0.92 42.10 2.13 0.63 1.47 y Tunamph BPW36233 11/15/59 42.10 2.13 0.63 1.53 y Tunamph BPW36231 0.92 4.27 0.52 1.47 y Tunamph BPW36221 0.91 4.48	Butuan City	Sumilihon	BPW-5142	11/26/49	37.49	-1.22	0.50			
y T. Calo St. NWZ26112 05/25/61 76.24 1.25 1.26 0.61 y Tagabaca BWWZ26024 11/14/60 33.59 4.57 0.50 0.61 y Tagabaca BWWZ26024 11/14/60 33.59 4.57 0.50 0.61 y Taligaman NWZ25013 11/03/59 51.82 0.50 0.63 1.53 y Taligaman NWZ25013 11/03/59 51.82 0.50 0.63 1.53 y Tumampi BPWZ26217 0.60/13 42.10 2.13 0.63 1.53 y Tumampi BPWZ26217 0.60/155 45.11 1.91 1.50 y Tumampi BPWZ26217 0.60/155 3.54 0.75 1.50 y Uboc-ubod BPWZ26217 0.90/155 44.51 9.15 1.90 y Uboc-ubod BPWZ26217 0.90/155 45.7 0.52 0.63 Across A.I.S BPWZ26217	Butuan City	Sumilibon School Site	BPW26215		45.73	2.44	0.95			
y Tagabaca NWS26024 11/14/60 33.55 4.57 0.50 0.61 y Tagabaca BPW-3470 09/20/53 11/24 0.30 0.53 1.13 1.47 y Taligaman NWS25913 11/03/59 51.82 0.30 0.65 1.53 y Taligaman NWS25913 11/03/59 51.82 0.30 0.65 1.53 y Tumampi BPW25513 11/15/59 2.13 0.92 0.65 1.53 y Tumampi BPW26217 11/15/59 2.13 0.92 0.65 1.53 y Tumampi BPW26217 11/15/59 2.13 0.92 0.65 1.53 y Tumampi BPW26217 0.90/15/5 4.451 9.15 1.90 1.53 y Tumampi BPW26217 0.90/15/5 4.451 9.15 1.90 1.53 A. Lura Across A.I.S. BPW15262 0.60/15/7 4.451 9.15 1.53 </td <td>Butuan City</td> <td>T. Calo St.</td> <td>NWS26112</td> <td>05/25/61</td> <td>76.24</td> <td>1.52</td> <td>1.26</td> <td></td> <td></td> <td></td>	Butuan City	T. Calo St.	NWS26112	05/25/61	76.24	1.52	1.26			
y Taggitho: BPW-5470: 09/20/53 10.98 3.05 2.13 1.47 y Taligaman NWS25913 11/03/59 42.67 0.63 1.53 0 y Taligaman NWS25913 11/03/59 42.67 0.63 1.53 0 y Taligaman School Site BPW25291 11/05/59 42.10 2.13 5.04 0	Butuan City	Tacabaca	NWS26024	11/14/60	33.59	4.57	0.50	19.0		
y Taligaman NWS25913 11/03/59 42.67 1.26 1.53 y Taligaman NWS25913 11/03/59 51.82 0.30 0.63 1.53 y Taligaman BPW25313 11/03/59 2.13 5.04 1.53 y Tumampi BPW25317 11/15/59 42.10 2.13 5.04 y Tumampi BPW26217 60.98 2.44 0.76 7.6 y Ubod-ubod BPW36217 09/01/55 35.86 Flowing 0.63 0.63 A. Luna BPW4500 DPW36217 09/01/57 3.58 Flowing 0.63 0.63 A. Luna BPW4500 OP/01/57 3.56 Flowing 0.63 0.51 A. Luna Bayabadang BPW4505 07/01/57 3.66 0.51 0.53 Bayabadang BPW4505 11/23/56 2.20 0.92 0.63 0.61 Bayabad Bpybad BPW4880 05/15/75 0.67	Puman City	Taguibo	BPW-8470	09/20/55	10.98	3.05	2.13	1.47		
y Taligaman NWZS5913 11/03/59 51.82 0.50 0.63 1.53 y Taligaman School Site BPWZ6313 11/15/59 21.34 0.92 5.04 y Tumampi BPWZ6313 11/15/59 42.10 2.13 5.04 y Tumampi BPWZ6217 11/15/59 42.10 2.13 5.04 y Tumampi BPWZ6217 0.91/15/55 44.51 9.15 1.90 y Unmampi BPWZ6217 0.92/15/55 44.51 9.15 1.90 A. Luna Across A.I.S. BPWZ6217 0.97/15/57 44.51 9.15 1.90 A. Luna Across A.I.S. BPWI5262 0.60/15/75 44.51 9.15 1.90 A. Luna Across A.I.S. BPWI5262 0.60/15/75 44.51 9.15 1.90 Balangbelang W# 12762 0.67/15/75 10.36 4.57 0.52 0.51 Bay-ang BPWA505 11/123/56 9.67 2.13	Punian City	Talroaman		08/20/83	42.67		1.26			
y Taligaman School Site BPWZ6313- 11/15/59 21.34 0.92 5.04 y Tumampi. BPWZ6317- 11/15/59 42.10 2.13 5.04 y Tumampi. BPWZ6317- 11/15/59 42.10 2.13 5.04 y Ubod-ubod BPWZ6317- 60.98 60.98 60.98 60.98 60.98 1 Arcuss ALIS BPWZ562 66/01/57 44.57 1.50 60.91 1 Arcuss ALIS BPWZ562 66/01/57 44.57 6.22 6.51 1 Balangealang W# 126.63 07/12/57 10.67 3.66 0.51 1 Balangealang W# 2752 65/15/75 10.67 3.66 0.51 1 Balangealang W# 12263 05/15/75 10.67 3.66 0.51 1.88 1 Bayasas BPWJ0921 11/23/56 9.67 2.13 0.51 1.88 1 Bayasas BPWJ0921 02/2861 <td< td=""><td>Bunian City</td><td>Talicaman</td><td>NWS25913</td><td>11/03/59</td><td>51.82</td><td>0.30</td><td>0.63</td><td>1.53</td><td></td><td></td></td<>	Bunian City	Talicaman	NWS25913	11/03/59	51.82	0.30	0.63	1.53		
y Turnamph. BPW25923- 11/15/59 42.10 2.13 5.04 y Turnamph. BPW26217 60.98 2.44 0.76 y Ubod-ubod BPW36217 60.98 2.44 0.75 A. Luna BPW-8469 09/01/55 44.51 9.15 1.90 A. Cuna BPW15262 06/01/57 5.48 4.57 2.52 A. Luna BPW15262 06/01/57 5.48 4.57 2.52 Balangelang W# 15263 06/01/57 5.46 0.51 3.40 Balangelang W# 2752 06/15/75 10.36 4.57 0.52 Bayeng BPW-5909 06/15/75 10.36 0.51 0.51 Bayeng BPW-5909 07/15/75 10.36 0.51 0.51 Bayeng BPW-5909 07/15/75 9.75 0.32 0.63 0.51 Bayeng BPW-4880 07/15/75 0.24 0.32 0.65 0.65 Cabadbaran Ce	Butuan City	School	BPW26313		21.34	0.92				
y Tumampi: BPWZ6Z17 60.98 2.44 0.76 y Ubode-ubod BPW-8469 09/01/55 35.36 Flowing 0.63 0.63 A. Luna BPW-8469 09/01/55 44.51 9.15 1.90 0.63 A. Luna BPW-1262 06/01/57 44.51 9.15 1.90 0.63 A. Luna BPW15262 06/01/57 44.51 9.15 1.50 0.32 A. Luna BPW15262 06/01/57 44.57 9.15 1.50 0.92 Balangbalang W# 15263 07/12/57 10.36 4.57 0.32 0.93 Bayang BPW-5906 07/15/75 10.36 9.67 2.13 0.93 0.91 Bayangs BPW-4880 11.28/66 9.67 2.13 0.32 0.61 Cabinet BPW-4880 0.2228/61 24.70 9.76 0.63 0.61 Cabinet BPW-4880 0.41/457 6.56 9.45 1.70 0.64	Buntan City		BPW25923	11/15/59	42.10	2.13	5.04			
y Ubod-ubod BPW-8469 09/01/55 35.36 Flowing 0.63 1 A. Luna BPW-7008 09/22/55 44.51 9.15 1.90 1 Across A.I.S. BPW-15262 06/01/57 34.87 4.57 2.52 1 Balangbalang W# 12563 07/12/57 10.36 4.57 0.32 1 Balangbalang W# 2752 05/15/75 10.67 3.66 0.51 0.51 1 Balangbalang W# 2752 05/15/75 10.67 3.66 0.51 0.51 1 Bay-ang BPW-5909 07/15/75 10.67 2.13 0.51 1.88 1 Bay-ang BPW-10926 11/23/56 9.76 0.32 0.61 1 Bay-ang BPW-10926 11/23/56 9.76 0.32 0.61 1 Bay-ang BPW-10926 11/23/56 9.76 0.22 0.63 Casasinan BPW-4880 0.278/61 0.32 0.66	Buhan City	Tumamo	BPW26217		86.09	2,44	92.0			
A. Luna BPW-7008 09/22/55 44/51 9.15 1.90 1 Across A.1.S. BPW15262 06/01/57 54.87 4.57 2.52 a Balangbalang W# 15263 07/12/57 10.36 4.57 0.32 a Balangbalang W# 2752 05/15/75 10.67 3.66 0.51 3.40 a Bay-ang BPW-8909 07/12/57 10.67 3.66 0.51 1.88 b Bay-ang BPW-10926 11/23/56 9.67 2.13 0.52 0.61 b Bay-ang BPW-10921 11/23/56 9.67 2.13 0.32 0.61 b Bay-ang BPW-10921 11/23/56 9.67 2.13 0.52 0.61 b Bay-ang BPW-10921 11/23/56 9.67 2.13 0.52 0.61 Bay-ang BPW-10921 11/23/56 9.67 2.13 0.52 0.61 Bay-ang BPW-10921 11/23/56 9.67 2.13 0.52 0.61 Cabach	Butuan City	I Bod-ubod	BPW-8469	09/01/55	35.36	Flowing	0.63		1.030	
1 Across A.I.S. BPW15262 06/01/57 54.87 4.57 2.52 a Balangbalang W# 15263 07/12/57 10.36 4.57 0.32 a Balangbalang W# 2752 05/15/75 10.67 3.66 0.51 3.40 a Bay-ang BPW-5909 11/23/56 9.67 2.13 0.63 0.91 b Bay-ang BPW10926 11/23/56 9.67 2.13 0.32 0.61 b Bay-ang BPW10926 11/23/56 9.67 2.13 0.32 0.61 b Bay-ang BPW10921 11/23/56 9.67 2.13 0.63 0.61 Bay-ang BPW10921 11/23/56 9.67 2.13 0.32 0.61 Bay-ang BPW401022 11/23/56 9.67 2.13 0.63 0.61 Bay-ang BPW401022 11/23/56 9.67 2.13 0.63 0.61 Cabadbaran Central School BPW-4880 0.41/	Cahadharan	A Lima	BPW-7008	09/22/55	44.51	9.15	1.90			
a Balangbalang W# 15263 07/12/57 10.36 4.57 0.32 b Balangbalang W# 2752 05/15/75 10.67 3.66 0.51 3.40 B Balangbalang W# 2752 05/15/75 10.67 3.66 0.51 3.40 B Bay-ang BPW-19926 11/23/56 9.67 2.13 0.32 0.91 Bay-ang BPW 10921 11/23/56 9.67 2.13 0.32 0.61 Bay-ang BPW 10921 11/23/56 9.67 2.13 0.32 0.61 Bay-ang BPW 10921 11/23/56 9.67 2.13 0.53 0.61 Bay-ang BPW 10921 11/23/56 9.67 2.13 0.63 0.61 Bay-ang BPW 4880 11/23/56 9.67 2.13 0.63 0.61 Cabacharan Central School NWS26111 02/28/61 53.65 -3.05 1.70 0.19 Cabinet BPW 4966 04/14/57 67.68 0.91 0.94 1.52	Cahadharan	Across A.1.S.	BPW15262	06/01/57	54.87	4.57	2.52		-	
h Balangbalang W# 2752 05/15/75 10.67 3.66 0.51 3.40 Bay-ang BPW-5909 05/15/75 10.67 3.66 0.51 0.91 0.63 0.91 Bay-ang BPW-5909 11/23/56 9.67 2.13 0.32 0.61 Bayabas BPWI0921 11/23/56 24.70 9.76 0.32 0.61 Gasnian BPW-4880 24.77 0.32 0.63 0.61 Cabadaran Central School BPW-4880 24.27 0.32 0.63 0.61 Cabinet BPW-4866 44.82 0.46 0.22 0.63 0.61 Cabinet BPW15260 04/14/57 67.68 -0.91 0.19 0.19 Calamba BPW-2292 94.51 19.82 0.63 0.15 0.15 Calamba WWS26041 09/15/60 30.48 3.04 0.94 1.52 Calamba BPW15258 12/19/56 54.87 3.05 0.31 3.44	Cabadharan	Balanebalane	W# 15263	07/12/57	10.36	4.57	0.32			
Bay-ang BPW-5909 62.20 0.92 0.63 0.91 I Bay-ang BPW10926 11/23/56 9.67 2.13 0.32 1.88 Bay-bang BPW10921 11/23/56 24.70 9.76 0.32 0.61 Bay-bang BPW40921 24.70 9.76 0.53 0.63 Cassman BPW4880 54.27 0.32 0.63 0.65 Cabadbaran Central School NWSZ6111 02/28/61 53.65 -3.05 1.70 0.06 Cabinet BPW4956 04/14/57 67.68 -0.91 0.19 0.19 Calamba NWS20164 09/08/58 49.08 23.78 0.63 3.15 Calamba NWS26041 09/15/60 30.48 3.04 0.94 1.52 Calamba NWS26041 09/15/60 30.48 3.04 0.94 1.52 Calamba NWS26041 09/15/60 30.48 3.04 0.94 0.94 1.52 Calib	Cahacharan	Balanobalano	W# 2752	05/15/75	10.67	3.66	0.51	3.40	0.150	
Hay-ang BPW10926 11/23/56 9.67 2.13 0.32 1.88 Bayebas BPW10921 24.70 9.76 0.32 0.61 Bayebas BPW 11.28 0.92 0.63 0.61 Cabasinan BPW-4880 54.27 0.32 0.06 0.06 Cabadbaran Central School NWS2611: 02/28/61 53.65 -3.05 1.70 Cabinet BPW-4566. 04/14/57 67.68 -0.91 0.19 Calamba BPW-2292 94.51 19.82 0.63 3.15 Calamba NWS20164 09/15/60 30.48 3.04 0.63 3.15 Calibunan, Hidway BPW-2292 12/19/56 50.30 -3.66 3.16 1.52 Calibunan, Hidway BPW-8475 03/16/56 54.87 3.66 3.16 0.64 0.30 Del Pilur BPW-8475 03/16/56 54.87 3.66 0.31 0.31 3.44 0.30 Himagdanan Km, 368	Cahadharan	Bav-ang	BPW-5909		62.20	0.92	0.63	16.0	069.0	
Bayabas BPW10921 24.70 9.76 0.32 0.61 Bogho BPW-4880 54.27 0.32 0.63 0.63 Cabasinan BPW-4880 54.27 0.32 0.06 0.06 Cabadbaran Central School NWS26111 02/28/61 53.65 -3.05 1.70 0.06 Cabinet BPW-4966 04/14/57 67.68 -0.91 0.19 0.19 Calamba BPW-2292 94.51 19.82 0.63 3.15 0.63 Calamba BPW-2292 09/08/58 49.08 23.78 0.63 3.15 Calamba NWS26041 09/15/60 30.48 3.04 0.94 1.52 Calamba Caliburan, Hidway BPW-8275 12/19/56 50.36 3.46 0 Caliburan Himagdanan BPW-8475 03/16/56 54.87 3.65 0.31 3.44 0 Dei Pilar BPW-10517 23.17 24.4 0.44 0.30 0 0 <	Cabadharan	Bavano	BPW10926	11/23/56	19.6	2.13	0.32	1.88	0.170	
Bogho BPW-4880 11.28 0.92 0.63 Caasinan BPW-4880 54.27 0.32 0.06 Cabadbaran Central School NWS26111 02/28/61 53.65 -3.05 1.70 Cabinet BPW-4966 44.82 0.46 0.22 1.70 Calamba BPW-2292 94.51 19.82 0.19 1.52 Calamba NWS20164 09/08/58 49.08 23.78 0.63 3.15 Calamba NWS26041 09/15/60 30.48 3.04 0.94 1.52 Calibunan, Hidway BPW-8475 02/16/56 54.87 3.65 0.31 3.44 Del Pilor BPW-105/7 23.17 2.44 0.44 0.30	Cabadbaran	Bavabas	BPW10921		24.70	9.76	0.32	19'0	0.520	
Cabadbaran Central School NWSZ6111 02/28/61 54.27 0.32 0.06 Cabadbaran Central School NWSZ6111 02/28/61 44.82 0.46 0.22 Cabinet BPW-4966 04/14/57 67.68 -0.91 0.19 Calamba BPW-2292 94.51 19.82 0.63 3.15 Calamba Calamba NWSZ0164 09/08/58 49.08 23.78 0.63 3.15 Calamba Calamba NWSZ6041 09/15/60 30.48 3.04 0.94 1.52 Caliburan, Hidway BPW15258 12/19/56 54.87 3.65 0.31 3.44 Hinagdanan Km. 368 BPW16917 23.17 2.44 0.44 0.30		Bogho	BPW		11.28	0.92	0.63			
Cabadbaran Central School NWS26111 02/28/61 53.65 -3.05 1.70 Cabinet BPW-4966 44.82 0.46 0.22 Cabinet BPW-2292 94.51 19.82 0.19 Calamba NWS20164 09/08/58 49.08 23.78 0.63 3.15 Calamba, Calolstoy NWS26041 09/15/60 30.48 3.04 0.94 1.52 Calibunan, Hidway BPW15258 12/19/56 50.30 -3.66 3.16 1.52 Del Pilor BPW1675 03/16/56 54.87 3.65 0.31 3.44 Hinagdanan Km. 368 BPW10917 23.17 2.44 0.44 0.30		Caasinan	BPW-4880		54.27	0.32	90.0			
Cabinet BPW-4966 44.82 0.46 0.22 Cabinet BPW15260 04/14/57 67.68 -0.91 0.19 Calamba BPW-2292 94.51 19.82 0.63 3.15 Calamba NWS20164 09/08/58 49.08 23.78 0.63 3.15 Calamba, Calolstoy NWS26041 09/15/60 30.48 3.04 0.94 1.52 Calibunan, Hidway BPW15258 12/19/56 50.30 -3.66 3.16 3.44 Del Pilor BPW1697 03/16/56 54.87 3.65 0.31 3.44 Hinagdanan Km. 368 BPW10917 23.17 2.44 0.44 0.30	Cabadbaran	Cabadbaran Central School	NWS26111	02/28/61	53.65	-3.05	1.70		:	
Cabinet BPW15260 04/14/57 67.68 -0.91 0.19 Calamba BPW-2292 94.51 19.82 0.63 3.15 Calamba NWS20164 09/08/58 49.08 23.78 0.63 3.15 Calamba, Calolstoy NWS26041 09/15/60 30.48 3.04 0.94 1.52 Calibunan, Hidway BPW15258 12/19/56 50.30 -3.66 3.16 3.44 Del Pilor BPW1675 03/16/56 54.87 3.65 0.31 3.44 Hinagdanan Km. 368 BPW10917 23.17 2.44 0.44 0.30	Cabadbaran	Cabinet	BPW-4966		44.82	0.46	0.22			
Calamba BPW-2292 94.51 19.82 Calamba NWS20164 09/08/58 49.08 23.78 0.63 3.15 Calamba, Calolstoy NWS26041 09/15/60 30.48 3.04 0.94 1.52 Calibunan, Hidway BPW15258 12/19/56 50.30 -3.66 3.16 1.52 Del Pilor BPW-8475 03/16/56 54.87 3.65 0.31 3.44 Hinagdanan Km. 368 BPW10917 23.17 2.44 0.44 0.30	Cabadbaran	Cabinet	BPW15260	04/14/57	89'29	-0.91	0.19			
Calamba, Calonitoy NWS20164 09/08/58 49.08 23.78 0.63 3.15 Calamba, Calolistoy NWS26041 09/15/60 30.48 3.04 0.94 1.52 Calibunan, Hidway BPW15258 12/19/56 50.30 -3.66 3.16 1.52 Del Pilor BPW-8475 03/16/56 54.87 3.65 0.31 3.44 Hinagdanan Km. 368 BPW10917 23.17 2.44 0.44 0.30	Cabadbaran	Calamba	BPW-2292		94.51	19.82				
Calamba, Calolstoy NWS26041 09/15/60 30.48 3.04 0.94 1.52 Calibunan, Hidway BPW15258 12/19/56 50.30 -3.66 3.16 3.16 Del Pilar BPW-8475 03/16/56 54.87 3.65 0.31 3.44 Hinagdanan Km. 368 BPW10917 23.17 2.44 0.44 0.30		Calamba	NWS20164	85/80/60	49.08	23.78	0.63	3.15	0.200)	
Calibunan, Hidway BPW15258 12/19/56 50.30 -3.66 3.16 Del Pilur BPW-8475 03/16/56 54.87 3.65 0.31 3.44 Hinagdanan Km. 368 BPW10917 23.17 2.44 0.44 0.30		Calamba, Calolstoy	NWS26041	09/17/60	30.48	3.04	0.94	1.52	0.620	
Del Pilar BPW-8475 03/16/56 54.87 3.65 0.31 3.44 Hinagdanan Km. 368 BPW10917 23.17 2.44 0.44 0.30		Calibunan, Hidway	BPW15258	12/19/56	\$0.30	-3.66	3.16			
Hinagdanan Km. 368 BPW10917 23.17 2.44 0.44 0.30		Del Pilar	BPW-8475	03/16/56	54.87	3.65	0.31	3.44	0.090	
		Hinagdanan Km. 368	BPW10917		23.17	2.44	0.44	0.30	1.450	

	LOCATION	WELL NO.	DATE	DEPTH		DISCHARGE	DRAWDOWN		USAGE	KEMAKKY
		(mpgs)		(m)	(mpgs)	(sdi)	(E)	3		
Cabadbaran	Firmilog	NWS20163	05/25/58	68.59	0.91	3.78	4.30	0.800		
Cabadbaran	iKauswagan	BP202062		86.09	1.52					
Cabadbaran	Kauswagan	BPW-1322		29.09	0.92	0.38		en en en		
Cabadbaran	Kauswagan	BPW26131		55.18	1.52					
Cabadbaran	La Union	BPW10922		46.04	4.27	1.58				
Cabadbaran	Mabini, Dinabuksan	BPW26236		12.20	2.13	0.63				
Cahadharan	Market Site	NWS25914	01/04/60	60.97	3.96	6.31			-	
Cabadbaran	Міпаало	BPW10924	10/16/56	52.74		11.36				
Cabadbaran	Osmena Avenue	BPW-4848		39.63	Fr. Flow	0.88				
Cabadbaran	Panayayon	BPW10925	11/02/56	57.92	Flowing	0.68	0.30	2.100		
ahadbaran	Poblacion	BPW18933		71.65	0.61	0.32				
Cabadbaran	Sanghan	NWS26014	09/24/60	58.53	3.05	0.44				
Cabadbaran	Sanghan Km. 360	BPW10923		35.06	3.05					
Cabadbaran	Sitto Mayboo	BPW15261	04/27/57	36.58	Flowing	5.05				
Cabadbaran	Talo-ao	BPW26061	09/67/90	15.24	1.52	0.32	4.57	0.070		
Cabadbaran	Tolosa	BPW-5896	11/25/53	65.54		0.76				
Cabadbaran	Tubay-tubay	BPW10404		27.44	0.92	2,52		-		
Carmen	Bolihon	BPW20513	01/06/53	18.29	3.66	0.32				
Carmen	Cahayagan	BPW 9091	06/19/56	86.09	1.83	0.63	0.61	1.030		
Carmen	Cervantina	BPW10177		153.66	7.62					
Заплел	Gosoon Dacu	BPW 9093	06/28/56	86.79	-	0.69		0.280		
Carmen	Gosoon, Capatagan	BPW10179	:	25.92	13.72	0.44				
Jarmen	Mantataa	NWS26025	01/19/61	15.24	3.04	0.63	1.54	0.410	_	
Carmen	Poblacion	BPW-2631		36.28	2.44	6.62				
Саттеп	Poblacion	BPW-2753	06/14/75	7.93	1.52	0.51		-		
	San Agustin	BPW-9092	95/11/90	36.58	1.82	2.52	0.91	2.770	 	
	Uba	BPW20512	10/331/57	10.67	2.13	0.51	1.54	0.330		
Jarmen	Vinapas	BPW10173		24.70	15.20	0.44	4.40	0.100		
abonga	Baliguian	BPW-5724	02/20/53	21.03	2.13	0.25				
Japonea	Baliguian	BPW5266	09/18/57	28.96	1.22	0.31				
abonga	Bangonay	BPW20201	01/19/58	9.15	3.35	0.31	0.31	1.030		
abonga	Bangonay	BPW26239		12.20	3.05	0.63				
Jabonga	Cuyago	BPW20200	12/09/57	15.24	0.92	0.63	1.53	0.410		,

Libas Km. 389 (mbgs) Libas Km. 389 BPW10918 1 Magsaysay BPW25921 0 Canaway Salisbong BPW15265 0 Canaway Salisbong BPW15261 0 Jaliobong Km. 402 BPW10919 0 Mahayahay BPW10919 0 San Isidro Jaliobong BPW14173 0 San Roque Km. 402 BPW14175 0 San Roque Km. 404 BPW14175 0 Poblacion W#- 2755 0 Amontay BPW14175 0 Amontay BPW16565 0 Amontay BPW10785 0 Culit BPW10786 0 Culit BPW10565 0 Kinabjangan Km. 316 BPW10567 0 Punta BPW10567 0 <th< th=""><th>MINICIPAL</th><th>LOCATION</th><th>WELL NO.</th><th>DATE</th><th>DEPTH</th><th>SWL</th><th>DISCHARGE</th><th>DRAWDOWN</th><th>SPCCP USAGE</th><th>REMARKS</th></th<>	MINICIPAL	LOCATION	WELL NO.	DATE	DEPTH	SWL	DISCHARGE	DRAWDOWN	SPCCP USAGE	REMARKS
gas Libus Kr., 389 BPW19918 14425/56 2.6.1 3.96 0.44 0.92 gas Libus Kr., 389 BPW15921 08/17/59 1.28 0.63 0.61 gas Magsaysay BPW15821 08/17/59 1.28 0.63 0.61 nato Gavatusa BPW15615 05/17/57 1.23 0.63 0.59 nato Jailobong BPW15621 05/17/57 23.17 0.60 0.50 0.59 nato Jailobong BPW15625 01/17/57 23.17 0.60 0.53 0.13 nato Jailobong BPW15826 01/17/57 7.59 1.22 0.52 0.15 nato San Reque Km, 404 BPW15856 01/17/57 1.49 6.71 0.53 0.15 nato Chanway BPW1586 02/17/57 1.48 2.7 0.53 0.15 nato Chanway BPW1586 02/17/57 1.48 2.7 0.53 0.17			(wgqu)		(m)	(mbgs)	(lps)	(m)	(lps/m)	
gat Magasystay BPW25521 0821/59 17.88 1.83 0.63 0.61 mine Canaway Salisbong BPW15265 1.098 1.22 0.53 0.53 mate Jaliobong Km. 402 BPW15265 23.17 0.60 0.50 0.59 name Jaliobong Km. 402 BPW15267 21.01/173 2.62 0.53 0.51 name Jaliobong Km. 402 BPW15267 21.01/157 7.93 1.52 0.63 0.51 name San Reque Rankayahay BPW15267 0.20/157 7.93 1.37 0.63 0.51 name San Reque BPW 14175 0.20/157 7.93 1.37 0.63 0.13 name San Reque Rankayahay BPW14175 0.21/157 2.78 0.73 1.73 name Poblacion BPW14175 0.21/157 2.42 0.31 1.72 0.60 name Poblacion BPW14174 0.21/157 2.42 0.31 1.72	Jahonga	Libas Km. 389	BPW10918	14/25/56	25.61	3.96	0.44	0.92	0.480	
Decision	Jabonea	Magsaysay	BPW25921	08/31/59	17.68	1.83	0.63	19.0	1.030	
mano Gawain BPW26015 21.34 1.22 0.63 0.53 nano Jaliobong BPW46015 05/05/05/6 21.17 0.60 0.63 0.59 nano Jaliobong BPW4652 0.01/3/53 26.21 0.60 0.65 0.53 2.13 nano San Isidro Jaltobong BPW41276 1.10/157 1.494 6.71 0.32 4.00 nano San Isidro Jaltobong BPW11266 1.10/157 1.494 6.71 0.32 0.015 nano Canaway BPW 6083 0.42/154 2.37 R 0.52 0.53 0.15 no Canaway BPW 6083 0.42/154 2.37 R 0.52 0.53 1.73 no Canaway BPW16175 0.21/257 1.82 4.27 0.32 1.73 no Canaway BPW16175 0.21/257 3.48 T 0.52 0.53 1.73 inces Poblacion BPW1173 0.21/257 3.48 T 0.52	Kitcharao	Canaway Salisbong	BPW15265		10.98	1.22	0.32			
ratio bong Jaliobong EPW10919 0.52/04/56 23.17 0.60 0.50 0.59 name Jaliobong Km, 402 BPW14552 0.01/31/53 26.21 0.60 0.63 0.91 name San Reque R. 402 1.101/57 1.4.92 1.37 0.63 0.15 name San Reque R. 404 BPW14267 1.101/57 1.4.92 1.37 0.63 0.15 name San Reque R. 404 BPW14172 1.201/57 1.4.92 1.37 0.63 0.15 name San Reque BPW14172 0.201/57 1.4.92 1.37 0.63 0.15 reves Ambteon BPW14173 0.201/57 1.8.29 4.27 0.53 1.7.8 places Poblacion WW19266 0.511/57 1.8.27 0.33 1.22 teves Poblacion BPW14173 0.210/575 3.45 1.2.2 0.32 1.78 t Amontay BPW16785 0.511/575	Kitcharao	Gawatan	BPW26015		21.34	1.22	0.63			
ratio Jaliobong Km, 402 BPW-5652 01/31/53 26.21 0.66 0.65 0.91 name Mahayahay BPW15267 7.93 1.52 0.32 2.13 name San Reque Xm, 404 BPW15267 0.20/1/57 1.49 6.71 0.53 0.15 name San Reque Xm, 404 BPW 6083 0.421/54 23.78 0.52 0.50 1.78 name Cahaway BPW14175 0.2012/57 18.29 4.27 0.58 1.72 name Poblacion WH-14174 0.2012/57 18.29 4.27 0.38 1.22 name Poblacion WH-14174 0.2012/57 5.487 2.0 0.31 1.78 Innes Poblacion WH-14174 0.2015/56 2.487 2.4 0.31 1.78 1.78 Innes Amontay WH-29576 0.211/58 9.15 3.35 0.32 1.78 1.78 1.78 1.78 1.78 1.78 1.78 1.78	Kitcharao	Jaliobong	BPW10919	05/20/56	23.17	09.0	05.0	0.59		
unio Mehabyahay BPW14177 0.20(1)/57 7.93 1.52 0.32 2.13 nato San Isidro Jaliobong BPW15267 11/01/57 14.94 6.71 0.32 4.00 nato San Isidro Jaliobong BPW15267 11/01/57 14.94 6.71 0.53 0.15 nato San Roque Km, 404 BPW 6083 0.421/54 23.78 0.92 0.50 0.15 reves Ambacon BPW15265 0.2012/57 18.29 4.27 0.33 1.22 reves Ambacon BPW14175 0.2012/57 3.48 1.22 0.33 1.22 reves Ambacon BPW14175 0.21/55 3.48 1.22 0.33 1.22 reves Ambacon BPW14175 0.21/55 3.48 1.22 0.32 1.78 reves Ambacon BPW14175 0.21/55 3.45 0.32 0.31 1.78 reves Poblacion WH 2056 0.11/65 3.35 <t< td=""><td>Kitcharao</td><td>Jaliobong Km. 402</td><td>BPW-5652</td><td>01/31/53</td><td>26.21</td><td>09.0</td><td>0.63</td><td>0.91</td><td>0.690</td><td></td></t<>	Kitcharao	Jaliobong Km. 402	BPW-5652	01/31/53	26.21	09.0	0.63	0.91	0.690	
San Radro Jatobong BPW15267 11/01/57 14.94 6.71 0.32 4.00 rano San Roque NWS28016 0.207/61 1.493 1.37 0.63 0.15 rano Canacon BPW 6404 0.207/64 2.3.78 0.92 0.55 1.78 reves Ambacon BPW14175 0.212/57 18.29 4.27 0.38 1.22 reves Ambacon BPW14174 0.206/57 3.48 1.52 0.31 1.22 reves Poblacion BPW14174 0.206/57 3.48 0.32 0.33 1.22 Innes Poblacion WH-2755 0.206/57 3.48 0.51 0.32 0.31 tod-4 Amontay WH-2755 0.206/57 2.44 0.51 1.78 t Amontay WH-2755 0.201/56 0.501/56 2.44 0.51 1.78 t Amontay WH-2755 0.201/56 0.501/56 0.51 2.44 0.51	Kitcharao	Mahayahay	BPW14173	02/01/57	7.93	1.52	0.32	2.13	0.150	
unio San Roque NWS26016 6207/61 14.93 1.37 0.63 0.15 unio San Roque Km. 404 BPW 6883 0.421/54 23.78 0.52 0.50 1.78 unios Ambanay BPW 1526 0.421/54 23.78 0.52 0.53 1.72 eves Poblacion WH 2755 0.8/16/75 3.487 4.27 0.38 1.22 lanes Poblacion WH 2755 0.8/16/75 3.487 4.27 0.32 1.78 lanes Poblacion WH 2755 0.8/16/75 3.487 0.32 0.31 1.78 lanes Poblacion WH 2755 0.8/16/75 2.44 0.51 1.78 Amoniay, Camagong WH 2056 0.5/15/56 2.470 2.44 0.51 1.78 Amoniay, Camagong WH 2056 0.5/15/56 2.470 2.44 0.51 1.78 Amoniay, Camagong WH 2056 0.5/15/56 2.470 2.44 0.51 1.78	Kitcharao	San Isidro Jaliobong	BPW15267	11/01/57	14.94	6.71	0.32	4.00	080.0	
uno San Roque Km, 404 BPW 6083 0421/54 23.78 0.50 1.78 uvos Canaway BPW/15265 020/5/57 18.29 4.27 0.38 1.22 reves Ambaton BPW/14/15 02/06/57 18.29 4.27 0.38 1.22 reves Ambaton BPW/14/17 02/06/57 54.87 0.32 0.31 teves Amontay W#.2755 08/16/75 3.35 0.32 0.31 t Amontay W#.2755 08/16/75 2.44 0.51 1.78 t Amontay W#.2755 08/16/75 2.44 0.51 1.78 t Amontay W#.2755 08/16/75 2.44 0.51 1.78 t Amontay W#.2755 08/17/56 2.15 2.24 0.51 1.78 t Amontay BPW/10785 08/17/56 9.15 0.24 0.31 1.38 t Ambiton BPW/10786 08/07/56 <th< td=""><td>Kitcharao</td><td>San Roque</td><td>NWS26016</td><td>02/07/61</td><td>14.93</td><td>1.37</td><td>0.63</td><td>0.15</td><td>4.130</td><td></td></th<>	Kitcharao	San Roque	NWS26016	02/07/61	14.93	1.37	0.63	0.15	4.130	
unio Canaway BPW1526S 18.29 4.27 0.38 1.22 ieves Ambacon BPW14175 02/12/57 18.29 4.27 0.38 1.22 ieves Ambacon BPW14174 02/02/57 54.87 0.32 0.31 lanes Poblacion W# 2755 08/16/58 1.52 0.32 0.31 t Amontacy W# 2096 05/15/56 2.44 0.32 1.78 t Amontacy W# 2096 05/15/56 2.44 0.33 0.30 t Amontacy W# 2096 05/15/56 2.45 0.31 1.78 t Amontacy W# 2096 05/15/56 2.44 0.33 0.30 t Amontacy W# 2096 05/15/56 2.44 0.33 0.30 t Amontacy W# 2005 05/15/56 2.44 0.33 0.30 t Amontacy W# 2007 05/04/56 0.15 0.24 0.33	Kitcharao	San Roque Km. 404	BPW 6083	04/21/54	23.78	0.92	0.50	1.78	0.280	
iewes Annbacon BPW14175 02/12/57 18.29 4.27 0.38 1.22 iewes Poblacion BPW14174 02/06/57 54.87 0.32 0.31 iewes Poblacion W#S12755 02/16/57 3.487 0.32 0.31 lanes Poblacion W#S12755 03/16/58 9.15 3.35 0.53 0.31 t Amontay W# 9096 05/15/56 24.70 2.44 0.51 1.78 t Ain-Atabon BPW10785 08/17/56 2.44 0.51 0.30 t Ain-Atabon BPW10785 08/07/356 1.52 0.31 0.38 t Ain-Atabon BPW10785 08/07/356 1.52 0.31 0.31 t Ain-Atabon BPW10785 08/07/356 1.52 0.31 0.33 t Ain-Atabon BPW10786 08/07/356 1.52 0.31 1.34 0.53 Culit Chit	Kitcharao	Canaway	BPW15265							
teves Poblacion BPW14174 02/06/57 54.87 lanes Poblacion WH-2755 08/16/75 30.38 1.52 0.32 0.31 lanes Taod-oy NWS19876 11/04/58 30.38 1.52 0.32 0.31 t Amontay BPW25515 05/11/58 2.15 2.44 0.51 t Amontay BPW45536 05/13/56 2.12 0.38 0.30 t Amontay BPW10786 08/17/56 9.15 0.91 0.44 3.38 t Amontay BPW10786 08/03/56 15.24 0.91 0.44 3.38 t Amontay BPW10786 08/03/56 15.24 0.53 0.53 t Amontay BPW10787 08/04/56 1.24 0.51 0.53 t Amontay BPW10788 08/04/56 1.54 0.51 0.53 0.50 c Cubic BPW10786 08/04/56 1.24 0.51	Las Nieves	Ambacon	BPW14175	02/12/57	18.29	4.27	0.38	1.22	0.310	
lanes Poblacion WH- 2755 08/16/75 30.38 1.52 0.32 0.31 tames Tood-coy NWWS19876 11/04/58 30.38 1.52 0.32 1.78 t Amontay BPW/20515 03/11/58 9.15 3.35 0.32 1.78 t Amontay Camagong W# 9096 05/15/156 2.44 0.51 1.78 t Amontay Daw 09094 05/15/156 2.44 0.51 1.78 t Amontay BPW/10785 08/17/756 9.15 0.91 0.44 3.38 t Cubi-Cubi BPW/10785 08/17/756 32.01 2.14 0.53 0.50 Cubir Cubi BPW/10785 08/10/456 32.01 2.13 0.53 0.50 Cubic Cubi BPW/10786 06/28/56 1.159 1.83 1.14 0.91 Igpalas BPW/10786 06/28/56 1.55 0.50 0.50 0.50	Las Nieves	Poblacion	BPW14174	02/06/57	54.87					
lanes Taod-oy NWS19876 11/04/58 30.38 1.52 0.32 0.31 t Amontay BPW20515 03/11/58 9.15 3.35 0.32 1.78 t Amontay BPW20515 03/11/56 24.70 2.44 0.51 1.78 t Amontay BPW45553 0904/52 10.98 1.22 0.33 0.30 t Amontay BPW10785 08/17/56 2.44 0.51 0.38 0.30 t Cabagruzan BPW410786 08/17/56 32.01 2.13 0.44 3.38 Culit Culit BPW10787 09/04/56 32.01 2.13 0.63 0.50 Iunchon BPW10787 06/04/56 32.01 2.13 0.63 0.76 Iunchon BPW10568 06/01/56 32.01 2.13 0.50 0.50 Kinabjangan Km BPW10565 06/01/56 30.49 18.60 0.50 1.22 Poblacion <t< td=""><td>Magallanes</td><td>Poblacion</td><td>W#- 2755</td><td>08/16/75</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Magallanes	Poblacion	W#- 2755	08/16/75						
t Amontay BPW20515 03/11/58 9.15 3.35 0.32 1.78 t Amontay, Carnagong W# 9096 05/13/56 24.70 2.44 0.51 1.78 t Atta-Atahon BPW-5553 0904/52 10.98 1.22 0.38 0.30 t Atta-Atahon BPW10786 08/17/56 9.15 0.91 0.44 3.38 t Cubi-Cubi BPW10786 08/17/56 32.01 2.13 0.53 0.30 c Cubi-Cubi BPW10786 08/17/56 32.01 2.13 0.53 0.30 c Cubi-Cubi BPW10786 08/02/56 32.01 2.13 0.58 0.50 c Cubi-Cubi BPW10766 06/01/56 30.49 18.60 0.44 1.12 foblacion BPW10567 06/01/56 30.49 18.60 0.44 1.22 Poblacion BPW10566 05/10/56 31.59 1.85 0.50 2.20	Magallanes	Taod-oy	NWS19876	11/04/58	30.38	1.52	0.32	0.31	1.030	
t Amontay, Carnagong W# 9096 65/15/56 24.70 2.44 0.51 t Atta-Atachon BPW-5553 0904/52 10.98 1.22 0.38 0.30 t Atta-Atachon BPW10785 08/17/56 9.15 0.91 0.38 0.30 t Cabagrukan BPW10786 08/17/56 15.24 0.91 0.44 3.38 t Cubit-Cubi BPW10786 03/23/54 9.76 2.44 0.63 0.30 Culit BPW10787 09/04/56 3.201 2.13 0.44 3.38 Imetion BPW10787 06/01/56 30.49 18.30 0.44 1.22 Kinabjangan Km. 316 BPW10565 06/01/56 30.49 18.60 0.44 1.22 Kinabjangan Km. 316 BPW4.5568 10/16/52 88.11 0.92 0.50 2.78 Poblacion BPW4.5568 12/11/55 43.59 15.85 0.30 2.24 Sia. Ana BPW7.609	Nasipit	Amontay	BPW20515	03/11/58	9.15	3.35	0.32	1.78	0.280	
t Ana-Atahon BPW-5553 0904/52 10.98 1.22 0.38 0.30 t Ana-Atahon BPW10785 08/17/56 9.15 0.91 0.58 0.30 t Cabagenizan BPW10785 08/03/56 15.24 0.91 0.44 3.38 Cubi-Cubi BPW10787 09/04/56 32.01 2.13 0.63 0.30 Cubi-Cubi BPW10787 09/04/56 32.01 2.13 0.38 7.60 Guit BPW10787 09/04/56 32.01 2.13 0.38 7.60 Igpalas BPW10568 06/28/56 11.159 1.83 1.14 0.91 Kinabjangan Km, 316 BPW10565 06/11/65 8.51 0.92 0.50 0.50 Poblacion BPW10566 05/16/56 15.85 0.30 1.26 1.22 Punta NwS20514 02/10/58 1.58 0.30 1.26 0.30 Sta. Ana BPW107864 05/14/56 37.20	Nasipit	Amontay, Camagong	9606 #M	05/15/56	24.70	2.44	0.51			-
Ata-Ambon BPW10785 08/17/156 9.15 0.91 0.38 0.30 Cabagukan BPW10786 09/03/56 15.24 0.91 0.44 3.38 Cubi-Cubi BPW10786 09/03/56 15.24 0.91 0.44 3.38 Cubi-Cubi BPW10787 09/04/56 32.01 2.13 0.63 0.50 Igpalas BPW10787 09/04/56 32.01 2.13 0.38 7.60 Implication BPW10568 06/28/56 11.59 1.83 1.14 0.91 Kinabjangan Km. 316 BPW10565 06/01/56 30.49 18.60 0.44 1.22 Poblacion BPW10567 06/01/56 43.59 15.85 0.50 2.78 Poblacion BPW10567 02/10/58 19.82 3.66 0.32 8.00 Sito Aclan NWS20514 02/10/58 19.82 3.66 0.32 0.30 Sita Ana BPW26141 08/03/61 37.20 2.44 1.26	Nasipit	Ata-Atahon	BPW-5553	0904/52	10.98	1.22	0.38			
t Cabaguixan BPW10786 09/03/56 15.24 0.91 0.44 3.38 Cubir-Cubi BPW-6038 03/23/54 9.76 2.44 0.63 0.30 Culit BPW10787 09/04/56 32.01 2.13 0.63 0.30 Junction BPW10787 09/04/56 11.59 1.83 1.14 0.91 Kinabjangan Km, 316 BPW10565 06/01/56 30.49 18.60 0.44 1.22 Poblacion BPW-5568 10/16/52 88.11 0.92 0.50 2.78 Poblacion BPW-8473 12/11/55 43.59 15.85 0.50 2.78 Poblacion BPW-8473 12/11/55 54.88 19.82 0.50 2.78 Poblacion BPW-8473 12/11/55 54.88 19.82 0.50 2.78 Poblacion BPW-10564 05/16/56 15.85 0.30 1.26 1.52 Sin Ana BPW-7009 11/15/55 20.42 11.58	Nasipit	Ata-Atahon	BPW10785	08/17/56	9.15	0.91	0.38	0.30	1.270	
Cubi-Cubi BPW-6038 03/23/54 9.76 2.44 0.63 0.30 Culit BPW10787 09/04/56 32.01 2.13 0.38 7.60 Junction BPW10568 06/28/56 11.59 1.83 1.14 0.91 Kinabjangan Km, 316 BPW10565 06/01/56 30.49 18.60 0.44 1.22 Poblacion BPW-5568 10/16/52 88.11 0.92 0.50 2.78 Poblacion BPW-5568 10/16/52 88.11 0.92 0.50 2.78 Poblacion BPW10567 12/11/55 43.59 15.85 0.30 1.25 Poblacion NWS10566 05/16/56 15.85 0.30 1.26 1.25 Sito Ana BPW10564 02/10/58 19.82 3.66 0.32 0.32 1.26 Sta. Ana BPW10564 05/14/56 37.20 2.44 1.26 5.25 Triangulo BPW10788 10/09/56 37.27 10.67 0.	Nasipit	Cabagukan	BPW10786	95/60/60	15.24	0.91	0.44	3.38	0.130	
Culit EPW10787 09/04/56 32.01 2.13 0.38 7.60 Igpalas BPW10568 06/28/56 11.59 1.83 1.14 0.91 Junction BPW10565 06/01/56 30.49 18.60 0.44 1.22 Kinabjangan Km. 316 BPW-5568 10/16/52 88.11 0.92 0.50 2.78 Poblacion BPW-8473 12/11/55 43.59 15.85 0.50 2.78 Poblacion BPW-8473 12/11/55 54.88 19.82 0.30 1.25 Punta NWS10566 05/16/56 15.85 0.30 1.26 1.52 Sitio Aclan NWS20514 02/10/58 19.82 3.66 0.32 0.30 Sta. Ana BPW-7009 11/15/55 20.42 11.58 0.63 5.25 Talisay BPW10764 05/14/56 54.27 10.67 0.32 10.67	Nasioit	Cubi-Cubi	BPW-6038	03/23/54	9.76	2.44	0.63	0.30	2.100	
Igpalas BPW10568 06/28/56 11.59 1.83 1.14 0.91 Junction BPW10565 06/01/56 30.49 18.60 0.44 1.22 Kinabjangan Km, 316 BPW-5568 10/16/52 88.11 0.92 0.50 2.78 Poblacion BPW-8473 12/11/55 43.59 15.85 0.32 8.00 Poblacion BPW10567 12/11/55 54.88 19.82 0.32 8.00 Punta NWS10566 05/16/56 15.85 0.30 1.26 1.52 Sita, Ana BPW-7009 11/15/55 20.42 11.58 0.94 0.30 Sta, Ana BPW26141 08/03/61 14.63 8.23 0.63 1.26 Talisay BPW10788 10/09/56 54.27 10.67 0.32 10.67		Culit	BPW10787	09/04/56	32.01	2.13	0.38	7.60	0.050	
Junction BPW10565 06/01/56 30.49 18.60 0.44 1.22 Kinabjangan Km. 316 BPW-5568 10/16/52 88.11 0.92 0.50 2.78 Poblacion BPW-8473 12/11/55 43.59 15.85 0.32 8.00 Poblacion BPW10567 54.88 19.82 8.00 1.52 Sino Aclan NWS10566 05/16/56 15.85 0.30 1.26 1.52 Sta. Ana BPW-7009 11/15/55 20.42 11.58 0.94 0.30 Talisay BPW10564 05/14/56 37.20 2.44 1.26 5.25 Trangulo BPW10788 10/09/56 54.27 10.67 0.32 2.25		Igpalas	BPW10568	06/28/56	11.59	1.83	1.14	16.0	1.250	
Kinabjangan Km, 316 BPW-5568 10/16/52 88.11 0.92 0.50 2.78 Poblacion BPW-8473 12/11/55 43.59 15.85 0.32 8.00 Poblacion BPW10567 54.88 19.82 1.26 1.52 Punta NWS10566 05/16/56 15.85 0.30 1.26 1.52 Sitio Aclan NWS20514 02/10/58 19.82 3.66 0.32 1.52 Sta. Ana BPW77009 11/15/55 20.42 11.58 0.94 0.30 Sta. Ana BPW10564 05/14/56 37.20 2.44 1.26 5.25 Talisay BPW10788 10/09/56 54.27 10.67 0.32 10.67		Junction	BPW10565	06/01/56	30.49	18.60	24.0	1.22	0.360)	
Poblacion BPW-8473 12/11/55 43.59 15.85 0.32 8.00 Poblacion BPW10567 24.88 19.82 1.26 1.52 Punta NWS10566 05/16/56 15.85 0.30 1.26 1.52 Sino Aclan NWS20514 02/10/58 19.82 3.66 0.32 0.32 Sta. Ana BPW-7009 11/15/55 20.42 11.58 0.94 0.30 Talisay BPW10564 05/114/56 37.20 2.44 1.26 5.25 Trangulo BPW10788 10/09/56 54.27 10.67 0.32 10.67		Kinabjangan Km. 316	BPW-5568	10/16/52	88.11	0.92	0.50	2.78	0.180	
Poblacion BPW10567 54.88 19.82 1 Punta NWS10566 05/16/56 15.85 0.30 1.26 1.52 Stiro Aclan NWS20514 02/10/58 19.82 3.66 0.32 1.26 1.52 Sta. Ana BPW-7009 11/15/55 20.42 11.58 0.94 0.30 Sta. Ana BPW26141 08/03/61 .14.63 8.23 0.63 5.25 Talisay BPW10788 10/09/56 54.27 10.67 0.32 10.67		Poblacion	BPW-8473	12/11/55	43.59	15.85	0.32	8.00	0.040	
Punta NWS10566 05/16/56 15.85 0.30 1.26 1.52 Sitio Aclan NWS20514 02/10/58 19.82 3.66 0.32 1.53 Sta. Ana BPW-7009 11/15/55 20.42 11.58 0.94 0.30 Sta. Ana BPW26141 08/03/61 .14.63 8.23 0.63 5.25 Talissay BPW10564 05/114/56 37.20 2.44 1.26 5.25 Trangulo BPW10788 10/09/56 54.27 10.67 0.32 10.67		Poblacion	BPW10567	.,	54.88	19.82				
Sino Aclan NWS20514 02/10/58 19.82 3.66 0.32 Sta. Ana BPW-7009 11/15/55 20.42 11.58 0.94 0.30 Sta. Ana BPW26141 08/03/61 .14.63 8.23 0.63 5.25 Talisay BPW10564 05/114/56 37.20 2.44 1.26 5.25 Triangulo BPW10788 10/09/56 54.27 10.67 0.32 10.67		Punta	99501SWN	05/16/56	15.85	0.30	1.26	1.52	0.830	
Sta. Ana BPW-7009 11/15/55 20.42 11.58 0.94 0.30 Sta. Ana BPW26141 08/03/61 14.63 8.23 0.63 2.25 Talisay BPW10564 05/114/56 37.20 2.44 1.26 5.25 Triangulo BPW10788 10/09/56 54.27 10.67 0.32 10.67		Sitio Aclan	NWS20514	02/10/58	19.82	3.66	0.32			
Sta. Ana BPW26141 08/03/61 . 14.63 8.23 0.63 Talisay BPW10564 05//14/56 37.20 2.44 1.26 5.25 Triangulo BPW10788 10/09/56 54.27 10.67 0.32 10.67		Sta. Ana	BPW-7009	11/15/55	20.42	11.58	0.94	0.30	3.150	
Talisay BPW10564 05//14/56 37,20 2.44 1.26 5.25 Triangulo BPW10788 10/09/56 54,27 10.67 0.32 10.67		Sta, Ana	BPW26141	19/60/80	.14.63	8.23	0.63		0.690	
Triangulo 0.32 10.67 54.27 10.67 0.32 10.67		Talisay	BPW10564	05//14/56	37.20	2.44	1.26	5.25	0.240	
		Triangulo	BPW10788	95/60/01	54.27	10.67	0.32	10.67	0.030	

MUNICIPAL	LOCATION	WELL NO.	DATE	DEPTH	7MS	DISCHARGE	DRAWDOWN	Γ.	USAGE	REWARKS
		(mbgs)		(m)	(mbgs)	(lps)	(m)	(m/sd1)		
San Francisco	Pasta	BPW37614	01/04/77	24.39		0.44				
Tubay	Abucay	NWS-2602	09/12/60	41.15	2.44					
Tubay	Banag	19871	01/19/58	1098.00	2.13	0.44	0.30	1.450		
Tubay	Cabayawa	BPW-5616	11/19/52	56.40	1.23	0.38				
Tubay	Kinahiluan	02861SMN	12/24/57	18.59	13.71	0.44	0.30	1.470	— -	
Tubay	La Fratemidad	BPW15259	03/03/57	38.81	3.65	0.31		-		
Tubay	Lawigan	BPW-7010-	95/01/10	35.06	3.04	0.94	6.27	0.150		
Tubay	Poblacion	19872 ·		96.68		0.32		0.090		
Tubay	Poblacion	2711		15.85	4.57	0.32	1.52	0.210		
Tubay	Suyutan	BPW-5054		56.40		0.50				
Tubay	Tagmamarcay	10408	04/29/56	62.50	0.61	1.26	5.48	0.230		
Tubay	Tagmamarcay	BPW-9606	03/06/56	29.87	90.9	0.94	4.70	0.200		
Tubay	Tagmamarcay	NWS26142	09/29/61	32.53	5.18	0.94	0.90	1.040		
Tubay	Tubay-tubay	NWS-2603	11/13/60	77.74	-2.44	6.31			-	
Tubay	Victory	BPW19869	08/18/57	32.21	-1.98	0.25				
							ļ			

Table 7.3.3 Water Quality Analysis Data

Somnlie	Complied Water Courses. Springs					Provincial Number:				
Degion	Danion Number: XIII					Provincial Name: Agusan del Sur	gusan del S	านา		
0.0	Sampling Site	Sampling Date	Ha	Color	Turbidity	Turbidity Residual Chlorine	Fe	Mo	Coliform Bacteria	Total Bacteria
	0			(PCU)	(FTU)	(mg/liter)	(mg/liter)	(mg/liter)	(count number x100)	(count number)
	San Nicolas, Talacogon	April 30, 1998	8.5	10	3.4		0.2	< 0.05	No Detected	0
2	San Jose, San Luis	April 30, 1998	6.8	0	0.0		0.1	0.06	No Detected	1.1
m	Muritola, San Luis	April 30, 1998	7.3	0	0.0		0,1	0.17	0	0
4	Sta Irene Prosperidad	April 30, 1998	7.3	N.A.	0.0		0.1	- 60.0	No Detected	0
~	Salvacion, Prosperidad	April 30, 1998	7.5	N.A.	1.1		0.2	0.14	1,300	0
9	Prosperidad Water District	May 16, 1998	7.7	N.A.	9.6	0.58	0.2	0.05	909	0
-	Pob. Purok 21. Prosperidad	May 16, 1998	6.5	N.A.	5.9		0.4	0.30	120	0
×	Patin-av Prosneridad W.D.	May 16, 1998	7.1	NA	32.5	0.22	0.4	0.16	300	0
0	Bunawan Water District	May 16, 1998	7.4	X.A.	0.0	0.30	0.1	0.08	400	0
ျ	San Teodoro, Bunawan	May 16, 1998	7.8	N.A.	2.2		0.1	0.07	0	0
=	Bunawan Brook, Bunawan	May 16, 1998	6.8	NA	34.7		0.4	0.30	300	0
12	Taganahaw Esperanza	May 16, 1998	6.0	Ϋ́Z	0.0		0.1	0.17	0	0
=	Hamogaway Bayugan	May 20, 1998	7.4	N.A.	\$1		0.2	0.07	100	0
12	Osmena, Bavugan	April 20, 1998	7.1	N.A.	0.0		0.1	90.0	1,000	0

Table 7.3.3 Water Quality Analysis Data

Sumpl	Sumpling Water Sources: Deep Wells (Leyel I / II	1/11/110				Provincial Number				
Region	Region Number: XIII					Provincial Name; Agusan del Sur	gusan del	Sur		
ć Z	Sampling Site	Sampling Date	Нq	Color (PCU)	Turbidity (ETU)	Turbidity Residual Chlorine (FTU) (mg/liter)	Fe (mg/liter)	Mn (mg/liter)	Coliform Bacteria (count number x100)	Total Bacteria
ļ	Brgv. II, Purok 5, San Francisco-1	April 14, 1998	7.6	0	6.0		0.5	05.0	0	0
7	Brgy II, Purok 5, San Francisco-2	April 14, 1998	7.5	4	0.5		0.2	< 0.50	0	7
100	Brev. Il, Purok 4, San Francisco-1	April 14, 1998	9.6	4	0.1		0.5	< 0.50	10,000	0
7	Brey II, Purok 4, San Francisco-2	April 14, 1998	7.7	0	2.1		1.0	< 0.50	10,000	0
'n	Brgv. II, Purok 4, San Francisco-3	April 14, 1998	7.7	21	4.8		0.2	< 0.50	0	0
9	Brgv. IV, Purok 5, San Francisco-1	April 29, 1998	7.7	2.8	0.0		0.2	0.50	0	0
7	Brgy IV, Purok 3, San Francisco	April 29, 1998	8.5	9	9.6		0.5	< 0.50	0	0
∞	Brgy. V, Purok 2, San Francisco	April 29, 1998	7.3	1	2.6		0.2	< 0.50	60,000	0
٥	Brgy. IV, Purok 5; San Francisco-2	April 29, 1998	7.6	27	0.2		< 0.2	< 0.50	10,000	0
10	Zillovia Purok I-B, Talacogon (F.F.)	April 30, 1998	- 4.6	5	3.6		0.5	< 0.50	20,000	0
-	Zillovia Purok I-A, Talacogon (F.F.)	April 30, 1998	8.2	0.	2.0		0.5	< 0.50	No detected	0
12	Buena Gracia, Talacogon (L.II)	April 30, 1998	7.5	.10	8.8		0.2	< 0.50	170,000	~
<u> </u>	Buena Gracia, Purok Tumalictic,	April 30, 1998	7.6	च	8.8		0.2	< 0.50	No detected	No detected
1	Zillevia Talacocon-1	Ann 30 1998	8 %	6	43		\$ 0	050>	No detected	o
	Zillovia, Talacogon-2	April 30, 1998	8.1	2	\$0		0.2	< 0.50	100,000	m
16	Don Alejandro, San Luis (F.F.)-1		7.1	0	1.4		0.2	0.11	No detected	0
17	Poblacion Baptish, San Luis-1	April 30, 1998	7.4	0	0.0		0.3	0.30	No detected	0
18	Poblacion, San Luis-2	April 30, 1998	7.5	0	2.4		0.3	0.28	No detected	0
61	Poblacion, Don Maxima, San Luis-1	April 30, 1998	7.3	0	1.6		0.2	0.07	No detected	0
20	Poblacion, Purok 8, San Luis		7.2	107	1.4		0.3	0.28	30,000	0
21	Don Alejandro, San Luis-2	April 30, 1998	7.0	0	0.2		0.7	0.44	No detected	0
22	Poblacion, Don Maxima, San Luis-2	April 30, 1998	7.5	27	0.0		0.1	0.08	No detected	0
23	Poblacion, Purok 4, San Luis	April 30, 1998	7.1	10	9.5		0.2	0.11	No detected	0
24	Dona Flavia, San Luis-1	April 30, 1998	7.5	0	1.5		0.3	0.20	0	0
25	Dona Flavia, San Luis-2	April 30, 1998	7.4	21	0.2		0.1	01.0	0	2
56	Patin-ay Purok 3, Prospendad	May 16, 1998	7.3	N.A.	.2,8		0.1	60.0	30,000	0
27	San Teodoro, Binahanan, Bunawan-1	May 16, 1998	7.3	N.A.	0.5		0.1	60.0	0	0
28	San Teodoro, Bunawan-2	May 16, 1998	9.9	N.A.	1.9		0.1	90.0	90,000	0
29	San Teodoro, Bunawan-3	May 16, 1998	7.1	N.A.	4.2		0.3	0.05	200,000	2
30	Esperanza Water District (L.III)	May 16, 1998	6.4	N.A.	3.4	0.04	0.2	0.10	40,000	0
31	Labao, Esperanza	May 16, 1998	6,3	N.A.	74.0		0.4	0.30	40,000	3

Note, N.A.: Not available

Table 7.3.3 Water Quality Analysis Data

	Committee Water Courses: Springs					Provincial Number:				
Sampin	K water Southers, Springs					Provincial Name: Agusan del Sur	isan del Sur			
region	Region intimber: ALL		D.	Calar	Turkidity	Turkidity Besidual Chlorine	ي	γľα	Coliform Bacteria	Total Bacteria
ģ	Sampling Site	Sampling Date	<u>.</u>		T CI CIGICS			(200)	(001 x 100)	(count number)
_	:		:	(rcu)	(FIU)	(mg/liter)	(mg/mer)	(III) (III)	(Coduc industria Assoc)	(
	San Nicolae Talacogon	April 30, 1998	8.5	10	3.4		0.2	< 0.05	No Detected	0
,	Son lose San Luis	April 30, 1998	6.8	0	0.0		0.1	90.0	Numerous	11
1	Munitola San I use	April 30, 1998	7.3	0	0.0		0.1	0.17	0	0
1	State December	Anni 30 1008	73	XX	0.0		0.1	60:0	Numerous	0
•	Sellicite December	April 30 1998	7.5	Z			0.2	0.14	1,300	٥
مار	Salvación, Frosperidad	Mar. 16, 1000	2.2	Z	90	0.58	0.2	0.05	909	0
اه	Prospendad water District	May 10, 1790	:		0.5		40	0 30	120	0
^	Pob. Purok 21, Prospendad	May 16, 1998	7.0	÷.	5.5					
~	Patra-av Prosperidad W.D.	May 16, 1998	7.1	Ä.	32.5	0.22	0.4	0.16	300	>
٥	Bungan Water District	May 16, 1998	7.4	Ϋ́Z	0.0	0.30	0.1	0.08	400	0
٤	Son Teodoro Burawan	May 16, 1998	7.8	N.A.	2.2		0.1	0.07	0	0
<u>}</u>	Distance Proch Burgar	May 16 1998	8.9	Z A	34.7		0.4	0:30	300	0
:	Tagarahan Fromana	May 16, 1998	0.9	Z.A.A	0.0		0.1	0.17	0	0
<u> </u>	Domogramay Bungan	May 20 1998	7.4	Z Z	1.5		0.2	0.07	100	0
2	Ocmens Bayloga	April 20, 1998	7.1	N.A.	0.0		0.1	90.0	1,000	0

(Note, N.A.: Not available)

Table 7.3.3 Water Quality Analysis Data

		1111				Provincial Number				
Sampli	Sampling water Sources: Deep Wells (Level 17 117 11)	111)				Provincial Name: Agusan del Sur	san del Sur			
Negion No.	Sampling Site	Sampling Date	Hq	Color	Turbidity	Residual Chlorine	Fe	Mn	Coliform Bacteria	Total Bacteria
<u></u>		•	,	(PCU)	(FTU)	(mg/liter)	(mg/liter)	(mg/liter)	(count number x100)	(count number)
-	Brev. II. Purok S. San Francisco-1	April 14, 1998	7.6	0	6.0		0.5	0.50	0	0
	Brev. II. Purok 5. San Francisco-2	1-	7.5	7	0.5		0.2	< 0.50	0	7
. -	Brov. II. Purok 4. San Francisco-1	-	7.6	4	0.1		0.5	< 0.50	100	٥
. 4	Brov. II. Purok 4. San Francisco-2	_	7.7	٥	2.1		1.0	< 0.50	100	٥
~	Brev. II. Purok 4. San Francisco-3	-	7.7	21	4.8		0.2	< 0.50	0	0
\ \ -	Brov IV Purok 5 San Francisco-1		7.7	28	0.0		0.2	0.50	0	0
. ,	Brov IV Punk 3. San Francisco		8.5	9	9.6		0.5	< 0.50	0	0
~	Brov V Purok 2. San Francisco		7.3	1	2.6		0.2	< 0.50	009	0
ò	Brow IV Purols 5 San Francisco-2	April 29, 1998	7.6	27	0.2		< 0.2	< 0.50	100	٥
, <u>c</u>	Zillowa Purok I-B. Talacogon (F.F.)	1-	7.9	'n	3.6		0.5	< 0.50	200	0
=	Zilovia Purok I.A. Talacogon (F.F.)	1-	8.2	0	2.0		0.5	< 0.50	Numerous	0
-	Busin Gracia Talaccoon (1 11)	April 30, 1998	7.5	10	8.8		0.2	< 0.50	1,700	S
1 =	Buena Gracia, Purok Tumalicue,	April 30, 1998	7.6	4	8.8		0.2	< 0.50	Numerous	No detected
	Talacogon									
12	Zillovia, Talacogon-1	April 30, 1998	8.5	2	4.3		0.5	< 0.50	No detected	0
	Zillovia Talacogon-2		8.1	2	5.0		0.2	< 0.50	Numerous	3
2 2	Don Aleiandro, San Luis (F.F.)~1	April 30, 1998	7.1	0	1.4		0.2	0.11	Numerous	٥
:	Pohlacion Rantish San Luis-1	April 30, 1998	7.4	0	0.0		0.3	0.30	No detected	0
-	Poblacion San Luis-2	April 30, 1998	7.5	0	2.4		0.3	0.28	Numerous	0
2	Poblacion Don Maxima, San Luis-1	April 30, 1998	7.3	0	1.6		0.2	0.07	Numerous	0
2	Poblacion, Purok 8, San Luis	April 30, 1998	7.2	107	4:1		0.3	0.28	300	0
21	Don Aleiandro, San Luis-2	April 30, 1998	7.0	0	0.2		0.7	0.44	Numerous	0
22	Poblacion Don Maxima, San Luis-2	April 30, 1998	7.5	27	6.0		0.1	0.08	Numerous	0
23	Poblacion, Purok 4, San Luis	April 30, 1998	7.1	10	9.5		0.2	0.11	Numerous	0
2	Dona Flavia, San Luis-1	April 30, 1998	7.5	0	1.5		0.3	0.20	0	٥
۲ ا	Dona Flavia, San Luis-2		7.4	52	0.2		0.1	0.10	0	2
) ×	Patrian Purok 3 Prosperidad		7.3	Ϋ́Z	2.8		0.1	0.09	300	0
27	San Teodoro Binahanan Bunawan-I	May 16, 1998	7.3	Ϋ́	0.5		0.1	0.09	0	0
į ×	San Teodom Bunawan-2	May 16, 1998	9.9	N.A.	1.9		0.1	0.06	006	0
2	San Teodoro, Bunawan-3	May 16, 1998	7.1	< N	4.2		. 0.3	0.05	2,000	2
28	Esperanza Water District (L.III)		6,4	N.A.	3.4	0.04	0.2	0.10	400	0
<u></u>	Labao, Esperanza	May 16, 1998	6.3	N.A.	74.0		0.4	0.30	400	3
	The second secon									

Note, N.A.: Not available

