- 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<sup>1</sup>. 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.<sup>2</sup>

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 utilities<sup>3</sup>, 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 plan<sup>4</sup>. 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.<sup>5</sup>

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 hygienc 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).

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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:

- 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

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 fer. 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, DPWII 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. DH.G, 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.

#### NEDA Board Resolution No. 4 (series of 1994)

# 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.
- 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 DH.G 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.

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#### MATRIX OF FINANCING AND MANAGEMENT OPTIONS

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Option	Description
LGU-Financed and Managed	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.
Service Contract	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.
Management Contract	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.
Lease Contract	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.
Concession Contract	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.
Creation of a Local Water District	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

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 sewcrage 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. 1000

- 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

#### 7. WATER SOURCE DEVELOPMENT

#### 7.1 GENERAL

Table 7.1.1
Water Source Information

	ial Water Supply, Sewerage And Sa		tor Plan (PW4SP)		Page: 1 of 1
	1: Water Source - General Inform		. 12/2		Date:
		Province No	me: Surigao Del Norte		Filename: Water Source.xls
KeRion	Type of Water Source	LIOANICE IAS	Shallow Well	Deep Well	Form Number: P.4.1 Spring
	Total number of water sources	Number	990	235	233
wnership Level Imple-	Government Agency	Number	599	157	223
lmpl ment	Private	Number	391	78	10
	Level I	Number	990	233	110
evel	Level II	Number		*****	86
	Level III	Number		2	37
	Water District	Number			
	MEO/CEO	Number			
	RWSA	Number			
Ship	BWSA	Number	8		3
vnen.	Institution	Number			
Ó	Commercial Establishment	Number			/-
	Industrial/Agricultural Undertakin	Number			
	Public (Domestic)	Number	591	155	202
ļ	Private (Domestic)	Number	391	75	10
	Submersible/Turbine	Number		2	
Abstraction	Centrifugal	Number	6	2	
Stra	Handpump	Number	983	202	
₹	Bucket & Rope	Number			
	Free Flowing	Number	1		212
	Drinking	Number	744	182	228
ġ	Washing/Bathing	Number	525	177	200
Usage	Gardening/Irrigation	Number	373	175	·
	Big-Scale Irrigation	Number			
	Production	Number			
	No Quality Problem	Number	716	180	227
>	High Iron/Mag. Content	Number			
ualıç	High Chloride Content	Number	40	20	
Water Quality	Turbidity/Colored/Smell	Number	53	20	
Wat	Polluted/Contaminated	Number			
	Chlorinated	Number			
	Treated	Number			
	Seasonal Production	Number			
tion	Average Capacity < 100 m <sup>3</sup> /day	Number	69	32	196
Production	Average Capacity >= 100 m³/day	Number	4		37
å	Number of Household < 5	Number	9		
Ĺ	Number of Household >= 5	Number	3,594	544	2,999

rovinc	ial Water Supply, Sewerage And Sanit	ation Sector I	Plan (PW4SP)				Page: 1 of 1	
	Water Source - General Informati	0n	10 : 33				Date:	
	ollection Level: Provincial Number: XIII	<del></del>	Province No.:	1367 : Surigao Del N	lade		Filename: Wate Form Number:	
CENT	Name of Municipalities	Character		. Surigati IX IX	1011¢	San Francisco		P.4.1
	Type of Water Source	Number	Alegria Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	188	2	Spring 8	5	Deep men	Spring 8
		Number	42	2	8	4		
imple- mentor	Government Agency	Number	146			1		8
- <u>-</u>	Private	Number	188	2	_ <u>-</u>	5	·	<del></del>
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	Level III	Number	<del> </del>		•	<del>                                     </del>		4
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rsh:		Number			·	- <del>-</del>		
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J	Commercial Establishment	Number				}		
	Industrial/Agricultural Undertaking	Number				-		
	Public (Domestic)	Number	146	2	8	4		8
	Private (Domestic)		140			1	<b> </b>	
	Submersible/Turbine	Number		2				
Abstraction	Centrifugal	Number	·	2		<del></del>		
Ř	Handpump	Number	188	2		5		
~	Buckei & Rope	Number		<b>.</b>			ļ	· · · · · · · · · · · · · · · · · · ·
	Free Flowing	Number			8		ļ	8
	Drinking	Number	188	2	8			8
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Usage	Gardening/Irrigation	Number	188		8			
	Big-Scale Irrigation	Number			ļ			
	Production	Number		<u> </u>				
	No Quality Problem	Number	188		8	1	<u> </u>	8
. A	High Iron/Manganese Content	Number				4	<u> </u>	<u> </u>
il a	High Chloride Content	Number		<u> </u>	}			1
Water Quality	Turbidity/Colored/Smell	Number						
Natc	Polluted/Contaminated	Number						
	Chlorinated	Number			1			
	Treated	Number			]	1	1	;
	Seasonal Production	Number				1		
EQ.	Average Capacity < 100 m³/day	Number		1	1	5		8
Production	Average Capacity >= 100 m <sup>3</sup> /day	Number			7		T	· [- · ·
£	Number of Household < 5	Number				1	1	1
ļ	Number of Household >= 5	Number	1,375	130	2,999	30	ļ	†

	cial Water Supply, Sewerage And Sa nt: Water Source - General Inform		tor rish (r w 4)	or)			Page: 1 of 1 Date:	
	ollection Level: Provincial		Province No.:	1367			Filename: Wat	er Source
	Number: XIII		Province Name	: Surigao Del	Norte		Form Number: P.4.1	
	Name of Municipalities	Character	Bacuag			Del Carmen		
	Type of Water Source	Number	Shallow Well		Spring	Shallow Well		Sprin
	Total number of water sources	Number	46	6	1	14	5	16
Impie- mentor	Government Agency	Number	9	6		10		16
5 É	Private	Number	37		1	4		
77	Level i	Number	46			14	5	14
Level	Level II	Number				.]		1
	Level III	Number			1			1
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Ownership	Institution	Number						
ð	Commercial Establishment	Number						
	industrial/Agricultural Undertaking	Number		!				
	Public (Domestic)	Number	9	6		10		
ĺ	Private (Domestic)	Number	37	ļ	1	4		 
	Submersible/Turbine	Number	<u> </u>					
6	Centrifugal	Number	<del>                                     </del>	<b>†</b>	t	·	·	
Abstraction	Handpump	Number	·	6	<u> </u>	7		
(bst)	Bucket & Rope	Number	· <b> </b>	ļ <u>-</u>	<del> </del>	6		
,	<del>}</del>	Number		<del> </del>		-	ł	
- <del></del>	Free Flowing	Number		6	<del> </del>	6	<del> </del>	····
ļ	Drinking	Number		6	<del> </del> :	-  <del>"</del>		16
Usage	Washing/Bathing	Number	_	6	<del>;</del>	-		
5	Gardening/Imigation	Number	- <b></b>	· · · · · · · · ·	ļ <u>.</u>		- <del> </del> -	ļ ·
	Big-Scale Irrigation		+	<u> </u>	<u>}</u>	_		
<b>!</b>	Production	Number	+		<u> </u>	<del> </del>	<del> </del>	<del></del>
	No Quality Problem	Number	<del></del>	6	1 †	13		16
₽	High Iron/Manganese Content	Number	-[	ļ	! ;		.]	į
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l b	Turbidity/Colored/Smell	Number	<b></b>	ļ	·	I(smell)		
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	Chlorinated .	Number	-}		· · ·	_	<u> </u>	
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	Seasonal Production	Number	<u> </u>	ļ	l			i
ĕ	Average Capacity < 100 m <sup>3</sup> /day	Number		6	1	8		10
Production	Average Capacity >= 100 m <sup>3</sup> /day	Number			1	4		[ 
£	Number of Household < 5	Number					1	
1	Number of Household >= 5	Number	,	4!4	T	1,954	- [	I

rovin	cial Water Supply, Sewerage And Sa	nitation Se	tor Plan (PW4S	SP)			Page: 1 of 1	
	at: Water Source - General Informati	on	15 , , , , , ,	12/0			Date:	
	offection Level: Provincial Number: XIII		Province No.:	1367 Surigao Del N	r.ria		Filename: Wate Form Number:	
	Name of Municipalities	Character	Gen, Luna		CT IC	Mainit	cotto teamost.	P.4. I
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	207	2		11	43	29
ğ	Government Agency	Number	59	2		5	17	29
mentor	Private	Number	148		:	6	26	<u></u>
	Levell	Number	207	2		11	43	4
Level	Level II	Number						19
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-	Water District	Number					!	
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	Public (Domestic)	Number	59	2		5	17	29
	Private (Domestic)	Number	148			6	26	
	Submersible/Turbine	Number					;	
tion	Centrifugal	Number	6				,	
Abstraction	Handpump	Number	201	5		11	43	
Ş	Bucket & Rope	Number						
	Free Flowing	Number					T	29
	Drinking	Number	167	2		11	23	29
U	Washing/Bathing	Number	40	2		11	20	29
Usage	Gardening/Irrigation	Number					20	
	Big-Scale Imigation	Number				·		
_	Production	Number				7- /		
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	High Iron/Manganese Content	Number						
Water Quality	High Chloride Content	Number	40				20	- <del></del>
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101	Average Capacity < 100 m <sup>3</sup> /day	Number					1	23
Production	Average Capacity >= 100 m <sup>3</sup> /day	Number	T	1				6
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	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	7		2	1	ļ	10
imple- mentor	Government Agency	Number	4		2			10
ii ë	Private	Number	3			1	<u> </u>	
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	Level III	Number						
į	Water District	Number						
	MEO:CEO	Number						
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çif	BWSA	Number			<u></u>			
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ਂ ਂ	Commercial Establishment	Number					<u> </u>	
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	Private (Domestic)	Number	3	<u> </u>		1		i <u>.</u>
Ī	Submersible/Turbine	Number			2	l		
io S	Centrifugal	Number		i			.]	: 1
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Ş. Ş.	Bucket & Rope	Number		İ			<u> </u>	J
	Free Flowing	Number		<u> </u>	2			10
	Drinking	Number	2		2			10
U	Washing/Bathing	Number	5	<u> </u>			• •	<b>!</b>
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uor	Average Capacity < 100 m <sup>3</sup> /da	Number	7		2	1		10
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ξ.	Number of Household < 5	Number	7			1		<u> </u>
	Number of Household >= 5	Number	93	T	}			L

Provinc	ial Water Supply, Sewerage And Sa	nitation Se	ctor Plan (PW4	SP)			Page:   of	H: -1
	t: Water Source - General Information	Dri	r				Date:	
Data Co	ollection Level: Provincial Number: XIII		Province No.: Province Nam		I North		Filename: Wa	
. 51011	Name of Municipalities	Character	the second second	e, sungao ne	i None	San Jose	Form Number	: P.4.1
	Type of Water Source	Number		Deen Well	Spring	Shallow Wel	Deep Welt	Spring
	Total number of water sources	Number	35		36	48	1	5
Implement	Government Agency	Number	35		35	28	1	5
E E	Private	Number			1	20	<u> </u>	
	Level I	Number	35		36	48	† <del></del> -	
Level	Level II	Number					·	5
	Level III	Number		· ···· · · · · · · · · · · · · · · · ·				
	Water District	Number						
	MEO/CEO	Number						
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iti Çi	BWSA	Number				8	T	
Ownership	Institution	Number						
ð	Commercial Establishment	Number				T		
	Industrial/Agricultural Undertaking	Number				1	1	
	Public (Domestic)	Number	35		35	28		
	Private (Domestic)	Number			1	20		
	Submersible/Turbine	Number						· · · · · · · · · · · · · · · · · · ·
5	Centrifugal	Number	I					
Abstraction	Handpump	Number	35			48	1	
Š	Bucket & Rope	Number	]				1	
	Free Flowing	Number			36			:
	Drinking	Number	35		36			
· ·	Washing/Bathing	Number	35		36	48		
Usage	Gardening/Irrigation	Number			l		1	
	Big-Scale Irrigation	Number		]				
	Production	Number						
	No Quality Problem	Number		]	36			
_	High Iron/Manganese Content	Number		I				
Water Quality	High Chloride Content	Number		[	1	1		
Ő.	Turbidity/Colored/Smell	Number		1		48		
Wate	Politited/Contaminated	Number		1	[·			
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	Treated	Number		1		1	.	
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uot	Average Capacity < 100 m /day	Number	T		36	48	1	5
Production	Average Capacity >= 100 m <sup>2</sup> /day	Number				<del> </del>	ļ	
P 5	Number of Household < 5	Number		İ				
	Number of Household >= 5	Number	1	·	1	137	1	

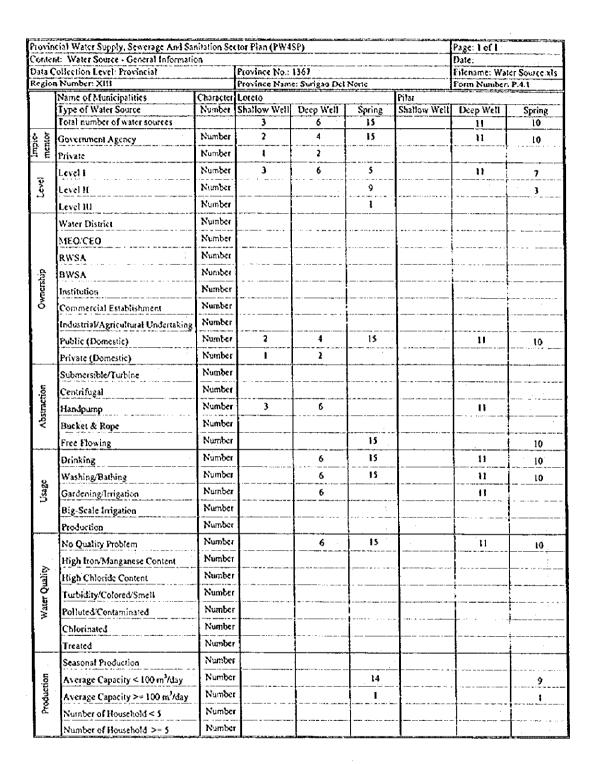
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	cial Water Supply, Sowerage And S		Sector Plan (PV	V4SP)			Page: 1 of 1	
	nt: Water Source - General Informa	tion	<u> </u>	43.00			Date:	
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THE THE WAY	Name of Municipalities	Character		c: Satigation	el Notic	Cagdianao	Houn Mamod	(; [*,4.]
	Type of Water Source	Number		Deen Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources		21	26	3			6
Imple- mentor	Government Agency	Number	17	4	3			6
Ξů	Private	Number	4	22				
	Level I	Number	21	26				
[cvc]	Level II	Number						5
	Level III	Number			3			ì
	Water District	Number						
1	MEO/CEO	Number	ł					
	RWSA	Number						
윤	BWSA	Number	1			1		
Ownership	Institution	Number						
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	Industrial/Agricultural Undertakin	Number		<u> </u>	!			
	Public (Domestic)	Number	17	4	3		1	6
1	Private (Domestic)	Number	4	22				
	Submersible/Turbine	Number						
ĕ	Centrifugal	Number		}				
Abstraction	Handpump	Number	21	Ţ <u>.</u>				
Ş	Bucket & Rope	Number						
	Free Flowing	Number	ı		3			6
	Drinking	Number	<u> </u>	<u> </u>	3			6
Į,	Washing/Bathing	Number		i	3		1	6
Usage	Gardening/Imigation	Number		<u>  </u>	l			<u> </u>
	Big-Scale Irrigation	Number						<u>:</u>
1	Production	Number	1	F				:
	No Quality Problem	Number			3			
	High fron/Manganese Content	Number		ļ	i	_		ļ
ile	High Chloride Content	Number	·	<u> </u>			<u> </u>	
Water Quality	Turbidity/Colored/Smell	Number						
¥ay	Folluted/Contaminated	Number	·		1			<u> </u>
	Chlorinated	Number	· [	1	<u> </u>		.	1
	Treated	Numbe						
	Seasonal Production	Numbe			1			:
tion	Average Capacity < 100 m <sup>3</sup> /day	Numbe		26	3		. Ì	5
Production	Average Capacity >= 100 m <sup>2</sup> /day	Numbe	r ]				.	1
<u>م</u>	Number of Household < 5	Numbe	r		İ	_i		
	Number of Household >= 5	Numbe	r	<u>i</u>		1		

	ial Water Supply, Sewerage And S		ector rian (FW	(43r)			Page: 1 of 1	
	t: Water Source - General Information ollection Level: Provincial	non	Province No.:	1267			Date:	
	Number: XIII			e: Swigao Del	Norte		Filename: Wat Form Number	
	Name of Municipalities	Character	Dapo			Claver		Market Calebra - Carriera
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources		22		12	153		2
Impie- mentor	Government Agency	Number	17		. 4	153		2
E É	Private	Number	5		8			
<b>7</b> .	Level I	Number	72		4	153		2
Level	Level II	Number			7			
	Level III	Number			i	İ	i	
	Water District	Number						
	MEO.CEO	Number						
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ð	Commercial Establishment	Number			ļ		İ .	
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	Public (Domestic)	Number	17		4	153	1	2
	Private (Domestic)	Number	5		8	1		
	Submersible/Turbine	Number					i	
Į,	Centrifugal	Number			1		]	
Abstraction	Handpump	Number	22	T	1	153		
\$ <b>2</b>	Bucket & Rope	Number					İ	
ı	Free Flowing	Number			12		i	2
	Drinking	Number			12	153		2
	Washing/Bathing	Number	1		12	<u> </u>	·	2
Usage	Gardening/Irrigation	Number			ļ —		† ·- ·	
د	Big-Scale Irrigation	Number		İ	· [·		<u> </u>	
	Preduction	Number				1		
	No Quality Problem	Number			12	153	1	2
	High Iron/Manganese Content	Number		<u> </u>	1	-	<u> </u>	
Sile	High Chloride Content	Number	1			·	<del></del>	
Water Quality	Turbidity/Colored/Smell	Number		†	1	· · · · · · · · · · · · · · · · · · ·	- <b>:</b>	
Vater	Polluted/Contaminated	Number	·}	<u> </u>	<del> </del>	-	· · · · · · · · · · · · · · · · · · ·	<del></del>
7	Chlorinated	Number	1	1	·-··		<del>.</del>	
	Treated	Number			1		<del>-1</del>	
i	Seasonal Production	Number		<b> </b>	<del>                                     </del>	+		<u> </u>
Ę	Average Capacity < 100 m <sup>3</sup> /day	Number		·	11		†	}
Production	Average Capacity >= 100 m <sup>3</sup> /day	Number	·	<del></del> -	-	- <b> -</b>	i	
P. 9	Number of Household < 5	Number						<b> </b>
4	Exemple of Household > 3	.]		1	. 1	. <b>i</b>	1	<u>:</u>

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	ial Water Supply, Sewerage And S		ector Plan (P	W4SP)			Page: 1 of 1	
	: Water Source - General Informa						Date:	· · · · · · · · · · · · · · · · · · ·
	ollection Level: Provincial Number: XIII		Province No.	ne: Surigao De	-1 Norte		Filenome: Wa Form Number	
	Name of Municipalities	Character		mer our group.		Libjo	T VIII T VIII V C	
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources		8		3	6		7
Imple- mentor	Government Agency	Number	4	<b> </b>	3	5		7
Imp	Private	Number	4			1		
	Level 1	Number	8			6		
Levei	Level II	Number						7
<b>1</b> ~	Level III	Number			3			
	Water District	Number				[	,	
	MEO/CEO	Number						
	RWSA	Number					1	
<u> </u>	BWSA	Number						
Ownership	Institution	Number			ļ			. ,
\$	Commercial Establishment	Number	<del></del>	]				
	Industrial/Agricultural Undertaki	Number		1	İ			
1	Public (Domestic)	Number	4	1	3	5		7
	Private (Domestic)	Number	4	]	1	1		
	Submersible/Turbine	Number		1				
5	Centrifugal	Number				1		
Abstraction	Handpump	Number	4			6		
ş	Bucket & Rope	Number		1		1	1	
	Free Flowing	Number			3			7
	Drinking	Number			3			7
	Washing/Bathing	Number			3		Ī	7
Osage	Gardening/Irrigation	Number	I					
1	Big-Scale Irrigation	Number			!	]	1	!
[	Production	Number	1			1	<u> </u>	:
	No Quality Problem	Number			3			7
1	High Iron/Manganese Content	Number		. [				
ality	High Chloride Content	Number			[			
Water Quality	Turbidity/Colored/Smell	Number	T				1	
Z'ate	Polluted/Contaminated	Number			Ţ			
	Chlorinated	Number		1	1	-		
	Treated	Number						i
	Seasonal Production	Number						
٠ 5	Average Capacity < 100 m <sup>3</sup> /day	Number	-	· [			1	7
Production	Average Capacity >= 100 m <sup>2</sup> /day	Number			3			
ro You	Number of Household < 5	Number					1	
	Number of Household >= 5	Number	-					



	ial Water Supply, Sewerage And Sa		tor Plan (PW49	P)			Page: 1 of 1	
	: Water Source - General Informati offection Level: Provincial	on	Province No.:	1363			Date: Filename: Wat	ar Course No
	Number: XIII		Province Name	: Sungao Del	Norte		Form Number	
· ·	Name of Municipalities	Character	The second secon			San Benito		-
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources			7	16		2	
Imple- mentor	Government Agency	Number		7	16		2	1
Ĕξ	Private	Number				.		<del> </del>
7.7	Level 1	Number		7	9		2	
Level	Level II	Number			5			
	Level III	Number			2			1
	Water District	Number			ļ 	<b>.</b>	 	
	MEO/CEO	Number		. · · · · · · · · · · · · · · · · · · ·				
	RWSA	Number		<u> </u>				
did	8WSA	Number	<u> </u>	<u> </u>				
Ownership	Institution	Number						·
Õ	Commercial Establishment	Number	<b>.</b>		<u> </u>		 	
	Industrial/Agricultural Undertakin	Number	<u> </u>					
	Public (Domestic)	Number		7	16		2	
	Private (Domestic)	Number	<u> </u>			<u> </u>	<u> </u>	
	Submersible/Turbine	Number	<u> </u>		ļ			
Ton	Centrifugal	Number			<u> </u>			
Abstraction	Handpump	Number		7	!		2	 
₹ 7	Bucket & Rope	Number		ļ	ļ		ļ	: 
	Free Flowing	Number	<u> </u>	<u> </u>	16		<u> </u>	l
	Drinking	Number	- 	7	16		2	1
9,	Washing/Bathing	Number	<u> </u>	7	16		2	1
Usage	Gardening/Irrigation	Number		7			2	
	Big-Scale Irrigation	Number		ļ	<u> </u>			·
<u></u>	Production	Number		ļ	<u> </u>		<u> </u>	
٠.	No Quality Problem	Number	<b>.</b>	7	16		i 2	<u>l</u>
_ ا	High Iron/Manganese Content	Number	·	.]			İ	L
ualit	High Chloride Content	Number		<u> </u>	<u> </u>		ļ	<u>.</u>
Water Quality	Turbidity/Colored SmcII	Number			İ	_[	<u></u>	<u> </u>
₩at	Polluted/Contaminated	Number		<b></b>	<u> </u>		i	: !
	Chlorinated	Number		<u> </u>			ļ	İ
	Treated	Number	<del></del>	<u> </u>	<u> </u>		<u> </u>	
	Seasonal Production	Number			1		i	İ
ţi Du	Average Capacity < 100 m <sup>3</sup> /day	Number			9			1
Prc duction	Average Capacity >= 100 m /day	Number			7			
Ĕ	Number of Household < 5	Number		<b>_</b>	.			
1	Number of Household >= 5	Number	r	1	i	1	1	Ì

	cial Water Supply, Sewerage And Sa		tor Plan (PW4	SP)			Page: 1 of 1	
	L. Water Source - General Information	<u>on</u>					Date:	
ata C	ollection Level: Provincial		Province No.:				Filename: Wate	er Source xls
egion	Number: XIII Name of Municipalities	CL	Province Nam San Isidro	e: Surigas Del	Norte	Santa Monica	Form Number:	8.4.1
	Type of Water Source	Number	San Islaro Shallow Well	Doen Well	Spring	Shallow Well	Deep Well	Contract
·	Total number of water sources	Number	CHICALOTT TECH	11	7	34	22	Spring 8
, <u>5</u>	Government Agency	Number		11	7	27	10	8
mentor	Private	Number				7	12	
	Levell	Number		11	6	34	22	
Level	Level II	Number			]			
	Levellil	Number						3
	Water District	Number						<del></del>
	MEO/CEO	Number				1	j+	····
	RWSA	Number						
ö.	BWSA	Number						
Ownership	Institution	Number						
ð	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number		11	7	27	10	8
	Private (Domestic)	Number				7	12	
	Submersible/Turbine	Number						
jou	Centrifugal	Number		,			ļ — · · · · · · · · · · · · · · · · · ·	
Abstraction	Handpump	Number		11		24	22	
Š	Bucket & Rope	Number						
	Free Flowing	Number			7			8
	Drinking	Number	ļ	11	7		22	8
41	Washing/Bathing	Number		11	7		22	8
Usage	Gardening/Irrigation	Number		11			22	
	Big-Scale Imigation	Number						
	Production	Number						
	No Quality Problem	Number		11	7		22	8
_	High Iron/Manganese Content	Number	<u> </u>	<u> </u>				
Çiler	High Chloride Content	Number						
Water Quality	Turbidity/Colored/Smell	Number						
Wat	Polluted/Contaminated	Number						
	Chlorinated	Number						
	Treated	Number			]			
	Seasonal Production	Number	<u> </u>	L		_		
Ę.	Average Capacity < 100 m <sup>3</sup> /day	Number		ì	7	_		3
Production	Average Capacity >= 100 m <sup>3</sup> /day	Number		l				5
ď	Number of Household < 5	Number		1	ļ			
	Number of Household >= 5	Number	1	-	i	1	1	1

cial Water Supply, Sewerage And Sa		100 1331 (1004	-111			Page: 1 of 1 Date:	
		Province No :	1367				er Source.xls
Number: XIII				Norte		Form Number	P.4.1
Name of Municipalities					Surigao City		
		Shallow Well		Spring	· L ·		Spring
				<del></del>			2
Government Agency			8	12		36	
Private			<u> </u>	ļ		<b>!</b> 	<u> </u>
Level			8	1	177	54	
1 evel II	Number			7			
Level III	Number	L		4	<u></u>	2	2
Water District	Number			<u> </u>			
MEO/CEO	Number		Ì				
RWSA	Number						
BWSA	Number		 	;		[	
Institution	Number		ļ			•	
	Number			i			1
52 · · · · · · · · · · · · · · · · · ·	Number		i	i			
***************************************	Number		8	12	177	54	2
	Number						
		<del> </del>				<del> </del>	
				j		ļ	<u> </u>
				1	132	54	
		·	<del>-</del>	<del> </del>	-  <i>```</i>	<u> </u>	!
				13		·	·
<del></del>		<del>                                     </del>		<del> </del> -	122	54	
		. <b></b>		Į	_  · ·• · · ·		2
Washing Bathing			-i	12		1	<u> </u>
Gardening/Irrigation	<b>!</b>	- <b>!</b>	8	. <b>j</b>	177	34	į
Big-Scale Inigation							ļ
Production	Number			<u>i</u>		<u> </u>	<u> </u>
No Quality Problem	Number	·	8	12	177	54	2
High Iron/Manganese Content	Number	· [		L		,	. L
High Chloride Content	Number				1	<u> </u>	<u>!</u>
	Number		Ţ	T		T	•
	Number						]
	Number	1	1			1	
	Number	- <del> </del>					
· · · · · · · · · · · · · · · · · · ·	Number			İ	<u> </u>		1
			†	II	-	- <b>!</b>	
			_		1	- <u>-</u>	2
			- †	t			·   · · · · · · · · · · · · · · · · · ·
Number of Household < )	Numbe		- <del> </del>	_	-[		<b>+</b>
	I. Water Source - General Information of lection Level: Provincial Number: XIII Name of Municipalities Type of Water Source Total number of water sources Government Agency Private Level II Level III Water District MEO/CEO RWSA BWSA Institution Commercial Establishment Industrial/Agricultural Undertaking Public (Domestic) Private (Domestic) Submersible/Turbine Centrifugal Handpump Bucket & Rope Free Flowing Drinking Washing/Bathing Gardening/Irrigation Big-Scale Irrigation Production No Quality Problem High Iron/Manganese Content	I. Water Source - General Information of offection Level: Provincial Number: XIII  Name of Municipalities Character Type of Water Source Number Total number of water sources Character Government Agency Number Institution Number Water District Number Mumber Mumber Mumber District Number Institution Number Number Number Institution Number Number Commercial Establishment Number Industrial/Agricultural Undertaking Number Public (Domestic) Number Submersible/Turbine Number Centrifugal Number Number Centrifugal Number Number Rece Free Flowing Number Number Number Handpump Number Rece Free Flowing Number Number Number Free Flowing Number Number High Iron/Manganese Content Number Number Production Number Number Number No Quality Problem Number Number Number No Quality Problem Number Number Number No Quality Problem Number Number Number No Quality Problem Number Number Number No Quality Problem Number Number Number No Quality Problem Number Number Number No Quality Problem Number Number Number Number Number No Quality Problem Number Numbe	I: Water Source - General Information ollection Level: Provincial Province No: Number: XIII Province Name Name of Municipalities Character Type of Water Source Number Type of Water Source Government Agency Number Private Number Level I Number Level II Number Water District Number MEO/CEO Number RWSA Number Industrial/Agricultural Undertaking Public (Domestic) Private (Domestic) Number Submersible/Turbine Number Centrifugal Number Bucket & Rope Free Flowing Number Production Number Mashing-Bathing Gardening/Irrigation Number Righ Chloride Content Turbidity/Colored/Smell Number Treated Number Chlorinated Number Chlorinated Number Treated Number Chlorinated Number Chlorinated Number Treated Number Ceaver Average Capacity >= 100 cm²/day Number	L Water Source - General Information    Olection Level: Provincial   Province No: 1367     Number XIII   Province No: 2550     Name of Municipalities   Character   Sison     Type of Water Source   Number   Shallow Well   Deep Well     Total number of water sources   Character   Source     Government Agency   Number   Sallow Well   Deep Well     Total number of water sources   Character   Sallow Well   Deep Well     Government Agency   Number   Sallow Well   Deep Well     Total number of water sources   Character   Sallow Well   Deep Well     Total number of water sources   Character   Sallow Well   Deep Well     Total number of water sources   Character   Sallow Well   Deep Well     Total number   Sallow Well   Deep Well     Total number   Sallow Well   Deep Well     Total number   Sallow Well   Deep Well     Total number   Sallow Well   Deep Well     Total number   Sallow Well   Sallow Well   Sallow Well     Total number   Sallow Well   Sallow Well   Sallow Well     Total number   Sallow Well   Sallow Well   Sallow Well     Total number   Sallow Well   Sallow Well   Sallow Well     Total number   Sallow Well   Sallow Well   Sallow Well   Sallow Well     Total number   Sallow Well   Sall	Water Source - General Information	Water Source - General Information	Water Source - General Information   Other Source No.: 1367   Februare. Will   Province No.: 1367   Februare. Will   Number XIII   Province No.: 1367   Februare. Will   Number Source   Number Shallow Well   Deep Well   Spring Shallow Well   Deep Well   Deep Well   Spring Shallow Well   Deep We

7 - 13

	ial Water Supply, Sewerage And Se : Water Source - General Informat		Citor Ctarry	431)			Page: 1 of 1 Date:	
	Mection Level: Provincial	1011	Province No.:	1367	·		Filename: Wa	ter Source xls
tegion l	Number: XIII		Province Nam		Norte		Form Number	
	Name of Municipalities		Tagana-an			Tubjan		
1	Type of Water Source	Number	Shallow Well		Spring	Shallow Well	Deep Well	Spring
٠	Total number of water sources	Character Number	5	26	2	<b></b>		1
imple- mentor	Government Agency			15	. –	-		<u>-</u>
2 E	Private	Number	4	11		-	<b>i</b>	
चु	Levell	Number	5	26	} <b>2</b>			
Level	Level II	Number						
	Eevel III	Number		: 	ļ	ļ		<u> </u>
,	Water District	Number		<b></b>	 			
†	MEO/CEO	Number	<b> </b>		<u> </u>	_	İ	<del></del>
	RWSA	Number			<u> </u>	. <b>.</b>	İ	
Ę.	BWSA	Number					]	
Ownership	Institution	Number				-		
ð	Commercial Establishment	Number				-	-	
ا	Industrial/Agricultural Undertaki	Number	1					
	Public (Domestic)	Number	4	15	2			1
	Private (Domestic)	Number	1	11				· ·- ·
	Submersible/Turbine	Number			ļ -		<del></del> -	
Ę	Centrifugal	Number				1	<del> </del>	<u> </u>
Abstraction	Handpump	Number	5 -	26		-		ļ
Absı	Bucket & Rope	Number		<u> </u>	<u> </u>	<del> </del>		<del> </del>
,	Free Flowing	Number	- <del></del> -	i	2			} <u>-</u> -
	Drinking	Number	5	1 26	1 2			!
		Number	5	26	2	-		!
Usage	Washing/Bathing	Number	5	26				1
្ន	Gardening/Irrigation	Number			ļ		ļ	:
	Big-Scale Irrigation	Number	ļ		ļ	_		
	Production	<del></del>	<del> </del>	1 26	1	<b>_</b>		Ì
	No Quality Problem	Number		26	2		ļ	[ <u>. !</u>
<u> </u>	High Iron/Manganese Content	Number		ļ 	·		<b> </b>	<u> </u>
Water Quality	High Chloride Content	Number	ļ	Ì	<u> </u>		ļ 	<b> </b>
ier O	Turbidity/Colored/Smell	Number	·	ļ	ļ		 	<u> </u>
¥a	Polluted/Contaminated	Number		ļ				
	Chlorinated	Number	· · · · · · · · · · · · · · · · · · ·	<u> </u>		_		
	Treated	Number	<del></del>	ļ				
	Seasonal Production	Number		1		_		
E LO	Average Capacity < 100 m <sup>3</sup> /day	Number			2			1
Production	Average Capacity >= 100 m <sup>2</sup> /day	Number			1		ļ	
Pro	Number of Household < 5	Number	1	1			1	
į	Number of Household >= 5	Number		†	†			1

7 - 15

Number

Number

Number of Household < 5

Number of Household >= 5

Table 7.3.1 Major References

No.	REPORT/INFORMATION	AGENCY/AUTHOR	CONTENTS	REFERENCE DATA/DESCRIPTION	OUTPUT
	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
[	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
	Individual Well Information	NWRB	well location, well information	well depths, water levels, well	individual well location
;				location	map
Ļ	Caroundarater Recources	NWRB	groundwater availability area,	resistivity survey results, potential	potential area for high
į.	The state of the s		salt water intrusion,	area for high yielding wells, salt	yielding wells, salt water
	All Vestigation		resistivity results	water intrusion	intrusion areas
],	Carlesian Man of the	BMGS	lithologic distribution and	geologic formations of the province	provincial geologic maps
i	Published State of the		structural features of the		
	rumphues		Philippines		
	Di II	za/nn	stream flow and take and	flow rate measurements and	niver discharges in the
ദ്	Summer Para	<u> </u>	nver stage	drainage areas of major rivers of	province
	Southing Late		,	the province	
-	Dond Manuscon Man of the	DPWH-DEO PEO.	municipal boundaries	municipal boundaries, location of	base maps, municipal
:	Road Network Wap of the	OCIDA		barangays	boundanes
ا	province	CANNOT WITA	recommended water sources	well data information, water level	groundwater potential
<u>∞</u>	Feasibility Study of Sungao	SOM A TOTAL WISE	for MSWD		area map
	Meno water District SM W.D.)	SWWD	water quality results	water quality	water quality map
		CWWS	extent of mercury pollution	environmental pollution caused by	water quality report
<u>.</u>	Mat-1 cold mining workings on	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	incivioual well location in ap
2	Water Quality Analysis Result	Agusan del Norte	water quality results	water quality evaluation	water quanty map
<u>~</u>	Individual Well Inventory	DPWH-DEO.	well location, well information	well depth, water levels	individual well location map
4.	Spring Inventory	Agusan del Sur	location of springs, discharge	spring data analysis	spring inventory report

continue next page

concluded page

Table 7.3.1 Major References (Cont.'d)

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ė Ž	REPORT/INFORMATION	AGENCY/AUTHOR	CONTENTS	REFERENCE DATADESCRIPTION	OUTPUT
ي ا	Individual Well inventory	DPWH-DEO.	well location, well information well depths. Water levels	well depths. Water levels	individual well location map
		Davao del Sur	location of springs, discharge	spring discharge, location	spring inventory report
; ~	Well Log Records		geologie information	geologic formations of the province	groundwater potential
o di	Water Ouality Analysis Result		water quality results	water quality	water quality map
	Well Drilling Log Records	DPWH-DEO.	geologie information	geologic formations of the province	groundwater potential
	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
	Assessment of the Domestic	NEDA Regional Office   general information of	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		•		

Table 7.3.2 Well Inventory by Municipality

Alegna   NWSS1651   Table	99	37.2		(mbgs)		
Alegna   NWS51631   37.2   3.66     Alegna   NWS51631   37.2   3.66     Alegna   NWS51631   37.2   3.65     Alegna   NWS176612   3.05     Pongrad   NWS4713   3.05     Cabugao   NWS-4713   11.09/59   11.53   3.65     Campo   NWS-4713   11.09/59   7.92   3.05     Campo   NWS-611   11.09/59   7.92   3.05     Campo   NWS-611   11.09/59   7.92   3.05     Campo   NWS-611   11.09/59   7.92   3.05     Campo   NWS-611   11.09/59   7.92   3.05     Pagao   NWS-611   11.09/59   7.92   3.05     Pagao   NWS-611   11.09/59   7.92   3.05     Pagao   NWS-611   11.09/59   7.92   3.05     Pagao   NWS-611   11.09/59   7.92   3.05     Pagao   NWS-611   11.09/59   7.92   3.05     Pagao   NWS-611   11.09/59   7.92   3.05     Pagao   NWS-611   11.09/59   7.92   3.05     Pagao   NWS-611   11.09/59   7.92   3.05     Pagao   NWS-611   11.09/59   3.05     Pagao   NWS-611   11.09/59   3.05     Pagao   NWS-611   11.09/59   3.05     Pagao   NWS-611   11.09/59   3.05     Pagao   NWS-611   11.09/59   3.05     Pagao   NWS-611   11.09/59   3.05     Pagao   NWS-611   11.09/59   3.05     Pagao   NWS-611   11.09/59   3.05     Pagao   NWS-611   11.09/59   3.05     Pagao   NWS-611   11.09/59   3.05     Pagao   NWS-611   11.09/59   3.05     Pagao   NWS-611   11.09/59   3.05     Pagao   NWS-611   11.09/59   3.05     Pagao   NWS-611   11.09/59   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao   NWS-611   10.1159   3.05     Pagao	3.66	37.2				
Alegria         NWS51631         0625/54         372         3.66           Alegria         Alegria         NWSA6671         0625/54         17.37         4.88           Alegria         Alegria         NWSA6671         0625/54         17.37         4.88           Alegria         Alegria         NWSA6613         07/27/60         10.97         3.05           Pengud         NWSA66113         1.159         1.83         3.65           Campo         NWSA66113         1.159         1.83           Campo         NWSA66113         1.109/59         7.92         3.05           Campo         NWSA66113         1.109/59         7.92         3.05           Campo         NWSA66113         1.109/59         7.92         3.05           Pagao         NWSA66113         1.109/59         7.92         3.05           Pagao         NWSA66113         1.109/59         7.92         3.05           Pagao         NWSA66113         1.109/59         3.05         4.41           Rayon         NWSA66113         1.109/54         3.13         2.44           Rayon         NWSA66113         NWSA6613         1.109/54         3.12         4.41	3.66	37.2				
Alegna         NWSA6671         0625/54         17.37         4.88           Alegna         Alegna         NW97A6671         0625/54         17.37         4.83           Alipac         Alipac         BP506012         07/27/66         10.97         3.05           San Pedro         BW9785013         11.59         1.83         3.65           Cabugao         NWS206113         46.65         2.13           Cabugao         NWS206113         46.65         2.13           Campo         NWS206113         46.65         2.13           Campo         NWS06111         12.2         4.57           Campo         NWS06011         12.2         4.57           Cabugo         NWS06012         3.88         3.66           Paulac         NWS06012         3.88         3.66           Paulac         NWS06012         3.81         1.83           Siwata         NWS06012         3.10         3.74           Roblacion         NWS06012         1.105/54         5.18         2.44           Roblacion         NWS19433         04/27/49         8.23         4.27           Roblacion         NWS19433         04/27/49         8.23         4.27				NWS51631	АІвела	legnio
Alipso	1.25		06/25/54	NWSA6671	Alectia	lean's
Pongrud		   	07/27/60	BP506012	Alipao	Togram Jeoria
San Pedro         BFW         65/08/56         11.58         3.65           Cabugao         NWS506113         11.59         1.83         2.13           Cabugao         NWS-4013         11.69/59         2.13         3.05           Campo         NWS-4620         11/09/59         7.92         3.05           Dugsanger         NWS06111         12.2         4.57           Pagao         NWS06111         12.2         4.57           Pagao         NWS06112         6.1         4.27           Pagao         NWS06112         3.66         4.27           NWS06112         6.1         4.27           Pagao         NWS06112         3.18         2.44           NWS06112         11/05/54         5.18         2.44           Sivata         NWS06112         1.83         2.44           NWS06112         1.83         2.44           NWS06112         1.83         2.44           NWS06112         1.83         2.44           NWS06112         1.83         2.74           Roblacion         NWS19473         04/7/49         8.23         2.74           Replacion         NWS19473         04/15/52         5.49	0.31	 		NW#15279	Ponend	Nicgira Jeogra
Cabugao         NWS50613         11.59         1.83           Cabugao         NWS-4713         11/09/59         7.92         3.03           Campo         BP505515         11/09/59         7.92         3.05           Campo         NWS-4620         1.22         4.57           Dugsangor         NWS0614         8.84         3.66           Pagao         NWS06114         8.84         3.66           Pautao         NWS06114         45.77         4.27           Siwata         NWS06114         45.71         3.61           Puerto Princesa         NWS566114         45.71         3.66           Roblacion         NWS06116         10.37         1.20           Roblacion         NWS06116         1.037         1.24           Poblacion         NWS106016         1.037         1.25           Roblacion         NWS106016         1.25         4.57           Roblacion         NWS106017         1.25         2.74           Roblacion         NWS106017         1.25         2.74           Roblacion         NWS20617         1.25         2.74           Roblacion         NWS20618         1.25         2.74           Robl	3.65 0.63 1.22 0.517	   	95/80/50	BFW	San Pedro	Teoris
Cabingson         NWS-4713         46.65         2.13           Campo         RPS65915         11/09/59         7.92         3.05           Campo         NWS-4620         12.2         4.57           Campo         NWS06111         8.84         3.66           Pagao         NWS06114         8.84         4.27           Pagao         NWS06114         8.84         4.27           Payaga         NWS06112         3.81         1.83           Siwata         NWS06112         3.81         1.83           Siwata         NWS06112         3.81         1.83           Siwata         NWS06112         3.81         1.83           Siwata         NWS06112         3.81         1.83           Siwata         NWS06112         3.81         1.83           Siwata         NWS06112         3.81         2.44           Poblacion         NWS0617         4.27         1.83           Poblacion         NWS19473         04/27/49         4.27         1.83           Poblacion         NWS-4952         1.250         3.66           nen/Numancia         Anipolo         BPW-4930         05/10/49         4.27         1.83 <t< td=""><td></td><td>! !</td><td></td><td>NWS506113</td><td>Caburao</td><td>la chia di</td></t<>		! !		NWS506113	Caburao	la chia di
Campo         BP505015         11/09/59         7.92         3.05           Campo         NWS-4620         11/09/59         7.92         3.05           Campo         NWS-4620         122         4.57           Pagao         NWS06014         8.84         3.66           Pagao         MGS84668         08/18/48         45.73         3.66           Payapag         NWX506112         6.1         4.27         1.83           Siwata         NWX506114         6.1         4.27         1.83           Siwata         NWX506112         3.81         2.44         4.57           Cabugo         NWX506016         11/05/54         5.18         2.44           Roblacion         NWX506016         18.6         4.57         4.57           Cabugo         NWX506017         4.27         1.83         4.27           Roblacion         NWW506017         4.27         1.83         4.24           Roblacion         NWW506017         4.27         1.83         4.44           Roblacion         NWW506017         10/15/59         3.04         4.27         1.83           Rechnikumancia         Antipolo         NWS50617         10/15/59         3.01		46.65		NWS.4713	Cabirao	Jacobs
Champo         NWS-4620         122         4.57           Dugsangor         NWS06111         122         4.57           Pagao         NWS06114         8.84         3.66           Pautao         MWS06114         4.27           Payapag         NWS06114         4.27           Riwata         NWS06114         5.18         2.44           Puerto Princesa         NWMS06116         3.81         1.83           Siwata         NWMS06116         3.81         1.83           Poblacion         NWS06016         110.37         1.20           Roblacion         NWS06017         12.5         4.57           Poblacion         NWS06017         4.27         4.57           Roblacion         NWS06017         4.27         4.27           Roblacion         NWS06017         4.27         4.24           Roblacion         BPW-4930         3.9         2.74           Men/Numancia         Antipolo         NWS50617         12.50         3.65           men/Numancia         Esperanza         NWS50617         10/15/59         12.20         2.13           men/Numancia         Kaiputan School         BPW-4826         09/17/61         3.65	3.05		11/09/59	BP505915	Campo	Sacrass
Dugsangor         NWS06111         12.2         4.57           Pagao         NWS06014         8.84         5.66           Pagao         NWS06014         8.84         3.66           Pautao         MGS84668         08/18/48         45.73         3.66           Pautao         NWS06014         6.1         4.27         4.27           Zeyapag         NWMS06012         3.81         1.83         2.44           (Rizal)         Poblacion         NWM50608         10.37         1.20           Poblacion         NWS19473         04/27/49         8.23         4.57           Poblacion         NWS19473         04/27/49         8.23         4.57           Poblacion         NWS19473         04/27/49         8.23         4.57           Ren/Numancia         Poblacion         NWS50617         4.27         1.83           men/Numancia         Antipolo         BPW-4930         04/15/52         5.9         2.44           men/Numancia         Esperanza         BPS065921         10/15/59         1.250         3.13           men/Numancia         Jamoyaon         BPS06022         06/06/60         12.20         2.13           men/Numancia         Tass				NWS-4620	Campo	Jacus de la companya
Pagao	4.57	12.2		NWS06111	Dugsangor	30000
Paultao   NW506114   61   4.27   3.66     Payapag   NW506112   3.81   1.83     Siwata   NW506112   3.81   1.83     Siwata   NW506112   3.81   1.83     Cabugo   NWM506016   10.037   1.20     Poblacion   NW506016   1.65   4.57     Poblacion   NW519473   04/27/49   8.23   4.27     Poblacion   NW519473   04/27/49   8.23   4.27     Poblacion   NWS19473   04/27/49   8.23   4.27     Poblacion   NWS19473   04/27/49   3.66     Poblacion   NWS-4952   7.32   2.44     Poblacion   NWS-50617   10/15/59   1.83     Men/Numancia   Esperanza   NWS-50617   04/15/52   5.49   1.83     Men/Numancia   Jamoyaon   NW506023   06/06/60   12.20   2.13     men/Numancia   Lamoyaon   BPS-506023   06/06/60   12.20   2.13     Men/Numancia   Lamoyaon   BPS-506023   06/06/60   12.20   2.13     Men/Numancia   Lamoyaon   BPW-4829   01/11/49   5.06   1.83     Men/Numancia   Tas   BPW-4829   01/11/49   5.18     Men/Numancia   Tas   BPW-4829   01/11/49   5.18     Men/Numancia   Tas   MW550618   1.320   2.44     Men/Numancia   Tas   MW550618   1.83   1.320   2.44     Men/Numancia   Tas   MW550618   1.83   1.83     Men/Numancia   Tas   MW550618   1.321   2.44     MW550618   MW550618   1.321   2.44     MW550618   MW550618   1.321   2.44     MW550618   1.3		8.84	1	NWS06014	Pagao	Jacuas
(Ruzal)         Payapag         NWS06114         6.1         4.27           (Ruzal)         Puerto Princesa         NWW506112         3.81         1.83           Siwata         NWSA6676         11/05/54         5.18         2.44           Poblacion         NWS06016         18.6         4.57         4.57           Poblacion         NWS06017         04/17/49         8.23         4.57           Poblacion         NWS19473         04/17/49         8.23         4.57           Guiwan         NWS19473         04/17/49         8.23         4.57           Poblacion         NWS19473         04/17/49         8.23         4.27           Poblacion         NWS19473         04/17/49         8.23         4.27           Poblacion         NWS19493         04/17/49         4.27         1.83           men/Numancia         Antipolo         BPW-4952         10/15/59         1.250         2.74           men/Numancia         Esperanza         NWS-50617         04/15/52         5.48         1.83           men/Numancia         Jamoyaon         NWS-50617         04/15/52         5.06         1.83           men/Numancia         Taas         BPW-4859         01/12/49	3.66 0.95 1.53 0.620		08/18/48	MGS84668	Pautao	acuac
(Rizal)         Fuerto Princesa         NWSA6676         11/65/54         3.81         1.83           (Rizal)         Puerto Princesa         NWSA6676         11/65/54         5.18         2.44           Cabugo         NWW506016         18.6         4.57           Poblacion         NWS06017         12.5         4.57           Guiwan         NWS06017         12.5         4.57           Puterno St.         BPW-5008         03/10/49         4.27         1.83           mcn/Numancia         Antipolo         NWS26617         7.32         2.44           mcn/Numancia         Antipolo         NWS50617         12.50         3.65           mcn/Numancia         Jamoyaon         NWS50617         7.01         3.96           mcn/Numancia         Jamoyaon         NWS50617         7.01         3.96           ncn/Numancia         Jamoyaon         NWS50617         7.01         3.96           ncn/Numancia         Katipunan School         BPW-4829         01/12/49         5.06         1.83           ncn/Numancia         Taas         BPW-4895         01/11/49         5.18         5.18           ncn/Numancia         Taas         BPW-4895         01/11/49         5.16	4.27	6.1		NW506114	Payapag	action
(Rizal)         Puerto Princesa         NWSA6676         11/05/54         5.18         2.44           Cabugo         NW460608         10.37         1.20           Poblacion         NW506017         12.5         4.57           Poblacion         NW519473         0472/49         8.23         4.27           Chinwan         NW519473         0472/49         8.23         4.27           Paterno St.         BPW-5008         03/10/49         4.27         1.83           ncn/Numancia         Antipolo         NW520617         7.32         2.44           ncn/Numancia         Antipolo         NW550617         12.50         3.65           ncn/Numancia         Esperanza         NW550617         7.01         3.96           ncn/Numancia         Jamoyaon         NW550612         06/06/60         12.20         2.13           ncn/Numancia         Kanpunan School         BPW-4829         01/12/49         5.06         1.83           ncn/Numancia         Taas         BPW-4829         01/11/49         5.18         5.18           ncn/Numancia         Taboran         NW550618         01/11/49         5.18         5.18				NW506112	Siwata	action
Cabugo         NW#50608         10.37         1.20           Poblacion         NWS06016         18.6         4.57           Poblacion         NWS06017         12.5         4.57           Guiwan         NWS19473         04/27/49         8.23         4.27           Puterno St.         BPW-4930         05/10/49         4.27         1.83           Poblacion         NWS-4952         5.9         2.74           Poblacion         NWS-4952         7.32         2.44           Antipolo         NWS-4952         12.50         3.66           Concohoy Esperanza         BPS05921         10/15/59         12.50         3.65           Esperanza         NWS-5407         04/15/52         5.49         1.83           Iamoyaon         BPS0506023         06/06/60         12.20         2.13           Iamoyaon         NWS-50616         09/17/61         7.62         4.26           Kanpunan School         BPW-4829         01/12/49         5.06         1.83           Taas         BPW-4895         01/11/49         5.18         5.18           Tuboran         NWS-50618         7.32         2.44	0.63 0.61		11/05/54	NWSA6676	Puerto Princesa	(asilisa (Rizal)
Poblacion         NWS06016         18.6         4.57           Poblacion         NWS19473         04/27/49         8.23         4.27           Guiwan         NWS19473         04/27/49         8.23         4.27           Puterno St.         BPW-4930         03/10/49         4.27         1.83           Poblacion         NWS-4952         7.32         2.74           Poblacion         NWS-4952         7.32         2.44           Anipolo         NWS-50617         12.50         3.66           Concohoy Esperanza         BPF059521         10/15/59         12.50         3.65           Esperanza         NWS-5607         04/15/52         5.49         1.83           Iamoyaon         BPS06022         06/06/60         12.20         2.13           Jamoyaon         NWS-6016         09/17/61         7.62         4.26           Kanpunan School         BPW-4829         01/12/49         5.06         1.83           Taas         BPW-4895         01/11/49         5.18         5.18           Tuboran         NWS-50618         7.32         2.44	1.20 0.44 0.3 1.450	10.37		NW#50608	Cabugo	Jover
Poblacion         NWS106017         12.5         4.57           Cuiwan         NWS19473         04/27/49         8.23         4.27           Puterno St.         BPW-5008         03/10/49         4.27         1.83           Poblacion         NWS-4952         7.32         2.74           Poblacion         NWS-4952         7.32         2.74           Anipolo         NWS-50617         12.50         3.66           Concohoy Esperanza         BP505921         10/15/59         12.50         3.65           Esperanza         NWS-56017         04/15/52         5.49         1.83           Esperanza         NWS-56017         04/15/52         5.49         1.83           Jamoyaon         BPS-506023         06/06/60         12.20         2.13           Jamoyaon         NWS-50616         09/17/61         7.62         4.26           Kanpunan School         BPW-4829         01/12/49         5.06         1.83           Taas         BPW-4895         01/11/49         5.18           Tuboran         NWS-50618         2.14         2.44	4.57	18.6		NWS06016	Poblacion	Javer
Cunwan         NWS19473         04/27/49         8.23         4.27           Puterno St.         BPW-5008         03/10/49         4.27         1.83           Poblacion         NWS-4952         7.32         2.74           Poblacion         NWS-4952         7.32         2.44           Anipolo         NWS-50617         12.50         3.66           Concohoy Esperanza         BP505921         10/15/59         12.50         3.65           Esperanza         NWS-5407         04/15/52         5.49         1.83           Esperanza         NWS-56017         7.01         3.96           Jamoyaon         BPS-506023         06/06/60         12.20         2.13           Jamoyaon         NWS-50616         09/17/61         7.62         4.26           Kanpunan School         BPW-4829         01/12/49         5.06         1.83           Taas         BPW-4829         01/11/49         5.18         5.18           Tuboran         NWS-50618         7.32         2.44		12.5		NW506017	Poblacion	Javer
Puterno St.         BPW-5008         03/10/49         4.27         1.83           Poblacion         NWS-4950         5.9         2.74           Poblacion         NWS-4952         7.32         2.44           Antipolo         NWS-50617         12.50         3.66           Concohoy Esperanza         BP505921         10/15/59         12.50         3.65           Esperanza         NWS-50617         04/15/59         1.83         1.83           Esperanza         NWS-50617         04/15/59         1.250         2.13           Jamoyaon         BPRS-06023         06/06/60         12.20         2.13           Jamoyaon         NWS-0602         09/17/61         7.62         4.26           Kanpunan School         BPW-4829         01/12/49         5.06         1.83           Taas         BPW-4829         01/11/49         5.18         5.18           Tuboran         NWS-50618         NWS-50618         2.44	0.44		04/27/49	NWS19473	Guiwan	Jana
Poblacion         BPW-4930         5.9         2.74           Poblacion         NWS-4952         7.32         2.44           Antipolo         NWS50617         12.50         3.66           Concohoy Esperanza         BP505921         10/15/59         12.50         3.65           Esperanza         NWS50617         04/15/52         5.49         1.83           Esperanza         NWS50617         04/15/52         5.49         1.83           Jamoyaon         BPS506023         06/06/60         12.20         2.13           Jamoyaon         NWS06022         09/17/61         7.62         4.26           Kanpunan School         BPW-4829         01/12/49         5.06         1.83           Taas         BPW-4829         01/12/49         5.18         5.18           Tuboran         NWS50618         NWS50618         7.32         2.44	-		03/10/49	BPW-5008	Paterno St.	27.5
Poblacion         NWS-4952         7.32         2.44           Antipolo         NWS50617         12.50         3.66           Concohoy Esperanza         BP505921         10/15/59         12.50         3.65           Esperanza         NWS-5407         04/15/52         5.49         1.83           Esperanza         NWS50617         7.01         3.96           Iamoyaon         BPS506023         06/06/60         12.20         2.13           Jamoyaon         NWS06022         09/17/61         7.62         4.26           Kanpunan School         BPW-4829         01/12/49         5.06         1.83           Taas         BPW-4829         01/12/49         5.18         5.18           Tuboran         NWS50618         7.32         2.44	0.32	5.9		BPW-4930	Poblacion	1717
Antipolo         NWS50617         12.50         3.66           Concohoy Esperanza         BP505921         10/15/59         12.50         3.65           Esperanza         NWS-5407         04/15/52         5.49         1.83           Esperanza         NWS50617         7.01         3.96           Jamoyaon         BPS506023         06/06/60         12.20         2.13           Jamoyaon         NWS06022         09/17/61         7.62         4.26           Kanpunan School         BPW-4829         01/12/49         5.06         1.83           Taas         BPW-4829         01/12/49         5.18         5.18           Tuboran         NWS50618         NWS50618         7.32         2.44	0.32	7.32		NWS-4952	Poblacion	1200
Concohoy Esperanza         BP505921         10/15/59         12.50         3.65           Esperanza         NWS-5407         04/15/52         5.49         1.83           Esperanza         NWS50617         7.01         3.96           Jamoyaon         BPS506023         06/06/60         12.20         2.13           Jamoyaon         NW506022         09/17/61         7.62         4.26           Kanpunan School         BPW-4829         01/12/49         5.06         1.83           Taas         BPW-4829         01/11/49         5.18         5.18           Tuboran         NWS50618         7.32         2.44	0.31 1.00	12.50		NWS50617	Antipolo	ol Camen/Numaneia
Esperanza         NWS-5407         04/15/52         5.49         1.83           Esperanza         NWS20617         7.01         3.96           Jamoyaon         BPSS06023         06/06/60         12.20         2.13           Jamoyaon         NWS06022         12.20         2.13           Kanpunan School         BPW-6829         09/17/61         7.62         4.26           Taas         BPW-4829         01/12/49         5.06         1.83           Thobran         NWS50618         7.32         2.44	0.32		10/15/59	BP505921	Concohoy Esperanza	el Carmen/Numancia
Esperanza         NWS50617         7.01         3.96           Jamoyaon         BPS506023         06/06/60         12.20         2.13           Jamoyaon         NW506022         12.20         2.13           Kanpunan School         BPW50616         09/17/61         7.62         4.26           Taas         BPW-4829         01/12/49         5.06         1.83           Thas         BPW-4859         01/11/49         5.18         5.18           Tuboran         NWS50618         7.32         2.44			04/15/52	NWS-5407	Esperanza	
Jamoyaon         BPS506023         06/06/60         12.20         2.13           Jamoyaon         NWS06022         12.20         2.13           Kanpunan School         BPW50616         09/17/61         7.62         4.26           Taas         BPW-4829         01/12/49         5.06         1.83           Thas         BPW-4855         01/11/49         5.18         5.18           Tuboran         NWS50618         7.32         2.44	0.44			NWS50617	Esperanza	
Jameyaon         NWS06022         12.20         2.13           Kanpunan School         BPW-50616         09/17/61         7.62         4.26           Tas         BPW-4829         01/12/49         5.06         1.83           Tass         BPW-4895         01/11/49         5.18         5.18           Tuboran         NWS50618         7.32         2.44	0.32 2.46		09/90/90	BPS506023	Jamovaon	
Kanpunan School         BPW50616         09/17/61         7.62         4.26           Taas         BPW-4829         01/12/49         5.06         1.83           Taas         BPW-4895         01/11/49         5.18         5.18           Tuboran         NWS50618         7.32         2.44	0.31			NWS06022	Jamoyaon	vel Carmen/Numancia
Taas         BPW-4829         01/12/49         5.06         1.83           Taas         BPW-4895         01/11/49         5.18         5.18           Tuboran         NWS50618         7.32         2.44			09/17/61	BPW50616	Kanpunan School	el Carmen/Numancia
Taas 5.18 5.18 5.18 7.32 5.44			01/12/49	BPW-4829	Taas	el Carmen/Numancia
Tuboran 7.32 2.44	0.95	-	01/11/49	BPW-4895	Taas	el Carmon/Numancia
	0.44			NWS50618.	Tuboran	Del Carmen/Numancia
Osmena BPW-6675 08/27/54 8.23 1.27	0.76	 	08/27/54	BPW-6675	Osmena	inacti

Compate         (mbgs)         (mbgs)         (mbgs)           Duaget         Poblacion         NWSA5444         0521/52         8.54         1.52           General Luna         Convacio         BPW/3677         11/16597         8.54         1.52           General Luna         Convacio         BPW/3677         11/1659         1.067         4.27           General Luna         La Janosa         BPS05922         11/1659         1.067         4.27           General Luna         Laberad         NWS-56023         061560         5.79         0.91           General Luna         Laberad         BPS06023         061560         5.79         0.91           General Luna         Laberad         NWS2014         5.79         0.91           General Luna         Laberad         NWS20014         5.76         0.91           General Luna         Laberad         NWS20014         5.76         0.91           General Luna         Laberad         BPWS0603         0.61564         4.87         1.13           General Luna         Laberad         BPWS0603         0.60349         4.87         1.13           General Luna         Laberad         BPWS0603         0.60349         4.87			_				
Luna	(mpgs)	(m)	-	(Jps)	(m)	(m/sd1)	
Luna   A. Benifacio St.   BPW-SG70   06/22/49   640     Luna   Consucto   BPW19472   11/15/57   11.28     Luna   La Janoza   BPS05922   11/16/59   10.67     Luna   La Janoza   BPS05922   11/16/59   10.67     Luna   La Janoza   BPS06023   06/15/60   5.79     Luna   Libertad   BPS06023   06/15/60   5.79     Luna   Libertad   BPS06023   06/15/60   5.79     Luna   Libertad   BPW30602   06/05/49   4.87     Luna   Libertad   BPW30602   06/05/49   4.87     Luna   Libertad   BPW30602   06/05/49   4.87     Luna   Poblacion   BPW-S061   07/05/49   4.87     Luna   Mahanub   BPW30603   05/23/49   10.37     Luna   Mahanub   BPW30603   05/23/49   1.829     It	L.	8.54	1.52	0.95			
Luna   Consuelo   BPW/19472   11/15/57   11.28     Luna   La Janoza   BP505322   11/16/59   10.67     Luna   La Janoza   BP506232   06/15/60   5/19     Luna   La Janoza   BP506232   06/15/60   5/19     Luna   Libertad   NW50624   0.77     Luna   Libertad   NW50624   0.77     Luna   Libertad   NW50674   0.77     Luna   Consuelo   BPW-5041   0.77     Luna   Consuelo   BPW-5041   0.77     Luna   Consuelo   BPW-5041   0.77     Luna   Consuelo   BPW-5041   0.77     Luna   Consuelo   BPW-5043   0.77     Luna   Consuelo   BPW-5043   0.77     Luna   Consuelo   BPW-5043   0.77     Luna   Consuelo   BPW-5043   0.77     Luna   Consuelo   BPW-5043   0.77     Luna   Consuelo   BPW-5043   0.77     Luna   Consuelo   BPW-5043   0.77     Luna   Consuelo   BPW-5043   0.77     Luna   Consuelo   BPW-5043   0.77     Luna   Consuelo   BPW-5043   0.77     Luna   Consuelo   BPW-5043   0.77     Luna   Consuelo   BPW-5043   0.77     Luna   Consuelo   BPW-5043   0.70     Luna   Consuelo   BPW-5043   0.70     Luna   Consuelo   BPW-5043   0.70     Luna   Consuelo   BPW-5043   0.70     Luna   Consuelo   BPW-5043   0.70     Luna   Consuelo   BPS051   0.70     Luna   Consuelo   BPS051   0.70     Luna   Consuelo   BPS051   0.70     Luna   Consuelo   BPS051   0.70     Luna   Consuelo   BPS051   0.70     Luna   Consuelo   BPS051   0.70     Luna   Consuelo   BPS051   0.70     Luna   Consuelo   BPS051   0.70     Luna   Consuelo   Consuelo   Consuelo     Luna   Consuelo   Consuelo   Consuelo     Luna   Consuelo   Consuelo   Consuelo   Consuelo     Luna   Consuelo   Consue		6.40	1.52	0.32			
Luna   La Janoca   BP\$65892   11/16/59   10.67     Luna   La Janoca   NWS-5635   5.79     Luna   Laberad   NWS-5635   5.79     Luna   Liberad   NWS-5631   5.79     Luna   Liberad   NWS-5061   5.79     Luna   Liberad   NWS-5061   5.79     Luna   Mainao   BPW-5041   5.70     Luna   Mahanub   BPW-5041   5.70     Luna   Mahanub   BPW-5041   5.70     Luna   Mahanub   BPW-5058   5.70     Luna   Mahanub   BPW-5050   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.72     Luna   Mahanub   BPW-5060   5.76     Luna   Mahanub   BPW-5060   5.7		11.28	5.79	0.38	0.62	0.520	
La Janora   La Janora   NWS-5635   9115     Luma   Libertad   BP506023   06/15/60   5.79     Luma   Libertad   NWS-06024   5.79     Luma   Libertad   NWS-06024   5.79     Luma   Rainato   NWS-06024   6.037     Luma   Rainato   RPW-5041   05/23/49   10.37     Luma   Ronot   RPW-5041   05/23/49   10.37     Luma   Ronot   RPW-5051   07/15/61   R.84     Ronot   RPW-50603   07/15/61   R.84     Rahamub   RPW-50603   07/15/60   14.94     It   Mahamub   RPW-50603   07/15/60   14.94     It   Mahamub   RPW-50603   07/15/60   14.94     It   Mahamub   RPW-50603   07/15/60   12.20     It   Robiacion   RPW-50603   07/14/61   18.29     It   Robiacion   RPW-50603   07/14/61   12.20     It   Robiacion   RPW-50604   07/16/60   59.45     It   San Lisidro   RPW-50604   07/16/60   59.45     It   San Lisidro   RPW-50604   07/16/60   7.01     It   Robiacion   NWS-5470   06/16/60   7.01     Robiacion   NWS-5470   06/16/60   7.02     Robiacion   RW-5451632   06/16/60   7.02     Robiacion   RW-5451632   06/16/60   7.02     Rainato   RW-5451632   06/16/60   7.02     Rainato   RW-5451632   06/16/60   7.02     Rainato   RW-54503   06/16/60   7.02     Rainato   RW-54503   06/16/60   7.02     Rainato   RW-54503   06/16/60   7.02     Rainato   RW-54503   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Rainato   RW-61803   06/16/60   7.02     Ra		10.67	4.27	0.63	2.38	0.160	
Libertad   DPS06023   06/15/60   5/79     Libertad   NWS06024   5/79     Libertad   NWS06024   5/79     Libertad   NWS06024   05/2349   10/37     Libertad   NWS06024   05/2349   10/37     Libertad   BPW-5041   05/2349   10/37     Libertad   BPW-5041   05/2349   10/37     Libertad   BPW-5041   05/2349   10/37     Libertad   BPW-5041   05/2349   10/37     Libertad   BPW-5041   05/2349   10/37     Libertad   BPW-5041   05/2349   10/37     Libertad   BPW-50603   05/29/60   14/94     Mahanub   BPW-50603   05/29/60   14/94     Mahanub   BPW-50603   05/29/60   10/37     Mahanub   BPW-50603   09/21/60   7.80     Mahanub   BPW-50603   09/21/60   10/37     Poblacion Artillano St. BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/37     Mahanub   BPW-50604   09/21/60   10/21/60     Mahanub   BPW-50604   09/21/60   10/21/60     Mahanub   BPW-50604   09/21/60   10/21/60     Mahanub   BPW-50604   09/21/60   10/21/60     Mahanub   BPW-50604   09/21/60   10/21/60     Mahanub   BPW-50604   09/21/60   10/21/60   10/21/60     Mahanub   BPW-50604   09/21/60   10/21/60   10/21/60     Mahanub   BPW-50604   09/21/60   10/21/60   10/21/60     Mahanub   BPW-50604   09/21/60   10/21/60   10/21/60     Mahanub   BPW-50604   09/21/60   10/21/60	NWS-5635	9.15	1.83	0.38			
Luna   Libertad   NWS06024   5.79     Luna   Mainao   NWS20174   0522349   10.37     Luna   Reblacion   BPW-5058   06.08449   4.87     Luna   Reblacion   BPW-5058   07.0556   4.84     Luna   Reblacion   Replaced   07.0556   14.94     Luna   Reblacion   Replaced   07.0556   14.94     Luna   Mahanub   BPW-50603   07.0566   14.94     Mahanub   BPW-50603   07.0566   14.94     Mahanub   BPW-50603   07.0566   14.94     Mahanub   BPW-50604   07.057   10.37     Reblacion   Reblacion   Replaced   07.0566   12.20     Reblacion   Replaced   07.0566   12.20     Replacion   Replaced   07.0566   12.20     Replacion   Replaced   07.0566   12.20     Replacion   Replaced   07.0566   12.20     Replaced   Replaced   07.0566   12.20     Replaced   Replaced   07.0566   12.20     Replaced   Replaced   07.0566   12.20     Replaced   Replaced   07.0566   12.20     Replaced   Replaced   07.0566   12.20     Replaced   Replaced   07.0566   12.20     Replaced   Replaced   07.0566   12.20     Replaced   Replaced   07.0566   12.20     Replaced   Replaced   07.0566   12.20     Replaced   Replaced   07.0566   12.20     Replaced   Replaced   Replaced   11.05     Replaced   Replaced   Replaced   11.05     Replaced   Replaced   Replaced   11.05     Matinao   Replaced   Replaced   11.89     Matinao   Replaced   Replaced   11.89     Replaced   Replaced   Replaced   11.80     Matina   Replaced   Replaced   11.80     Replaced   Replaced   Replaced   11.80     Replaced   Replaced   Replaced   11.80     Matinao   Replaced   Replaced   11.80     Replaced   Replaced   Replaced   11.80     Replaced   Replaced   11.80     Replaced   Replaced   11.80     Replaced   Replaced   11.80     Replaced   Replaced   11.80     Replaced   Replaced   11.80     Replaced   Replaced   11.80     Replaced   Replaced   11.80     Replaced   Replaced   11.80     Replaced   Replaced   11.80     Replaced   Replaced   11.80     Replaced   Replaced   11.80     Replaced   Replaced   11.80     Replaced   Replaced   11.80     Replaced   Replaced   11.80     Replaced   Replaced   1		5.79	0.91		09:0	0.637	
	NWS06024	5.79	0.91				
Il Luna         Poblacion         BPW-5041         05/23/49         10.37           Il Luna         Sto. Tomas         BPW-5058         06/08/49         4.87           Il Luna         Sto. Tomas         BPW-5058         06/08/49         4.87           Il Luna         Bonot         BPW-5051         07/05/61         8.84           Il Dil Mabuab         BPW-12571         04/11/56         9.76           Il Mabaub         BPW-50603         05/23/60         14.94           Il Mabuab         BPW-50603         05/21/60         17.80           Il Mabaub         BPW-50603         07/14/61         18.29           Il Deblacion         Arcillano St.         BPW-50604         07/14/61         18.23           Il Deblacion         Arcillano St.         BPW-50604         07/06/60         3.54           Ilit         San Isidor Public Market         BPW-50604         07/06/60         3.945           Ilit         San Isidor Public Market         BPW-50607         07/09/54         12.20           Ilit         San Isidor Public Market         BPW-50607         07/09/54         12.20           Ilit         Tawagan         NWS-5470         06/19/52         8.23           Albor)         P	_	9.76	2.13				
Lima   Sto. Tomas   BPW-5058   06/0849   4.87		10.37	1.22	0.76	0.61	1.240	
uit         Bonor         RPW50612         07/05/61         8.84           uit         pol Mabua         BPW12571         04/11/56         9.76           uit         Mahamub         BPW50603         05/22/60         14.94           uit         Mahamub         BPW50603         07/14/61         18.29           uit         Poblacion         BPW50606         09/21/60         7.80           uit         Poblacion, Arcillano St.         BPW50605         08/09/60         12.20           uit         Poblacion, Legaspi St.         BPW50604         07/06/60         12.20           uit         Poblacion, Legaspi St.         BPW50604         07/06/60         12.20           uit         San Lsidro         BPW50614         07/124/61         7.62           uit         San Lsidro         BPW50614         07/124/61         7.62           uit         San Lsidro         BPW50614         07/124/61         7.62           uit         Tavagan         NWS-12110         03/02/61         11.20           uit         Villafranca         NWS-5479         8.23           Arbboy         Arcliano         NWS-5479         06/14/59         11.05           Daan Langsod		4.87	1.52	0.63	0.61	1.040	
nit         Ipil Mabua         BPW12571-         04/11/56         9.76           nit         Mahanub         BPW50603         05/29/60         14.94           nit         Mahanub         BPW50603         05/29/60         18.29           nit         Mahanub         BPW50605         07/14/61         18.29           nit         Poblacion         BPW50606         09/21/60         7.80           nit         Poblacion, Legaspi St.         BPW50607         11/09/60         18.23           nit         Poblacion, Legaspi St.         BPW50604         07/06/60         17.20           nit         San Lisidro         BPW50604         07/06/60         7.62           nit         San Lisidro         BPW50611         07/06/60         7.01           nit         San Lisidro         BPW50611         07/06/60         7.01           nit         Tuya-tuya         BPW50611         07/06/60         7.01           nit         Villafranca         NWS#51632         06/16/60         8.23           Albory         Arellano         NWS#51632         06/16/60         7.02           Albory         Arellano         NWS#52470         06/19/52         8.23           Crossin	_	8.84	2.13	0 44	0.91	0.483	i
uit         Mahanub         BPW50603         05/29/60         14/94           nit         Mahanub         BPW50603         07/14/61         18.29           nit         Mahanub         BPW50606         09/21/60         7.80           nit         Poblacion         BPW50606         10/18/52         10.37           nit         Poblacion, Arellano St.         BPW50607         11/09/60         8.53           nit         Poblacion, Legaspi St.         BPW50606         08/09/60         12.20           nit         Poblacion, Legaspi St.         BPW50604         07/04/61         7.62           nit         San Isidor Public Market         BPW50614         07/24/61         7.62           nit         San Isidor Public Market         BPW50611         03/02/61         11.28           nit         Tawagan         NWS-6672         07/09/54         12.20           nit         Villafranca         NWS/6011         03/02/61         9.15           Albor)         Arellano         NWS-6677         11/29/54         11.28           Albor)         Arellano         NWS-6677         11/20/54         11.05           Magayang         NWS-6677         06/19/52         8.23		9.76	1.83	0.63	2.42	0.260	
nit         Mahanub         BPWS0603         07/14/61         18.29           nit         Nuevo Camp Inferior         BPWS0606         09/21/60         7.80           nit         Poblacion         Arcellano St.         BPWS0607         11/09/60         8.53           nit         Poblacion, Arcellano St.         BPWS0605         08/03/60         12.20           nit         Poblacion, Legaspi St.         BPWS0604         07/04/61         7.62           nit         Poblacion, Legaspi St.         BPWS0604         07/04/61         7.62           nit         San Isidro Public Market         BPWS0602         06/06/60         59.45           nit         San Isidro Public Market         BPWS0612         07/04/61         7.62           nit         Tawagan         NWS-6672         07/09/54         12.20           nit         Tuya-uya         BPWS0611         03/02/61         13.41           dist         Arcillano         NWS-5470         06/19/52         8.23           Albor)         Arcillano         NWS-5470         06/19/59         1.05           Daan Lungsod         BPS05912         09/14/59         11.05           Matinao         Daan Francisco         BPS06913         09/14/59		14.94	1.84	0.44	7.33	090.0	
mit         Nuevo Camp Inferior         BPWS5653         19/18/52         1.80           nit         Poblacion         BPW-5543         19/18/52         10.37           nit         Poblacion, Arellano St.         BPWS0607         11/09/60         8.53           nit         Poblacion, Legaspi St.         BPWS0604         07/06/60         12.20           nit         San Isidro         BPWS0604         07/06/60         59.45           nit         San Isidro Public Market         BPWS0602         06/06/60         7.01           nit         San Isidro Public Market         BPWS0601         07/09/54         12.20           nit         Tawagan         NWS-12110         9.15           nit         Villafranca         NWS-1632         8.23           Albor)         Arcllano         NWS-850611         03/02/61         11.28           Albor)         Arcllano         NWS-5479         66/19/52         8.23           Albor)         Arcllano         NWS-5479         06/19/52         8.23           Arclano         NWS-5479         06/19/52         7.92           Mathinao         BPS05912         09/14/59         11.05           Mathinao         NWS-18936         7.622	:	18.29	3.65	0.44	1.83	0.240	
nit         Poblacion         BPW-5543         19/18/52         10.37           nit         Poblacion, Arellano St.         BPW50607         11/09/60         8.53           nit         Poblacion, Legaspi St.         BPW50604         07/06/60         12.20           nit         San Isidro         BPW50614         07/24/61         7.62           nit         San Isidro Public Market         BPW50602         06/06/60         7.01           nit         Sta. Teresita         NWS-6672         07/09/54         12.20           nit         Tawagan         NWS-6672         07/09/54         12.20           nit         Tuya-tuya         BPW50611         03/02/61         3.15           dit         Villafranca         NWS-6672         07/09/54         11.28           Albor)         Arellano         NWS-6672         07/09/54         11.28           Albor)         Arellano         NWS-5479         06/19/52         8.23           Albor)         Poblacion         NWS-5479         06/19/52         8.23           Crossing         NWS-5479         06/19/59         7.02           Matinao         BPS0591         09/14/59         7.92           Maturaco         BPS06013<	<u> </u>	7.80	3.05	0.44	0.30	1.470	
uit         Poblacion, Areilano St.         BPW50607         11/09/60         8.53           uit         Poblacion, Legaspi St.         BPW50604         07/06/60         12.20           uit         Poniente         BPW50604         07/06/60         59.45           uit         San Isidro         BPW50604         07/06/60         7.01           uit         San Isidro         BPW50602         06/06/60         7.01           uit         Sta. Teresita         NWS-6672         07/09/54         12.20           uit         Tawagan         NWS-6672         07/09/54         12.20           uit         Tuya-tuya         BPW50611         03/02/61         13.41           uit         Villafranca         NWS-5470         06/19/52         8.23           Albor)         Arcilano         NWS-5470         06/19/52         8.23           Albor)         Arcilano         NWS-5470         06/19/52         8.23           Arcilano         NWS-5470         06/19/52         8.23           Arcilano         NWS-5470         06/19/52         7.52           Matinao         BP50591         09/14/59         7.92           Matinao         BP506013         09/14/60 <td< td=""><td><u> </u></td><td>10.37</td><td>0.61</td><td>0.16</td><td>0.13</td><td>0.243</td><td></td></td<>	<u> </u>	10.37	0.61	0.16	0.13	0.243	
nit         Poblacion, Legaspi St.         BPW50605         08/09/60         12.20           nit         Poniente         BPW50604         07/06/60         59.45           nit         San Isidro         BPW50614         07/24/61         7.62           nit         San Isidro         Public Market         BPW50602         06/06/60         7.01           nit         Tawagan         NWS-6672         07/09/54         12.20           nit         Tawagan         NWS-6672         07/09/54         12.20           nit         Tuya-tuya         BPW50611         03/02/61         13.41           nit         Villafranca         NWSH51632         8.23           Albor)         Arcllano         NWS-5479         06/19/52         8.23           Albor)         Poblacion         NWS-5479         06/19/52         8.23           Arcllano         NWS-5479         06/19/59         7.52           Crossing         NWS-5479         06/19/59         7.52           Magpayang         NWH15278         7.92           Matinao         BP50591         09/14/59         7.92           Matina         NW#12580         7.622           Sinna So. Crossing         NW#12577	BPW50607	8.53	1,22	0.44	1.83	0.240	
nit         Poniente         BPW50604         07/06/60         59.45           nit         San Isidro         BPW50614         07/24/61         7.62           nit         San Isidro         BPW50602         06/06/60         7.01           nit         Sa. Teresita         NWS-6672         07/09/54         12.20           nit         Tawagan         NWS-6672         07/09/54         12.20           nit         Taya-taya         BPW50611         03/02/61         13.41           nit         Villafranca         NWS#51632         8.23           Albor)         Arcilano         NWS-5470         06/19/52         8.23           Albor)         Arcilano         NWS-5479         06/19/52         8.23           Albor)         Poblecion         NWS-5479         06/19/52         8.23           Crossing         NWW-5479         06/19/52         8.23           Magpayang         NW#15278         42.60           Matinao         BP50591         09/02/59         7.92           Motor Pool         NW#12580         76.22           Sinna So. Crossing         NW#12580         7.62           Sinn Francisco         BPW12577         10/01/56         7.62	BPW50605	12.20	1.83	0.38	0.31	1.240	
nit         San Isidro         BPW50614         07/24/61         7.62           nit         San Isidro Public Market         BPW50602         06/06/60         7.01           nit         San Isidro Public Market         BPW50602         06/06/60         7.01           nit         Tawagan         NWS-6672         07/09/54         12.20           nit         Taya-tuya         BPW50611         03/02/61         13.41           nit         Villafranca         NWS-6677         11/29/54         11.28           Albor)         Arcilano         NWS-5470         06/19/52         8.23           Albor)         Poblacion         NWS-5479         06/19/52         8.23           Crossing         NWS-5479         06/19/52         8.23           Magpayang         NWW152580         11.05           Matinao         BP505912         09/14/59         11.05           Matinao         BP506013         09/21/60         7.92           San Francisco         BP506013         09/21/60         7.62           Siana So. Crossing         NW#12580         7.62           Mooret Pool         NW#12580         7.62		59.45	1.83	0.44	2.75	0.160	Total and the second
nit         San Isidro Public Market         BPW50602         06/06/60         7.01           nit         Sa. Teresita         NWS-6672         07/09/54         12.20           nit         Tawagan         NWS-6672         07/09/54         12.20           nit         Taya-tuya         BPW50611         03/02/61         13.41           nit         Villafranca         NWS-851632         8.23           Albor)         Arellano         NWS-5470         06/19/52         8.23           Albor)         Rizal St.         NWS-5479         8.23           Crossing         NWS-5479         76.22           Daan Lungsod         BP505912         09/14/59         11.05           Matinao         BP505912         09/14/59         7.92           Matinao         BP506013         09/21/60         7.92           San Francisco         BP506013         09/21/60         7.62           Sinna So. Crossing         NW#12580         7.62           Mooret Pool         NW#12580         7.62           Mooret Pool         BPW12577         10/01/56         7.62		7.62	2.13	0.44	16.0	0.483	
nit         Sta. Teresita         NWS-6672         07/09/54         12.20           nit         Tawagan         NWS12110         9.15           nit         Tuya-tuya         BPW50611         03/02/61         13.41           nit         Villafranca         NWS#51632         8.23           Albor)         Arcllano         NWSA5677         11/29/54         11.28           Albor)         Arcllano         NWS-5470         06/19/52         8.23           Rizal St.         NWS-5479         06/19/52         8.23           Crossing         NWS-5479         76.22           Magpayang         NW#15278         42.60           Matinao         BP505912         09/14/59         11.05           Matinao         BP506013         09/21/60         7.92           San Francisco         BP506013         09/21/60         7.92           Sinna So. Crossing         NW#12580         76.22           Nno         BPW12577         10/01/56         7.62	BPW50602	7.01	1.83	0.44	0.62	0.713	
nit         Tawagan         NWS12110         9.15           uit         Tuya-tuya         BPW50611         03/02/61         13.41           uit         Villafranca         NWS#51632         8.23           Albor)         Arcllano         NWSA6677         11/29/54         11.28           Albor)         Poblacion         NWS-5470         06/19/52         8.23           Crossing         NWS-5479         8.23           Crossing         NWS-5479         76.22           Magpayang         NWW12580         7.62           Matinao         BP505912         09/14/59         11.05           Matinao         BP50591         09/02/59         7.92           Matinao         BP506013         09/21/60         7.92           San Francisco         BP506013         09/21/60         7.92           Siana So. Crossing         NW#12580         76.22           Ano         BPW12577         10/01/56         7.62		12.20	1.83	0.63	3.00	0.210	
nit         Tuya-tuya         BPW50611         03/02/61         13.41           Albor)         Arcllano         NWS#51632         8.23           Albor)         Arcllano         NWS-5470         06/19/52         8.23           Rizal St.         NWS-5470         06/19/52         8.23           Crossing         NWS-12580         76.22           Magpayang         NW#15278         42.60           Matinao         BP505912         09/14/59         11.05           Motor Pool         NWS18936         7.92           Motor Pool         NWS18936         7.92           San Francisco         BP506013         09/21/60         7.92           Sinna So. Crossing         NW#12580         76.22           Monyasan         BPW12577         10/01/56         7.62	NWS12110	9.15	3.65	0.32	2,46	0.130	
nit         Villafranca         NWS#51632         8.23           Albor)         Arcilano         NWSA6677         11/29/54         11.28           Albor)         Poblacion         NWS-5470         06/19/52         8.23           Rizal St.         NWS-5479         8.23         8.23           Crossing         NWS12580         76.22           Daan Lungsod         BP505912         09/14/59         11.05           Matinao         BP50591         09/02/59         7.92           Motor Pool         NWS18936         7.92           San Francisco         BP506013         09/21/60         7.92           Siana So. Crossing         NW#12580         76.22           Nno         NW#12580         7.62	_	13.41	1.83	0.44	0.30	1.450	
Albor)         Arellano         NWSA6677         11/29/54         11.28           Albor)         Poblacion         NWS-5470         06/19/52         8.23           Rizal St.         NWS-5479         8.23           Crossing         NWS12580         76.22           Daan Lungsod         BP505912         09/14/59         11.05           Magpayang         NW#15278         42.60           Motor Pool         NWS18936         7.92           San Francisco         BP506013         09/21/60         7.92           Siana So. Crossing         NW#12580         76.22           Nio         BPW12577         10/01/56         7.62		8.23	2.13	0.32			
Poblacion         NWS-5470         06/19/52         8.23           Rizal St.         NWS-5479         8.23           Crossing         NWS12580         76.22           Daan Lungsod         BP505912         09/14/59         11.05           Magpayang         NW#15278         42.60           Motor Pool         NWS18936         7.92           San Francisco         BP506013         09/21/60         7.92           Siana So. Crossing         NW#12580         76.22           nio         Brystern         76.22	L	11.28	0.91	1.26	0.91	1.380	
Rizal St.         NWS-5479         8.23           Crossing         NWS12580         76.22           Daan Lungsod         BP505912         09/14/59         11.05           Magpayang         NW#15278         42.60           Motor Pool         NWS18936         7.92           San Francisco         BP506013         09/21/60         7.92           Siana So. Crossing         NW#12580         76.22           mo         Brysts77         10/01/56         7.62		8.23					
Crossing         NWS12580         76.22           Daan Lungsod         BP505912         09/14/59         11.05           Magpayang         NW#15278         42.60           Matinao         BP50591         09/02/59         7.92           Motor Pool         NWS18936         11.89           San Francisco         BP506013         09/21/60         7.92           Siana So. Crossing         NW#12580         76.22           nio         Bunyasan         BPW12577         10/01/56         7.62	NWS-5479	8.23	0.91	0.63	0.91	0.690	
Daan Lungsod         BP505912         09/14/59         11.05           Magpayang         NW#15278         42.60           Matinao         BP50591         09/02/59         7.92           Moror Pool         NWS18936         11.89           San Francisco         BP506013         09/21/60         7.92           Siana So. Crossing         NW#12580         76.22           nio         Bunyasan         BPW12577         10/01/56         7.62	NWS12580	76.22	3.66	0.44			
Magpayang         NW#15278         42.60           Matinao         BP50591         09/02/59         7.92           Motor Pool         NWS18936         11.89           San Francisco         BP506013         09/21/60         7.92           Siana So. Crossing         NW#12580         76.22           nto         Butyasan         BPW12577         10/01/56         7.62		11.05	4.87	0.63	0.61	1.034	7
Matinao         BP50591         09/02/59         7.92           Motor Pool         NWS18936         11.89           San Francisco         BP506013         09/21/60         7.92           Siana So. Crossing         NW#12580         76.22           Bunyasan         BPW12577         10/01/56         7.62	-	42.60	1.83	0.31			
Motor Pool         NWS18936         11.89           San Francisco         BP506013         09/21/60         7.92           Siana So. Crossing         NW#12580         76.22           Bunyasan         BPW12577         10/01/56         7.62	-	7.92	3.04	0.63	0.61	1.030	-
San Francisco         BP506013         09/21/60         7.92           Siana So. Crossing         NW#12580         76.22           Bunyasan         BPW12577         10/01/56         7.62	NWS18936	11.89	3.04				
Siana So. Crossing NW#12580 76.22 Bunyasan BPW12577 10/01/56 7.62	ļ	7.92	5.48	0.44	3.67	0.120	
BPW12577 10/01/56 7.62	<u> </u>	76.22	3.66	0.44			
		7.62	4.88	0,44	0.30	1.450	
Malimono Cantapoy BPW12576 09/08/56 6.10 2.44	<u> </u>	6.10	2.44	0.44			

Malimone         Cayowan         (mbgs)         (mbgs)           Malimone         Cayowan         NWM/12578         8.44         5.49           Malimone         Cayowan         NWS25261         7.63         1.83           Malimone         Peristran St. Timago         NWS25261         7.63         1.83           Pilar         Massin         NW50625         8.24         3.05           Pilar         San Reque         NW50625         13.72         2.13           Pilar         San Reque         NW50625         13.72         2.13           Pilar         San Reque         NW50625         13.72         2.13           Pilar         Parantana         NW50625         13.72         2.13           Plact         Parantana         NW50625         13.72         2.13           Plact         Parantana         NW50625         13.72         2.13           Plact         Parantana         NW50625         13.72         2.13           Plact         Parantana         NW50625         3.76         3.96           San Francisco (Anao-can)         Barbanan         NW71358         3.76         3.76           Sison         Sison         NWH15281         <	!	
Putistma St. Trango	(m) (sdi)	(m/sd[)
Poblacion   NWS-5581   762     Puristra St., Tinago   NWS-5581   7681     Matasin   NWS-6026   13.71     San Roque   NWS-6025   13.72     San Roque   NWS-6025   13.71     Panhutungan   BPW-5514   08/02/52   6.70     Panhutungan   BPW-5514   08/02/52   6.70     Panhutungan   NWS-5543   10.37     Panhutungan   NWS-5543   10.21     Panhutungan   NWS-5543   10.21     O (Anae-oan)   Bundanon   BPW/12575   08/18/22   10.21     Sison   NW#15280   05/28/4   17.10     Sison   NW#15281   06/18/2   12.20     Libertad   NWS506172   12.20     Libertad   NWS506172   15.24     Mabani   NWS06022   13/31/60   8.84     Kizal Sapao   NWS06022   13/31/60   8.84     Kizal Sapao   NWS06023   13/31/60   8.84     Kizal Sapao   NWS06023   13/31/60   8.84     Rizal Sapao   NWS12574   07/21/56   8.54     San Jose   BPW-5791   06/17/53   22.87     Opong   NWS-5702   22.87     Tinana   BPW-5703   02/24/53   9.20     Tinana   BPW-5703   02/24/53   9.20     Tinana   BPW-5703   02/24/53   9.20     Tinana   BPW-5705   02/	0.62 0,30	2.060
Purisuna St. Tinago   NWS-5581   76	1.31	4,360
Mabsin         NW506026         8.54           Mabin         NW50625         13.72           San Rate         NW50625         13.71           San Roque         NW50625         13.72           San Roque         NW50625         13.72           Panhutungan         BPW-5514         08/02/52         6.70           Panhutungan         NWS-5513         0.028         10.21           Panhutungan         NWS-5513         10.021         10.21           Panhutungan         NWS-55313         10/06/59         10.21           C(Anac-oan)         Bonifacio St., Anac-oan         NW505913         10/06/59         12.95         1           Sison         NW412575         08/18/28         17.10         2           Sison         NW415280         04/22/54         17.10         3           Sison         NW415280         04/22/54         10.37         3           Liberrad         NW506021         13/31/60         8.84         4           Mabmi         NW506021         13/31/60         8.84         4           Mabui         NW506021         13/31/60         8.84           Razal         San Jose         BPW12574         07/21/56		
Mabuit   NW50628   13.72     San Raque	0.44	0.290
San Rafael         NW50628         13.11           San Roque         NW50625         13.72           San Roque         NW50625         6.70           Panbutangan         BPW-5514         08/02/52         6.70           Panbutangan         BPW12575         08/18/52         10.21           O(Anae-oan)         Banbanon         BPW12575         08/18/52         10.21           O(Anae-oan)         Bonifacio St., Anae-oan         NW505913         10/06/59         12.95         1           O(Anae-oan)         Lower Macopa         NW505913         10/06/59         12.95         1           Sison         NW415281         10/06/59         20.12         2           Sison         NW#15281         10/19/59         8.84           Tagbayani         NW515281         10/19/59         8.84           Tubertad         NW506121         10/19/59         8.84           Kizal         BPS05914         10/19/59         8.84           Rizal         NW50622         10/17/59         8.84           Rizal         Sapao         NW50622         8.54           San Jose         BPW-5791         06/17/53         22.87           San Jose         BPW12574 <td>0.44</td> <td>0.180</td>	0.44	0.180
San Roque         NW50625         13.72           Panhutungan         BPW-5514         08/02/52         6.70           Panhutungan         NWS-5543         08/18/52         10.21           Panhutungan         NWS-5543         08/18/52         10.21           O(Anao-oan)         Bonifacio St., Anao-oan         NWSA6670         05/28/54         34.76           O(Anao-oan)         Lower Macopa         NWSA6670         05/28/54         12.95         1           Sison         NWH15280         04/22/54         17.10         20.12         25.12           Sison         NWH15281         9.76         3.84         46.95         3.84           Tiberrad         NWW16281         10.19/59         8.84         3.84           Tiberrad         NWS506172         10.37         10.37         10.37           Mabun         NWS506172         13/31/60         8.84           Rizal         NWS506172         10.37         10.37           Mabun         NWS06020         13/31/60         8.84           Rizal         NWS06021         13/31/60         8.84           Rizal         Sapao         NWS06020         13/31/60         8.34           San Soque	0.44	0.290
Panhutungan   BPW-5514   08/02/52   6.70     Panhutungan   NWS-5543   10.37     Panhutungan   NWS-5543   10.21     Panhutungan   NWS-5543   10.21     O (Anao-oan)   Banbanon   BPW12575   08/18/52   10.21     Cower Macopa   NWS05913   10/06/59   12.95     Sison   NW#15280   04/22/54   17.10     Sison   NW#15281   04/22/54   17.10     Sison   NW#15281   04/22/54   17.10     Sison   NW#15281   04/22/54   17.10     Sison   NW#15281   04/22/54   17.10     Sison   NW#15281   10/19/59   8.84     Tagbayani   BP\$065914   10/19/59   8.84     Tagbayani   NWS06121   13/31/60   8.84     Kazal Sapao   NW506029   10.37     Kazal Sapao   NW506029   10.37     Rash San Roque   BPW-5791   06/17/53   21.72     San Jose   BPW-5792   07/21/56   8.41     San Roque   NWS-5762   22.87     Talavern   BPW-5669   02/24/53   9.20     Poblacion   BPW12570   07/11/57   14.63     Timana   DPW19469   07/11/57   14.63     Timana   DPW19468   07/11/57   14.63     Timana   DPW19468   07/11/57     Timana   DPW19468   07/11/57     Timana   DPW19468   07/11/57     Timana   DPW19468	0.44	0.180
Panhutungan         NWS-5543         10.37           o (Anao-oan)         Banbanon         BPW12575         08/18/52         10.21           o (Anao-oan)         Bonifacio St., Anao-oan         NWSA6670         05/28/54         34.76           o (Anao-oan)         Lower Macopa         NWS65913         10/06/59         12.95           Sison         NW#15280         04/22/54         17.10           Sison         NW#15281         9.76           Sison         NW#15281         9.76           Sison         NW#18934         10/19/59         8.84           Tagbayani         NW#18934         10/19/59         8.84           Tagbayani         NWS506172         10.37           Libertad         NWS506172         10.37           Mabmi         NWS506121         10/19/59         8.84           Rizal Sapao         NWS06020         13/31/60         8.84           Rizal Sapao         NW#12579         06/17/53         21.72           Poctoy         BPW-5791         06/17/56         8.41           San Jose         BPW12574         07/21/56         8.41           San Jose         BPW12573         09/42/56         7.90           Opong		0.760
o (Anao-oan)         Bambanon         BPW12575         08/18/52         10.21           o (Anao-oan)         Bonifacio St., Anao-oan         NWS05913         10/06/59         12.95           o (Anao-oan)         Lower Macopa         NWWH5280         04/22/54         17.10           Sison         NWWH15280         20.12           Sison         NWWH15281         9.76           Sison         NWWH15281         10.19/59         8.84           Tagbayan         NWW15282         10.37         10.37           Libertad         NWS506172         12.20           Mabun         NWS60622         10.37           Mabun         NWS60622         8.84           Ruzal Sapao         NW50622         8.84           Ruzal Sapao         NW50622         8.84           Ruzal Sapao         NW50622         8.84           San Roque         NWM12579         0/721/56         8.41           Poctoy         NWM12579         0/721/56         8.41           Cawilan         BPW12574         0/721/56         8.41           Opong         NWS-5662         0/209/57         48.78           Talavern         BPW12580         0/209/57         48.78      <	0.75 0.61	1.230
o (Anno-oan)         Bonifacio St., Anao-oan         NWS05913         10/06/59         12.95           o (Anao-oan)         Lower Macopa         NWWH15280         04/22/54         17.10           Sison         NWWH15280         20.12           Sison         NWWH15281         9.76           Sison         NWWH15281         10.19/59         8.84           Tagbayan         NWS15282         10.37         10.37           Libertad         NWS506172         12.20           Mabmi         NWS60622         10.37           Mabmi         NWS60622         10.37           Rizal         BP506021         13/31/60         8.84           Ruzal Sapao         NW50622         8.84           Ruzal Sapao         NW50622         8.84           Poctoy         NW#12579         06/17/53         21.72           Poctoy         NW#12579         07/21/56         8.41           Cawilan         BPW12574         07/21/56         8.41           Opong         NWS-5062         22.87           Opong         NWS-5062         22.4/53         9.20           Poblacion         BPW12589         02/09/57         48.78           Talavern         <	0.44	0.710
o (Альо-оап)         Lower Macopa         NWS05913         10/06/59         12.95           Sison         BPW-6055         04/22/54         17.10           Sison         NW#15281         9.76           Sison         NW#15281         9.76           Sison         NW#18934         46.95           Tagbayani         NWW18934         10.19/59         8.84           Tuoggahan         NWS06172         10.37           Libertad         NWS06121         15.24           Mabuni         NWS060121         15.24           Maganysay         NWS060121         13/31/60         8.84           Rizal         BPW506021         13/31/60         8.84           Rizal         NW#12579         06/17/53         21.72           Poctoy         NW#12579         07/21/56         8.41           San Jose         BPW12574         07/21/56         8.41           Cawilan         BPW12573         09/42/56         7.90           Opong         NWS-5762         22.87           Poblacion         BPW15580         02/24/53         9.20           Timana         BPW19469         07/11/57         14.63	1.12	0.610
Sison         BPW-6055         04/22/54         17.10           Sison         NW#15281         9.76           Sison         NW#15281         9.76           Sison         NW#15281         9.76           Tagbayani         BP\$505914         10/19/59         8.84           Tuogpahan         NWS506172         10.37         10.37           Mabmi         NWS506172         15.20         10.37           Mabmi         NWS506021         13/31/60         8.84           Rizal         BP\$60621         13/31/60         8.84           Rizal Sapao         NW\$12579         06/17/53         21.72           Poctoy         NW#12579         07/21/56         8.41           San Jose         BPW12574         07/21/56         8.41           San Jose         BPW12574         07/21/56         8.41           Cawilan         NW\$5762         22.87           Opong         NW\$5762         22.87           Poblacion         BPW12580         02/09/57         48.78           Poblacion         BPW1580         07/11/57         14.63	0.32 0.62	0.520
Sison         NW#15280         20.12           Sison         NW#15281         9.76           Sison         NW#18934         46.95           Tagbayani         BP\$05914         10/19/59         8.84           Tinogpahan         NWS15282         10.37           Mabmi         NWS506172         12.20           Mabmi         NWS506172         15.24           Mabmi         NWS06029         8.84           Rizal         BP\$06021         13/31/60         8.84           Rizal         NWS0622         8.84         8.84           Rizal Sapao         NW\$50622         8.84         8.84           Poctoy         BPW.5791         06/17/53         21.72           Poctoy         BPW12579         07/21/56         8.54           San Jose         BPW12579         07/21/56         8.41           Cawlan         NWS-5762         07/21/56         8.41           Cawlan         BPW-5669         02/24/56         7.90           Coong         Poblacion         BPW12580         02/09/57         48.78           Poblacion         BPW19469         07/11/57         14.63	0.76 3.62	0.210
Sison         NW#15281         9.76           Sison         NW#18934         46.95           Tagbayani         BP505914         10/19/59         8.84           Tinogpahan         NWS506172         10,37           Libertad         NWS506172         12.20           Mabmi         NWS506121         15.24           Magsaysay         NWS06029         10,37           Kizal         BP506021         13/31/60         8.84           Rzial Sapao         NWS0622         8.84           Rzial Sapao         NWS0622         8.84           Rzial Sapao         NWS10579         17.10           Poctoy         NWH12579         06/17/53         21.72           San Jose         BPW12574         07/21/56         8.41           Cawilan         BPW12574         07/21/56         8.41           Opong         NWS-5762         22.87           Opong         NWS-5762         22.87           Poblacion         BPW12580         02/24/53         9.20           Poblacion         BPW1269         07/11/57         14.63		
Sison         NW#18934         46.95           Tagbayani         BP505914         10/19/59         8.84           Tinogpahan         NWS506172         10,37         10,37           Libertad         NWS506172         12.20         10,37           Mabmi         NWS06029         13/31/60         8.84           Rizal         BP506029         13/31/60         8.84           Rizal         BP806029         10,37         8.84           Rizal         BP806029         10,37         8.84           Rizal         BPW-5791         06/17/53         21.72           Poctoy         NWH12579         07/21/56         8.54           San Jose         BPW12574         07/21/56         8.41           Cawilan         BPW12573         09/42/56         7.90           Opong         NWS-5762         22.87           Talavera         BPW12580         02/24/53         9.20           Poblacion         BPW1269         07/11/57         14.63	4.27 0.44	
Tagbayam         BP505914         10/19/59         8.84           Tinoggahan         NWS506172         10.37           Libertad         NWS506172         12.20           Mabuni         NWS06029         10.37           Magsaysay         NWS06029         10.37           Rizal         BP506021         13/31/60         8.84           Rizal Sapao         NWS0622         8.84           Rizal Sapao         NWS0622         8.84           Poctoy         NWM12579         06/17/53         21.72           San Jose         BPW-5791         06/17/56         8.41           Cawilan         BPW12574         07/21/56         8.41           Opong         NWS-5762         22.87           Opong         NWS-5762         22.87           Talavera         BPW12580         02/24/53         9.20           Poblacion         BPW12580         07/11/57         14.63		
Tinogpahan         NWS15282         10.37           Libertad         NWS506172         12.20           Mabmi         NWS06121         15.24           Magsaysay         NW506029         10.37           Rizal         BPS06021         13/31/60         8.84           Rizal Sapao         NW50622         8.84         8.84           Rizal Sapao         NW50622         21.72         8.84           Poctoy         NWH12579         06/17/53         21.72           San Jose         BPW12574         07/21/56         8.41           Cawilan         BPW12574         07/21/56         8.41           Opong         NWS-5762         22.87           Talavera         BPW12580         02/24/53         9.20           Poblacion         BPW12580         07/11/57         14.63	0.44	0.720
Libertad         NWSS06172         12.20           Mabmi         NWS06121         15.24           Magsaysay         NWS06029         10.37           Rizal         BPS06021         13/31/60         8.84           Rizal Sapao         NW50622         8.84           Rizal Sapao         NW50622         8.84           Poctoy         NW412579         06/17/53         21.72           San Jose         BPW12574         07/21/56         8.41           Cawilan         BPW12574         07/21/56         8.41           Opong         NWS-5762         22.87           Talavera         BPW12580         02/24/53         9.20           Poblacion         BPW12580         02/09/57         48.78           Timana         BPW19469         07/11/57         14.63	4.27 0.44	
Mabmi         NW506121         15.24           Magsaysay         NW406029         10.37           Rizal         Rizal Sapao         NW506021         13/31/60         8.84           Rizal Sapao         NW50622         8.84         8.84           Rizal Sapao         NW50622         8.84         17.72           Poctoy         NW412579         06/17/53         21.72           San Jose         BPW12574         07/21/56         8.41           Cawlan         BPW12574         07/21/56         8.41           Opong         NWS-5762         22.87           Talavera         BPW12580         02/24/53         9.20           Poblacion         BPW12580         02/09/57         48.78           Timana         BPW19469         07/11/57         14.63		
Magsaysay         NW506029         10.37           Rizal         BP506021         13/31/60         8.84           Rizal Sapao         NW50622         8.84           Legaspi St.         BPW-5791         06/17/53         21.72           Poctoy         NW412579         07/21/56         8.54           San Jose         BPW12574         07/21/56         8.41           Cawilan         BPW12574         07/21/56         7.90           Opong         NWS-5762         7.90           Talavera         BPW-5669         02/24/53         9.20           Poblacion         BPW12580         02/09/57         48.78           Timana         BPW19469         07/11/57         14.63	0.49	0.320
Rizal         BP506021         13/31/60         8.84           Rizal Sapao         NW50622         8.84           Legaspi St.         BPW-5791         06/17/53         21.72           Poctoy         NW#12579         07/21/56         8.54           San Jose         BPW12574         07/21/56         8.54           San Reque         NWS12574         07/21/56         8.41           Cawilan         BPW12573         09/42/56         7.90           Opong         NWS-5762         22.87           Talavera         BPW12580         02/24/53         9.20           Poblacion         BPW12580         02/09/57         48.78           Timana         BPW19469         07/11/57         14.63	0.44	0,480
Rizal Sapao         NWS0622.         8.84           Legaspi St.         BPW-5791         06/17/53         21.72           Poctoy         NW#12579         17.10           San Jose         BPW12574         07/21/56         8.54           San Reque         NWS12574         07/21/56         8.41           Cawlan         BPW12573         09/42/56         7.90           Opong         NWS-5762         22.87           Talavera         BPW-5669         02/24/53         9.20           Poblacion         BPW12580         02/09/57         48.78           Timana         BPW19469         07/11/57         14.63	0.44	0.480
Legaspi St.         BPW-5791         06/17/53         21.72           Poctoy         NW#12579         17.10           San Jose         BPW12574         07/21/56         8.54           San Reque         NWS12574         07/21/56         8.41           Cawilan         BPW12573         09/42/56         7.90           Opong         NWS-5762         22.87           Talavera         BPW-5669         02/24/53         9.20           Poblacion         BPW12580         02/09/57         48.78           Timana         BPW19469         07/11/57         14.63	0,44	1.420
Poctoy         NW#12579         17.10           San Jose         BPW12574         07/21/56         8.54           San Roque         NWS12574         07/21/56         8.41           Cawilan         BPW12573         09/42/56         7.90           Opong         NWS-5762         22.87           Talavera         BPW-5669         02/24/53         9.20           Poblacion         BPW12580         02/09/57         48.78           Timana         BPW19469         07/11/57         14.63	0.95	
San Jose         BPW12574         07/21/56         8.54           San Roque         NWS12574         07/21/56         8.41           Cawilan         BPW12573         09/42/56         7.90           Opong         NWS-5762         22.87           Talavera         BPW-5669         02/24/53         9.20           Poblacion         BPW12580         02/09/57         48.78           Timana         BPW19469         07/11/57         14.63	0.44	1.420
San Roque         NWS12574         07/21/56         8.41           Cawilan         BPW12573         09/42/56         7.90           Opong         NWS-5762         22.87           Talavera         BPW-5669         02/24/53         9.20           Poblacion         BPW12580         02/09/57         48.78           Timana         BPW19469         07/11/57         14.63	0.32 2.13	0.150
s-an         Cawilan         BPW12573         09/42/56         7.90           an         Opong         NWS-5762         22.87           an         Talavera         BPW-5669         02/24/53         9.20           Poblacion         BPW12580         02/09/57         48.78           Timana         BPW19469         07/11/57         14.63	2.13	
22.87  5-an	0.32 1.83	0.175
t-an Talavera BPW-5669 02/24/53 9.20 Poblacion BPW12580 02/09/57 48.78 Timana BPW19469 07/11/57 14.63	1.12 3.03	3.370
Poblacion         BPW12580         02/09/57         48.78           Timana         BPW19469         07/11/57         14.63	0.76	0.500
Timana BPW19469 07/11/57 14.63	0.63	.070
	0.32 0.62	0.520
		-

Table 7.3.3 Water Quality Analysis Data

Committee	Samuling Wotor Sources: Springs				1	Provincial Number:	Number:		
Sampun	Sampling Water Sources: Springs					Provincial?	Vame: Suri	Provincial Name: Surigao del Norte	
region.	Counting Site	Sampling Date	Ha	Color	Turbidity	Fe	Mn	Coliform Bacteria	Total Bacteria
ò	Sampung Six		<b>\</b>	(PCU)	(FTU)	(mg/liter)	(mg/liter)	(mg/liter) (count number x100)	(count number)
	A limber A locaria	May 7 1998	7.5		1.0	0.4	0.07	No detected	30
-   (	Auporo, Augus	.1.	7.4	2	0.0	6.0	0.25	No detected	. 30
7 (	Merchan Maint		07	0	0.2	6.0	0.21	1,000	300
,	Magsaysay, Mammi	. 1 -	6.4	2	0.3	0.2	0.00	No detected	100
<b>4</b>	Diyabid, Sisoli	`   ' -	7.0	38	0.3	0.1	0.01	1,000	30
,	Lagouigon, Surigao Ciry		7.0	S	6.0	0.2	0.01	700	300
اه	Mananno, Orgaduit	Mer. 12 1009	7.0	;   c	0.1	0.2	0.01	No detected	300
_	Binocaran, Mailmono	May 13, 1950	2 0	,	00		000	700	10
∞	Diaz, San Francisco	May 14, 1996	1,0	5 9	2 5		010	000	0,
٥	Maatas, Dinagat	May 16, 1998	7.5	٧.	٥./	0.0	21.0	7,00	2 2
្ព	Imie, Basilisa-I	May 17, 1998	8.0	0	2.0	0.3	0.02	No detected	2
	Rizal Basilisa-II	May 17, 1998	5.7	8	0.2	0.5	0.05	No detected	100
12	Imie Basilisa-II	May 17, 1998	8.1	2	4.9	0.4	0.02	No detected	001

Table 7.3.3 Water Quality Analysis Data

Carion N	Region Number: XIII					Provincial .	Name: Suri	Provincial Name: Surigao del Norte	
No.	Sampling Site	Sampling Date	ЬH	Color	Turbidity	Fe	Mn	Coliform Bacteria	Total Bacteria
				(PCU)	(F1U)	(mg/inter)	(mg/liter)	(count number x too)	Count manage
-	Gamuton, Alegna	May 7, 1998	6.5	82	5.3	0.4	0.31	No detected	001
2	Poblacion, Alexna	May 7, 1998	6.5	15	2.7	0.2	0.01	300	Numerous
	Ladearon Claver	May 8, 1998	8.1	. 61	1.1	0.1	0.05	1,000	30
	Bassay Clayer	May 9, 1998	7.2	0	1.0	0.1	0.03	No detected	30
. ,	Contone Bacine	May 9, 1998	7.8	45	2.7	4,0	0.22	1,000	100
,	Townson	May 9, 1998	7.2	93	24.6	0.4	0.11	1,000	Numerous
1 0	Commo Bacasa	May 9, 1998	6.5	84	55	0.4	0.22	No detected	300
٥	Camponita Taganasan	May 9, 1998	8.9	139	14.5	0.4	0.33	No detected	50
٥	Feodra Dingest	May 15, 1998	6.3	9	9.1	0.3	0.02	No detected	100
\ <u> </u>	Poblacion I Burgos	May 21, 1998	7.5	0	0.2	0.2	0.01	No detected	Numerous
2 =	Allocoma Sta Monica	May 21, 1998	7.5	12	0.5	0.1	0.02	No detected	Numerous
2	Poblacion II. Burgos	May 21, 1998	7.2	0	8.0	0.1	0.01	No detected	Numerous
:   =	Rival Sta. Monica	May 21, 1998	7.4	4	0.7	0.1	0.02	No detected	Numerous
1 2	Pelacz San Isidro	May 21, 1998	7.3	39	2.3	0.3	0.04	No detected	Numerous
<u>.</u>	Pacifico. San Isidro	May 21, 1998	7.9	0	0.5	0.2	0.04	No detected	Numerous
ی	Tanebo, Sta. Monica	May 21, 1998	7.4	\$	0.4	0.2	0.03	No detected	Numerous
-	Garcia, Sta. Monica	May 21, 1998	2.6	0	0.3	0.2	0.04	No detected	Numerous
<u>~</u>	Union Dana	May 21, 1998	7.4	32	0.7	0.7	0.04	No detected:	Numerous
2	Baybay, Burgos	May 21, 1998	8.0	0	0.3	0.2	0.03	No detected	Numerous
20	Caridad Pilar	May 21, 1998	7.7	0	0.0	0.7	0.02	No detected	Numerous
2	Buning Kalipay Pilar	May 21, 1998	7.3	34	4.3	0.3	0.04	No detected	Numerous
2	Sta. Cruz. San Benito	May 21, 1998	7.2	33	2.1	0.3	0.03	No detected	Numerous
23	Brev. 8. Dapa	May 19; 1998	6.9	No data	0.1	0.0	0.03	1,000	300
74	Brov.3 Dapa	May 19, 1998	7.3	No data	1.3	0.2	0.08	No detected	300
×	Brov 2 Dapa	May 19, 1998	7.3	No data	3.4	0.1	0.06	No detected	Numerous
8	Sabang II. Surigao City	May 22, 1998	8.5	2.5	0.0	0.2	0.02	No detected	Numerous
27	Sabang III-A. Surigao City	May 22, 1998	8.5	97	0.0	0.2	0.12	No detected	Numerous
, %	Sabane III-B. Surigao City	May 22, 1998	8.4	74	1.3	0.3	0.11	No detected	Numerous
Š	I mara 1. Surigao City	May 22, 1998	8.5	0	0.0	0.2	0.05	1,000	Numerous
ا ا	Linata II Surigao City		7.5	249	30.2	0.4	0.33	No detected	Numerous
:   =	Sabane I. Surigao City	May 22, 1998	8.2	0	0.0	0.3	0.20	No detected	Numerous
: 2	San Juan, Surigao City	May 22, 1998	8.2	0	0.7	0.3	0.16	No detected	50
33	Tumanday Rizal S. City	May 22, 1998	7.0	0	0.0	0.4	0.03	No detected	Numerous
4	Rizal, Suricao City	May 22, 1998	8.0	0	1.1	0.4	0.08	No detected	Numerous
;   	Terminal, Surizao City	May 22, 1998	7.6	0	1.7	0.1	0.01	No detected	Numerous
:							444		

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Table 7.5.1 Surface Water Quality

Table 7.5.1	Table 7.5.1 Surface Water Quality	r Quality														PNSDW.198	.198	MS.
	Contraction 11/ new factors of the formula from	Faformation							Parameter	ij			-	-	1		\$	l Pollmant
	Surface water	unounanou			ľ	l.	COR	SCT	S MBAS	ò	z	۵,	ਤੌ	 บ	5			
Major	Stream & Main	Sampling	88	5	 E	<del>.</del>	_	_		SE.	mg/l	1/30	MPN in	mg/l n	טדע האת	J mp3	Ψ.V	in upstream
Surface Water	System	Location	Date (m/d/y)	+	, ,	,	- -	+-	-	Ē	-	[]0	20	250	<u>۵</u> [_		0.5	
DENID Woter	Nater Ouglin Criteria for Fresh Water		Class AA	-	2.0 4.7	5 5		-	╀	-	10	0.1	1,000	250 :	-	_	_	
DEN WARD	Commit Control		Class A	ρ	0.3-0.3	?		-		,						:-		
Valencia		Dinagat				-	-	<u> </u>	.   - -			-		-		_		
2000		Libio			- <b>†</b>			-	-					_	-	-		Mining
Company	Stream-A	Tagana-an				-	-			.		,			-			Wining
2017		Surigao City		1		-	-		·   -  -	<u> </u>		,		,				Mining
· ·	Surgao Main	Maint						-	-	-				ļ.	<u> </u>	_	-	Mining
	0, 10	Placer				,	-		-	.				-				Mining
		Sison					1		-				-	<del> </del>	`  -	4.6 270	270.0: 58	58.0 Mining
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Water quality results were collected from respective. Water Districts or analyzed by PSPT on site in the field survey using procured instruments. Source;

Sampling point is located at upstream boundary of each river in respective municipalities.

Notes;

If several streams are present in an area, the stream nearest from populated area shall be selected.

If these is no upstream, sampling point shall be selected near populated area.

Remarks;

Intended for waters having watersheds which are uninhabited and otherwise protected and which require only approved disinfection in order to meet the PNSDW.

Class A - Public Water Supply Class-II.

Sources of water supply that will require complete treatment (coagulation, sedimentation, filtration & disinfection) in order to meet the PNSDW.





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