



Drilling rigs like this drill deep small diameter boreholes. A pump is required to bring water to the surface. This method is expensive and inaccessible to most locations.



A shallow well is dug by hand and is limited to 7 m depth. It is less expensive and can be constructed anywhere. Water can be pumped or bailed to the surface with bucket and rope.



...Water Is Life...

After a successful bore hole is drilled, it is developed until it reaches a stage where the water is sand free. There are several methods of developing a borehole. In this photo, compressed air is used to flush water into and out of the water bearing formation inside the ground until the water becomes clean.

## WHY IS GROUNDWATER CONSIDERED THE BEST...

In many areas of Papua New Guinea groundwater is the only reliable and clean all year round source. When constructed well and chlorinated, groundwater does not need costly chemical treatment that is required with water from a surface water source. It is least contaminated and is the most preferred source of water compared to surface sources.

It can be sourced from suitable areas close to the user and hence requires little expensive construction materials such as pipes, fittings, etc.

There are many more reasons one can think of when considering groundwater as your *ultimate* water supply source.....

.....remember **WATER IS LIFE** .....



The Staff

... For All Your Groundwater Queries.....

...we can be found here....



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## Geological Survey Division

## Hydrogeology Branch



....your groundwater specialist...

## THE HYDROGEOLOGY BRANCH

The Hydrogeology Branch of the Geological Survey Division is in-charge of water that is found underground in the cracks and spaces in soil, sand and the rocks. The branch's task is to find this water, study and understand how it moves inside the ground, how much of it is there, it's quality and then recommend how best this water can be brought out of the ground for use by human beings for a variety of reasons, such as drinking water supply, irrigation, stock feed and so forth.

Water from the underground has always been and is still considered to be the most reliable, cleanest and often the safest water that can be abstracted for a variety of uses. Groundwater can be abstracted from the ground by either drilling a borehole deep into the ground using mechanized drilling rigs or digging a shallow well by hand.

...Life starts  
with Water....



## WHAT ARE THE FUNCTIONS OF THE HYDROGEOLOGY BRANCH

The function of the Hydrogeology Branch is to investigate the occurrence, quantity, quality, distribution, use, and movement of groundwater in order to develop and disseminate scientific knowledge and understanding of the nation's groundwater resources.

Its activities involve groundwater resource assessment, research, and coordinating the activities of numerous other entities involved in groundwater resources abstraction, management, research and data acquisition or information transfer in cooperation with state and private agencies.

**Resource assessment** activities of the Branch include collecting data on the quantity, quality, distribution and movement of ground water and the thickness, lithological composition, lateral extent and the hydraulic parameters of the water bearing subsurface material.

**Research activities** of the Section are envisaged to improve the overall understanding of the processes that affect the quantity and quality of water. These may include research on the pathways or flow directions and rates of movement of chemical and biological factors of natural and human origins that affect the groundwater resources.

## RESPONSIBILITIES

- Undertake investigations into the nature, extent and dynamics of the nation's groundwater resources.
- To assess the impacts of groundwater developments and abstractions from them in order to develop an information and knowledge base that will enable the development of resource management plans and decisions to be made for the better management of the nation's groundwater resources.



- In the long term, develop and build a GIS compatible 'Groundwater Resources' database comprising well locations, logs, well performance tests, including complementary data on aquifer tests and spring locations, and characteristics that can be easily accessed by anyone seeking this information.
- Provide expert advice to internal and external clients such as the Mining Coordination Officers, Small Scale Mining Officers, Mining Engineers and Local and Regional Resources Planners on all matters relating to groundwater.
- Provide professional technical services to internal and external clients by participating in the assessment, planning and execution of groundwater projects for the clients.
- Develop technical guidelines in collaboration with other resource stakeholders as tools for the better management, controlled abstraction and development of the nations groundwater resources.

## .....HYDROGEOLOGY BRANCH'S INVOLVEMENT IN THE PAST.....

The branch has been involved in many different kinds of projects ranging from village water supply, town water supplies, farm irrigation and stock feed to emergency and disaster rehabilitation centres water supply projects like that shown below.....



*Sissano tsunami disaster rehabilitation center's water supply. hand dug shallow well was constructed under close supervision of the branch for Caritas PNG.*



*Developing a successful borehole drilled for PNG Waterboard at the KB well-field in Alotau for the town water supply. Groundwater is used to supplement the surface water scheme that sometimes runs dry during prolonged dry seasons.*



*A geophysical crew on the remote Alcester Island in the Trobriand Islands group. Groundwater geophysical investigations were conducted as part of the El-nino drought response project for the National Disaster Centre (NDC). Many groundwater investigations are done in conjunction with a geophysical survey.*