

## **Vanuatu**

### **Background**

The Republic of Vanuatu is located in the western Pacific. Vanuatu is one of the groups of countries known as Melanesia, and is surrounded by Melanesian neighbours: the Solomon Islands to the northwest, Fiji to the east and New Caledonia to the southwest. The archipelago that constitutes the republic contains over 80 islands and runs roughly north-south in a Y-shaped chain, spanning nearly 1100 km. from the Banks and Torres group to the barren Matthew and Hunter islands. The total land area is just 12,189 km<sup>2</sup>, less than the other nations in Melanesia but large compared to countries in Polynesia and Micronesia. Although the land area is small, the sea area is extensive, over 680,000 km<sup>2</sup> including Vanuatu's Exclusive Economic Zone.

Sixty-five of the islands are inhabited and the total population of the country was about 187,000 in the 1999 census of which 30,000 are living in the capital Port Vila. Shefa is the most populous province with 29.2% of the total followed by Sanma and Malampa provinces with 19.3% and 17.5% respectively. The population percentages of the other provinces are Tafea with 15.6%, Penama 14.3%, and Torba 4.2%.

The majority of the people (78.5%) live in rural areas, and the only urban centres are the capital Port Vila, on Efate Island and Luganville on Santo Island. 15.7% of the total population reside in Port Vila and 5.8% in Luganville. Although the majority of the population is concentrated on the coastal zones, the interiors of some islands are also quite densely populated.

The economy is based mainly on agricultural products especially fruits, cocoa, coffee and copra with fishing and forestry as the other basic economic activities, with tourism following agricultural products as the major sources of revenue for the country.

### **Water resources and supply**

In Vanuatu, both ground and surface water resources are utilised for domestic purposes. In urban areas the main water resource is groundwater whereas in rural areas, various sources such as wells, springs, rivers and rainwater are used. However, at most places other than the main urban settlements, water supply systems are either quite poor, or do not exist. The quantity of water is inadequate in many cases, and water sources are subject to contamination. In the hot and dry seasons in particular it is common to have insufficient amounts of safe drinking water in the rural areas.

Local governments are not responsible for the operation of supply and distribution systems. In Port Vila, the body responsible for water supply is a private company UNELCO. In Luganville, it is Department of Public Works, part of the Ministry of Infrastructure and Public Utilities.

In rural areas, village water committees are responsible for the operation of water supply systems where they occur. Water quality monitoring and surveillance activities are poor even in urban areas. UNELCO conducts the quality control and monitoring activities in Port Vila and there are some water monitoring activities by Department of Public Works in Luganville, and also by the Department of Geology and Mines in rural areas. No surveillance activities are practiced and public awareness on the safety and quality of water is generally at quite low levels.

The major urban centres of Port Vila and Luganville are primarily dependent on surface water collected from nearby catchments. The supply of water in these two cities was privatised in December 1993, but remains expensive for urban dwellers.



In rural areas most water supplies are obtained from surface water, rainwater and groundwater and is of some concern particularly in small islands during period of drought and seasonal rainfall fluctuations.

About 88% of the total population has access to some form of potable water supply. Most of these sources are reliable while others whose source is rainfall are less reliable especially on the small islands during the dry seasons.

The provision of safe water has become a national issue and access to safe water was reported by UNICEF (1998) to be 74%, and the percentage of rural areas with installed water has almost tripled in the last fifteen years to about 53% of the population (ESCAP/POC, 1995). By 1999 the main sources of drinking water in rural areas are from rivers, springs and wells (26.0%), shared piped water (19.3%), community water tanks (18.5%) and household water tanks (15.9%).

Sanitation ranges from pits and septic tank to flush toilets. National levels of adequate sanitation are estimated to be 45% for rural areas. Nevertheless, a survey by the Vanuatu National Council of Women in 1995 shows that sanitation problems in urban areas include water pollution through human waste, and the inadequate disposal of household rubbish. There are poor sanitation facilities in the hastily erected and overcrowded squatter settlements and in some areas up to twenty families share the communal standpipes, making the potential for the transmission of communicable diseases in these communities very high. In the small islands the water table is elevated and the underground water is very susceptible to contamination from latrines.

Animal and human excreta are the main sources of pollution of water supplies in Vanuatu and much of the surface water is exposed to animal and human wastes and other contaminants. This is due to a lack of source protection, and from wastewater runoff during floods or heavy rainfall.

Vanuatu is not an industrialized country and agriculture is currently not at a level that fertilizers and pesticides are used in large amounts and contamination of drinking water is predominantly bacteriological. In urban areas, there is no sanitary sewerage system. Domestic wastewater is collected in septic tanks and there is no control mechanism on the tanks to check whether they are appropriately built and operated. In rural areas, water sources are open to bacteriological contamination originating from human or animal sources. Due to the volcanic nature of the islands, naturally occurring chemical substances may also be a source of chemical contamination.

Town planning in Port Vila has been deficient, and water pollution in Port Vila Harbour and the nearby Erakor/ Ekasuvat/ Emten lagoon system is serious due to the overall lack of a domestic sewerage system, and poor management of many individual septic tank systems, which empty into the lagoon.

This pollution of the Erakor lagoon near Port Vila is now widely considered to be Vanuatu's most serious urban environmental problem, and requires early attention for reasons of health and tourism development. At present, uncontrolled nutrient discharges; nitrates and phosphates from sewage, septic outflows, siltation, industrial waste, etc. combined with poor natural flushing of the lagoon are even more serious than bacterial contamination, which is reaching the limits of world standards (World Bank, 2000).

In Port Vila management of solid waste is undertaken by Port Vila Municipality who ensures that dumping sites do not pose a risk to public health and the environment. The Port Vila Hospital Sewage Treatment Plant is monitored by UNELCO and the effluent is treated before being discharged into the sea (lagoon). Nevertheless, solid waste management is a serious problem in both main urban centres.



The safe disposal of solid waste is a significant problem for many communities. In north-Ambae for example much of the waste is disposed of in a coastal lake where water is drawn for the community, and also damages the environment. Addressing these solid waste disposal issues is becoming a high priority for many islands as ongoing health hazards from wastes is a growing concern, and there already exists the issue of timber wastes (sawing mills and timber factories), the waste oil from power generation plants, and landfills. (SPREP, 2000).

A lack of land use planning is leading to potential future problems such as forest clearing for cattle rather than rejuvenation of old pastures, and soil erosion, which is serious in logged parts of Tanna, Tongoa, Pentecost and Paama.

Another growing issue is the alarming acceleration in the number and the size of squatter settlements in Port Vila that has brought a corresponding decrease in the capacity of health and sanitation facilities to provide even minimal facilities for these families. It is common for up to eight people share one room, and the rents for one room without water and electricity, but with access to a shared pit latrine, are frequently equivalent to 50% of the family income. Income inequalities are therefore, and poverty and vulnerability are evident in an increasing underclass of landless urban poor.

Records of water related diseases show that diarrhoea and gastroenteritis remain important sources of morbidity.

### **Water quality surveillance and monitoring**

Water quality monitoring activities are quite poor in Vanuatu. There is no defined quality monitoring system or corresponding responsibility, and no overall review and evaluation of data quality. Quality standards do not exist leaving no basis for evaluation of the analytical results. No surveillance authority has been appointed and currently the Ministry of Health does not have an involvement in water supply, monitoring or surveillance sectors. However, the Ministry has put forward some rules and legislation with respect to water safety, its quality and towards the development of a surveillance system.

The Vanuatu government is dedicated to the provision and access to a safe water supply for all of its population, with a vision to ensure that all citizens have water that is protected, accessible, adequate and safe. Providing this water supply is one of the priority areas for the government with an allocation of funds from the National Government to the Department of Water Resources to oversee development of the water supply.

The country also receives donor aid (especially from the New Zealand Government) towards the development of water supplies in the country and the Vanuatu government also supports non-government organizations in helping to improve water supply systems.

The Ministry of Health has developed new policies covering the area of Environmental Health which also covers water issues, and the policy was due to go before the council of Ministers in early 2002.

The Public Health Act of 1994 ensures that water intended for human consumption must be protected from contamination; however, enforcement measures for the Act are yet to be put in place. There are currently no drinking water quality guidelines for Vanuatu although the Public Health Act includes provisions for regulations under the Act for standards, quality and adequacy of water for domestic purposes.

The Department of Water Resources also has in draft a Water Resources Management Act but it is not yet clear when this Act will go to parliament. In Port Vila a water protection zone has



been established around the Port Vila Water Supply Catchment Area to ensure the water supply is protected from possible contamination.

In rural areas the water supplies to communities is often poorly monitored due to inadequate human resources.

Agencies involved in water supply in Vanuatu include the Public Health Department who is responsible for water quality monitoring and health and hygiene education for both urban and rural communities. The Department of Geology, Mines and Rural Water Supply is responsible for the construction of new water systems, borehole drilling and monitoring in rural and urban coastal areas. In urban areas the Operational and Maintenance Management are the responsibilities of the Public Works Department in Luganville and of UNELCO Vanuatu Ltd in Port Vila, while non-government organisations are responsible for construction of new water supply systems in rural areas.

UNELCO Vanuatu Limited is a private French company that operates the water supply system in Port Vila, which is considered to be 100% reliable and safe for human consumption. The company undertakes water quality testing weekly and samples are also sent to New Caledonia and New Zealand for crosschecking.

At present there is no clear organizational chart identifying the different roles and responsibilities of the various water agencies in Vanuatu. Each organization has its own way of dealing with water related problems.

The Public Health Department has about seven Environmental Health Officers stationed throughout the country that oversee water safety and one water quality analyst based at the Public Health laboratory at the Port Vila Hospital. UNELCO has two full time Water Quality Officers regularly undertaking monitoring in Port Vila and the Department of Geology and Water Resources also has two staff that oversee water quality.

With respect to analytical facilities, the National Water Quality Laboratory is a newly established laboratory set up with assistance from the New Zealand Government and it is attached to the Department of Geology, Mines and Water Resources. The UNELCO Laboratory is owned by the French company who are responsible for the Port Vila water supply. It is a very advanced laboratory and has two trained technicians who operate the laboratory. The Public Health Laboratory only conducts microbiological tests.

Bacteriological and biological tests are carried out in Port Vila every week and chlorine residual is done daily. This is important as Port Vila water sources are not well protected and if there is a possibility of contamination, many people will be affected. In rural areas bacteriological tests are carried-out only when there is an outbreak of disease or when there are complaints from the public concerning the quality of water.

In Vanuatu some islands are prone to volcanic activity and testing for pH and some physical parameters are always done whenever there is an eruption. The UNELCO laboratory also tests for most of the physical parameters to ensure they comply with WHO standards. Chemical analysis is done only when there is known chemical pollution of the water supply and no radiological parameters are measured.

### **Needs analysis**

There is a lack of legislation, rules and standards in the water sector and the responsibilities and powers of the authorities are not clearly defined.



The Ministry of Health, normally the surveillance agency, has no involvement or powers in the water sector and currently does not conduct any surveillance activity, inspection or sampling activities.

There is little or no co-operation, collaboration or exchange of information between relevant authorities.

It is recommended that the Government should appoint The Ministry of Health as the National Surveillance Agency giving them the necessary administrative power to perform surveillance activities. Once the Public Health Act comes into force, the legislative basis will be provided and meetings of all relevant agencies should establish a monitoring and surveillance scheme to which all of the authorities agree.

The Ministry should perform periodical surveillance activities with sanitary inspections and water sampling-analysis in urban and rural areas through their Provincial Health Offices with the initial priority for urban systems.

The Environmental Health Unit (EHU) should be the responsible unit for surveillance activities and the overall supervision of water quality aspects, and should develop a monitoring scheme for the short term including the critical parameters to be monitored, sampling frequencies and inspection regimes.

National Drinking Water Quality Standards are required; this will include bacteriological, physical, and chemical quality parameters and their acceptable levels in drinking water. Standardised sampling methods, sampling frequencies and analysis methods, should be derived through inter-agency studies.

## **Reference**

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