

**Caribbean Land and water Resources Network (CLAWRENET) of
PROCICARIBE**

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BRITISH VIRGIN ISLANDS

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COUNTRY OVERVIEW

Physical Characteristics

The British Virgin Islands consists of over forty islands, islets and rocks which belong to the Virgin Islands archipelago, which consist of US and UK Territories. The islands are about 96.5 km east of Puerto Rico and 225.3 km North West of St. Kitts, located near latitude 18.3° N, and 64.5° W. The three largest are Tortola, Virgin Gorda and Anegada respectively.

The largest island Tortola is 62 km², where as the entire group is 145 km². The highest point is on Mount Sage on Tortola at a height of 542 m.

SOCIO-ECONOMIC FEATURES

Population

There has been an increase of population from 16,000 to 20,000 (25%) which is **approx 2.1% per annum**, over the last ten years has increased pressure on the use of land. Immigration rate is just over 50% and population density is 50/km². Over 50% of the population is between 15 and 44, and 21% of the Labour force is in the Public Sector and 0.2% is in Agriculture. The BVI consist of 15,499 ha of land, 39% of which is Crown land and 61% is privately owned.

Economy

The main stay of the BVI economy is the Tourism and Financial services sectors. Total visitor arrival was 0.5 Mil in 1999 with 1300 rooms contributing approx. 300Mil. Balance of visible trade is -172Mil, and balance of Services being 230Mil with net overall trade balance is 62 Mil. There are a total of 360,000 International Business Companies that provide a total licence fees of 73Mil.

Major food crops and cash crops and trend in production

The annual food importation cost is approximately 36 million dollars. Fruits and vegetables account for ten million dollars while beef, chicken, milk, fish, cereals and non-alcoholic beverages account for approximately three million dollars each. The local annual agricultural production amounts to 850 tons of beef, sheep and goat meats, pork, fruits, vegetables and root crops at a value of 2.25 million dollars. The local agricultural production therefore accounts for about five percent of food consumption.

Importation of food by the B.V.I. in 1998 amounted to a CIF value of approximately 36 million dollars (\$36,031,859)(DPU **Statistics**).

Core Problem:

There is insufficient production of food to satisfy local demand. The British Virgin Islands cannot produce sufficient food and materials needed for its survival. As a result importation of all its fuel, supplies and about 95% of the food consumed comes from overseas. The British Virgin Islands has no control over the supply of its requirements from abroad and is susceptible to international market forces.

Crop diversification

The main crops produced in the BVI are bananas, sweet potato, cassava

CLIMATE

The average rainfall is 50 inches with the heaviest showers occurring between September – December producing 50% of the rainfall. The driest period is between January to June.

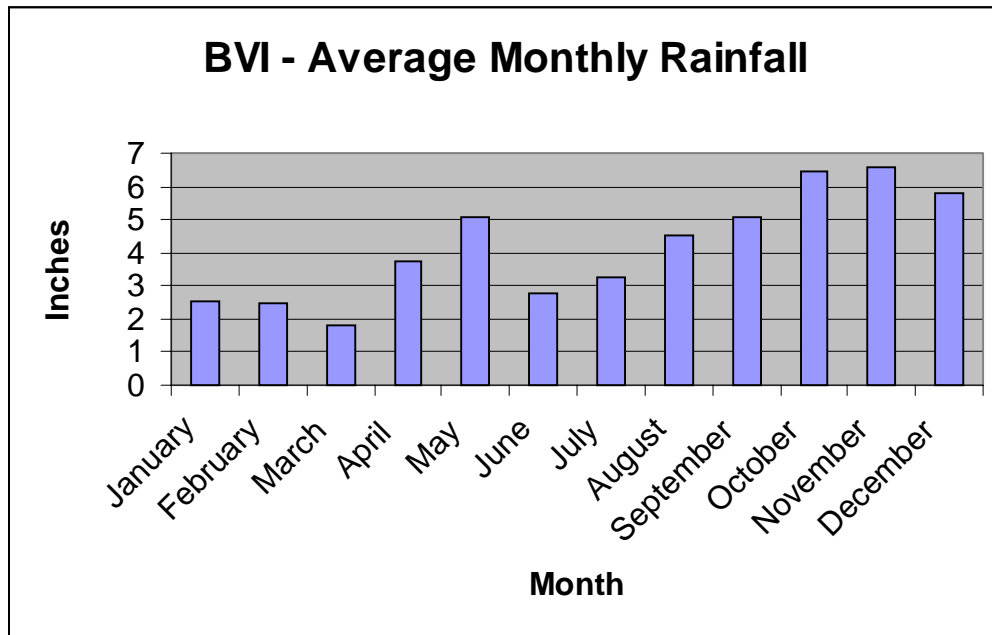
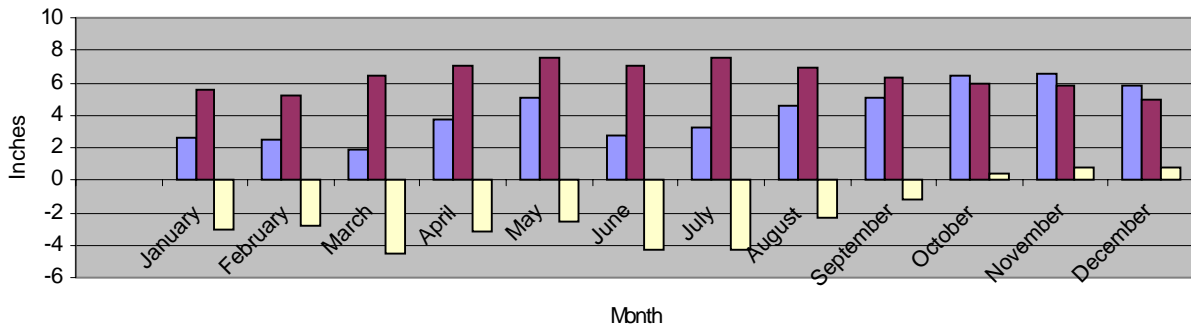


Table 1.2 BVI Average Monthly Water Balance



■ Precipitation ■ Potential Evapotranspiration □ Deficit (in)

LAND RESOURCES

Soils throughout the islands are shallow, friable, immature residual soils generally less than 18 inches thick. These soils are medium to coarse grained, well graded, sandy silts generally with a dark yellow brown colour. Large boulders form a significant surficial deposits especially in southern Virgin Gorda where large boulders up to 10 meters in diameter form and expansive boulder field.

LAND USE

The present and proposed Land Use is given, which is only draft at this stage as outlined in the Draft Physical Development Plan.

PHYSIOGRAPHY AND AGROECOLOGICAL SYSTEMS

Physiography

Most islands with the exception of Anegada consists of steep slopes which rise precipitously from the sea. Anegada is very flat limestone island with one quarter of its surface area occupied by salt ponds with an number of sand dunes.

INSTITUTIONAL ENVIRONMENT - LAND RESOURCES

The Ministry of Natural Resources and Labour is main agency that has control over Land in the Territory. These functions are carried out at the Ministry and through its

Department. Namely Departments of Agriculture, Conservation and Fisheries and National Parks Trust. The other Governmental agency involved is the Ministry of Communication and Work and the Town and Country Planning Department which is responsible for physical development planning.

WETLANDS, MANGROVES AND INLAND VALLEY BOTTOMS

Wetlands and mangroves are the responsibility the Department of Conservation and Fisheries.

A number of the wetlands are continually being filled. There are also a number of Salt Ponds that are also being lost. Recently there has been some initiative in the replanting of some mangroves. Prior to the development boom that is taking place in the BVI the main communities were located in the flats and most of the area was used for cultivation. This has changed in recent time with areas of wet lands that were previously cropped and even virgin areas are now being encroached upon.

With the present scale of agriculture there is no urgent threat to wetland areas. Those that have been abandoned have quickly reverted to their original system. There are not many intense agricultural holdings and pesticides are not used at high levels. The greatest threat at present to the wetland systems from agriculture are the live stock farms which is still small in comparison to the other issues.

WATER RESOURCES

I have determined that there is a correlation between active Soil and water conservation methods and the energy or cost used to desalinated the water from the saline wells.

HYDROGRAPHY

All the surface water in the BVI fall into the categories of estuaries, cays or salt ponds. All of them are of very high salinity. The only surface water that is of low salinity were created by the Department of agriculture and exist as small ponds or Minidams. These fresh water sources have a total capacity of approximately three million gallons.

There are a few perennial springs that exist in the hills but these have not been documented to the extent of the flows.

Water, Wells and Mini Dams - Surface drainage and Ground water

A number of Mini Dams have been constructed for storage of water for utilisation by farmers. This has increased the Territories contained surface fresh water. This has also improved the hydrology in the immediate area and also micro climate as well.

IRRIGATION AND DRAINAGE

Most of the water supplied as potable water originates from desalination. Although it is mentioned that they adhere to WHO standards. The effects on agriculture indicate that it is not suitable at all times for us to use the water that varies tremendously.

There is only two major irrigation system one on Tortola where the department is located and the other on Virgin Gorda. These feed the department and 48 farmers on Tortola on 12 ha. The project on Virgin Gorda is 5.6 ha and has 14 farmers. The project in Tortola is fed by public water and well water. The Project in Virgin Gorda is fed only by well water and spring water. Other farmers are fed by public, surface and well water.

A major Irrigation system is being repaired that will feed over fifty farmers plus the needs of the department.

INSTITUTIONAL ARRANGEMENTS

Conservation in this Territory occur in three fold manner. With the Agriculture (DOA), Conservation and Fisheries (CFD), departments and the National Parks Trust (NPT). Conservation and fisheries deals with the Marine and coastal areas while the NPT deals with established parks all other areas are left up to the DOA more precisely the Engineering Division by default or established laws.

Presently all of the engineering work is done the Engineering Division that has one engineer and three daily paid workers. Which has to perform these duties and additional for the department and throughout the territory. Recommendation has been made for additional staff of which we are waiting to be recruited.

The following are various review committees for all development work.
Technical Review Committee (TRC) - reviews all marine development applications.
Development Control Authority (DCA) – Grants permission for all developments.
Project Review and Advisory (PRA) – reviews major developments.

HOT SPOTS

In none of the developmental committees or authorities is the DOA represented.

Presently the high silt load from development on the hillsides which causes erosion affect the drainage of the ghuts into the ocean. There is also the issues of the destruction of the coral reefs, sea grass beds and mangroves from these practices.

In areas where there are protected watersheds the Department of Agriculture is not appraised of any development.

Sewerage disposal is another main concern. There is only one community treatment plant throughout the entire Territory.

Conflicts among policies, resource use and agency jurisdiction.

Environmental considerations not effectively integrated into the national development process.

Absence of a comprehensive environmental policy and associated management plans.

Lack of adequate enforcement and monitoring policy.

Need for approval and passing of pending legislation.

There is a proliferation of developments along the shorelines and the practice of clear cutting of the hillsides for access to building sites.

This is further worsened by the high rate of deforestation and encroachment of population on marginal hillside lands for settlement.

BRIGHT SPOTS

The overall bright spot through out all entire governmental agencies is the development is the National Integrated Development Plan entitled THE ENVIRONMENT OF THE BRITISH VIRGIN ISLANDS Emerging Issues – 1998.

Existence of the following legislation (pending):

- Coast Conservation Bill
- Land Use Planning Bill
- Ground Water Monitoring and Control
- Parks and Protected Areas Systems Plan

The department has a policy of also assisting farmers with water tanks to assist in storage of water by means of a lease. The Department has provided a total of 200 tank to farmers thus far.

Presently there are regulations governing developments in a number of areas and in some cases the Department Conservation and Fisheries are asked for their input. Sometimes it is said that the DOA was also asked for its input.

Presently there are LIS/GIS in the Town and Country Planning, Conservation and Fisheries, and Survey departments along with the Office of Disaster Preparedness.

An agricultural census is to be done in 2001 which was proposed for 2000. After this an agricultural LIS/GIS is proposed to be requested for Agriculture.

At present all government offices are on a WAN which is accessed by dialup method and is primarily used for accounting purposes. A true dedicated WAN will be introduced in the near future. At present in the survey department all land in the territory is mapped and parcel sizes and owners can be readily called up.

It is proposed that the land registry be computerised in 2001. A national project is proposed that will comprised of a fly over with the generation of coloured aerial photos and create better bases data and controls for all departments in 2001.

A fully computerised weather station has been set up by the US Meteorological service. This station is part of their global monitoring of the impact of global warming and ground water flow and storage. This station will also be used by the department in developing well monitoring methods and recharging methods. This station is fully computerised and can be accessed remotely, via a the telephone line and a computer.

The introduction of salt tolerant crops are being investigated.

There are numerous well through out the territory which have been used in the past and a number of them have now become saline. This was brought about by over pumping and improper monitoring of the well water quality. Pilot projects will be set up in the near future for the rehabilitation of these wells.

CHALLENGES AND VIEW POINTS

Agroforestry

Prior work has been done in this area as mentioned below. Replanting of a number of forested areas were done but because a number problems ie. Staff shortage, droughts and private lands. With the extreme high price of land the is great pressure for the sale of these lands even lands used for agriculture. Classification and land use. From the present

laws there has been the establishment of a number of laws that deal with Water areas and protected areas.

Erosion and Soil Conservation

Due to the high labour cost there are limitations to the amount of mitigation that can be done by the farmer. Programs have been mounted previously with the farmers in soil conservation methods. In this area methods of erosion prevention has been introduced to the departments involved in road construction.

Monitoring

Equipment has been purchased for the monitoring of salinity and other chemicals present in the water to be used for irrigation. A meeting was held for the formation of a committee involved in collection of rainfall data. This will be expanded to encompass other aspects to use for the measurement of natural environmental variables.

Legislation

There is a general law that governs most of these areas which is "Trees, soil and water conservation". The review of this law is proposed.

BVI Country priority

- *Land Use, Capability and Soil Maps.*
- *Recycling*
- *Irrigation Technology*
- *Water use efficiency*
- *Agroforestry systems*
- *Training*
- *Information Systems*

CLAWRENET BVI Programme of Work

Continue the following

The investigation of the relationship of Rainfall, ground water, salinity and extraction rates will affect agricultural production in the BVI.

Collection and storage of meteorological information at one point and distribute to other agencies.

Review of various forecast at various times of the year.

A method of assistance in construction and rehabilitation of terraces by farmers.

Work along with Public Works Department (PWD), in their ghut cleaning program.

Introduction of waste collection and reuse for all agricultural enterprises.

Establish a new metered water system for farmers at the Paraquita Bay Farm water system.

Introduction of a water subsidy for farmers.

New

Closer ties with the Conservation and Fisheries Department.

Compiling a list of saline tolerant agricultural products relevant to the BVI and their ranges of tolerance.

Develop key strategies with the CFD that is relevant for the BVI.

Investigate and plan the use of socially important trees in the BVI for agroforestry.

Introduce materials and methods for the reduction of erosion for all works being done on Hillside.

Educate households on soil conservation methods.

Investigate and introduce subsoil field irrigation for the pastures.

Relining of existing MiniDams throughout the territory.

Recycling of agricultural waste to use for irrigation.