



Environmental Technology Assessment

Udanax Description

Udanax is a fictitious country, created by the United Nations Environmental Programme (UNEP) for the purpose of demonstrating the applications of various environmental management tools and systems, as well as for illustrating environmental issues related to technology investments (see Figure 1). The following is a brief overview of Udanax.

Udanax has an area of 700,000 km² and 1,100 km of coastline. The terrain is generally flat, with scattered hills (200 to 800 m high) in the central region of the country. There are 15 rivers with lengths over 150 km. The longest river, over 365 km in length, flows through Udanax City before reaching the ocean. The climate of Udanax is temperate to hot, with annual average maximum and minimum temperatures being 30°C and 14°C, respectively. The highest recorded temperature (41°C) was recorded in Udanax City in May, 1959. The lowest recorded temperature of 2°C was observed in January 1960, in the central region. Rainfall averages 650 mm/year in the coastal areas, and 780 mm/year in inland areas.

The population of Udanax is approximately 20 million, with six cities having populations greater than 200,000. Some 8% of the population belongs to poor minority groups. Around 50% of the population lives in the coastal areas. Udanax City has a population of 2.3 million. Udanax is not situated in an earthquake zone, but since observations began in the late 1940s one small earthquake has been recorded in the central hilly area. Frequent landslides are observed in the same area, especially during the rainy season that runs from June to September. The coastal areas experience persistent winds, typical of sea breezes.

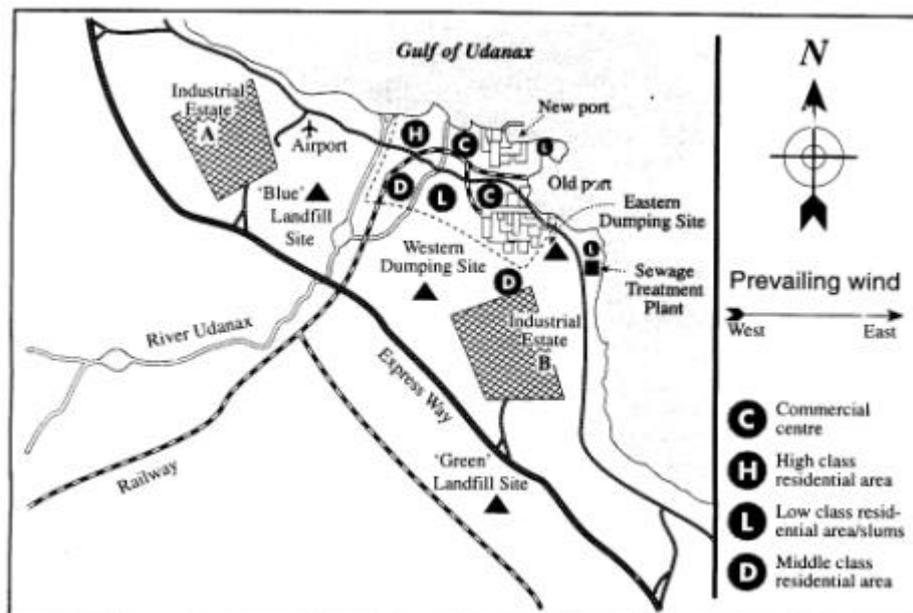


Figure 1. Udanax City Metropolitan Area Map

Udanax has a limited supply of minerals, but substantial oil, gas and coal supplies. All electricity is produced by burning fossil fuels. Industry is based mainly on the energy resources, with both heavy industry and light manufacturing. Service industries are moderately well developed. There is a moderate amount of agricultural land and agriculture is reasonably extensive, with export crops based on the limited irrigated lands that produce fruit and vegetables. There is extensive livestock

grazing. Tourism is a growing industry, especially in the coastal areas. Commercial fishing is an important export industry, with most fishers belonging to the largest of the ethnic minority groups.

Potable water supplies are somewhat limited, coming from both surface areas and groundwater. There is a well developed transportation network. Some 90% of Udanax City has sanitation services, although only primary treatment occurs. Trade waste from the two industrial estates located adjacent to Udanax City are not treated.

There are several high schools located in, and adjacent to, Udanax City. One of the two universities is also located in Udanax City. Some university staff members are interested in environmental pollution, and the engineering and science departments occasionally provide technical guidance to those industries that are facing pollution control problems. The majority of the population has had a primary school education and is literate, but the number of individuals with tertiary qualifications is small. Nearly 50% of the working population is employed in agriculture and fishing. Around one third are engaged in work related to government, community, social and personal services. Less than 10% of the workforce is engaged in manufacturing.

The political system is a constitutional monarchy, with a Prime Minister and parliament. Water pollution regulations are administered by four inspectors in the Ministry of Resources and Energy. To date the main emphasis has been on the quality of drinking water supplies. The Ministry of Agriculture is responsible for matters related to pesticides and groundwater. Occupational health regulations, administered and enforced by the Ministry of Health, do not yet include chemical exposure limits. Likewise, there are no regulations related to discharges of contaminants into the atmosphere.

The Ministry of Planning evaluates environmental impact assessments. Only major projects are assessed. One officer handles these assessments, and advises the Minister accordingly. An Environmental Bureau of four persons exists within the Prime Minister's Department. It is responsible for coordinating environmental programmes, acting as international focal points and advising the Prime Minister. The Bureau has no formal links with other ministries.

The waste disposal regulations are administered by the municipalities. In most areas municipal employees collect and transport domestic wastes to one of two dumping sites located adjacent to the industrial estates. Industries employ private contractors, or company staff and vehicles are used. The dumping sites are designed, operated and controlled in ways that are likely to be successful in avoiding or limiting pollution.

The following is a summary of the current pollution and waste laws:

- ◆ Water Pollution Regulations (1981) under the Water Resources Act (1978);
- ◆ offence to pollute both surface water bodies and ground water;
- ◆ can set standards for discharge of effluents;
- ◆ can order action to clean up;
- ◆ Environmental Assessment Act (1985);
- ◆ EIA required for all large industrial projects (over \$2 million in start up costs);
- ◆ EIA report format is prescribed;
- ◆ Waste Disposal Regulations under Public Health Act (1958);
- ◆ wastes must be disposed of in designated locations;
- ◆ deposit to be kept free of disease, vermin and fires;
- ◆ only approved operators may run a waste disposal operation;
- ◆ such operations must be safe at all times; and
- ◆ municipalities have a duty to ensure collection of domestic solid wastes.