

Watershed Management in Samoa

All of Samoa's forty river systems originate in the uplands and drain into the sea creating watersheds. The rivers are fairly evenly distributed throughout Samoa with the exception of Savaii where the land is considered to be dry. The rivers are partly perennial and partly seasonal in character. These rivers are Samoa's main source of fresh water, comprising 75% of Samoa's water sources. Other sources of water include springs at 15%, boreholes 5% and rainwater 5%. The pattern of flow and the quality of water from these sources depend on the condition of the watershed.

Water in the watersheds is being used for drinking, domestic and industrial uses and hydropower. In 1981, 80% of the country's electric power was generated by diesel plants, whereas today close to 80% of the electric power is generated by hydropower. An evaluation of watersheds in 1983 identified five major watersheds in Samoa: the Vaisigano River (Upolu), Fuluasou River (Upolu), Faleaseela River (Upolu) and Vailoa-Faleata Rivers (Savaii). Close to 58% of these areas were in natural condition (undisturbed), 34% were disturbed and 7% were disturbed and in extremely degraded conditions. After the two cyclones Ofa and Val in 1990 and 1991, the condition of these watersheds changed drastically. For instance a Forestry Division assessment of cyclone damage in the Vaisigano watershed indicated a 40% level of uprooted trees and 50% of badly damaged standing trees.

The watershed condition inventory carried out in 1983 has clearly indicated the status, problems and the immediate actions needed for highly degraded watershed areas in Samoa. However, the constant forest clearance of lands by villagers, the opening of new village roads and other development activities has continued the deterioration further of the country's watersheds. The protection of mountain watersheds has a direct or indirect impact on soil fertility which essentially influence agricultural developments. The degradation of watershed has a direct impact on water quantity and quality. Low quality water is unacceptable for human and livestock consumption, at the same time a reduction in quantity has a severe effect on water consumption, hydropower generation, irrigation and industrial uses.



Furthermore the siltation of hydropower and the water supply scheme constitute a major problem mainly in the Vaisigano and Fuluasou Rivers. The siltation of the Moamoa water intake and the contamination of water by a livestock farm upstream forced the intake to close. The Fuluasou river hydropower reservoir built in the early 1950s is completely silted up. Weedicides used upstream in the cultivated area are another major source of pollution that deteriorates the water quality and makes it unpalatable and transported via river flows to

the coasts further pollutes lagoons and reefs.

Status Of Watershed Management In Samoa

As to date Government efforts to improve the management of watershed is confined to the five watersheds identified and in need of serious management in 1983, i.e., the Vaisigano, Fuluasou, Faleaseela, Falefa and Vailoa Faleata river systems. After the two cyclones in 1990 and 1991 rehabilitation of the first two watersheds was carried out by the Watershed Management Section (WMS) under the Forestry Division (FD) of the Ministry of Agriculture, Forests, Fisheries and Meteorology. A total of 424.6 hectares were planted in the Vaisigano watershed and 383.0 hectares in the Fuluasou watershed. Community planting is on going in Falefa and Faleaseela watersheds. The individual farmers who lived in Falefa and Faleaseela watersheds were encouraged to incorporate planting of forest trees with their cash crops for the protection of soil and water. Unlike the Vaisigano and Fuluasou watersheds, the maintenance of these woodlots are the responsibilities of the farmers. The watershed management staff can only supply free seedlings and provide technical support. Recently, the government of Samoa approved the transfer of the Watershed Management Section under the Department of Lands, Surveys and Environment now being renamed the Ministry of Natural Resources and Environment. With that a new initially external funded project recently acquired by the latter ministry is piloting effective community-based watershed management approaches at the island of Apolima and the village of Lepa. These various watershed management developments will provide some lessons and models for promoting nationwide effective community-based management of the country's watershed areas which are largely in lands under customary land ownership or owned by village landowners.

Childrens Corner



1. Watersheds refers to:
[a] natural ways of harvesting water
[b] natural sources of freshwater
[c] tap water systems
[d] effective means of saving water
2. There are _ major watersheds identified for Samoa in 1983.
[a] 4
[b] 5
[c] 6
[d] 7
3. The most practical way you can do to help preserve watershed areas is to:
[a] built concrete walls along river banks to prevent flooding
[b] cut terraces along slopes to reduce soil erosion
[c] plant more trees on river banks to keep soil from eroding
[d] built more water reservoirs to increase water supply
4. Which of the following major watershed is in the island of Savaii:
[a] Vaisigano River

- [b] Fuluasou River
- [c] Vailoa Faleata River
- [d] Falefa River

5. In Samoa water from watershed IS NOT use for

- [a] hydropower generation
- [b] family food preparation
- [c] agriculture production
- [d] chemical production

6. There are _ major watershed areas identified in 1983 in Upolu.

- [a] 3
- [b] 4
- [c] 5
- [d] 6

7. Most of the lands where watershed areas are in Samoa are:

- [a] on Government Lands
- [b] on Customary Village Lands
- [c] on Private Company Lands
- [d] on Government-leased Lands

8. Degradation of watershed DO NOT affect:

- [a] lagoons and coral reefs
- [b] river systems
- [c] water consumption
- [d] atmospheric pressure

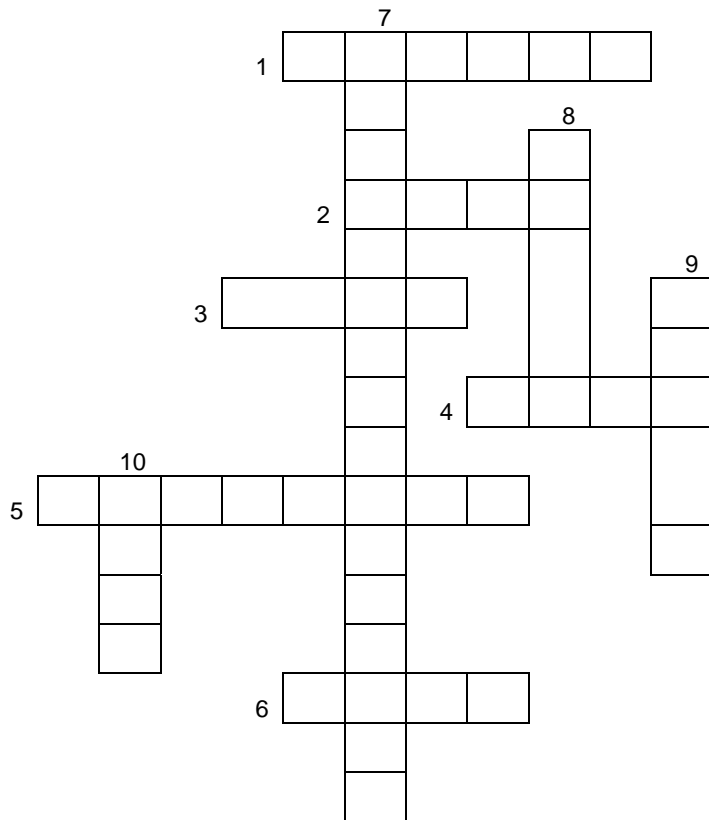
9. The major watershed in Samoa adjacent to most populated area is:

- [a] Falefa River
- [b] Vaisigano River
- [c] Faleaseela River
- [d] Vailoa Faleata River

10. One of the easiest way to pollute watershed areas is:

- [a] cutting trees along the river banks
- [b] throwing rubbish on rivers
- [c] moving earth along mountain slopes
- [d] building trails near river banks

Crossword Puzzle



Across

1. Samoan word for immature leaves or leaf bud
2. Turmeric powder which is used for medicine, can also be obtained from the market
3. Vapour from a broken leaf of this tree is used in treating sty or mata'fa
4. Samoan name for the seed of the Candlenut tree
5. Samoan healer
6. Part of a plant and is also a name for an animal sound.

Down

7. Scientific name for mamala
8. Samoan name for pairing of leaves for medicinal purposes
9. Apart from 6 across, it is one of the most commonly used part of a plant for medicinal uses
10. The most commonly used plant sap apart from the laau fai lafa (*Senna alata*)