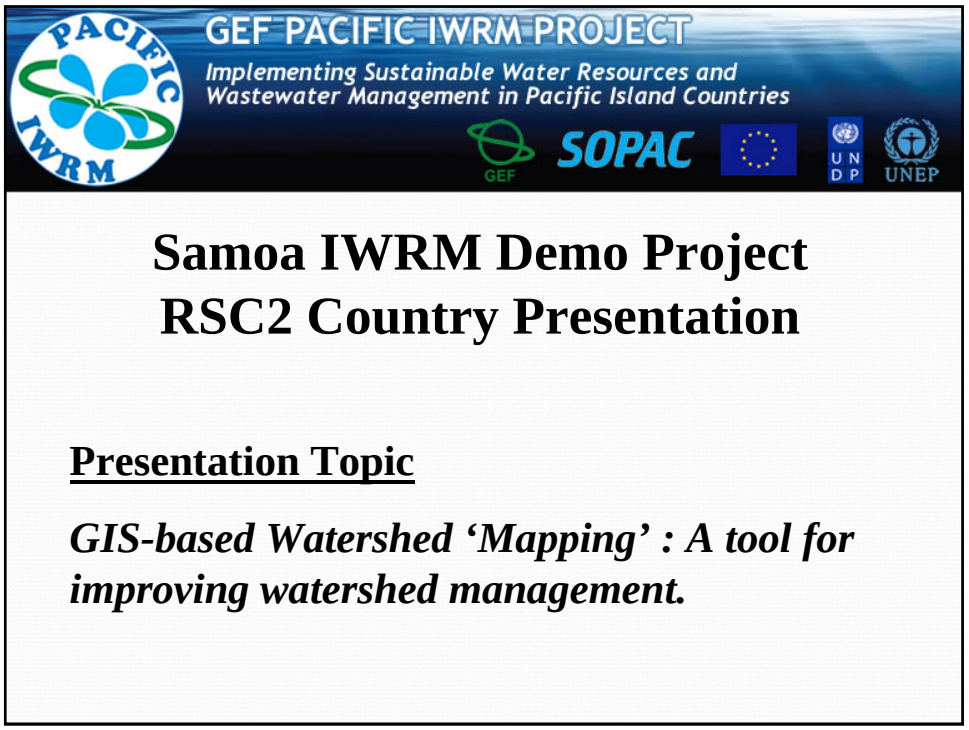


Samoa IWRM Demo Project
RSC2 Country Presentation

Presentation Topic

GIS-based Watershed 'Mapping' : A tool for improving watershed management.

Samoa IWRM Project, MNRE-WRD, Lvl5
DBS Building, Apia, 23800

Goal

To illustrate the usefulness of GIS mapping – (IDRISI Taiga software) map modelling to the IWRM project

Overall Objective

A demonstration of another tool 'To improve water Resource Management (IWRM) and Water Use Efficiency (WUE) plans'

Contents

GEF PACIFIC IWRM PROJECT

Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries

1. Introducing the Samoa IWRM Demo Project Site

TITLE: ***Rehabilitation and Sustainable Management of Apia Catchment***

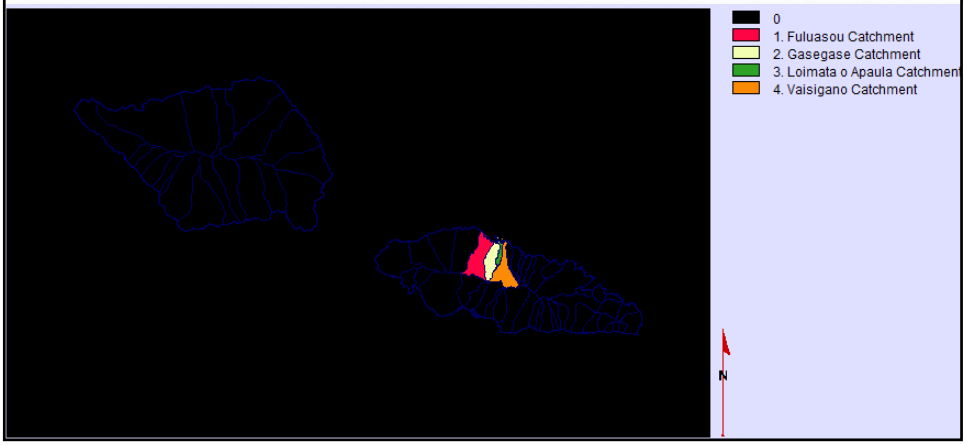
Objective:

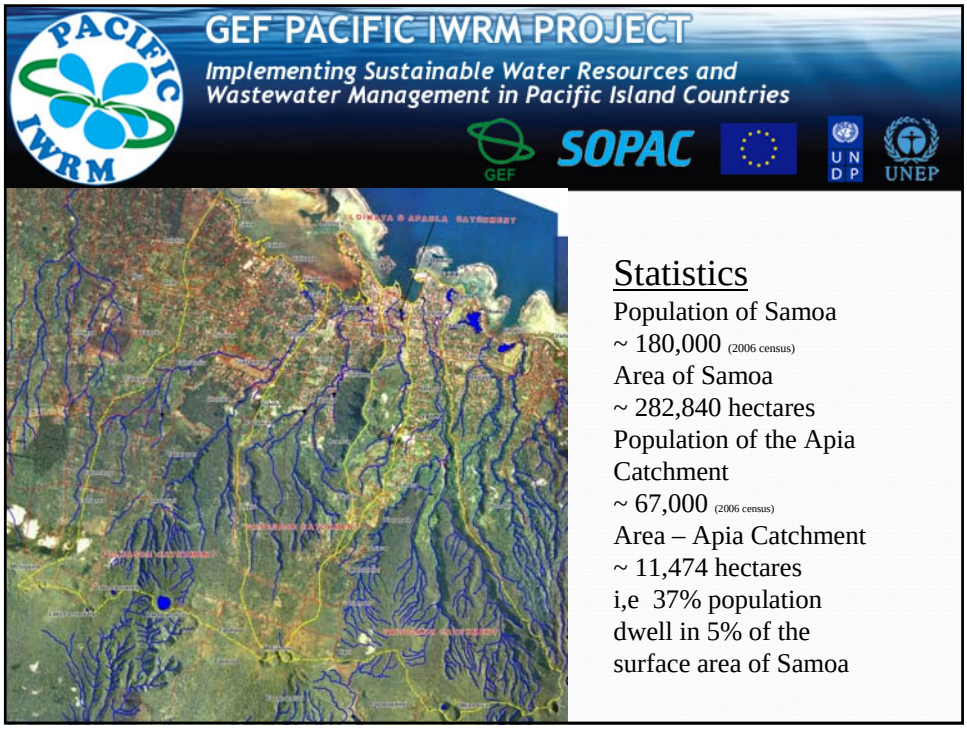
To rehabilitate and manage the Apia catchment in a sustainable manner in order to improve the quality and quantity of the water resources for enhanced water expedients, social-economic advancement and reduced environmental adverse impacts

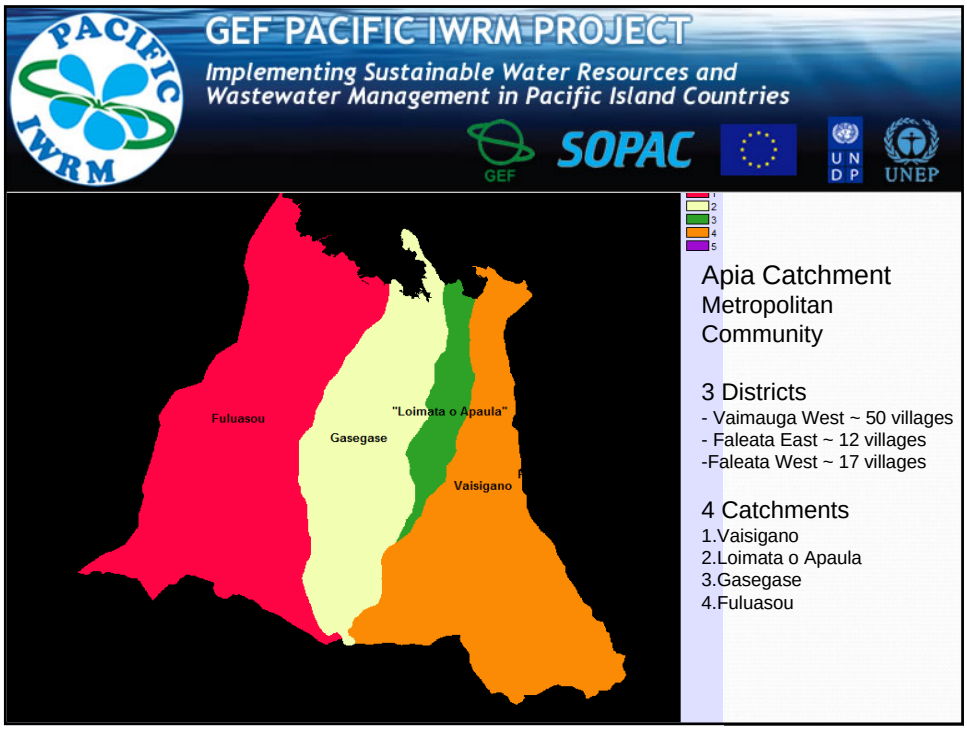
GEF PACIFIC IWRM PROJECT

Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries

Apia Catchment Map





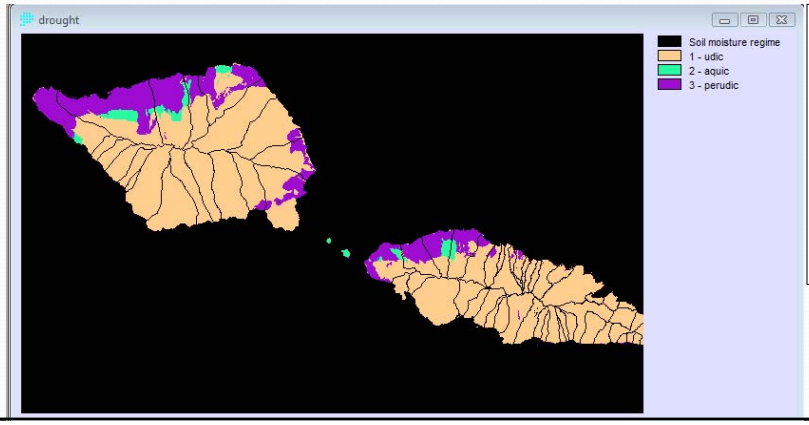


Samoa IWRM Project, MNRE-WRD, Lvl5
DBS Building, Apia, 23800

GEF PACIFIC IWRM PROJECT

Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries

2. GIS Mapping Illustration
Idrisi Taiga software



The direct relation of soil development and climate of Samoa. Purple color indicating areas where having rain free less than 90 days.

2500 – 6000mm

1500 – 4000mm

750 – 2000mm

GEF PACIFIC IWRM PROJECT

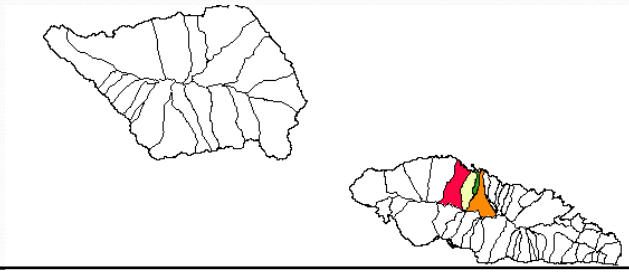
Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries

3. GIS Mapping – IWRM tool

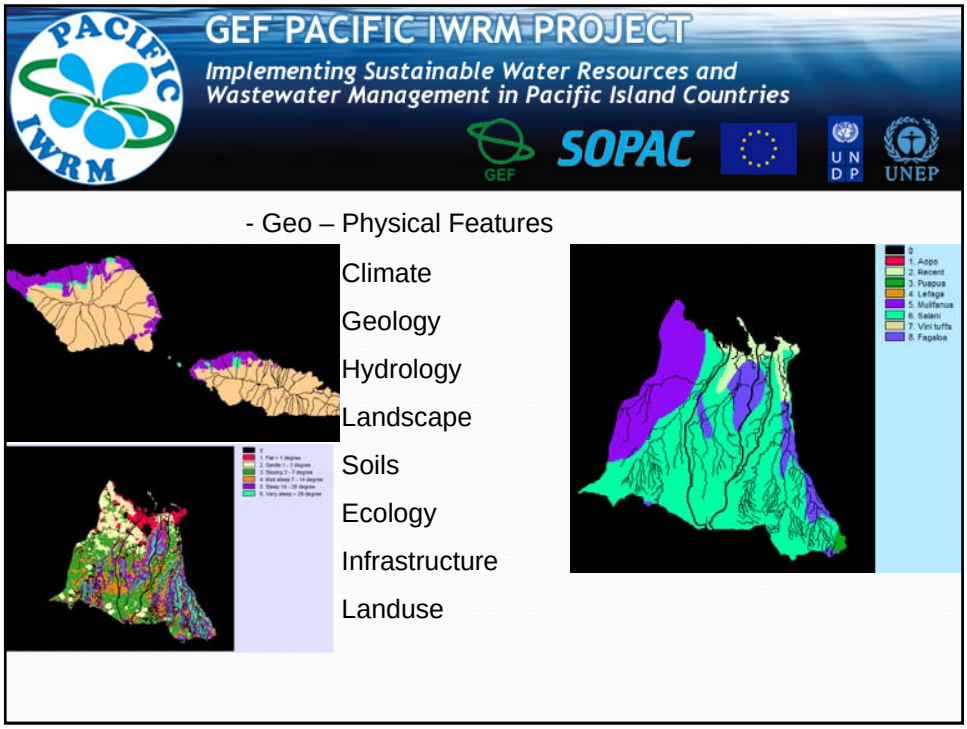
Watershed Management Plan

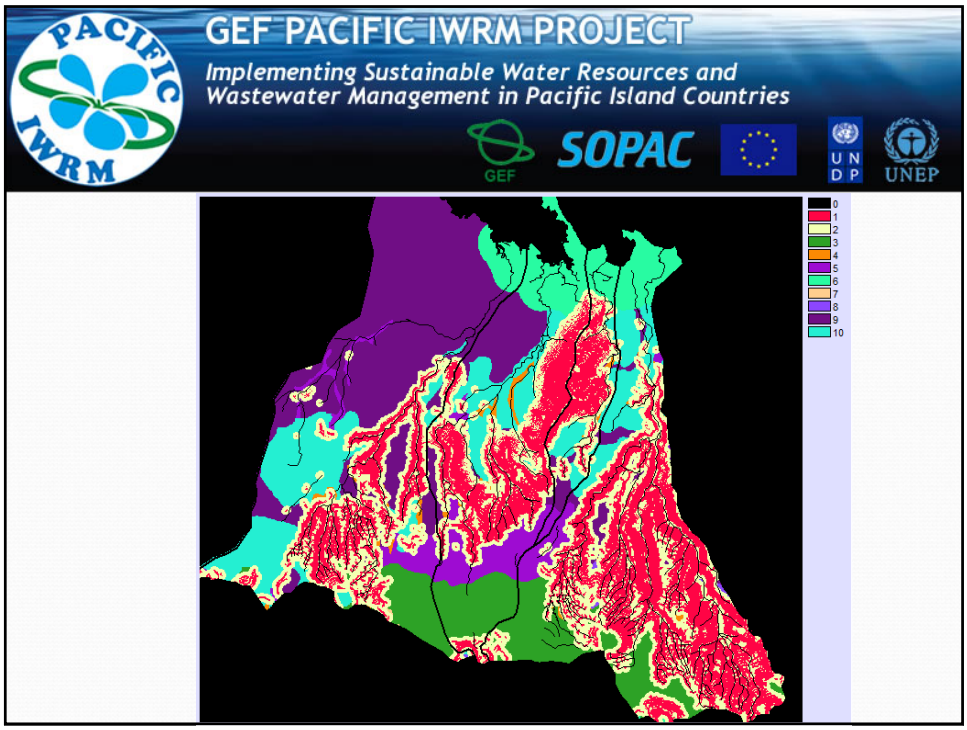
Watershed features characterisation

- Geographical Information



Samoa IWRM Project, MNRE-WRD, Lvl5
DBS Building, Apia, 23800


GEF PACIFIC IWRM PROJECT
Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries
GEF
SOPAC
UNDP
UNEP
- Geo – Physical Features
Climate
Geology
Hydrology
Landscape
Soils
Ecology
Infrastructure
Landuse


GEF PACIFIC IWRM PROJECT
Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries
GEF
SOPAC
UNDP
UNEP

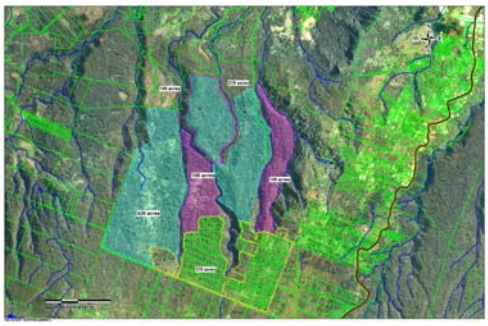
GEF PACIFIC IWRM PROJECT

Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries

GEF SOPAC UNDP UNEP

4. GIS Mapping – Example

Catholic Land Mitigation Measure



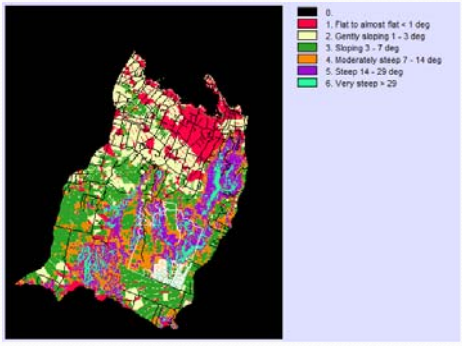
- 429acres @ $40k per acre - $17.1m
- 166acres @ $40k per acre - $6.6m
- 106acres @ $40k per acre - $4.2m
- 219acres @ $40k per acre - $8.8m
- 108acres @ $40k per acre - $4.3m

GEF PACIFIC IWRM PROJECT

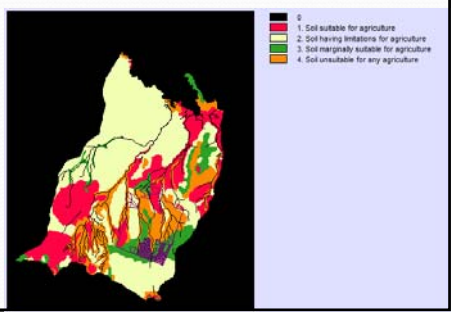
Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries

GEF SOPAC UNDP UNEP

Land Characteristics



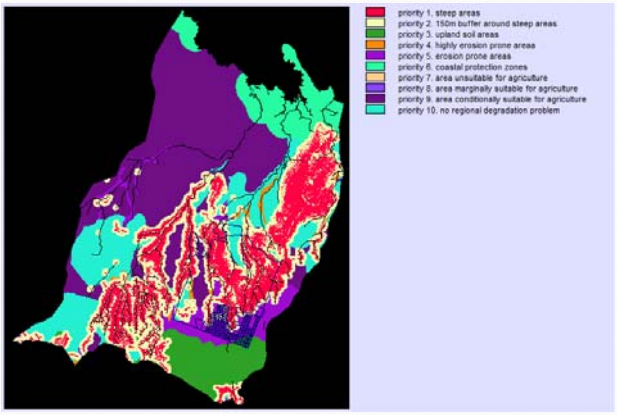
Land Suitability



GEF PACIFIC IWRM PROJECT

Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries

Priority & Buffer Zone



GEF PACIFIC IWRM PROJECT

Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries

5. Issues & Challenges

- Cost – US $1,500
- Software/Equipments
- Database/Formulation – GIS availability
- Support & Expertise
- Willingness to learn
- Validation

6. Conclusion

- Useful for IWRM
  - WMP
  - WSP
  - Land Use Plan
  - etc
- Time Management Efficiency
- Consultation clarity – easy to explain
- Accuracy

Soifua

Annex

Geology series

Geological Formation	Parent Material & Weathering state	Dissection of Landscape	Average depth of soil	Soil Surface	Soil texture
A'opo	Very slightly weathered Olivine basalt	Very slight	0 - 25 cm	Rock, boulders, and stones	sandy gravels, silt loam
Recent	Diverse			any	any
Pu'apu'a	Slightly weathered Olivine basalt	Very slight	15 - 50 cm	Boulders, stones and rock	silty clay loam, silt loam, silty clay
Lefaga	moderately weathered Olivine basalt	Slight	15 - 50 cm	Boulders and stones	clay, silty clay, silty clay loam
Salani	moderately to strongly weathered Olivine basalt	Moderate dissection of landscape	50 – 100 cm	Few to many stones and boulders	clay, silty clay
Fagaloa	Strongly weathered basalts incl. Basaltic Andesite.	Strong	>100cm	Few to many boulders	clay, silty clay

Figure 4.2.1b: *The USA soil classification takes this effect in account: soils having a moisture regime of less than 90 days dry, cumulative over a year are classified as 'perudic', and given the MNRE database; affected areas are able present on a map.*

The greenish areas on the map are more moist areas, amongst other possible reasons, due to capillary rise (i.e. aquifers)

Mean monthly temperature at all variations vary little during the year with values ranging from 25.5 to 26.5 °C at sea level and 21 to 22 °C in the mountains. The diurnal range is much larger, varying between 6 and 8.9 °C.