Water Issues & Culture in Samoa

Samoa Water Authority
About Samoa

- Formerly “Western Samoa”
- Population – 175,000 (2001 census)
- Volcanic – 2 main islands
- Max height – 1860 m (amsl)
- Total land – 2,935 sq. km
- Location – Southwest Pacific
- Rainfall – 2100 – 7000mm
Samoa Water Authority (SWA)

Established 1994
- Goal – financially independent

Water Supply – 85% popn (18,000 customers)
- Operates – TP (3), bores (44), Raw water intakes (22)
- Produce – 160,000 m3/d
- O & M Expenditure - $7 M/yr

Wastewater – yet to fully exercise
Water Catchments

Catchments deterioration

- Low river flows (dry season)
- Frequent flash-flood (wet season)
- Changed river flow patterns over time
- High soil erosion
- Turbid & colored water (koko Samoa)

GW – drop freshwater table lens
- Less GW recharge
Water Catchments

Catchments restoration (Forestry- MAFFM)

Watersheds mngt prog (conservation)

Reforestation

Safe farming practices

Collaborated coordination awareness prog (MAFFM, DLSE, SWA)
Water Treatment

Slow sand filtration
- Overload – 2 X designed capacity
- Filter level critical (not effective)
- Costly maintenance (sand)

Chlorination
- Inconsistent dosage
- Safety
Water meter acceptance ??? (resistance)

- Free, God’s gift (universal)
- Community groups consultations
- Consultative meeting with “matais”
- Disconnect supply (last resort)

Water meter tampering

- Use of magnet, move internals
- Bypassing & removal
- New connection (new name)
Water Demands

- Increase competition for its various uses (EPC, SWA, etc)
- Urbanization – Apia (ration - conflict)
- Expansion of tourism & other industries
- Increase running & operation costs – tariff review
Tariff Structure

- Flat-rate (untreated): $144/yr
- Progressive (log-scale): $0.12 - $1.40/m³/d
- Reduce consumption, not cost recovery
- Expensive for low income
- No free water allocation

New approved tariff structure (effect July, ’03)
- O&M simple cost recovery
- Free portion – 0.5 m³/d (WHO subsistence std)
- 2 bands (50¢ - 2.2 m³/d, 67¢ >2.2 m³/d)
- 5 year + review
UFW

- Leaky & deteriorating old mains
- Lack of accurate maps (as-built drawings)
- Poor design construction (supervision)
- Water theft (illegal connection, hydrants)
- Poor data collection (lack system meters)

Address in Asset Mngt Strategy & Action Plan
Sys. Operations & Maintenance

- Lack technical/qualified staff
- Financial constraints - tools, fittings (standard)
- Inadequate planning (preventative maint.)
- Poor mapping (leakage by contractor)
- Road permits process (public notices)
- System alteration (traditional practice)

ISP – training, equipment, policy/procedures (discipline/incentives)
Service Coverage

- Financial constraints
- Remote & disadv. areas – water scarcity (eg. Western Savaii)

SOPAC assistance (fund – JICA)
- Manono Is (1998),
- Savaii west (1999)
- yet to implement recommendations
Sanitation & Wastewater

- Existing sewage disposal pose enviro. & health risks
- Damaged river ecosystems
- Effluent AUA – affect near shore waters, reefs
- Live threatening – sea food source areas

SDS – establish centralized sewage system
Private sewage sys – companies/hotels
Funding

- Service coverage (capital)
- O & M (project sustainability)

Funding – rely mostly on aid
- Small/medium - NZ, Australia, Japan, Canada (EU)
- Major infrastructure – ADP, WB, EU

“Beggars cant be choosers” – standardization problem
Case Study

European Union Rural Water Supply Project (EURWSP)

NW Upolu & SE Savaii
EURWSP (Details)

- Total Costs: SAT$62,000,000 (USD$20 M)
- Target Population: Upolu 37,000
  Savaii 18,000
  Total 55,000 (approx. 33% pop)

- Design demand: 1995 420 l/c/d
  2005 290 l/c/d

- Scheme capacity: Upolu 15,000 m3/d (peak: 20,000 m3/d)
  Savaii 7,000 m3/d (peak: 10,000 m3/d)

- Metered Connections: Upolu 5,000
  Savaii 2,500
EURWSP (components)

- Pipeline lengths (Transmission): Upolu 125 km
  Savaii 60 km
- Submain Upgrade: Upolu 60 km
  Savaii 25 km
- Treatment Plant: Upolu – 1, Savaii – 1
- Boreholes: Upolu – 13, Savaii – 9
- Storage capacities: 1 day (both Upolu & Savaii)
- New Electrical lines: 7.5 km
- New roading: 2.0 km
intake
transmission
Transmission mains
Settling tanks
Filteration process
Slow sand filters
Storage tank – 10,000 m³ (2.5 MG)
Borehole drilling
Contact tank
Cultural

Customary land ownership
- Not strictly adhere to father/son, but title successor (matai)
- Matai often not reside on land vs family authority
- Village vs Extended family authorities
- Land compensation - land valuation (destiny)

Ownership of river courses sensitive
- Still district/village water schemes
- Can use but not owned
Economical

SDS - one of the strategic areas “Improve infrastructure and services”
- Access to safe drinking water
- Efficient delivery of services
- Reliable infrastructure

SDS - theme “opportunities for all”
- aims to provide services to both urban & rural communities.
- highlighted by the slogan “o le mea e lelei mo Apia e lelei foi mo Savaii” thus the EURWSP.
- Political will
Legal

- Taking of Lands Act – power to SWA vs Customary land Tenure
- Legislation repetition of power – water conservation & use (DLSE, MAFFM, EPC, SWA)
- Legislation Conflicting interest – access & use of public land (eg SWA & MoW)
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