WOP between the:

Philippine Water District Association - Community of Practice on Climate Change (PAWD-CoP-CC)

&

Florida Water & Climate Alliance (FWCA)

Presented by

Pastor A. Homeres, General Manager, Leyte Metro Water District
Location of Partners

- Mentor
- Mentees
- Facilitator
The Partners

• Mentee

• **PAWD** - an association of all water districts in the Philippines, involving six (6) Water Districts (WDs) as core members of the CoP-CC:

1. **Leyte Metropolitan Water District**
   - 28,576 connections
   - 166,000 population served

2. **Cagayan de Oro Water District**
   - 85,845 connections
   - 689,000 population served

3. **Metro Cotabato Water District**
   - 29,108 connections
   - 160,094 population served
The Partners

• Mentee

Six (6) Water Districts as core members of the CoP-CC:

4. Metro Iloilo Water District
   - 34,772 connections
   - 208,632 population served

5. Isabela City Water District
   - 9,492 connections
   - 47,460 population served

6. Zamboanga City Water District
   - 54,758 connections
   - 273,790 population served
The Partners

• Mentor

• FWCA - an association of water stakeholder and scientists committed to increasing knowledge of climate data and tools in water management planning and supply operations in Florida, with the participation of Palm Beach County Water Utilities - a member of FCWA.
  • Florida’s 3rd Largest water utility
  • 490,000 families served, 598 employees
  • US$ 115 million annual operating budget
  • Recognized as industry leader
The Partners

• Funded by USAID

• Facilitated by WaterLinks
The WOP

• Duration: 16 months
• Costs: US$ 380,000 for the 6 participating WDs
• Focus Area: Climate change adaptation
• Approach: diagnostic visit, reciprocal visits, remote consultations, and on-the-job/classroom training to assist PAWD in improving its climate resiliency programs.
• Objectives:
  • Strengthen PAWD CoP-CC Group Members’ knowledge of Vulnerability Assessment methodologies using the WaterLinks Climate Change Toolkit
  • Increase capacity of group members in the conduct of Vulnerability Assessment and Business Planning
  • Increase group members operational capabilities in the context of climate variability, extreme weather events and uncertain climate futures
Results

• WOP is on-going and now on its 6th month of implementation
• Recipient utilities have submitted draft vulnerability assessments (VA)
• Finalization of VAs during the recipient visit to Florida on 3-10 October, 2015
• Recipient visit to cover meetings with various Florida organizations i.e. local governments, academe, scientific community, local water utilities, FWCA members
Discussion

- **Challenges**
  - Climate change concepts relatively new to recipient water utilities
  - Lack of climate data in the Philippines

- **Success factors**
  - Commitment of both parties
  - Technical support from WaterLinks (climate change expert as part of WaterLinks team)

- **Lessons learned**
  - Readiness and commitment of recipient to learn
  - Continued support and commitment of PAWD

- **Benefits and opportunities**
  - GWOPA-funded Climate Change Toolkit to guide recipient utilities
  - First time for water utilities to prepare a VA and business plans to address climate change impacts
  - CCA Toolkit fills a learning gap specific to water operators
Next Steps

• Recipient visit to mentors in Florida

• Finalization of the VA and Business Plan
MoU signing of WOP and the 1st Diagnostic Visit to Cagayan de Oro Water District and Leyte Metropolitan Water District

Mentors conduct inspection of the facilities of the CDO Water District
Thank You!
Akvo FLOW in disaster response

Presented by
Josje Spierings, Akvo foundation

Twitter: @JosjeSpierings
Akvo creates open source applications for mobile phones and the web, and runs it as a service.
The Data Revolution
Transforming the Development Sector
THE MOBILE DATA REVOLUTION

Now 50%

By 2020 80%

smartphone ownership globally ...

Source: The Economist, 28 Feb 2015
Field surveys done by hand

The problem...

data often not visible or accessible

vulnerable to mistakes

time consuming
Our solution …

akvoflow

Akvo FLOW is a mobile phone and online service that transforms field monitoring in the world’s poorest and most remote places using Android smartphones.

mobile phone based FIELD SURVEYS
how it works...

public or private

you can collect data offline!

akvo.org
Akvo FLOW – over 1,600,000 data points (August 2015)
The smartphone as a lab

Temperature and conductivity

Water level

Spectrometer for NO3, F, As,…

EC mS/cm

E-coli?

akvo.org
Akvo Caddisfly – Fluoride test
Read the value of the **strip-test** (phosphate, chlorine, iron, etc.) using your **smartphone** and **save** it to your survey automatically.

---

Read the Electrical conductivity (EC) of the water using your **smartphone**
uatu Emergency response

Wide damage assessment with UNICEF & DGMWR

like a bomb has gone through... It's really quite apocalyptic.“

Michael McLennan (Journalist)
Training
- 13 WASH assessors from DGMWR, ADRA & WHO
- 64 surveys completed
- 14 islands covered
Nationwide damage assessment with UNICEF & DGMWR

Over 100 community WASH assessments completed within 1 week

Scorecards per island
Sharing data in common standard
Lessons learned

data = no coordination.

- Prioritize information management in disaster response.

- Since there is local capacity to work with a system like FLOW, there are infinite uses for the system.

- The importance of cloud-based databases with real-time access to data.

- There are data in common standards to enable (re-)use.

- Building capacity in humanitarian aid organizations and governments to make better use of data available.

- Authors should recognize the importance of information management and drive data sharing in their programs.
Thanks!

E-mail: Josje@akvo.org
Twitter: @JosjeSpierings
Adapting to Climate Change
A Toolkit for Coastal and Small Island State Water Utilities
Background

- GWOPA initiative
- Vulnerabilities of water utilities in coastal and small island states
- High risks
- Time to adapt quickly to reduce risks and losses
Basic Impacts

- Variable Precipitation – high uncertainty and reduced water availability
- Sea level rise – saline intrusion into surface and groundwater sources
- Storms – higher intensity, more frequent, internal flooding, asset damage
- Extended dry periods – affects rainfall, stream flow, and groundwater recharge
- Higher ambient temperatures – increased water consumption
Choice of Approaches

- Vast diversity in Asia’s coastal and small island state water utilities – variations in range, scale, size, capacities
- Blend of DIY and outsourcing
- Utilities need to invest in understanding climate change
- No single approach is feasible – two basic approaches may be useful
- Top-down and Bottom-up Approaches
The Top-down Approach (1)

• Comprehensive and detailed – essentially No Regrets; 20 months

• Exercise-based – 12 exercises in all
  – Identifying Historical Operational Disruptions
  – Assessing Historical Rainfall and Temperature Variations
  – Projecting Rainfall and Temperature Scenarios
  – Estimating Climate Change Impacts
  – Assessing Flood Impacts
The Top-down Approach (2)

– Assessing Drought Impacts
– Establishing Salinity Baselines
– Forecasting Sea Level Rise and Changes in Salinity
– Identifying Water Supplies Shortfall
– Evaluating Adaptation Options
– Communications Strategy
– Final Implementation Actions
Some Salient Features

• Options – outsource some activities to consulting agencies, hydro-meteorological organization, research agencies, or DIY
• Impacts on surface and groundwater supplies
• Saltwater intrusion and solutions
Evaluating Adaptation Options

• Reduce non-revenue rater
• Reduce demand
• Invest in desalination – renewable energy source preferred
• Identify alternative raw water sources
• Projectise option(s)
• Implementation
Communications Strategy

• Identify stakeholders clearly – share information; solicit feedback
• Buy-in is crucial
• Design a program of continuous engagement
The Bottom-up Approach (1)

• 5-week exercise through a workshop-based technical working group (TWG)

• TWG to:
  – familiarize itself with climate science and issues
  – develop methods of assessments including sensitivity analyses; scenario analysis; thresholds; and adaptation
  – undertake climate scenario analysis
  – develop risk indicators and conduct sensitivity analysis
The Bottom-up Approach (2)

– establish thresholds for action
– design a decision support system for actioning breaches in thresholds
– estimate costs of alternatives and recommend a climate response program to Management
Contrasting the two Approaches

• Not mutually exclusive – areas of overlap
• Participatory
• Top-down Approach develops long-term capacity
• Bottom-up Approach is ‘quick and dirty’
• Are results similar?
Conclusion

• Time to get serious – Climate Change is here
• Water a ‘high risk’ ingredient in coastal and small island economic growth
• Adaptation costs not unreasonably high
• Toolkit a dynamic guide – will change as science improves

• WOPs AN EXCELLENT TOOL TO BUILD CLIMATE RESILIENCE IN WATER UTILITIES
FOR MORE INFORMATION:

www.waterlinks.org
ygomez@waterlinks.org
Protecting Source Water and Strengthening Resiliency in the face of Climate Change: Strategies of Latin American and Caribbean Water Operators

Daniel Moss
IDB Consultant
Scope of Work

- Collaboration: ALOAS, WOP-LAC, CWWA, CAWASA, CARIWOP, and GWOPA
- Investigation: Surveying the baseline - state of knowledge and action
- Follow-up learning: Documentation and peer support

- Increasingly limited water supply, contamination and degraded watersheds
- Climate change threatening operations (extreme weather events and drought)
- Concessions granted with poor planning for impact on potable water services
- Operator reputation at stake when services interrupted or water quality poor
- Increasing expenses due to turbidity, eutrophication, disaster recovery, etc.
Survey Findings: Source Water Problems Compounded by Existing Challenges

- High water losses from aging infrastructure
- Inadequate sanitation facilities contaminate water sources
- Weak risk and disaster management plans
- Minimal support from other sectors to sustainably manage water resources
Governance Challenges

- Watersheds and water sources often outside of municipalities
- Upstream and downstream concessions often incompatible
- Poor inter-institutional planning and coordination, e.g., with Ministry Agriculture
- Inadequate legal frameworks
- Lack of regulator support
- Public involvement and participation lacking
Financial Challenges

- Priority financing needs are existing grey infrastructure maintenance and repair
- Financing generally unavailable for green infrastructure
- Concern that water source protection could make water unaffordable if based on tariffs
- Irrigation and industry often don't pay for watershed restoration - falls on households
Personnel Challenges

- Restoring watersheds “is not the job or mission of water operator”
- Inadequately staffed source water protection units and often water quality units
- Strong engineering tradition favoring grey infrastructure solutions, not inclined towards green infrastructure
Most convincing argument to invest in source water and watershed protection:

- Save money in the long term: 41%
- Delay large capital investments: 29%
- Help manage risks of climate change: 18%
- Be a greener company: 6%
- Will also be good for our clients and citizens: 6%
Governance Opportunities

- Watershed Committees – e.g., Brazil
- Scientific data available...in some cases
- Inter-municipal collaboration for watershed protection – e.g., FORAGUA, Ecuador
- Regulator support – e.g., SUNASS and ADERASA
- Water operators acquire sensitive watershed areas – e.g., Bogota, Quito
- Compensation for Ecosystem Services – e.g., Mexico, Medellin – partner with rural communities
- Community action (e.g., rain water harvesting, water testing, reuse) and community education
- Political support from high levels
Financial Opportunities

- Proven cost savings to operators
- Public agency collaboration – e.g., Ministry Agriculture, Grenada – requiring no tariff increase
- Public and public/private watershed funds – e.g., FONAG, Medellín, CONAFOR, Mexico
- Environmental tariffs
- Development banks increasing climate change adaption and mitigation investment projects, e.g., St. Lucia John Compton dam
- Green climate funds and other climate $$
Human Resource Opportunities

- Water Operator Partnerships
- Training Workshops
- Building capacity through collaboration with civil society, e.g. FONAG (Ecuador) and public agencies, e.g., Forestry
- Trade Union leadership, e.g. FFOSE, Uruguay in watershed councils
Next Steps

- Strengthen a learning community among operators – interest growing in source water protection and resiliency, e.g., Honduran association, CLOCSAS
- Increase WOPS on this topic
- Make source water protection an indicator for SDG
- Strengthen ties between operators and other sectors, such as forestry and agriculture. Operators can't do it alone
- Increase cooperation with regulators
Thank you for protecting your water sources and managing water resources sustainably!

Documents will be available on GWOPA website

Daniel Moss
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STRENGTHENING OPERATORS POST DISASTER AND MULTI PARTNER WOP IN THE CARIBBEAN

Presented by
Bénito DUMAY, General Manager, DINEPA
OUTLINE

• INTRODUCTION
• NATURAL DISASTER
• CLIMATE CHANGE CHALLENGES
• INSTITUTIONAL STRUCTURE
• DINEPA
• WATER OPERATORS
• PRIORITIES - ADAPTATION STRATEGIES
• CHALLENGES
• AREAS FOR COOPERATION
INTRODUCTION

- Total Area: 27,750 Square kilometers;
- Population: 10,911,819 inhabitants;
- Density: 352 inhabitant /sq.km;
- 10 administrative division; 146 municipalities; 567 districts;
- 30 watersheds;
- 842 springs for irrigation and drinking water purpose;
- Haiti is highly exposed to natural disasters (hurricanes, floods and earthquakes);
On January 12th, 2010 an earthquake of magnitude 7.3 on the Richter scale occurred and devastated downtown Port-au-Prince causing extensive damage and resulting in the deaths of over 300,000 people.
Natural disasters and climate changes issues lead to loss of area of vegetation due to erosion. (<10% forest coverage).
In addition, Haiti suffers severe storms from June to October.

The southern peninsula faces occasional flooding.
Periodic droughts have consequence for the drying up of the springs.
• Springs Pollution;
• Unpredictable rainfall;
• Waterborne diseases (cholera threat);
• Lack of water;
• Unplanned urbanization;
• Environmental issues- Droughts- Deforestation;
• Lack of human resources;
• Weakness of laws regarding the resource;
In April 2012 a pilot program on resilience had been formulated. This program with four components related to Agriculture, Road Infrastructure and Capacity building.
DINEPA was set up based on the framework law for the reorganization of the water and sanitation sector in 2009.

DINEPA is responsible at national level for the development of the water and sanitation sector, the control of partners and the regulation of water and sanitation systems.
In January 2009 a Framework Law was passed, creating DINEPA and Regional Water Offices.

- Develop national policy for the sector
- Regulate the operators
- Establish norms and pricing policy
- Build water infrastructure and sanitation facilities
- Set the performance indicators
- Assess the service provided by water offices
Water Operators

• CTE: is a public water provider entity with a commercial mission in charge of managing the drinking water system in a city.
• 25 CTE; 850 employees;
• Ground and underground water: (34 pumping stations);
• 51 tanks with a total storage capacity of 63,000 cu. m
• 126,780 connections;
• 300 waterkiosks;
1) Provide safe water to everyone;
2) Increase supply and ensure water quality in rural and urban areas;
3) Reinforce capacity building for a sustainable management of water and sanitation infrastructure;
4) Provide reliable and sustainable service to the users.
• Finding more water sources for supply: start to abstract groundwater;
• Reclaiming of the perimeters of water source and intensive reforestation in order to recharge water table;
• Using simple technologies for decreasing turbidity;
• Raising public awareness over the challenges;
• Starting advocacy with others stakeholders;
• Building capacity through partnerships with others operators;
The reform aims:

• to ensure the sustainability and affordability of services;
• to enhance capacity of the WSS operators;
• Strengthen the culture of monitoring and information systems.
• **Contamination issues:**
  
  Most of Haiti’s aquifers are already exposed to faecal contaminants. Water from these sources is treated with chlorine (*source: sysklor’s-SIP*).

• **Turbidity and Filtration:**
  
  There is heavy sedimentation owing to extreme deforestation where water is harvested mainly from surface sources.
CHALLENGES

• **Water Loss** (Source: Schemas Directeurs – Inventaires);

• Aged infrastructure in many cases over 50 years old;

• Numerous leaks on aged pipelines;

• There is no 24/7 water supply on any of DINEPA’s systems;

• Main lines are deliberately punctured by residents to access water;
Areas for Cooperation

- Training in operations and maintenance particularly electrical and mechanical works, pumping stations, plumbing, field technicians;
- Commercial/business management – software for billing and customer services management;
- Increase water production through identification of alternative sources of water – hydrological mapping and land management;
- Training in water treatment including design of water treatment systems especially for treating high turbidity;
- Disaster risk management and emergency response planning;
- Non Revenue Water
THANK YOU!
Aigües de Barcelona contribution to Water Supply System’s Resilience

Presented by
Ramon Creus, Operations Support Manager
**CONTEXT: Water resources**

**Barcelona water supply** is based on Llobregat and Ter river basins.

**Flow regimes** of Ter & Llobregat rivers are typical of *Mediterranean-climate rivers*.

**Rivers' average flow (m³/s)**

- Danube: 2,350
- Rhine: 2,000
- Rhône: 1,706
- Po: 1,540
- Ebre: 438
- Ter: 27
- Llobregat: 22

Barcelona’s water demand: 6 m³/s

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 gwopa.org/#WOPCongress
Storage capacity is lower in comparison with demand and in respect of others big bulk water supply systems.

Ratio Regulation: Demand (1:1). System Highly influenced by rainfall regime.

Metropolitan Area of Barcelona is relevant in terms of pressure on water resources, although domestic consumption is one of the lowest in Europe.

Above 50% of Demand distribution in CAT Internal Basins is Urban Consumption.
High frequency of drought periods
Over the last 30 years, Ter-Llobregat basin has been below alert threshold during 20% of the time
CONTEXT: Water resources

Ter Basin: Sau reservoir
Last drought 2007/2008

Barcelona forced to import emergency water

Barcelona plans to import water by ship
Resilience tool: Water Resources planning

**New infrastructures that improve the resilience**

Water production infrastructure

Additional measures are necessary. Several options on the table for discussion (connections with other river basins, new desalination treatment plants, etc.)

Desalination strategy is the one included in the Basin Plan approved
Resilience Tool: Reuse

High potential of water reuse infrastructure

- RWP Sant Feliu
  - Design flow: 0.7 m³/s
- RWP Gavà-Vilafranca
  - Design flow: 0.37 m³/s
- RWP El Prat
  - Design flow: 3.5 m³/s

Legend:
- Agricultural irrigation and river maintenance
- Agricultural irrigation and others
- Urban garden irrigation and industries
- Sea water intrusion barrier
- Maintenance of wetlands

gwopa.org/#WOPCongress
Resilience tool: Real Time control

NETWORKS BECOME SMARTER
Every day more and more:

- Sensors are installed (density, accuracy)
- Parameters are measured (quality, flow, pressure,...)
- Data are collected (volume, reliability)
Resilience tool: Real Time control

**Water operator**
- Operating costs reduction
- Management in real time
- Improvement of network performance & Optimize CAPital EXpenditures
- Easy day-to-day operations
- Meet customer expectations on service and transparency

**Citizens**
- Smart city performance  
  e.g. BCN Situation room
- Savings in water and energy
- Better communication
- Better service
- Better customer care

Field teams efficiency  
Real time management

Precise information  
Better customer satisfaction

Better water quality  
Reduce water losses
Resilience tool: Technical management

- Active leak detection
- NRW management
- Leakage repair
- Pressure management
- Assets renewal
Resilience tool: Smart Metering

Efficiency, Transparency and Environmental Awareness:

- Management of Consumption profile
- Early detection of household leaks
- Detection of unusual consumptions
- Better management of big consumers.
- E.g. Municipal irrigation

Resilience through Smart Metering
Resilience tool: Tariff structure

Tariff structure needs to be adapted to current needs, in order to adapt it to consumption trends, to integrate further changes in the average household (formed by less people), and to encourage sustainable use of water, increasing the progressiveness of the tariff.

**Social**
- Establishment of a **social tariff** for specific groups facing **special economic difficulties**.
- Preservation of a first consumption tranche at a discounted tariff for “vital” consumption.

**Environmental**
- New more **progressive tariff structure** to promote the **rational use of water**.
- **5 consumption tranches**: 6; 9; 15, 18 and > 18 m³/month/household, preserving the first consumption tranche at discounted tariff (6 m³/month).
- Establishment of a fourth and a fifth tranche of consumption.

**Equitable**
- Expansion of the group with special billing by tranches for households with **more than 3 people**, equaling it to the water canon.
- Until now, this benefit has been applied exclusively to households with 5 or more people.
Main results

**Water demand reduction:** 42.5 hm³  - 18.7%

- 70% Demand management: 31.0 hm³
- 30% Technical management: 11.5 hm³

Since the last drought the **guarantee** of the water supply system in Barcelona Metropolitan Area has increased **has increased 20%**.

- Bulk Supply equivalence 685,000 hab.
- **Infrastructure equivalence**
  - 50% La Llosa del Cavall: 45 M€
  - 70% ITAM Llobregat: 165 M€
Thanks!
WOP between
WSSA
BETHLEHEM / PALESTINE
&
ONEE-IEA
RABAT / MOROCCO
Location of Partners
The Partners

• Mentee
  WSSA, Bethlehem -Palestine
  14000 of Subscribers, 120,000 population, 250 Km water network , 100 employees.

• Mentor
  ONEE, Morocco
  1.8 million of connections, + 7000 employees, production 1.069 billion m³

• Facilitator
  UN-Habitat, Spain
  Financial support
Diagnoses

- Limited water quantities, not sufficient to meet the consumer demand
- Lack of information regarding the water quality
- Corrosion of equipment
- Non-Revenue water (45%)
- Interruption of the distribution from the Lack of continues water supply
- Degradation of water quality after resumption
- Using other water sources from private Supplier without any control of quality
- The Regular water storage, by consumers, is in metallic and plastic tanks.
The WOP

- Duration: 18 months
- Costs: US$ 31,132
- Thematic: Implementation of Water Safety Plans Approach:

**Objectives**

- **Diagnosis** of water supply system and water quality monitoring system (drinking water network, laboratory infrastructure, and equipment; documentations and reporting used to manage the water quality monitoring, existing data base on the drinking water quality..)

- **Implementation** of the WSP- Bethlehem
  - Training course on WSP Start-up & Diagnosis on Bethlehem drinking water supply system.
  - Capacity building in the field of control and monitoring of drinking water systems – Rabat -Morocco
Results 1/2

• Water quality is not properly secured according to:
  • Water quality at the resources?
  • Interruption of water distribution,
  • Pressure problems, water leaks
  • Life time of pipes,
  • Lack of a reliable wastewater management system.
  • Risk of corrosion on pH values
• Infrastructure and equipment of the laboratory are not adapted to assure control of water quality
• Procedures and methods used have to be updated
• Crucial needs for capacity building support
Results 2/2

- Training on WSPs modules and ownership of the project by a multidisciplinary team - Commitment of Top management
- Encouraging the coordination between the WSP team, in order to develop more the documentation systems, identify hazards related to water quality ...
- Gaps in relation to hazards identification, risk analysis, and elaboration of a priority action plan including particularly control of disinfection.
- Emphasizing on reporting model, describing the WSSA system, and which have to be systematically filled, in order to analyse the effective implementation of the WSP.
- Identification of documents related to drinking water system, managed by WSSA
- Sensitization of the operators, specially technician on site, on the WSP
Discussion

• Challenges
  *The specific conditions of working in Palestine (administration constrains)*
  *Implementation of WSPs without mastering the drinking water resources*

• Success factors
  *Commitment of WSSA team specially Top Management*
  *Integrated approach adopted by WSSA dealing with water sector (NRW project, Waste water project, SCADA system...)*

• Lessons learned
  *Deep diagnosis of water supply system is a key for success of such approach*
  *Need to adapt the know-how and theoretical approach to reality of each case*

• Benefits and opportunities
  *WSSA prepared a procedure for maintenance of the water network*
  *Reduced the water distribution intermission from 20 days to 7 days*
  *Housekeeping for pumping stations and reservoir’s buildings and surrounds*
  *Prepare a proposal for upgrading the Water Laboratory in WSSA to search for a new fund.*
Next Steps

**Infrastructure:**
The new laboratory has to respect some recommendations in order to ensure the reliability of analysis results.

**Equipment:**
Adoption of an integrated approach for the whole sector (drinking water and waste water).
Two types of equipment are needed to perform the water quality control:

- Equipment to be installed in the lab: **$US 231,000** (US$ 47,000 for bacteriological analyses + US$ 184,000 for Chemical analyses)
- Portable equipment to be used on sites: **US$ 5,500**

Which represent a total budget estimated to **$US 290,000** (based on Moroccan study cases).

**Capacity Building:**
Based on WHO recommendations and “Best Practices”, and for to ensure a good water quality monitoring, two technicians are needed. A capacity building’s program has to be adopted to reinforce the know-how of these technicians in all aspects related to water control monitoring including waters sampling, waters analysis, use of equipment and data interpretations. In the same approach a capacity building program has to be adapted to the need of the WSP team.
WSSA, WSP team meeting in Bethlehem

WSSA LAB staff in ONEE LAB. In Rabat
Thanks!

شكرا
WOP between Sri Lanka National Water Supply and Drainage Board & Yarra Valley Water

Presented by John Maudsley, Manager Development Services, Yarra Valley Water
Location of Partners
The Partners

• Mentee
  • Sri Lanka’s National Water Supply and Drainage Board (NWSDB)
  • 1.8m connections, 10,430 employees, 6.5m customers, $150m USD annual revenue
  • Climate change adaptation, emergency response planning, reduction in water supply leakage, asset management and water meter management

• Mentor
  • Yarra Valley Water (YVW), Melbourne Australia
  • 710k connections, 530 employees, 1.8 m customers, $675m USD annual revenue

• Facilitator of WOP
  • WaterLinks, Manila, Philippines

• Funder – GWOPA
The WOP

• Duration: 15 months
• Cost: US$40,000
• Thematic: climate change adaptation, emergency response planning (ERP), non-revenue water (NRW), asset management and water meter management
• Approach: diagnostic visit by mentor to Sri Lanka; reciprocal visits
• Objectives
  • Mentee ownership of improvement opportunities outlined above
  • Mentee approval and delivery of action plan for successful outcomes
  • Greater understanding of two cultures and ongoing in kind support
### Results

<table>
<thead>
<tr>
<th>Thematic</th>
<th>Technical</th>
<th>Staff Capacity</th>
<th>Organisational Changes</th>
<th>Institutional Leverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate Change Adaptation</td>
<td>Model and approach agreed</td>
<td>Greater knowledge gained</td>
<td>Increased Resilience</td>
<td>Potential to share with others</td>
</tr>
<tr>
<td>Emergency Response Planning</td>
<td>Plans established and being trialled</td>
<td>Training sessions held and leaders taking ownership</td>
<td>Yes, elevated emergency response capability</td>
<td>Potential to share with others</td>
</tr>
<tr>
<td>NRW Management</td>
<td>All technical data shared</td>
<td>Subject matter experts now exist</td>
<td>New practices introduced and recognition that reduced leakage is much cheaper than new water supplies</td>
<td>Yes, lessons learnt to share with others</td>
</tr>
<tr>
<td>Asset Management</td>
<td>Business rules understood</td>
<td>Some staff capacity created</td>
<td>Marginal improvement at this early stage</td>
<td>Minimal at this stage</td>
</tr>
<tr>
<td>Water Meter Management</td>
<td>Policy approved and implemented</td>
<td>Greater knowledge gained</td>
<td>Process changing to reflect new policy</td>
<td>Yes, lessons learnt to share with others</td>
</tr>
<tr>
<td>Thematic</td>
<td>Social Outcomes</td>
<td>Environmental Outcomes</td>
<td>Financial Outcomes</td>
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<td>-----------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------</td>
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<tr>
<td>Climate Change</td>
<td>Allows greater longer term predictive planning for communities</td>
<td>Potential for reduced impacts on vulnerable communities</td>
<td>Greater return on $ spent</td>
<td></td>
</tr>
<tr>
<td>Adaptation</td>
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<tr>
<td>Emergency Response</td>
<td>Reduced adverse impacts on communities</td>
<td>Longer term overall environmental improvements</td>
<td>Reduced reactive costs to each emergency event, with improved planning</td>
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<tr>
<td>Planning</td>
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<tr>
<td>NRW Management</td>
<td>Improved water supply reliability</td>
<td>Reduced pressure on providing additional water supply (e.g. new dam)</td>
<td>Maximising return on NWSDB dollars</td>
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<tr>
<td>Asset Management</td>
<td>Minimal change in short term</td>
<td>Improved reliability of assets assists with improved environment outcomes</td>
<td>Maximising return on NWSDB dollars</td>
<td></td>
</tr>
<tr>
<td>Water Meter</td>
<td>Improved customer service with certainty in business rules</td>
<td>Reduced pressure on providing additional water supply (e.g. new dam)</td>
<td>Increased revenues from reduction in meter tampering</td>
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<tr>
<td>Management</td>
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</table>
• Challenges
  Cultural differences, commitment of Mentee senior personnel to carry out agreed actions and maintaining the momentum; need for consistency in participation in WOP activities

• Success factors
  Recognition of the need for change, smarter use of funding, actual deliverables, camaraderie

• Lessons learned
  Understanding / respecting the cultural differences most important
  Senior Management must commit sufficient time, accountability and resources
  Being reasonable on what is achievable – not trying to do too much
  Focusing on the people / process change, not just delivery of a new asset

• Benefits and opportunities
  Big opportunity for Mentees to take a short cut to success
  Great investment return
  Networking opportunity and expansion of sector knowledge and experience
Next Steps

- Monitor on-going change and deliverables as a result of the agreed outcomes from the WOP
- Progress update report from NWSDB by end of 2015
- Explore potential for scale-up and replication
- On-going intangible benefits with contacts for other projects
- Further knowledge sharing within NWSDB
- Possible funding support from GWOPA for impact assessment in late 2016
Thanks!