Water Supply & Sanitation

Good Governance Initiatives
Every journey begins with a single step

Presentation Outline

1. **The Need** – Pre-Project Scenario Analysis
2. **The Vision** - State Government’s vision & purpose
3. **Implementation Strategy**
   - Adoption of 5 point framework
   - SWAp Approach – A Paradigm Shift
4. **Novel Initiatives** – Project’s Best Practices
THE NEED - Situational Analysis of Drinking Water as in April 2008

1. Total Population - Over 27.7 million
2. Rural population - 17.3 mn (62% of total 27.7 mn)
3. Water sources - Tube well (80%) Canal network (20%)
4. Potable water availability - around 40 LPCD
5. Potable water requirement - 70LPCD
6. Less than 20% households had individual house connections
7. Wastage of potable water among users due to absence of household taps
8. Deficient supply at tail end due to inadequate pressure
9. Over exploited shallow aquifers
Prevaling System as in April 2008- IRREMEDIABLE

Prevaling system had high operation and energy costs due to issues such as-

1. No reliable system for monitoring complaints and issue resolution
2. No Involvement of users/beneficiaries in the planning process
3. Non-performing staff leading to delay in fixing defects and leakages
4. Unfair flat rate tariff system affecting low income families
5. Over dependence on Govt. to meet O&M cost (90% cost met by govt. through undependable budgetary allocations)
6. Manual billing system, high water wastage (due to hoarding) and unauthorized water connections

Current system was not scalable for a state wide implementation requiring timely resolution & empowering key stakeholders
Govt.’s Vision & Purpose

“To develop an eco system that provides 24X7 water supply coverage to all villages in Punjab with higher service standards and Individual household service connections coupled with modern underground waste water collection and disposal system”

Adoption of 5 point framework to realize the vision

1. Rural local governments with user groups to be responsible for upgradation and management of all intra-village RWSS facilities & services

2. DWSS to be responsible for managing complex multi village water supply schemes with improved fiscal & operational performance, and provide support to Gram Panchayat Water Supply & Sanitation Committees (GPWSCs) for single village schemes

3. Introducing partial capital cost sharing by users as an expression of their demand & personal involvement

4. Realization of user charges & funding for recurrent O&M cost from the user community

5. Redefining DWSS role from direct service delivery to facilitation and partnership
Vision is the art of seeing things invisible
Prosp</nospan>erity by Partnering with People
Need Based to Demand Based Water Supply Scheme

- Adopting Sector Wide Approach (SWAp) for all Schemes implemented under MTP with partial capital cost sharing by users

Role of Governance from Provider to Facilitator

- Changed role of DWSS to effectively manage and monitor the use of participatory processes and demand responsive approach
- Establish a state of art governance system to address complaints as per service standards
- Work closely with empowered PRIs and local communities

Financial and Operational Sustainability of Scheme

- Empowerment of villages & GPWSCs by using creative social recognition & Capacity Building programs
A Watershed Development

**Before PRWSS Project**

1. Top Driven
2. No Community contribution, Govt. ownership of all assets
3. More than 90% Govt. contribution in O&M
4. No Communities with more than 70% House Connections
5. No Communities with 24x7 Piped water supply
6. No transparent Complaint redressal mechanism.
7. Alternative system to tackle difficult areas non-existent

**With SWAp mode PRWSS Project**

1. Demand Driven
2. Community contribution, Community Ownership of new assets
3. Negligible Govt. contribution in O&M
4. More than 2415 Communities (and number growing)
5. 14 Communities (and number growing)
6. 24x7 Toll free Centralized Complaint Redressal through telephone
7. Introduction of RO system in PPP mode to provide potable water in difficult areas (installed 1803, under installation 21)
Implementation Strategy for Sector-wide Approach

- Department’s changed role as a partner & facilitator
- Decentralized Service Delivery Approach
- IEC for end users
- Monitoring & Evaluation
- Capacity Building
- Sensitize & Induce the demand
- Empowerment of (GPs / GPWSCs) for O&M management
- Consistent checks on the issues that impact sustainability
Reduce wastage of water to 10% by providing demand based service to consumers

• Improvement of existing Water Supply Schemes in 223 vill.
• Providing solid free sewerage schemes in 100 vill.
• Renovate 500 ponds (25 ponds in each dist.)

Providing /augmenting Water Supply Schemes in 3013 NC & PC villages

A tripartite agreement between GOP, GOI& World bank to finance the budget cost outlay of Rs. 1280 crore and drive solutions within budget

Transition to a computerized billing system

Establishing state of art water testing labs with a goal of testing 36,000 samples per year

Establish state of art governance system to ensure quick resolutions of consumer complaints

Setting up of a 360 degree feed back system
Orientation of DWSS role from Civil to Social Engineering role through:

- Overall RWSS program management including IEC and M&E of activities, outcomes and impacts

- Planning and construction of community sanitation schemes with active participation of GPs and households

- Organizing social, technical and management support to GPs and GPWSCs for all intra-village RWS schemes
IEC Tools
- For inducing Behavioral Change
Communication Tasks (Phase wise):

- **Pre-Planning Phase**: The initial phase wherein the stakeholders need to be made aware about the project.

- **Planning Phase**: In this phase, the influencers need to galvanize the end users to come forward by way of contributing their share to the scheme.

- **Implementation Phase**: In this phase, the scheme gets the real shape and the installation and erection of the machinery and pipe laying civil works are done.

- **Post-Implementation Phase**: In this phase, the scheme has to be made running and sustaining. The major task is O&M.

  - Sensitize the stakeholders/Target Groups to clean water & hygiene aspect & the scheme.

  - Build Sense of Ownership amongst Target Groups & Influencing Key Opinion Leaders (Capacity Building) for the project.

  - Inform & Educate about the rights & duties to the stakeholders & sensitize them on O&M issues.

  - Develop the sense of Collective Responsibility and long term commitment of self sustainability.
GROUND ACTIVATION - Engaging stakeholders
INNOVATIVE IEC MATERIAL
### IEC Activities at a glance

<table>
<thead>
<tr>
<th>Year</th>
<th>School Rallies</th>
<th>Water Quality Tests</th>
<th>Puppet show</th>
<th>Muniyadi</th>
<th>Exposure visits</th>
<th>Social mapping</th>
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<tbody>
<tr>
<td>2009-10</td>
<td>402</td>
<td>1762</td>
<td>125</td>
<td>540</td>
<td>146</td>
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<td>2010-11</td>
<td>396</td>
<td>1742</td>
<td>107</td>
<td>935</td>
<td>351</td>
<td>239</td>
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<td>2011-12</td>
<td>298</td>
<td>1854</td>
<td>120</td>
<td>1140</td>
<td>473</td>
<td>81</td>
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<tr>
<td>2012-13 (upto Jan 13)</td>
<td>222</td>
<td>1803</td>
<td>85</td>
<td>1203</td>
<td>358</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1318</strong></td>
<td><strong>7161</strong></td>
<td><strong>437</strong></td>
<td><strong>3818</strong></td>
<td><strong>1328</strong></td>
<td><strong>471</strong></td>
</tr>
</tbody>
</table>
Give a man a fish and you feed him for a day.
Teach a man to fish and you feed him for a lifetime.
Harnessing stakeholder for the new roles

Orientation of (GPs / GPWSCs) for:
- Planning, technology selection
- Procurement, construction
- O&M management of water supply schemes

Tools employed:
- Training of PRIs on PRWSS project
- Training on Operation and Maintenance
- Training for women empowerment
- Training of village technician, Plumber, Operator waterworks and GPWSC members
- Training on Quality Aspects
<table>
<thead>
<tr>
<th>CB TRAININGS</th>
<th>CB programmes undertaken</th>
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<tr>
<td></td>
<td>Upto March 2011</td>
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<tr>
<td>Orientation on SWAp concept and Principles and Role of GPWSC/GP/ in</td>
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<tr>
<td>pre-planning and planning stages</td>
<td></td>
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<tr>
<td>Training on Quality aspects in Implementation phase at village level</td>
<td>1766</td>
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<tr>
<td>Training on sustainable O&amp;M aspects at village level</td>
<td>1308</td>
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<tr>
<td>Hands on training to Technician, Accounts Person and Pump Operator on O&amp;M</td>
<td>232</td>
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<tr>
<td>aspects etc.</td>
<td></td>
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<tr>
<td>Need based community mobilization for village sanitation (sewerage/pond</td>
<td>-</td>
</tr>
<tr>
<td>renovation) including environmental sanitation or any other important</td>
<td></td>
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<tr>
<td>aspect.</td>
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<td>Training programmes for under-performing GPWSCs</td>
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<tr>
<td>Total</td>
<td><strong>5740</strong></td>
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<tr>
<td>CB TRAININGS</td>
<td>Up to January 2013</td>
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<td>------------------------------------------------------------------------------</td>
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<tr>
<td><strong>Awareness generation about solid free sewerage system</strong></td>
<td>300</td>
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<tr>
<td><strong>IEC activities</strong></td>
<td>248</td>
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<tr>
<td><strong>Focus on roles/responsibilities, Do’s and Don’ts about Solid free sewerage system</strong></td>
<td>300</td>
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<td><strong>Focus group meetings</strong></td>
<td>347</td>
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<tr>
<td><strong>Exposure Tours</strong></td>
<td>36</td>
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<tr>
<td><strong>Total</strong></td>
<td>1231</td>
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</table>
IEC & CB PAYS
- Physical Achievements as CB & IEC results
## Status of Rural Water Supply at a Glance

<table>
<thead>
<tr>
<th></th>
<th>Total Habitations as on 1.4.2008 (12258+2912)</th>
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<tr>
<td></td>
<td>NC MH</td>
<td>PC MH</td>
<td>(NC+PC) OH</td>
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<tr>
<td>A</td>
<td>2394</td>
<td>4578</td>
<td>2108</td>
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<td></td>
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</table>

### B Coverage up to 31.1.2013 (since April 2008)

<table>
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<th></th>
<th>NC PC OH Total</th>
<th>FC</th>
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<tr>
<td>B</td>
<td>2124 2757 1012</td>
<td>5893</td>
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### C Balance habitations to be covered up to March 2014

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<th>NC PC OH Total</th>
<th>FC</th>
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<td>C</td>
<td>270 1821 1096</td>
<td>3187</td>
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</table>

**NOTE:** All the remaining Habitations are proposed for coverage up to March 2014.
PHYSICAL ACHIEVEMENTS - Schemes Commissioned (SWAp)

<table>
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<tr>
<th>Year</th>
<th>WB (SWAp)</th>
<th>ARP (SWAp)</th>
<th>All Programmes</th>
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<tr>
<td>2007-08</td>
<td>1</td>
<td>0</td>
<td>1</td>
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<td>2008-09</td>
<td>45</td>
<td>548</td>
<td>593</td>
</tr>
<tr>
<td>2009-10</td>
<td>100</td>
<td>546</td>
<td>646</td>
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<tr>
<td>2010-11</td>
<td>321</td>
<td>475</td>
<td>796</td>
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<tr>
<td>2011-12</td>
<td>221</td>
<td>610</td>
<td>831</td>
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<tr>
<td>2012-13 (upto Jan 13)</td>
<td>145</td>
<td>92</td>
<td>237</td>
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<tr>
<td>TOTAL</td>
<td>833</td>
<td>2271</td>
<td>3104</td>
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</table>
284% jump in Private Connections

Connections

- 2008-09: 398735
- 2012-13 (upto Jan. 2013): 1133715

(upto Jan. 2013)
Playing its new role as a facilitator, the Department provides hand holding to the schemes post commissioning. Important initiatives are:

1. Assisting GPWSC’s with various inputs & IEC material to achieve minimum 70% HH connections

2. Capacity Building of various stakeholders for disseminating need for Water Conservation and thus reducing energy cost & water wastage

3. Fortnightly inspection of schemes during defect liability period of six months after commissioning to address the technical challenge if any

4. Ensuring compliance of ‘Transparency Wall’ to instill beneficiary confidence & compliance towards the scheme

5. Special Awards at the state & district level to honor & incentivize the best performing GPWSC’s
Financial Sustainability of completed Water Supply Schemes

Challenge: Financial sustainability of schemes is closely linked with percentage of water connections in the village.

Initiatives:
1. **SWAp mode involving of Community** - Involving community in designing, planning, construction and O&M stage of water supply scheme
2. **Target of 90% households** - Under MTP each scheme has to cover 90% HH through Pvt. water connections
3. **Culture of Transparency** - GPWSCs are expected to keep transparency in the accounts, provide details about revenue collections and operating expenses to Gram Sabha members. Culture propagated through “Transparency Wall”
4. **Provisioning for O&M** - Suitable tariff is being fixed to ensure revenue collected is greater than O&M expenditure
5. **Conducting Water Audit** - Production meters at Water Works are being installed at w/w site for monitoring the daily / monthly production of water and calculate unaccounted water
MARCHING TOWARDS 100% connections (Status as in 1/2013)

- Total villages Commissioned: 14214
- Villages with 100% connections: 358
- Village where connection percentage is > 70%: 2057
- Total Sustainable: 2415
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Scheme</th>
<th>District</th>
<th>Month/ Year Commissioned</th>
<th>Houses</th>
<th>%age House Connections</th>
<th>Surplus Revenue (Rs. Lac) As in 1/2013</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Naushehra</td>
<td>Amritsar</td>
<td>June – 09</td>
<td>1075</td>
<td>100</td>
<td>10.65</td>
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<tr>
<td>2</td>
<td>Langroya</td>
<td>SBS Ngr</td>
<td>Sept – 09</td>
<td>725</td>
<td>105</td>
<td>6.21</td>
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<td>3</td>
<td>New Raj Guru Ngr</td>
<td>Ludhiana</td>
<td>Oct – 10</td>
<td>950</td>
<td>103</td>
<td>2.50</td>
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<tr>
<td>4</td>
<td>Jodhan</td>
<td>..do..</td>
<td>..do..</td>
<td>739</td>
<td>82</td>
<td>2.33</td>
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<tr>
<td>5</td>
<td>Khuni Majra</td>
<td>Mohali</td>
<td>Jan - 10</td>
<td>230</td>
<td>96</td>
<td>2.07</td>
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<tr>
<td>Villages</td>
<td>Surplus Revenue in Rs.</td>
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<tr>
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<td>25000</td>
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<td>Fatehgarh</td>
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<td>Dedran</td>
<td>10200</td>
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OTHER SURPLUS REVENUE SCHEMES (Status as in 1/2013)
Customers don’t expect you to be perfect. They do expect you to fix things when they go wrong.
Why Needed - Background

- **Long response time** - Senior level officers in hierarchy were not made aware regarding the complaints lodged/ problem persisting in their jurisdiction.

- **Low level of customer satisfaction** - Late attendance of complaints resulted into consumers loosing confidence in the water supply system operated by Govt.

- **Low efficiency/ no check on performance** - Lower ranks official were attending to the complaints as per their convenience and will

- **To give convenient customer access to services required by 17.3 million Rural consumers residing in more than 15170 far-off located villages** - Non availability of any system for lodging complaints instantly upon noticing any defect as well as at odd hours of day
Inauguration of SNK

By Hon’ble Deputy Chief Minister Punjab on 16.12.2009

1800-180-2468
SNK Objectives –

• Improve quality of service delivery system

• Achieve satisfactory results with optimum inputs of man, machine & material while utilizing the latest e-governance methods and techniques

• Enhance efficiency and financial sustainability of the Water Supply System operations by reaching out to the beneficiaries
A Good Governance Initiative:

Shikayat Nivaran Kendra, a state-of-the-art centralized call center is an endeavor to ensure the actual delivery of services in terms of good quantity, quality, and reliability at consumer end and achieving sustainable operations by providing increased access to Rural Drinking Water Supply System.
SNK Highlights

- SNK outreaches to approx. 17.3 million rural population in 15170 habitations

- Every official is directly connected to the centralized complaints redressal system through Telephone, Email & SMS

- SNK management & operation outsourced to third party to ensure transparency in the online complaints redressal system (DOEACC)

- Non Closure of the complaint till the satisfaction of complainant

- Daily progress report is reviewed by Secretary to Govt. Punjab, Department of Water Supply & Sanitation.
Stage 1: Registration and channelizing the Complaint

Stage 2: Redressal of Complaint

Stage 3: Closure of Complaint
Modus Operandi of (SNK)STAGE -1

Complaint dials Toll free Tel. No. **1800-180-2468** to register a complaint

Unique Registration Number generated automatically and same is conveyed to the complainant

The registered complaint is forwarded to all the concerned officials through Email, SMS & Telephone
Officials report the progress back to SNK through Phone & SMS (on Mobile No. 9501034596) to SNK, which further informs the complainant.

In case of non-redressal, a reminder is sent to the concerned officer once the prescribed period is over & subsequent reminder is also sent after 24 hours of the first reminder, if complaint still persists.

In case of failure even after the reminders, escalated to the next level officer for their intervention after 24 hours each.
Modus Operandi of (SNK)STAGE - 3

COMPLAINT IS CLOSED ONLY AFTER COMPLAINANT IS SATISFIED
NATURE OF COMPLAINTS & SERVICE STANDARDS

1. Failure of water supply due to electrical or mechanical fault in the machinery
   Service Standard 2 DAYS

2. Failure of water supply due to absence of operator
   Service Standard 1 DAY

3. Failure of water supply due to large scale leakages in pipes
   Service Standard 2 DAYS

4. Failure of water supply due to bad quality of water
   Service Standard 2 DAYS

5. Failure of water supply in some specific areas
   Service Standard 3 DAYS

6. Other Types of Complaints
   Time may differ according to situation
COMPLAINT ANALYSIS & RESOLUTIONS

Electrical & Mechanical Failures
(9% of total 25341 complaints)

Reasons are analysed and appropriate preventive measures are taken

Large Scale Leakages in Pipes
(19% of total 25341 complaints)

Field officers have become more quality conscious and ensure that distribution system stabilizes within defect liability period
COMPLAINT ANALYSIS & RESOLUTIONS

Absence of Operators
(5% of total 25341 complaints)

Department is still grappling with issue of shortage of staff and has initiated outsourcing O&M to third parties/contractors

Bad Quality of Water Supply
(7% of total 25341 complaints)

Reasons for bad quality such as sand pumping of tube well, inflow of dirty water from low lying open connection etc. are examined and appropriate remedial measures are initiated.
Water supply failure in a specific area (43% of total 25341 complaints)

Other complaints (17% of total 25341 complaints)

Reasons of no water supply may be due to uneven topography, breakage of pipe etc. are looked into and appropriate measure are taken.

Complaints of irregular water supply and pipes not laid in front of the house, etc., are tackled.
99% CUSTOMER SATISFACTION Achieved

(25315 complaints resolved out of total 25341 up to January 2013)
## Challenges Faced and Action Taken

<table>
<thead>
<tr>
<th>Demanding situation</th>
<th>Action Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change of mindsets of department officials</td>
<td>Motivation of staff and field officers through constant internal dialogue</td>
</tr>
<tr>
<td>Financial constraints faced by staff</td>
<td>Low traveling allowance increased. Mobile telephone allowance provided.</td>
</tr>
<tr>
<td>Shortage of staff</td>
<td>Working overtime due to definitive timelines of redressal of complaints</td>
</tr>
<tr>
<td>Status of the complaints not available to SNK within the prescribed time period</td>
<td>Complaints escalated to next higher authority in hierarchy after a definite period</td>
</tr>
<tr>
<td>Genuinenseness of the complaint</td>
<td>Dealing reasonably well despite some difficulty</td>
</tr>
</tbody>
</table>
• Credibility of Rural Water Supply operation enhanced due to efficiency in service delivery

• SNK has been well accepted by consumers as it helped in reducing closure/ downtime days of water supply operation

• Time bound action DWSS makes consumers satisfied

• DWSS has become more quality conscious to avoid re-occurrence of defects
Absenteism amongst operational staff in remote villages has been checked.

Higher O&M standards.

Performance of DWSS Operation is assessed on daily basis.

Availability of clean water providing huge social sector benefits.

Helps achievement of sustainable operation.
Conclusion

SNK Gives:

- Measure of operational Difficulties
- Satisfaction that they are being heard by DWSS
- Sustainable Service

DWSS

Customer
• SNK to be upgraded into a management tool by linking it with MIS

• Identify problematic area

• Plan resource requirement

• Improve planning by addressing deficiency in institutional arrangement and delivery mechanism
**Challenge:**
Covering 100% households with water connections, 24x7 water supply

**Initiative:**
Work started initially in pilot villages Singhpura & Sitabgarh.

**Scalability:**
Success achieved in pilot villages encouraged department to adopt this model of metered water supply in the State and convert at least 100 villages to 24 x 7 metered water supply up to 2012-13.

**Results achieved so far:**
14 villages have availed 24x7 water supply so far and number is growing

**Note:** Water Meters in 100 Villages are being provided free of cost to public
Benefits:

- **Helps poor families** - As water consumption is less compared to large houses. This encourages them into the system.

- **Helps tail end users** - The water pressure at tail end of distribution network increases due to judicious usage of water by all.

- **Helps Energy Savings** - Pumping hours get reduced by about 20% driving energy savings. Tulu pumps render obsolete in villages driving further energy savings and households save money.

- **Helps Water Conservation** – Consumers become cautious in the use of water and help in water conservation (demand based, no hoarding of water lead to improved consumption efficiencies)

- **Reduced chances of contamination** - As distribution system is always full and with 100% household water connections; no temptation of tampering by anyone.

- **Steep Reduction in Non Revenue (unaccounted) Water** - Water auditing has revealed steep reduction in unaccounted water i.e. leakages and theft etc. less than 10% against national average of 30% to 40%
Challenge:
At the time of commissioning, Drinking Water was supplied @ Rs. 100 per connection twice a day and 100% contribution was not realized.

Initiative:
100% metering of water supply & 24x7 water supply

Benefits:
- Fixed charge reduced to Rs.60 plus Rs3 per kilo litre
- Households have stopped wastage of water and as a result paying less
- The water pressure at tail end of distribution network has increased
- Saving of electricity charges as pumping hours has reduced by about 20%
- Total monthly O&M expenditure of both the GPWSCs is less than the monthly revenue collections from water charges
- Water supply has become reliable and confidence of the community in their ability to operate and maintain piped water supply system has increased
### Village Details

<table>
<thead>
<tr>
<th>Gram Panchayat Water Supply Committee was formed under the Chairmanship in year 2008</th>
<th>Village Singhpura</th>
<th>Village Sitabgarh</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S. Jagnahar Singh</td>
<td>Smt. Baljinder Kaur</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Beneficiary contribution collected by GPWSC</th>
<th>Rs 3.33 lacs in a record period of one month.</th>
<th>Rs 0.57 lacs</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Commissioning : Month /year</th>
<th>November 2009</th>
<th>March 2010</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Population</th>
<th>849 persons</th>
<th>715 persons</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>No of households/connections</th>
<th>181/207</th>
<th>120/122</th>
</tr>
</thead>
</table>

| Surplus revenue generated (O&M) | Rs 18500 | Rs 36200 |
Exemplar GPWSC’s: **Singhpura and Sifabgarh** - Ideal for Replication

Exposure Visits

GPWSCs of village Pannua and Khizrabad (Majri) & Jandli on exposure in village Singhpura
NON REVENUE WATER

This is the water that has been produced and is “lost” before it reaches the consumer. Losses can be real losses (through leaks, sometimes also referred to as physical losses) or apparent losses (for example through theft or metering inaccuracies).
SCALING IT UP

The success achieved in villages like Singhpura & Sitabgarh it is proposed to adopt this model of 24/7 metered water supply in the State and to convert at least 100 villages to 24 x 7 metered water supply.
Rann naha ke chhappar vichon nikli
Sulphe di lat vargi

- Balwant Gargi

“The woman emerged from the pond
Like a flame shooting out of an opium pipe...
Background:
From the time immemorial village ponds have been an integral part of social fabric in the rural Punjab. These ponds are usually located at the lowest point in the village and consequently, excess rain water flows and collects into these ponds. However, with passage of time and unplanned development, they have degenerated now to become a source of nuisance.

Challenge:
To usher a healthy ecosystem in rural Punjab that replenishes bleak ground water situation and improves environmental & sanitation conditions in villages.

Initiative:
Restore pristine eco system of chocked village ponds through a unique initiative using Waste Stabilization Techniques.
Key Challenge:
The intensive cropping pattern in the state of two major crops provided the department only two months time in a year to complete work.

Initiative:
On the basis of “Technical Note on Solid and Liquid Waste Management In Rural Areas”, prepared by Government of India and UNICEF; DWSS honed up a unique process.
Waste water in let

Pond 1
Anaerobic cum sedimentation Tank size = 15% area of Pond or 5 days detention time which ever is higher. Depth of out let from bottom 3 meter

250 mm i/d pipe with tee

Over flow pipe 12 “ dia or more to discharge rain water

10” o/d pipe with tee

Pond 2
Facultative Detention time 10 days or area=25-30% Water Depth (ie Out let @ 1.5 mt from Bed) to maintain 1.5 mt depth

10” o/d pipe with tee

Over flow pipe 12 “ dia or more to discharge rain water

Pond 3
Maturation Detention time 10 days ie area = 30 % Water Depth 25-30%(ie Out let @ 1.5 mt from Bed)

10” o/d pipe with tee

Over flow pipe 12 “ dia or more to discharge rain water

Pond 4
Polishing Pond area 25-30% or detention time 10 days

Pump for Irrigation

10" o/d pipe with tee

Over flow pipe 12 “ dia or more to discharge rain water

Over flow pipe 12 “ dia or more to discharge rain water

Schematic Flow Diagram
Status of Ponds Renovation Program

<table>
<thead>
<tr>
<th>Stages of Pond renovation</th>
<th>Number of Ponds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dewatering</td>
<td>20</td>
</tr>
<tr>
<td>Earthwork &amp; Partition</td>
<td>25</td>
</tr>
<tr>
<td>Commissioned</td>
<td>139</td>
</tr>
</tbody>
</table>

To be scaled upto 12,000 villages in Punjab
Will boost up the ground water situation and brings tremendous improvement in environmental & sanitation conditions in villages
There is not assured adequate availability of water in some problematic villages as shown below:

- Served through canal based water supply schemes and located at the tail of the canal network (mainly in Southern District of Punjab) experiencing shortage of canal raw water during peak summer season & no demand period of crops.
- Served through tube-well based water supply schemes where Total Dissolved Solids are beyond 800 ppm.
- Where uranium has been found to be above the permissible limits in the drinking water T/wells.
- Where Heavy Metal has been detected in the drinking water.

In order to ensure the water security, minimum for drinking & cooking requirements; alternate arrangement of qualitative water has also been made in such villages by providing Reverse Osmosis Plants on Build Own Operate & transfer basis with unique features of sustainability.

Contd....
A nominal rate of Rs. 0.10 per Litre is being charged from the consumers. Thus by spending nominal amount, the villagers are able to get potable water of high standards which is reliable even in peak summer season when demand for drinking water grow manifold.

The executing agencies have been engaged not only to built the plants but also to operate and maintain these plants for 7 years free of cost. The agencies will also payback Rs. 451.87 Lacs. to the state Govt. as a whole in this O&M period. Thus the state in return, will earn some money from the operation and maintenance of rural water supply schemes thus provided, which is a unique experiment.

Contd..
Ensuring Potable Water throughout the year with RO Plants

Potable water is assured throughout the year for drinking & cooking requirements, with installation of 1824 (1803 commissioned +21 in progress) Reverse Osmosis Systems in problematic villages:

• Served through canal based water supply schemes and located at the tail of the canal network (mainly in Southern District of Punjab) experiencing shortage of canal raw water during peak summer season & no demand period of crops. (1003 commissioned)

• Served through tube-well based water supply schemes where Total Dissolved Solids are beyond 800 ppm. (536 commissioned + 21 in progress = Total 557)

• Where uranium has been found to be above the permissible limits in the drinking water T/wells. (188 commissioned)

• Where Heavy Metal has been detected in the drinking water. (76 commissioned)
INNOVATIVE TECHNOLOGIES IN CHALLENGE AREAS (EFFECTIVE SOLUTIONS)

Reverse Osmosis Plants
(Status as in 01/2013)

- Already in operation: 1803
- Under installation: 21
- Total: 1824
360 degree feedback process

Getting feedback is not about sampling criticism but is enabling for continuous improvement.
**Challenge:** After commissioning of scheme, many micro level issues cropped up and need quick resolution to sustain operations & maintain customer faith

**Initiative:** Calling up GPWSC’s to ascertain actual working situation. Predefined script is administered to collect the feedback from the GPWSC and a software employed to capture the data, which generates MIS reports This experiment initiated on pilot basis in District Ludhiana and has been implemented in all 20 districts of Punjab.

**Benefits:**
- Timely intervention by the DWSS from the feedback/ concerns escalated
- Technical difficulties like leakages, SIP not working, Low pressure were rectified in a timely manner
- Institutional weaknesses like non opening of bank account for O&M expenditure, non deployment of adequate staff by GPWSC were identified and rectified
- Boosted confidence of GPWSCs and they feel department takes care and is willing to support them in successful O&M of schemes.
360 degree feedback process

1. Collecting phone numbers and creating GPWSC directory
2. Predefined Questionnaire
3. Nodal officer to make daily telephone calls to stakeholders in 5 villages
4. Computer based software to capture the feedback
5. Generate reports from computer on the basis of feedback for remedial action
6. Call again to check if issues are resolved?
<table>
<thead>
<tr>
<th>District</th>
<th>Nature of problem / defects noticed</th>
<th>GPWSC wise action taken on problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bathinda</td>
<td>Leakage in village Kaile Bander &amp; Pacca Kalan</td>
<td>Leakage Rectified in village Kaile Bander &amp; Pacca Kalan</td>
</tr>
<tr>
<td>Mansa</td>
<td>Leakage Problem in village Khaira Kalan &amp; Jalwera.</td>
<td>Leakages rectified in both the villages.</td>
</tr>
<tr>
<td>Sangrur</td>
<td>Leakages, Illegal connections</td>
<td>Rectified</td>
</tr>
<tr>
<td>Barnala</td>
<td>3 Nos. Leakage in village Khaili &amp; 2 Nos. Kalalmajara</td>
<td>Reported to DWSS &amp; Rectified</td>
</tr>
<tr>
<td>Roop Nagar</td>
<td>Less water pressure at higher reaches</td>
<td>Water presure increased by controlling wastages in low reaches</td>
</tr>
<tr>
<td>SAS Nagar</td>
<td>Minor leakages &amp; less water pressure at higher reaches</td>
<td>Leakages rectified within week and water pressure increased by controlling wastages in low reaches</td>
</tr>
<tr>
<td>Patiala</td>
<td>Leakages in pipe line &amp; less water supply in farther village in MV village scheme</td>
<td>Rectified</td>
</tr>
<tr>
<td>Nawanshahr</td>
<td>7 Nos. Lekages is found</td>
<td>Leakages rectified</td>
</tr>
<tr>
<td>Hoshiarpur</td>
<td>Leakages</td>
<td>Leakage rectified</td>
</tr>
</tbody>
</table>
Up-gradation of Lab infrastructure

“What's measured improves”
Challenge:
To ensure safe drinking water with rapidly changing ground water quality & for villages affected by High concentration of TDS, Uranium, Heavy Metals etc. beyond permissible limits.

Initiative:
30 Water Testing Laboratories equipped with Spectrophotometer, pH meter, TDS / conductivity meter, autoclave, incubator, distillation still, turbidity meter, laminar airflow, hot air oven.
- State level laboratory - Patiala
- District headquarters -19 Laboratories
- Sub-Divisional level -10 Laboratories
- Mobile Water Testing Laboratory - Analyses 100 water samples per month at random from various source

Benefits:
Ensures supply of safe drinking water in the villages & quality compliance as per BIS standard IS-10500:1991 (Rev.-2)
• Emphasized water quality assurance by increasing testing labs from 4 to 30, with an annual target of analysis of 36,000 samples per year (100 samples/lab/month)

• Quality Assurance in collaboration with world class testing labs like Bhabha Atomic Research Centre, Mumbai, Indian Institute of Toxicology, Lucknow

• Third party quality testing through Sri Ram Laboratory to counter PGI Chandigarh toxicology report of Amritsar district
In order to provide clean environment in villages, a Project costing Rs.124.50 crores for installation of 1,00000 toilets (resulting into open defecation free status for 724 villages & the number is increasing), for BPL and APL families (without toilets) is under implementation with financial assistance from Nabard.
Other Best Practices

• **Computerization of Water Bills:**
  Time bound preparation and delivery of bills leading to manifold increase in revenue collection

• **Initiation of State & District level Awards:**
  Encourage and reward the best performing GPWSC’s

• **Website & Management Information System**
  Availability of the right information for all time enabling management interventions.
  (www.pbdwss.gov.in)
If GOD is willing to grant, why should we restrict ourselves from wishing

Thanks