Impact Assessment of Safe Water Access Intervention in 154 communities in the Telangana State

SUPPORTED BY:

GRANT PARTNER
Honeywell

IMPLEMENTING NGO
Safe Water Network
ACKNOWLEDGMENTS

We are very grateful to Honeywell Hometown Solutions for their generous grant to serve the people of Telangana by establishing 154 Jal water stations from 2015-2020 to bring safe water access and improve public health and to create a decentralized safe drinking water model that can be scaled.

Our sincere thanks to the Government of Telangana for providing the enabling environment to execute the project and to the district collectors, local panchayats and other government officials for facilitating the use of the infrastructure with respect to land, building and raw water source for the use by the community.

We are proud that these locally owned and operated water treatment plants called ‘Jal stations’ by the social entrepreneur or a women self-help group provide affordable, 24x7 safe drinking water to the local community bringing health and well-being. This initiative brings safe water access to over 565,000 people in the region and generates ~340 livelihoods.

Special thanks to Ms. Sangita Ghalay, Head-CSR, Honeywell and her team for their active participation and guidance to jointly develop a robust and sustainable program.

ABOUT SAFE WATER NETWORK

Safe Water Network’s priority is to advance the scale-up of small water enterprises, a decentralized and locally owned approach to providing communities with affordable, reliable and safe drinking water. Working alongside communities in India and Ghana since 2009, SWN has documented and demonstrated the potential for SWEs to be scaled-up and be cost-effective.

Over the past 10 years, Safe Water Network India (SWNI) has established over 330 Jal water stations in Telangana, Maharashtra and Uttar Pradesh. These stations bring safe water access to over 1.2 million people. SWNI works with local governments, Urban Local Bodies (ULBs) and Panchayati Raj Institutions (PRIs) to empower local communities and entrepreneurs with the training, tools, and support needed for success alongside providing affordable safe water to the communities.

We derive lessons to provide recommendations on policy, institution building, and local viability. We build local technical service capability to reach affordable safe drinking water to the poor. We develop standardized systems, tools, and resources needed to scale small water enterprises to reach millions more in need of safe water.
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EXECUTIVE SUMMARY

In the state of Telangana, India, is home to 35 million people. In India, more than 70 percent of the surface water is contaminated by the waste of animal or agriculture origin, while groundwater contains high levels of fluoride, nitrate, salinity, etc. In the footprint of iJal Stations\(^1\), the raw water prior to treatment has multiple contaminants such as high total dissolved solids in 73%, high nitrates in 51%, high fluoride in 36%, high sulphates in 98% and high iron in 94% of samples tested when compared against the IS 10500:2012 requirement or acceptable limits. iJal is identified as “my water” initiatives, especially since it is completely managed and operated by the local community, for the community. Honeywell is deeply invested in the region, with close to 1,000 employees in the State of Telangana and a state-of-the-art global technology development centre on a 10-acre campus in Hyderabad, the state capital.

In 2015, Honeywell India, through the Honeywell Hometown Solutions (HHS) corporate citizenship initiative, engaged a non-profit registered Trust, Safe Water Network (SWN) India as a strategic partner to mobilize a safe water delivery strategy in the region to improve public health and develop a scalable model.

An impact assessment study was carried out in June 2019 to assess the impact of 154 Water ATMs iJal stations set up through HHS grant from 2015 to 2019. The purpose of the assessment was to get insights into:

1. To understand communities’ knowledge, attitude, practices and behavior (KAPB), towards various water sources’ consumption, collection, and usage behavior of beneficiaries including towards iJal.
2. Drudgery reduction of women and girl child and well-being of the communities enabled by ease of access and availability of quality drinking water.
3. Perception of current sources of water regarding availability, timing, supply, quality and other attributes.
4. Impact of iJal on health, education, expenses, wage savings, self-reported by the beneficiaries.

The study also measures the evolution of the iJal model in terms of technological advances in the water treatment plant as well as the creation of institutions for reliable and sustainable delivery of safe drinking water, especially when more than half the decentralized water delivery models fail within three to six months of installation and are in a state of abject disrepair and neglect.

The impact study was conceived as a baseline, midline and end-line study spanning over five years. Data relates to survey of three cycles of total 6325 Households across randomly selected 125 iJal stations in 48 blocks and 16 districts of Telangana. It is not a longitudinal study of the same households. The Research used a holistic approach, including quantitative and qualitative study. The qualitative study included Focus Group Discussions with communities that had participation from women and marginalized sections of society, In-Depth Interviews among Key Stakeholders like Sarpanch (elected village head), teachers, doctors, other medical practitioners, retailers, ASHA (Accredited Social Health Activist) coordinators, and SHG coordinators. There were two Ethnographic Observations with women to understand their own and their family’s water usage and hygiene practices for a 360-degree assessment.

The main objective of each successive round has been to understand the barriers to scale, break the myths around the use of iJal, provide essential data on consumer perception of iJal to improve penetration, identify and be prepared for emerging consumer trends, and to adapt the model for sustainability. Besides providing evidence for the effectiveness of the ongoing programs, the research data from midline helped in identifying the need for adaptation of the model for robustness and new specific programs for demand generation or increasing the consumer awareness in specific areas.

In the report, the contents of the previous rounds of studies are retained and additional components that were added during the end-line supported with two ethnographic studies are added.

Project management was clearly set out in the framework of robust monitoring and evaluation plan of Safe Water Network India which includes measuring the performance of iJal stations against well-defined performance Standards called SOFIE i.e. Social, Operational, Financial, Institutional and Environmental parameters.

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\(^1\) iJal stations are decentralized water treatment plants equipped with remote monitoring system set up through social entrepreneurs to provide safe drinking water to the quality affected communities under approval from local governance.

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The scope of information areas was expanded in the end-line for the following key areas:

- evaluation of the benefits of safe water, especially in the lives of women and girl child with respect to time savings associated with (a) better access to water and the (b) release of productive time due to safe water quality reducing the incidence of water-borne diseases and (c) less time spent on care giving for sick at home.
- derive new social entrepreneurship models that promote women entrepreneurship through Self Help Group (SHG) participation in iJal operations for empowering women to achieve gender equality.

The impact assessment results show that

- **iJal consumers’ Knowledge Attitude, Practices and Behaviour:**
  - iJal consumer understands the benefit of safe drinking water and good health
  - iJal intervention provides water security within the village and beneficiaries remained loyal to brand iJal despite other lower priced available options. Consumers had faith in the brand iJal as a mark of sustained and consistent quality.
  - Increased adoption of iJal containers for storage of iJal. Consumers have switched from traditional vessels to iJal containers which are made of virgin grade HDPE plastic and have a narrow mouth, thereby minimizing the risk of re-contamination as consumers, especially children, cannot now touch the water with dirty hands and have to pour it out.
  - Hygienic practices of iJal Consumers had 17% higher incidence of hand washing practices versus the non-users at various moments of day to day activities. There was a sharp increase of 29% in hand washing after toilet. This change can be attributed to the Swachh Bharat Mission SBM program of Government of India.
  - **Self-reported benefits of iJal consumers:**
    - Incidence of Water borne diseases has declined amongst iJal users from 34% to 23% over a period of three years
    - 63% iJal consumers reported reduction of medical expenses, resulting in a savings of Rs. 228 on household medical expenditure due to reduction in water-borne disease. 54% reduction in doctor visits
    - 78% iJal consumers reported reduction in adults missing work due water borne illness sick days
    - 73% iJal consumers reported reduction in school absenteeism of children
  - **Drudgery reduction**
    - 92% men collect water from iJal stations in their bicycles or motorcycles thus reducing the drudgery and burden on women for fetching water
  - **Livelihood generated**
    - Total of 336 livelihoods generated, many part-time
    - The monthly median income for SHG or community groups operating iJal stations stood at INR 4,300 and for the social entrepreneurs ranged between INR 7,000-12,000
  - **iJal Station technological advancements** were made by introducing the next generation of Remote Monitoring System (RMS) with a tablet interface and 24x7 dispensing through a Water ATMs. The technical service was facilitated through a non-profit field service entity. It helped mainstream local women SHG as entrepreneurs and operators to transforms their lives from water carriers to managers with a steady monthly source of income.
  - **iJal Station performance metrics**
    - The average consumer penetration is 43%.
    - Each iJal Station generates an average sale of 109 cans per day that helps cover its own village level local operating costs as well as partially cover the costs for service and maintenance.
    - iJal Stations dispense water conforming to the national water quality standards
    - Most iJal stations, ~98% are able to cover their village level operating costs from day one of operation. Over the four-year time frame, 60% of stations are able to generate enough revenue to provide a source of reasonable earnings to the SHG groups or community representative and contribute to a sustainability fund for any future refurbishment needs.
- SWNI’s oldest iJal station funded by Honeywell has operated with less than 2% downtime for more than five years, providing more than half a million litres of water to approximately 500 households.
- All iJal stations work under the approval of the local gram panchayat or the urban local body (ULB).
- 22 iJal stations were relocated and to new villages, as they were underperforming or having non-compliance with respect to adhering to the tenets of the iJal Stations like quality, affordability, equal access or operational sustainability etc as laid out in the MoU.

The study concluded that the implementation of the project was quite effective. The major impact of the project has been in testing and deriving new social entrepreneurship models that promote women entrepreneurship or Women Self Help Group participation in iJal operations as society changed. Additionally, it has brought safe water access to over 500,000 people in the region and generated ~388 livelihoods. A need for expansion of the project is envisaged to strengthen the capacity to provide reliable safe affordable water access to an increased number of communities. The best practices developed from this study are being replicated in the State of Maharashtra.

Exhibit 1: Consumer @ iJal station, Akkampeta village, Telangana
INTRODUCTION

Need

India’s Water Quality

70% of water is contaminated and India’s water quality ranks 120th out of 122 nations in the world. Hence decentralized small water enterprises (SWEs) are largely accepted by the Government as a potential quick solution to fill the gap in safe water supply systems in the quality affected regions. The Government’s policy think tank National Institution for Transforming India NITI Ayog had launched National Water Quality Sub-Mission (NWQSM) in 2017 to mitigate the ground water contamination problem due to arsenic and fluoride and provide safe water to the 3,524 Arsenic affected habitations and 4,686 Fluoride affected habitations. Safe Water Network’s safe drinking water program called iJal safe water station supports this initiative of the government both in the rural and urban region. In the footprint of iJal Stations, the raw water prior to treatment has multiple contaminants such as high total dissolved solids in 73%, high nitrates in 51%, high fluoride in 36%, high sulphates in 98% and high iron in 94% of samples tested when compared against the IS 10500:2012 requirement or acceptable limits. iJal is identified as “my water” initiatives, especially since it is completely managed and operated by the local community, for the community. SWEs are essential to provide safe drinking water security in climate change, to build resilient cities and during epidemic conditions.

India: Ground Water Contamination by different Chemical Constituents

Exhibit 2: State-wise Districts Affected with Groundwater Contamination by Type of Chemical Constituents

Exhibit 3: No. of Districts Affected by Groundwater Contamination

Source: Government of India, Ministry of Water Resources, River Development & Ganga Rejuvenation

2 Composite Water Management Index 2.0, 2019 NITI Aayog
ABOUT iJal INITIATIVE

For the project period April 2015 – Dec 2019, Safe Water Network India established 154 iJal stations in Telangana that bring safe, clean and treated water access to over 565,000 people.

The iJal initiative is community-centric and involves the community from the inception phase. An iJal station is a water treatment facility equipped with 6 step water treatment technology and a remote monitoring system (RMS). The treated water conforms to the national drinking water standards. These iJal stations have water ATM (Any Time Water) machines attached to them which allows customers to collect water 24x7 using Smart RFID cards. The RMS allows centralized tracking to monitor water quality and plant performance. Some iJal stations are equipped with solar panels to ensure uninterrupted reliable safe water can be dispensed.

We engage with all the key opinion leaders – Sarpanch, Village Water Sanitation Committee, SHGs, ASHA Didis, Anganwadi workers, village elders and leaders to mobilize the community support to adopt safe drinking water from the iJal stations. These stations are operated and governed by SHGs or social entrepreneur after seeking the Gram Panchayat consent. The community buys water from the iJal station at affordable INR 5 / 20L can in their own specially designed iJal containers made of virgin grade polymer with a narrow mouth to avoid the practice of dipping their hand while extracting water, thereby reducing recontamination risk. The consumers buy their daily water from pre-paid RFID cards or coin dispensing Water ATMs. Refer to Exhibit 4.

An independent non-profit Field Service Entity (FSE) provides maintenance & repairs to the iJal Stations to ensure less than 2% downtime and reliable safe drinking water availability. A rigorous Monitoring & Evaluation program is in place to measure against the ‘Performance Standards’. All the measures are reported monthly. Each village pays a ‘Service Fee’ and contributes to the ‘Sustainability Fund’ from the surplus after meeting their village level operating costs from the water sales. The financials of each village are tracked and individual P&L maintained.

This iJal initiative contributes to the following UN SDG Goals - GOAL 5: Gender Equality; GOAL 6: Clean Water and Sanitation; GOAL 8: Decent Work and Economic Growth; GOAL 10: Reduced Inequality; GOAL 11: Sustainable Cities and Communities; GOAL 13: Climate Action; GOAL 17: Partnerships to achieve the Goal. Refer to Exhibit 5 on next page.

Exhibit 4: Women SHG being trained by SWNI representative

Exhibit 5: Project iJal and UN -SDGs

The iJal program of Safe Water Network contributes to multiple UN Sustainable Development Goals (SDGs)
The Financial and operational flow of iJal model is demonstrated in Exhibit 6 below.

Exhibit 6: Financial and operational flow of iJal model

1. Donors give grants to SWN to cover OPEX for setting up plants, III sector building activities and III administrative overheads.

2. SWN undertakes site selection, and works with the local government and social entrepreneur.
   - SWN provides tools and skillling, monitoring processes.

3. Field Service Entity, is a separate, non profit legal entity, nominated by SWN for maintenance and repair of water stations and training of the operators.

4. Local government gives permissions to operate, raw water source and electricity connection. It also provides the infrastructure in a few cases.

5. Consumers are walk in and those that get water delivered at home.

Local Governance: Village Water Sanitation Committee User Groups and ULBs

Water sale revenue pays for local operating cost

Water treatment system assembling

Installation & commissioning

Skillling the operator & distributor

Consumers
THEORY OF CHANGE

Safe Water Network’s ‘Theory of Change’ to improve public health through iJal model\(^3\)

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3 Composite Water Management Index 2.0, 2019 NITI Aayog
HONEYWELL iJal Stations

Satellite mapping view of 154 Honeywell sponsored iJal Stations cluster on Google Earth

iJal Stations by the numbers and salient features

Exhibit 7: iJal Stations by the numbers and salient features

- 154 iJal stations
- Safe Water access to ~565,000 people
- Water Quality conforms to National Standards
- Remote Monitoring System
- > 388 Livelihoods generated
- Automatic Water ATMs
- Solar-enabled iJal station
- Coin dispenser
- Digital training
RESEARCH METHODOLOGY

Objectives of the Research

The objectives of the research were to understand the acceptance of iJal model by communities and their readiness to pay for water and thus develop an innovative replicable and scalable model of affordable safe water delivery that can be locally operated and maintained with local governance and community participation for improved public health. This was important as more than half of the decentralized water delivery models fail within three to six months of installation and are in a state of disrepair and neglect.

The program objective was to ensure regular consumption of safe water and improvement in the overall health profile of the consumers, corresponding to a decline in the water-borne ailments. Additionally, the program targeted a socio-economic impact – benefitting the lower segments of the society, lesser health-related expenses, and reduction in work absenteeism and therefore wages, as well decline in school absenteeism, leading to a better quality of life for the housewife.

The key research objectives were as follows:

- Map the current knowledge, attitudes, practices, and behavior of the population towards various water sources and consumption, collection, and usage behavior of beneficiaries towards iJal
- Understand the perceptions of current sources of water regarding availability timing, supply, quality, and other attributes
- Determine the impact of iJal on health, education, expenses, wage savings, both perceptually and actually among the beneficiaries, as well as a 360-degree assessment from other key stakeholders

The research measured the impact of the program, in terms of fulfilling the tactical as well as strategic objectives, which included acceptance of iJal water, pay per use and benefit in terms of health, livelihoods and other socio-economic parameters, leading to improvement in the overall quality of life, among consumers of iJal.
**Key Information Areas**

The table below highlights the indicators covered as key information areas during the impact assessment study of iJal initiative in Telangana.

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Research Design:

The research used a mixed approach, including quantitative and qualitative methods, suitable for each respondent segment.

- A quantitative, questionnaire-based survey was conducted amongst a large and robust sample of beneficiaries and non-beneficiaries (women), among a sample of villages, selected after a rigorous sampling methodology. The respondent households were selected from the village after mapping the sample village into clusters and picking up a proportionate sample from each cluster. Sample survey research was conducted amongst the female primary decision maker.

- In-Depth Interviews among Key Stakeholders in order to understand the effectiveness of awareness creation and support mechanism of iJal usage. These Key Opinion Leaders (KOL) included Sarpanch (elected village head), teachers, doctors, other medical practitioners, retailers, Asha coordinators, and SHG coordinators.

- Beneficiary Focus Groups (both men and women), and Ethnographic Observations among women to complete a 360-degree assessment.

A comprehensive research design was followed. Refer Exhibit 9

Exhibit 9: Snapshot of the research design
Sampling Methodology

For the Quantitative study the sample size for the i) **Baseline:** 450 households across 5 villages ii) **Midline:** 3000 households in 30 villages in Telangana iii) **Endline:** 2875 households in 28 villages in Telangana. The sampling methodology had a sample of respondent households chosen by using a rigorous stratified random sampling process. Refer Exhibit 10 for summary sample selection criteria and distribution.

Exhibit 10: Survey sample selection & distribution

For the Qualitative study, the following strategy was adopted. Refer to Exhibit 11.

Exhibit 11: Qualitative studies conducted

### CONSUMER INTERVENTIONS: FOCUS GROUPS
- 2 Male Focus Groups and 2 Female Focus Groups with 6 Regular Users of Jhal and 2 Irregular / Lapsed users

### FGD Sample Profile
- **Group 1:** Male, SEC R1/R2
- **Group 2:** Male, SEC R3/R4
- **Group 3:** Female, SEC R1/R2
- **Group 4:** Female, SEC R3/R4

### CONSUMER INTERVENTIONS: ETHNOGRAPHIC OBSERVATIONS & DISCUSSIONS
- Ethno 1: Female, SEC R1/R2
- Ethno 2: Female, SEC R3/R4

### OPINION LEADERS & INFLUENCERS: IN-DEPTH INTERVIEWS
- 10 interviews among the Key Opinion Leaders spread across our sample villages
  - Self Help Group Leader: 1
  - Doctor / General Practitioner: 1
  - Alternative Medical Practitioners: 1
  - Teacher: 2
  - Retailer: 1
  - Sarpanch: 2
  - Asha Bhen: 1
  - Aanganwadi Person: 1
KEY FINDINGS

Population Demography: Following are the findings derived from the consumer research with respect to Socio-Economic Classification, Occupation, and monthly household income:

Exhibit 12: SEC profile; Occupation; Monthly household income

28% of the rural SEC belongs to the R1 and R2 category. This category has a pucca house and higher literacy. Agriculture is the mainstay occupation amongst males and the female work on their own farms. Balance 72% belonged to R3 & R4 category, which falls under the International Poverty Line of income under $1.9 per capita per day. 69% of these R3 and R4 households earn less than INR 10,000 or $ 140 per month.

Through the survey, it is evident that the communities face different challenges with respect to income, infrastructure, and health. Refer to Exhibit 13.

Exhibit 13: Issues faced by villagers

The key challenges faced by communities include (a) limited family income due to adverse effect of weather on farming, (b) lack of alternate employment opportunities in the village and vicinity; (c) lack of colleges, hospitals with adequate facilities; (d) health issues due to lack of access to safe water.

While consumers claim that they have witnessed growth in their village in terms of more educational institutions being built, better medical facilities and connectivity with cities, yet there are certain issues that still exist.
A typical household in the intervention villages of Telangana has the profile as entailed in the Exhibit below. Refer to Exhibit 14.

Exhibit 14: iJal awareness findings
Exhibit 15: Typical household profile

A typical family in the village has 4-7 members with approximately 3 children. Income is erratic as the main profession is farming. Some of the women do part-time jobs like bidi making, labor work to contribute to the family income. Erratic income makes them health-conscious to avoid medical expenses.

**TYPICAL HOUSEHOLD PEN PORTRAIT**

- **Profession** – men mostly farmers, laborers (heedi), running poultry farms
- **Women** – mostly housewife, few work in field, tailoring or labor work
- **Family size** is an average of 7 members with approximately 3 children per family

- **Men** most comfortable using phones:
  - Make and receive calls
  - Watch videos online
  - Women limit use to calling relatives and few friends
  - Mostly receive calls
  - Aware but do not use radio
  - Young adults use phones for entertainment

- **Families** have an erratic income structure due to dependence on rains
  - Monsoon and harvest – downtime
  - Almost none have secondary source of income
  - Do not appear to save actively for the future
  - Erratic income makes them very conscious about being healthy
  - Falling ill necessitates additional expense
  - Some families have dual income where the woman has a part-time job
  - MHI spent on – child education, managing daily expenses, food, maintenance and medical treatment

**Decision makers for purchase if iJal**

- Men remain the key decision-makers for buying iJal from stations
  - Generally, remain cognizant of the money spent
  - Therefore, the decision of the number of water cans usage lies with the men of households
- However, post-purchase, the onus of optimal use of water to avoid extra spend lies on the woman of the house
- Most women use iJal water diligently and avoid wastage. Primary use is in drinking & cooking only

**iJal awareness**

The awareness for iJal has improved over the period from the baseline through the midline to end-line study in 2019. Refer to Exhibit 15.

- At a prompted level, almost every household is aware of iJal water (94%). This is true among both the upper and lower SEC. Awareness has steadily increased every year.
- iJal usage goes up versus the midline survey. 76% of villagers have claimed to use iJal in the last 5 years.
- Price awareness has improved steadily over the past few years, and about 90% recall the right price at the Station, and 80% recall the right price at ATM
The awareness for iJal has increased from 78% to 94% in two years. iJal usage also increased in the end-line with 76% villagers claimed to use iJal in the last 5 years. Price awareness has improved steadily over the past few years, and about 90% recall the right price at the Station, and 80% recall the right price at ATM.

### Issues with borewell or well water

- Considered as poor quality – has a bad odour, dirt, worms and yellow-coloured
- Gets infected and carries germs in rainy seasons
- Have witnessed cases of kids and adults falling ill post-consumption

**iJal introduction came as a solution, introduced through following Offers**

- Most mention that they were offered free water for a week
- Considering it is as treated water, consumers started consuming it
- Some even got the offer where they had to pay just Rs. 150/- for a month’s supply of water
Consumer Behavior

Water collection and storage

Profile of the person collecting water: Increasingly the number of Male Adults collect Jal irrespective of the distribution point. From 60% in the initial stages of the program, Males constitute 92% of those who collect Jal in the end-line, leading to increasing empowerment of female members of the household. Refer to Exhibit 16.

Exhibit 16: Jal consumer behaviour

- Increased number of Male Adults collect Jal irrespective of the distribution point. From 60% in the initial stages of the program, Males constitute 86% of those who collect Jal on bicycle or motorcycles, leading to increasing empowerment of female members of the household and reduction in their drudgery. Also, there is increased adoption of Jal containers for the storage of Jal. Consumers have switched from Household Vessels to Jal containers.

<table>
<thead>
<tr>
<th>Time Taken to Collect Jal for Drinking at Home</th>
<th>Baseline</th>
<th>Endline 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>6 minutes</td>
<td>4 minutes</td>
</tr>
<tr>
<td>Jal Station</td>
<td>10 minutes</td>
<td></td>
</tr>
<tr>
<td>ATM</td>
<td>3 minutes</td>
<td></td>
</tr>
<tr>
<td>Retailer</td>
<td>4 minutes</td>
<td></td>
</tr>
</tbody>
</table>

Profile of the person collecting water

<table>
<thead>
<tr>
<th></th>
<th>Baseline 13</th>
<th>Endline 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Adult</td>
<td>60%</td>
<td>92%</td>
</tr>
<tr>
<td>Female Adult</td>
<td>29%</td>
<td>5%</td>
</tr>
<tr>
<td>Others</td>
<td>11%</td>
<td>3%</td>
</tr>
</tbody>
</table>

iJal benefit perception

Exhibit 17: Jal benefits consumer perception

- iJal is perceived as pure with good taste and low density leading to more water consumption preventing the villages from dehydration.

Taste & Density
- Describe iJal water as sweet and good in taste
- Claim that they drink more water than what they were drinking a few years ago
- iJal is light weight

Quality
- No dirt specks
- No worms
- Odorless
- Colorless (not yellow or muddy)
- Doesn’t change color with season

Smart Payment
- Smart Payment method through RFID card
- No need to carry cash
- Water transport facility makes the purchase easy

Domestic Benefits
- Reduced workload/no need to boil water
- Active participation of men in house

Water Storage behaviour

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Endline 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic containers</td>
<td>15%</td>
<td>80%</td>
</tr>
<tr>
<td>Large vessel</td>
<td>58%</td>
<td>19%</td>
</tr>
<tr>
<td>Small vessels</td>
<td>14%</td>
<td>7%</td>
</tr>
</tbody>
</table>

Increased adoption of Jal containers for storage of Jal. Consumers have switched from Household Vessels to Jal containers.
Hygiene habits: iJal users vs. Non-users

Higher consciousness amongst iJal users was observed towards health and hygiene habits. Healthy hygiene practices have significantly higher incidences amongst iJal users.

<table>
<thead>
<tr>
<th>Hygiene Habits Always Follow</th>
<th>Overall</th>
<th>iJal Users</th>
<th>iJal Non-Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before cooking</td>
<td>62</td>
<td>65</td>
<td>54</td>
</tr>
<tr>
<td>Before meal</td>
<td>98</td>
<td>71</td>
<td>53</td>
</tr>
<tr>
<td>After meal</td>
<td>82</td>
<td>83</td>
<td>79</td>
</tr>
<tr>
<td>After feeding cattle</td>
<td>53</td>
<td>59</td>
<td>33</td>
</tr>
<tr>
<td>After coming from out</td>
<td>40</td>
<td>54</td>
<td>43</td>
</tr>
<tr>
<td>After using toilet</td>
<td>78</td>
<td>79</td>
<td>72</td>
</tr>
<tr>
<td>Before cooking</td>
<td>62</td>
<td>65</td>
<td>53</td>
</tr>
<tr>
<td>Before drinking water</td>
<td>60</td>
<td>64</td>
<td>48</td>
</tr>
<tr>
<td>Bathe regularly</td>
<td>63</td>
<td>67</td>
<td>50</td>
</tr>
</tbody>
</table>

- Higher consciousness among iJal Users towards health and hygiene habits
- Washing Hands before meals, after feeding cattle, after returning home from outside and before cooking; all have significantly higher incidence among iJal users

Change in hygiene habits after using iJal

Consumers have reported changes in their hygiene habits after usage of iJal. The findings have been summarized below. Refer to Exhibit 19.

Exhibit 19: Change in hygiene habits after iJal usage

iJal program has enabled villagers to recognize the importance of maintaining appropriate hygiene habits and drinking clean water considered integral in moving towards a healthier lifestyle.

Washing hands religiously – after coming back from field, work, using the bathroom

Sewage management in and around the house to avoid diseases

Taking bath regularly (once a day)

Cleaning, washing, mopping everyday

Clean drinking water consumption has become one of the habits, gradually adopted by villagers.

Since iJal water has come in we have started using closed vessels or cans to store the water, its pure and we don’t want it to get dirty, we store it water bottles and put them in fridge – Female

We are from Anganwadi. Women of all age group attend a meetings. We tell them to maintain sanitation and cleanliness in their surroundings. Washing hands before eating or cooking etc. Boiling drinking water and using, keeping outside the house clean, we have observed changes in their behavior – Aanganwadi worker

Villagers gradually waking up to the importance of maintaining appropriate hygiene habits and drinking clean water considered integral in moving towards a healthier lifestyle, iJal seen as a key enabler...
Exhibit 20: Activities for which water source is used for

Exhibit 21: Activities for which iJal is used for

Drinking remains the primary use of iJal water, with 9 out of every 10 user households using it for drinking at home. 37% of the households also use it for out of home drinking. 89% of the total iJal is used for drinking and the rest for cooking, cleaning and other kitchen activities.

Drinking remains the primary use of iJal water, with 9 out of every 10 user households using it for drinking at home. 37% of the households also use it for out of home drinking. 89% of the total iJal is used for drinking and the rest for cooking, cleaning and other kitchen activities.

* Includes other to grass
Enablers and barriers for iJal

Sarpanch claim that village has become healthier since the plant got installed; ASHA mention that iJal has inculcated clean drinking water habits amongst villagers; Teachers claim that they have observed better attendance in school since the plant got installed due to lesser cases of diarrhoea, vomiting, dehydration; Retailers claim the price of iJal to be very reasonable posing no burden on their pockets.

Many felt that changing the source is not relevant due to lack of awareness of the quality issues with the traditional sources are key barriers to expanding iJal usage.
iJal as convenient and smart solution

Exhibit 23: iJal perceived as convenient and smart solution

iJal is seen as a convenient and smart innovative water facility which is available 24x7. The iJal RFID card facilitates cash-free transactions at the station.

**iJAL BENEFIT PERCEPTION: CONVENIENT AND SMART SOLUTION**

![Diagram showing the benefits of iJal]

- **Smart Payment method**
  - iJal card is considered as easy to carry and recharge
  - No need to carry cash for daily buys
  - Plus the cash gets locked in the card that’s just designated for clean water
  - Restricts one from spending it in other lesser necessary

- **Water transport facility and availability**
  - An added benefit – convenient in case man of the house is not available/ sick/ busy
  - Claim that iJal water is available all the time, hence, they never run short of drinking water

Seen as smart innovative water facility

We can bring the water whenever we require. It does not depend on power. Earlier we had to wait if the power is not available and moreover, we had to wait till morning as the mineral water suppliers will not be available during night. But with iJal it is different. They have given cards, using which we can go the plant and take water whenever necessary and it works even if there is no power also- Male

Areas of improvement from the lens of the user

Exhibit 24: iJal areas of improvement from users’ lens

Need for iJal home distribution has been identified especially when the male member is not available to fetch the cans from the station. Villagers expressed the need to set additional iJal plants. Additionally, there is a need for undertaking campaigns on spreading awareness about the filtration processes used.

**iJAL AREAS OF IMPROVEMENT FROM THE LENS OF THE USER**

**EXPECT THE PLANT TO FURTHER EXPAND**

- Some consumers mention that while those its convenient to fetch water for those living close to the plant, however, for the ones living far, it becomes inconvenient
- Especially during rainy season, muddy roads become problematic even if they carry cans on bike/ bicycle

**LACK OF CLARITY ON FILTERATION PROCESS**

- Villagers feel that chemicals get added in water to purify it
- Filter machines installed at plants are considered as adding chemicals instead of filtering
- While it doesn’t impact the consumption, bringing clarity will further elevate faith in the brand

**WHILE WATER COST IS PERCEIVED AS REASONABLE, TRANSPORT COST COMES ACROSS AS AN ADDED BURDEN**

- Some mention that added Rs 3 to as transportation cost becomes an added expense and feel that it should be included in the water cost
- There is a need for transpiration especially when male member is not available as women find cans heavy to carry

Among Users, Distance and Transportation remain the key issues that they face on a day to day basis. Consumers expect supplies closer to their homes, especially in larger villages. Overall becomes an issue, when Transportation charges are added to the cost of iJal
Social impact of iJal consumption

iJal impact on mindset

Men have become an integral part of the changing societal framework. iJal has become the catalyst for change in the mindset and role of the men and the women. It has given the men a view on household water management, increased understanding of sanitation and hygiene, and an active participant of household chores. Refer to Exhibit 25.

Emerging Societal changes

Emerging Societal changes allow women to express themselves better. There is freedom for expression of opinions, lesser restrictions and free set up for women hence a preference for a nuclear family; there is less power gap between husband and wife, changing relations between mother-in-law and daughter-in-law thus supporting women to step out for earning a livelihood.

There is emerging potential in the villages, with changing societal structure, the women have become more amenable to going out for work. Hence, they can be tapped into by creating potential work opportunities at stations and further enabling them in their search for being able to contribute in the family. Refer to Exhibit 26.
What does it imply for women and iJal

“Condition of women is changing, they are studying, doing some tailoring, they are availing loans to be financially independent”

“Men are looking for helping hands in financial management, the woman of the house contributing to the household income takes away some pressure off their shoulders”

“When asked about iJal plants being operated by women – men seem positively disposed of as it is seen as creating work opportunities for women who have the potential if trained properly”
Socio-Economic impact of iJal consumption

Exhibit 27: End line (2019-20) scores on iJal consumer – Impact-metrics

The scores on various parameters self reported by iJal consumers are stated as below

2019-20 scores on Consumer Impact Metrics

<table>
<thead>
<tr>
<th>Agreement scores among Regular Consumers of iJal</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve Quality of life</td>
<td>83</td>
</tr>
<tr>
<td>More time on other HH activities</td>
<td>79</td>
</tr>
<tr>
<td>Earning member miss office less</td>
<td>78</td>
</tr>
<tr>
<td>Children fall sick less often</td>
<td>79</td>
</tr>
<tr>
<td>Children miss fewer school days</td>
<td>73</td>
</tr>
<tr>
<td>Medical expense reduced</td>
<td>63</td>
</tr>
<tr>
<td>No. of doctor visits reduced</td>
<td>54</td>
</tr>
</tbody>
</table>

Exhibit 28: Hospitalisation incidence and change post iJal usage

iJal consumption has led to a significant reduction in hospitalisation incidences amongst iJal consumers. The average reduction in hospitalisation incidence from 2017 to 2019 was 36%.
Exhibit 29: Improvement in health over last few years

A higher proportion of Jal users believed that the health profile has improved leading to a positive impact on money spent as well as missing school and work. 85% of Jal non-trialists claim they have suffered from some illness; this is significantly higher versus 76% Jal trialist. Overall health quality improvement is reported by 48% of Jal users versus only 21% of non-users.

Exhibit 30: Reduction in illness incidences and annual savings on medical expenditure

Reduced incidences of illness was observed amongst regular users of Jal which accounted for average savings of INR 228 per household annually due to illness-related expenses. The medical expense reduced by 63%.

### HEALTH IMPACT

#### REDUCED INCIDENCES OF ILLNESSES

- **In adults** - knee pain seems to have reduced over time with consumption of Jal water
- **In children** - reduced instances of stomach ache, diarrhoea
- A life free from constant nagging pain
- No dependency - can walk around and do their own work
- Better attendance at school
- Parents have to spend less energy in taking care of kids and can spend that time in household chores or work

#### OVERALL

<table>
<thead>
<tr>
<th>Illness Incidence</th>
<th>Midline 17</th>
<th>Endline 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Illness</td>
<td>85%</td>
<td>78%</td>
</tr>
<tr>
<td>Cold / Cough</td>
<td>78%</td>
<td>71%</td>
</tr>
<tr>
<td>Fever</td>
<td>60%</td>
<td>63%</td>
</tr>
<tr>
<td>Typhoid</td>
<td>7%</td>
<td>6%</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>9%</td>
<td>5%</td>
</tr>
<tr>
<td>Joint Pain</td>
<td>3%</td>
<td>5%</td>
</tr>
<tr>
<td>Jaundice</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>Cholera</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>None</td>
<td>10%</td>
<td>22%</td>
</tr>
</tbody>
</table>

#### MEDICAL EXPENSES

<table>
<thead>
<tr>
<th>Overall health quality</th>
<th>41</th>
<th>48</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children fall sick less</td>
<td>40</td>
<td>46</td>
<td>24</td>
</tr>
<tr>
<td>Elders fall sick less</td>
<td>29</td>
<td>46</td>
<td>23</td>
</tr>
<tr>
<td>Miss school/ college less</td>
<td>29</td>
<td>44</td>
<td>22</td>
</tr>
<tr>
<td>More time due to improved health</td>
<td>29</td>
<td>43</td>
<td>25</td>
</tr>
<tr>
<td>More money due to improved health</td>
<td>29</td>
<td>46</td>
<td>20</td>
</tr>
<tr>
<td>Doctor visits reduced</td>
<td>38</td>
<td>43</td>
<td>23</td>
</tr>
<tr>
<td>Medical expenses reduced</td>
<td>37</td>
<td>42</td>
<td>20</td>
</tr>
</tbody>
</table>

#### Year of Establishment

<table>
<thead>
<tr>
<th>Year of Establishment</th>
<th>Upto 2017</th>
<th>2018-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall health quality</td>
<td>53</td>
<td>36</td>
</tr>
<tr>
<td>Children fall sick less</td>
<td>48</td>
<td>38</td>
</tr>
<tr>
<td>Elders fall sick less</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>Miss school/ college less</td>
<td>46</td>
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<td>44</td>
<td>34</td>
</tr>
<tr>
<td>Medical expenses reduced</td>
<td>47</td>
<td>31</td>
</tr>
</tbody>
</table>

85% of Jal Non-Trialists claim they have suffered from some illness; this is significantly higher versus 76% Jal Trialists.
iJal has helped reduce the drudgery of women for collecting water for the household through promoting active engagement of men of the house in the collection of water. Simultaneously, there has been an attitudinal and a behavioural change amongst men in terms of the responsibility of household chores.

**Exhibit 30: iJal benefit perception: domestic benefits**

- Reduced workload
  - Women don’t have to boil/sieve water anymore
  - Water cans provided by iJal are considered as easy to use. Water can be easily poured into the bottles and stored

- Active participation of men of the house
  - Gradually changing their set notion of women being only responsible for household chores
  - Making them as helping hands instead of staid dominant figure

> In rainy season we had to sprinkle bleach water or boil water now we don’t have to do all that - Female

**iJal Livelihood Impact – Work days saved**

Per family per month INR 246 and per year INR 2952 notional saving

Exhibit 31: Reduction in days of work missed after iJal consumption. Self-reported

78% iJal consumers reported reduction in missing work which equates to a notional savings of INR 246 per family an per month and INR 2,952 per year.
PERFORMANCE ASSESSMENT

All the iJal stations facilitated by Safe Water Network India are able to cover village level Local Operating Costs from Day 1. Safe Water Network India follows a portfolio approach for managing clusters and designates a local FSE (Field Services Entity) to provide regular technical services to maintain < 2% technical downtime and ensure the reliability of safe drinking water availability. FSE is directly paid a service fee by the stations, from the revenues generated through the sale of water at Rs. 5 for 20 Litre collected in their jerry cans.

The Community, SHG group or the social entrepreneur manages the station and pays all the operating expenses including the service fee from the revenues generated. They retain a minimum balance as compensation for their sweat equity necessary to sustain their families. They contribute towards a revolving fund maintained by SWNI called the Sustainability fund. The fund is maintained by SWNI in a separate account to be utilised as per the policy to support major repairs, capital replacements or refurbishments, as required for older stations.

Out of the 125 stations (excluding Urban ATMs), 120 (96%) are able to cover Local Operational expenses. The five that do not, are less than a year old or have been recently relocated to improve viability. 60% of the stations are able to generate enough revenues to pay for the following, in that order, based on their ability to pay:

1. Local village level OpEx (Operating Expenses)
2. Service Fee
3. An average return of Rs. 5,000/month to the Community/SHG group/Social Entrepreneur
4. An average contribution of Rs. 3,500/month to the Sustainability Fund

Important note: These numbers are based on the ability to pay on a cluster basis. Individual station performance may vary based on can sales recorded on a monthly basis and the willingness of the Community/Entrepreneur/SHG to pay for the service fees and the sustainability fund.

FINANCIAL METRICS

120, out of total 125 (96%) of the rural iJal stations funded through Honeywell grants, cover local village level operating expenses. 60% of the stations are able to generate enough revenue to be financially sustainable on the basis of ability to pay.

Exhibit 32: Financial performance of iJal stations excluding urban

Exhibit 33: Stations Revenue
SOCIAL METRICS

Exhibit 34: Honeywell-sponsored iJal Water Stations (grant 1-5)

All 125 iJal water stations sponsored by Honeywell together bring safe, affordable drinking water access to over 565,000 people. Of these, 95 are set up in rural and peri-urban districts of Telangana and Maharashtra, bringing access to 475,000 people, wherein 46% of the registered households collect water on a regular basis. A total of 30 water ATMs have been set in Hyderabad city to bring additional water access to 90,000 people.

OPERATIONAL METRICS

Exhibit 35: Treated water sales per day (20L cans) year wise

On average, the iJal water stations generate sales of 109 cans per day (on a year-to-date basis). On the other hand, the urban water ATMs set up in the city records an average of 35 servings per day.
Stations Performance based on age and seasonality

Exhibit 36: Consumer registration over the years

46% of the households are registered after having had bought Jal cans or enrolled for monthly membership RFID cards at the stations. It is with great effort that the consumer registration is maintained between 40 to 46% despite addition of new stations each year in the cluster.

Exhibit 37: Three years average seasonality

The 3 years’ seasonality of sales at stations shows that the revenues in Dec-Feb months are about 6-7% of the annual sales, which is almost half that of May @11.2% thereby putting pressure on the cashflows during the off-season months.

Seasonality is the percentage share of annual volume sold in a particular month.

The water demand is closely linked to the weather and temperature.

The water treatment capacity must be able to cater to the peak month of May.
RECOMMENDATIONS

Safe Water Network endeavours to bring about the maximum impact on women’s lives through the Jal program. Impacting women’s life by changing their status from water carrier to water entrepreneur and operator and also by promoting men’s participation in collecting Jal water.

Our next steps will focus on

Technology:
- Expansion of Jal footprint to other states in India for safe drinking water access.
- Optimize the existing water purification technology and test new affordable technologies, improvise on the remote monitoring system.

Processes:
- Improve sustainability and accelerate scalability of Jal stations.
- Promote adoption of performance standards for small water enterprises.
- Continued consumer demand generation to increase Jal adoption, coverage, and penetration.
- Build and support SWE ecosystems through city water alliances, dissemination of best practices, case studies through national and international fora, workshops and conferences.
- Create collaborations and strengthen institutions to drive systemic change for promoting SWE water.

Training:
- Promote capacity building activities of women SHGs and entrepreneurs through knowledge hub using the digital SWE entrepreneur tools, ‘iSWEET Tools’

Sector engagement:
- Policy coherence and advisory with government both at the Union and State level.
- Converge the small water enterprise sector through the platform SWE Alliance.

Exhibit 36: Freedom from diseases campaign on Independence Day at Mahadevpoor Station, Jayashankar District.
ANNEXURES

CASE STUDY

RANI BARUKAUM, WINNER OF SIWI AWARD @ STOCKHOLM 2017

About the Award: #WaterWomen SIWI Stockholm Award aims to collect images that illustrate the important roles and tell the stories of women as invaluable water managers, decision makers and users across the world.

Winner: Rani Barukaum, the leader of a women ‘Self Help Group – Divya’, Ambedkar Nagar, Medak, Telangana.

Story: Rani Barukaum, the leader of a women-run “self-help group” named Divya, understood the need for safe water and its health benefits. When Safe Water Network India set up the iJal water station in Ambedkar Nagar Colony, Rani ardentely began promoting the benefits of safe water to the community and urged them to adopt iJal for the reduction in jaundice and typhoid.

As a young mother, Rani had seen her two young children frequently fall sick due to consumption of the contaminated water. During that period there was no water treatment facility in the village, and boiling or filtering failed to solve the problem. She saw this iJal Station as a unique opportunity and, with missionary zeal; she began educating her community on the relationship between water and health. With this awareness program, she began talking to households, pregnant women, anganwadis (government-run nurseries) and schools throughout the village. One could see her passionately conducting water quality tests at homes using field test kits and TDS (total dissolved solids) meters, and tirelessly explaining the virtues of safe water, personal hygiene, and sanitation. To drive home her message, she compares the cost of monthly water spent at her iJal Station to that spent on doctors’ fees and medicine. “I have seen how safe water changed the health of my family”, Rani said. “Sometimes, I share my own experience or I tell how drinking safe water will reduce doctor bills.”

Respected in Ambedkar Nagar Colony, Rani leads excellent consumer mobilization programs and hopes to enroll each and every member of her community.
“Before children used to get viral fever and diarrhoea during rainy season. Since we are using iJal water, it is better. Children are not falling sick like earlier times.”

Sulochana, Village Dakoor, District Sangareddy, Telangana

“There are no chemicals in the water, it’s pure and its colour doesn’t change in rainy season, there is no smell we fall less ill now”

Sukanya, Village Shivnipally, District Jangaon, Telangana

“Knee pain has reduced for me and now I can do my work easily earlier I had joint pain and difficulty in walking”

Ramesh Goud, Village Tallapally, District Sangareddy, Telangana

“Parents now don’t hesitate in spending money in buying iJal water for family as they used to earlier”

Mallaiah, Village Shankarampet-I, District Medak, Telangana

“The water is good and our children health is also good and the taste of water is also good. My family drinks this water. It is available at low cost. I tell my friends also to drink this water”

Mamatha, Village Aksanpally, District Sangareddy, Telangana
PICTURE GALLERY

Mark Green, USAID Administrator at Hyderabad Water ATM

Underwriter Laboratories experts conduct Field Assessment of iJal station

Sangita Ghalay, Head CSR Honeywell @ SIWI Stockholm 2019

Mike Bennet, VP Communication visit, Medak Hospital iJal station 2018

USAID team visit to Vinayak Nagar station 2019

Sanjeev Chadha, Adviser Safe Water visit to iJal Station 2019

Consumers at Narayan Reddy Colony iJal station, Telangana

Can sale program @ Bhupalapally-III iJal station, Telangana
Explanation of the SEC Classification of R1 to R4 in the Rural India

<table>
<thead>
<tr>
<th>Type of House</th>
<th>Education Profile</th>
<th>Type of accommodation</th>
<th>SEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pucca house</td>
<td>Schooling atleast till Class XII complete, College and above</td>
<td>1 (Pucca)</td>
<td>R1</td>
</tr>
<tr>
<td>Semi Pucca Kaccha House</td>
<td>Literate (with or without Formal education from school)</td>
<td>2 (Semi Pucca)</td>
<td>R2</td>
</tr>
<tr>
<td>Pucca/Semi Pucca Kaccha House</td>
<td>Literate without formal education</td>
<td>3 (Kaccha)</td>
<td>R3</td>
</tr>
<tr>
<td>Pucca/Semi Pucca Kaccha House</td>
<td>Literate with Formal education maximum till Class IX</td>
<td>6,7,8,9,10</td>
<td>R4</td>
</tr>
</tbody>
</table>

As per the Indian Readership Survey (IRS), the Rural, SEC Profile is identified based two criteria: Type of House and the Education of the Chief Wage Earner (CWE)
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