ENDLINE ASSESSMENT REPORT

# Impact Assessment of Water and Sanitation (WATSAN) programme


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May 14, 2013

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# 1. Executive Summary

1.1 This assessment was commissioned by Friends of Women's World Banking - India (**FWWB**) to analyze the impact of FWWB's Water and Sanitation (**WATSAN**) programme in the region of ***Nagpur*** using information collected through the endline survey conducted during August 2012.

1.2 In this report, Nathan Economic Consulting Private Limited (**Nathan India)** analyses the impact of the WATSAN programme and compares the endline results to the midline assessment that was conducted one year earlier. Two components of WATSAN are studied: ***Jeevan Dhara*** (**JD**) and ***Nirmal*** (**NL**), which provide loans to women to build water and sanitation connections, and are described in more detail in the sections below.

1.3 The assessment indicates that there has been a clear improvement in the performance of socio-economic conditions, hygienic activities, and women's empowerment in the region following the WATSAN programme. The programme has also been well received by the local population. The following summarizes some of the positive impacts on the region since the start of the intervention:

a. There has been an increase in access to water and sanitation;
b. Members received various trainings which have had positive behavioral effects;
c. Health has improved as shown by a decrease in diseases, particularly among children, which has allowed them to attend more days of school;
d. The programme has a positive effect on the wealth and income of clients as it has allowed clients to save money on water, sanitation and health expenditures and to spend more time working;
e. Safety and privacy levels have increased, particularly among the women in the locality; and
f. The programme has allowed women to concentrate on other activities rather than fetching water.

1.4 Apart from the above mentioned positive impacts, there have been certain challenges faced by the clients including:

a. Loan amounts have often been insufficient to fund the entire construction, forcing clients to find alternative sources to complete the project;
b. Increasing costs of labor and raw materials has also placed financial constraints on construction;

c. For some members it took up to 24 weeks for the loan to process, which is an unacceptable amount of time and needs to be reduced in order to keep on attracting clients in the future; and
d. Other minor issues like noise pollution and prevalence of mosquitoes during the construction, which cannot be averted but caused minor inconveniences to clients.

1.5 The report is organized as follows: Sections 2, 3 and 4 describe the basic introduction of the programme, background of the study, and the region studied. Section 5 explains the various types of methodologies used to complete this assessment. Section 6 provides a clear picture of the assessment results. Recommendations are provided in Section 7, and an annexure including the assessment questionnaire etc is attached as Section 8.

## 2. Introduction

2.1 FWWB strives to improve women's access to financial services by providing support and financial assistance to Micro Finance Institutions (MFIs) that lend to the poor. FWWB focuses on activities ranging from:

- Institution Building,
- Capacity Building,
- Monitoring and Assessment Services for MFIs,
- Community Based Organization,
- Supporting partner organizations that use innovative ways of poverty alleviation, and
- Focusing on enhancing and introducing sustainable livelihood activities for women and support for reducing the vulnerability of low income households by enabling better access to solar energy light systems, water and sanitation facilities, educational loans, and health and hygiene awareness.

2.2 In 2008-09, FWWB initiated the 'Water and Sanitation' programme wherein funds were disbursed to MFIs to improve access to water and proper sanitation for households. FWWB provides financial support to MFIs who lend to households to better the quality of water supply and sanitation. Accordingly, this programme has been initiated in the rural areas of Maharashtra, Karnataka, Uttar Pradesh, Odisha, Madhya Pradesh in India.

2.3 FWWB, through Evangelical Social Action Forum (**ESAF**), has implemented the WATSAN programme to improve the quality of water and sanitation in most of the India including the Nagpur district in Maharashtra, which is the focus of this study. The loan products - Jeevan

Dhara and Nirmal - provide micro-credit to households to set up water connections and access to sanitation.

2.4 The Jeevan Dhara loan provides microcredit to cover the cost of obtaining and installing municipal water connections. The loan also helps cover the costs of requisite materials, labor and the deposit charged by the municipal corporation. The maximum amount of this loan is Rs. 12,000; clients can repay the loan on a weekly basis. As of March 2013, ESAF Microfinance and Investments Private Limited (**EMFIL**) had 1251 clients (through FWWB assistance) under the Jeevan Dhara loan programme.

2.5 The Nirmal loan provides microcredit to cover the costs of constructing a hygienic toilet, with or without a septic tank, including the costs of requisite materials, construction and labor. The Nirmal loan follows the same structure as the Jeevan Dhara loan, with a maximum amount of Rs. 12,000 and clients repaying the loan on a weekly basis. As of March 2013, ESAF/EMFIL provided 1035 Nirmal loans (through FWWB assistance) to clients.

2.6 To assess the effects of the intervention, FWWB commissioned Nathan India and ***MicroSave*** to complete an assessment of the two loan programmes. Assessing such a programme is necessary for both building programme support, and helping the donor understand the reasons for successes or failures that can be used to make adjustments to improve future outcomes.

2.7 To evaluate the programme, independent assessments were completed at various stages to evaluate the impact of the project on the quality of life of programme participants as seen through indicators such as health, income, education, and impact on the environment.

2.8 The programme was launched in Nagpur in early 2010; therefore Nathan India was not able to organize a baseline assessment. Instead, Nathan India began the process of assessing the programme by conducting a midline survey in the Nagpur region during June 2011 and submitted a midline report summarizing the results of the midline field survey (***Midline Survey***).

2.9 Key findings from the midline survey include:

- Jeevan Dhara and Nirmal loan products have impacted the lives of the beneficiaries;
- There has been an increase in both access to water and sanitation among the surveyed households;
- Incidents of waterborne and sanitation related diseases have decreased, having a positive impact on the health of the respondents; and,
- There has also been a positive impact on the client households' behavior pertaining to sanitation hygiene.

2.10 At the midline assessment, Nathan India also made recommendations to FWWB on the following issues:

- FWWB should develop a standardized system or practice in consensus with the MFI to monitor effective utilization of disbursements;
- Training programmes by the MFI could be intensified by providing training on water storage to cope with shortages in summer months; and
- FWWB can guide the MFI in certain operational aspects of Water and Sanitation loan products.

2.11 In August 2012, 14 months after the midline survey, Nathan India conducted an endline assessment of the Nagpur region. This report provides the findings of the endline field survey, compares the endline and midline assessments, describes the methodology used to gather data, the characteristics and results of the data collected, and provides recommendations to FWWB.

## 3. Background – Current Situation in India

3.1 In India, 128 million people lack safe drinking water. According to World Bank estimates, 21% of the communicable diseases in India are related to unsafe water.[1] Further, according to the Ministry of Drinking Water and Sanitation, nearly 24% of the habitations in India do not have full access to drinking water supply.[2] As a result, 1,600 children die every day before reaching the age of 5, many due to preventable communicable diseases.

3.2 According to UNICEF, in India as of 2010, around 51% of population still defecates in open areas, while only 34% of the population uses improved sanitation facilities. Compared to 1990 when the rate was 75%, this has been reduced, but more attention to water and sanitation is still needed. In the last fifteen years (from 1995 to 2010), only 33% and 17% of the population have gained access in water and sanitation facilities.[3]

3.3 Further, poor water and sanitation facilities unequally affect women and girls. More than 30% of marginalized women are violently assaulted every year as the lack of basic sanitation forces them to travel long distances to meet their needs. 40% of schools in India do not even have a common functional toilet, which forces girls to miss class during their menstrual cycles, and eventually one in four girls drop out of school simply because there are no proper sanitation facilities.[4]

[1] Water.org (http://water.org/country/india/)
[2] Answer to starred question number 275 in Lok Sabha on 30 August 2012 by Minister of Drinking Water and Sanitation
[3] Progress on Drinking Water and Sanitation – 2012 Update, UNICEF and WHO
[4] Squatting Rights: Access to Toilets in Urban India, Dasra, Omidyar, and Forbes Marshall, September 2012

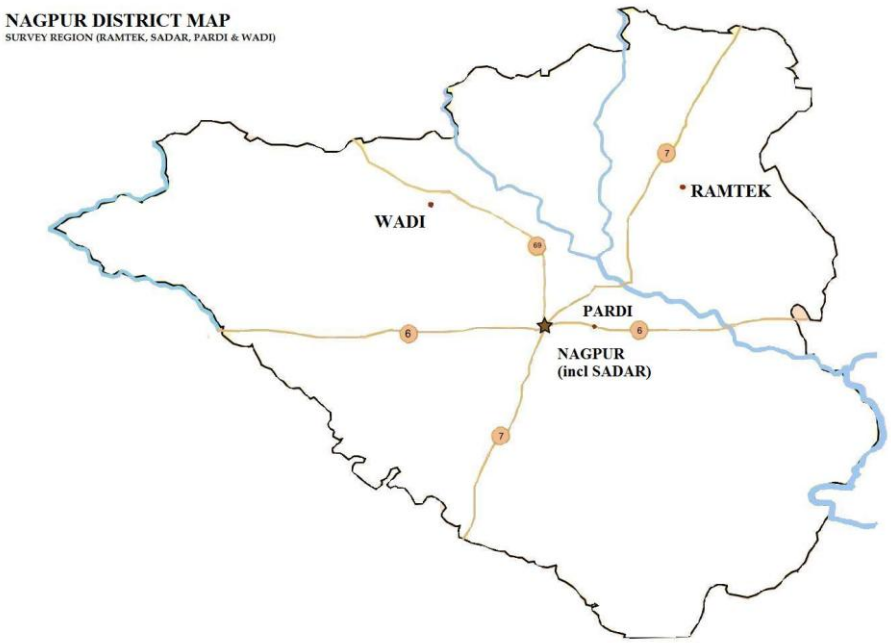
3.4 An exploding population, inefficiency in waste disposal management and poorly constructed sewage systems have compounded the problems of access to potable water and worsened the status of sanitation in the country. Above all, lack of sanitation is not a symptom of poverty, but a major contributing factor.[5]

## 4. Study Region

4.1 The regions of Nagpur in Maharashtra and Bangalore[6] in Karnataka were chosen by FWWB to pilot the water and sanitation loans programmes in order to assess the market for these loan products. These cities have distinct demographic patterns with regard to occupation, income and poverty levels which are essential in bringing out the impacts of the programme. In terms of infrastructure and development, Bangalore is classified as a Tier 1 city while Nagpur has been classified as Tier 2. FWWB has close knit partners with strong client bases in these areas such as ESAF and Grameen Koota. Moreover, these cities have a large population of urban poor, which make them ideal testing ground for the programme.

4.2 The endline impact assessment was conducted in the same region as the midline assessment, in four different urban and peri-urban regions of Nagpur- Pardi, Sadar, Wadi and Ramtek. Pardi is situated in central Nagpur city, Sadar is a marketplace within the city, Wadi is about 20 kms from the city while Ramtek is situated at a distance of 57 km from the city of Nagpur. The map (*Figure 1*) below portrays the location of the 4 districts in relation to Nagpur.

***Figure 1: Nagpur District Map***




[5] Ibid
[6] Separate assessments on baseline, midline and endline for Bangalore are ongoing and separate reports will be submitted to FWWB.

# 5. Methodology

5.1 Our methodologies for the midline and endline assessments consider both qualitative and quantitative techniques. The qualitative section was administrated by MicroSave, and the quantitative analysis was performed by Nathan India.

## *Qualitative Assessment*

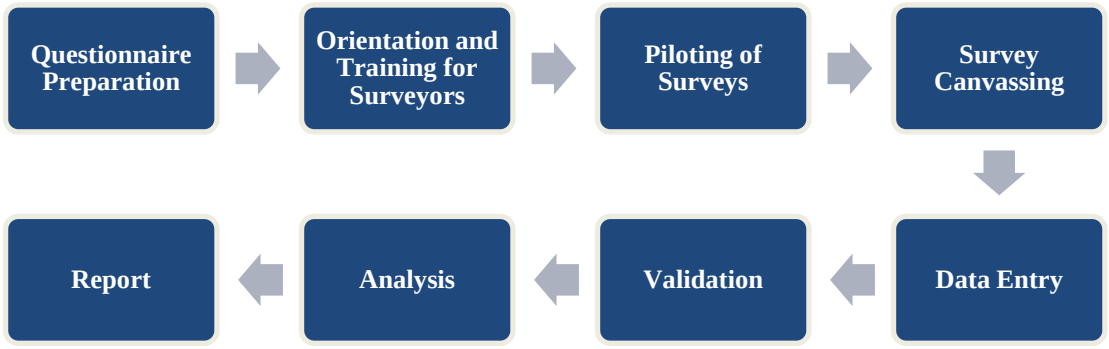
5.2 The qualitative findings are presented in a separate report by MicroSave. In general, the tools that were administrated by MicroSave are:

1. Focus Group Discussions (FGD),
2. In-depth individual interviews,
3. Daily activity plan, and
4. Benefit ranking.

5.3 The main purpose of the qualitative assessment is to understand the effects of access to water and sanitation over time on impacts on health and other factors such as gender, privacy, cleanliness, and safety. In addition, the qualitative assessment allows the reviewers to gather information about the daily activity plans of both men and women to understand who spends how much time on household activities such as fetching water, cooking, collecting firewood, etc. Changes captured from the baseline/midline to endline should show whether the burden of fetching water or traveling for sanitation has improved due to the intervention and there has been a qualitative impact on the lives of the people due to the intervention. The main targets of the assessment were both the clients of the WATSAN programme and the non-clients in the locality who were used as a control group.

## *Quantitative Assessment*

5.4 After a thorough literature review, the quantitative assessment was administered through a detailed questionnaire covering various indicators such as access to water and sanitation, socio-economic changes, health and nutrition, and the environmental impact of the WATSAN programme. The questionnaire was designed by Nathan India in conjunction with FWWB and MicroSave and then was implemented in the field where a survey was conducted with both clients and non-clients in the region. From there, the collected data was validated and analyzed, and this final report prepared according to the collected data. These steps are further detailed below:




### *Literature Review*

5.5 The study first involved a review of existing literature on impacts of water and sanitation programmes in developing countries and how impacts have empirically been quantified and measured. These studies provided the foundation for the preparing this report.

### *Questionnaire Development*

5.6 In consultation with FWWB and with qualitative inputs from MicroSave, a detailed questionnaire was developed for the midline assessment and the questionnaire was then altered with more relevant questions for the endline assessment. The questionnaire includes various parameters of water and sanitation measures including: household demographics, access to water and sanitation, quality and cost of water and sanitation, socio-economic and behavioral impacts, women safety and empowerment, health, diseases, environmental impact and perception about the programmes before and after the WATSAN programme. The below *Table 1* details the questions asked to the residents. The full questionnaire is included in the Annex A.

***Table 1: List of Parameters***

| Parameter | Micro Level Question | Indicator/Variable |
|---|---|---|
| Access to Water | Has WATSAN increased water availability? | Change in access to water pre and post intervention. |
| | Was there a change in the sources of water used for domestic needs after WATSAN? | Change in the sources prior and post intervention. |
| | Did WATSAN have an impact on usage of water by clients? | Water Consumption/day. |
| | Did WATSAN have an impact on the distance travelled to fetch water? | Labor involved in accessing water. |
| | Did WATSAN have an impact on water storage in a day? | Quantity of water conserved/day. |
| | Did WATSAN have an impact on expenditure, storage and transportation costs of water? | Proportion of income spent purchasing, storing and transporting water. |
| | Does WATSAN have an impact on frequency of water supply? | Frequency of water supply |
| | Has WATSAN contributed to the income of the client? | Water sales as source of revenue |
| Access to Sanitation | Has WATSAN increased access to toilets? | Change in access to sanitation pre and post intervention. |

| Parameter | Micro Level Question | Indicator/Variable |
|---|---|---|
| | Has WATSAN increased availability of water facility in the toilet? | Change in access to water in toilets |
| | Has WATSAN contributed to the income of the client? | Source of additional revenue by renting out toilet usage |
| Environmental Impact | Did WATSAN have an impact on noise pollution? | Instance of noise pollution during construction |
| | Did WATSAN result in resettlement of huts/slums? | Instances of displacement of individuals during construction |
| | Did WATSAN result in water logging in area? | Instances of inconvenience caused by water logging and potential mosquito breeding sites caused by construction |
| | Did WATSAN result in removal of vegetation (flora/fauna) for construction? | Instances of deforestation. |
| | Did WATSAN have an impact on prevalence of mosquitoes? | Changes in mosquito population (health impacts) as a result of construction |
| | Did WATSAN have an impact on pollution to groundwater/well/bore well due to proximity of toilet with a range of 10 meters] | Instances of water pollution to other sources of water as a result of construction |
| Health | Did WATSAN reduce instance of Water and Sanitation related diseases? | Disease count of water and sanitation related diseases before and after the programmeme. |
| Education | Did WATSAN result in better school enrolment? | School enrolment count. |
| Behavioural / Social Impact | Did training provided under WATSAN result in behavioural changes with respect to cleaning toilets by the clients? | Frequency of cleaning toilets. |
| | Did training provided under WATSAN result in behavioural changes with respect to usage of soap to clean hands post defecation? | Frequency of usage of soaps to wash hands. |
| | Has WATSAN reduced instances of water and sanitation related scuffles and hostilities in the neighbourhood? | Instances of scuffles and quarrels pre and post programme intervention. |
| Gender / Social Inclusion | What is the level of privacy for women in public toilets? | Privacy levels. |
| | Have safety levels for women risen after WATSAN? | Perception of clients on safety levels in public toilets |
| | Has WATSAN reduced client's burden of collecting water from the ponds, river etc.? | Frequency water collection from pond/river pre and post intervention. |
| | Has WATSAN increased women's participation in socio-economic activities? | Count of participation in socio-economic activity pre and post intervention. |
| Programme related | What attracted you towards the WATSAN's programme? | Highlights of the programme |
| | What are the reason(s) for availing loan from WATSAN programme? | Positives of the programme |
| | Is there any improvement in means of increase in toilet construction in your locality after inspiring from yours? | Increase in awareness among the residents |

## *Sampling and Piloting*

5.7 As of 31 December 2010, there were 495 clients[7] across the 4 regions of Nagpur who were registered in the WATSAN programme, of which we took a sample of 70 clients from all 4 regions that had Jeevan Dhara or Nirmal loans. As a control, 30 interviews were administered

[7] All FWWB clients are female and so our sample consists only of females.

to non-clients for assessing credit needs and to measure the impact of the programme in comparison to a counterfactual circumstance.

5.8 To choose our sample, we used a stratified random sampling technique. We used FWWB's client base in Nagpur as the population base and sampling frame. For the intervention group, we first created strata from FWWB's client list of people with either Jeevan Dhara or Nirmal loans, with the strata based on the branch (region) and the blocks. Next, we chose 140 clients using stratified random sampling, out of which 70 were kept as original samples and an equal number were kept as substitutes. In the case that the original sample was not available, the substitutes (with same number of samples in same branches and blocks) were surveyed in order to keep the sample size at 70 and mitigate non-response error. For the control group, we followed the same steps but using a sampling frame of FWWB clients without Jeevan Dhara or Nirmal loans.

5.9 *Table 2*, below, represents the number of clients and non-clients surveyed during the endline assessment. Both the midline and endline surveys questioned 100 total respondents (both clients and non-clients), with 51% of the respondents participating in both the midline and endline assessments. Detail regarding block wise sample is attached in Annex D.

***Table 2: Number of Samples (Clients and Non-Clients)***

| Branch | Number of blocks | Loan purpose | Total Clients | No. of Clients | No. of Non Clients |
|---|---|---|---|---|---|
| PARDI | 1 | Sanitation | 83 | 12 | 8 |
| | 1 | Water Connection | 23 | 1 | |
| RAMTEK | 8 | Sanitation | 225 | 31 | 10 |
| SADAR | 7 | Sanitation | 57 | 9 | |
| | 1 | Water Connection | 16 | 2 | 7 |
| WADI | 4 | Sanitation | 31 | 7 | |
| | 1 | Water Connection | 62 | 8 | 5 |
| | | **Total** | **497** | **70** | **30** |

5.10 The endline questionnaire was first implemented on a pilot basis in the Ramtek region with 3 client surveys and 2 non-client surveys. Inputs from the pilot survey were used to make a few minor edits to the questionnaire before the final survey was conducted.

## *Data Collection and Validation*

5.11 The survey team consisted of 1 survey supervisor and 4 surveyors who were trained extensively to conduct the surveys. The survey lasted approximately two weeks from 10 September 2012. The *Table 3* below illustrates the survey timeline in the study region.

***Table 3: Survey Timeline***

| Date | Task |
|---|---|
| 20th July 2012 | Orientation programme for Survey enumerators |
| 13th August 2012 | Training for Surveyors |
| 14th August 2012 | Piloting of Surveys |
| 16th August 2012 | Survey Canvassing (Pardi) |
| 18th and 24th August 2012 | Survey Canvassing (Ramtek) |
| 17th August 2012 | Survey Canvassing (Sadar) |
| 14th August 2012 | Survey Canvassing (Wadi) |
| 1st September 2012 | Data Entry and Validation |

5.12 In order to reduce entry errors that arise due to manual data entry, a customized data entry tool which resembles the actual questionnaire (a snapshot of the tool is attached as Annex C) was designed by the Nathan team. By designing this tool, it allowed the data entry team to enter the data fast, conveniently, and with reduced error.

### *Data Analysis*

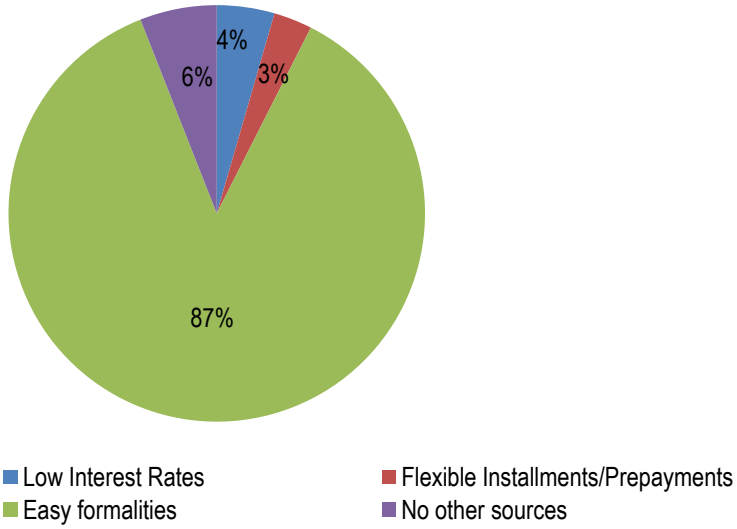
5.13 The Collected data was cleaned and analyzed with statistical software such as SAS and STATA. These analyses are shown through the in tables and charts throughout this report.

## 6. Key Results

6.1 This section will highlight the key results from the endline survey related to the Jeevan Dhara and Nirmal programmes, including the basic demographic structure, social-economic and environmental aspects, gender issues, health status and programme related issues. The midline data is also compared to the endline data to see changes over time.

6.2 The main reason for clients availing a loan from the WATSAN programme is due to the lack of formalities behind the programme. All the respondents feel the procedures are simple compared to other players in the market. But in certain instances, some respondents had no other source for getting a loan and their only option was WATSAN. The below *Figure 2* exhibits the reason for availing loan under the WATSAN programme.

***Figure 2: Reasons for choosing WATSAN***




## *Demographic characteristics*

### *Family Size*

6.3 In general, the average family size of the entire locality is 4 individuals, with a maximum number of 8 (in Ramtek) and minimum of 2 (in Ramtek). Wadi has the highest average household size at 5. It is clear from the *Table 4* below that the majority of the family members fall into the "3-5 members" category.

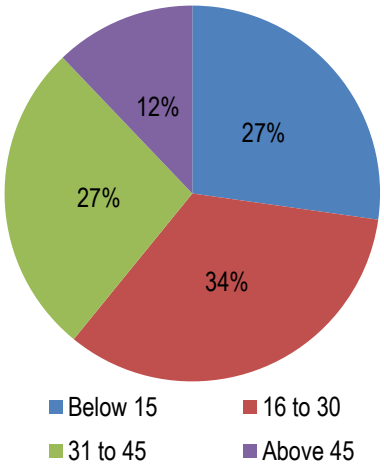
***Table 4: Household Frequency***

| Household Size | Frequency |
|---|---|
| Less than 2 | 7 |
| 3 to 5 | 79 |
| Greater than 5 | 14 |

### *Age*

6.4 The *Figure 3* below presents the pattern of population according to their age. Around 34%of the population is at the age ranging 16 to 30.

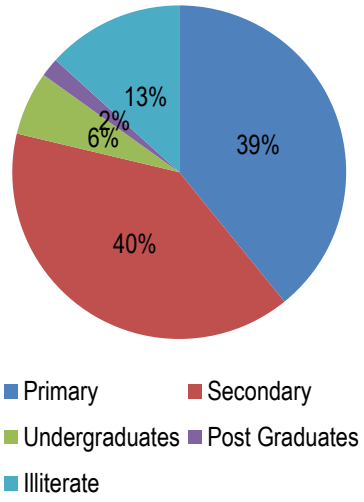
***Figure 3: Population Age***




## *Education*

6.5 The *Figure 4* below represents the education background of the population. 40% of the population has basic education at secondary level. In the same way, 50% clients of ESAF/EMFIL have secondary education. Almost 13% of the population and 16% of the clients are illiterate.

***Figure 4: Population Education***

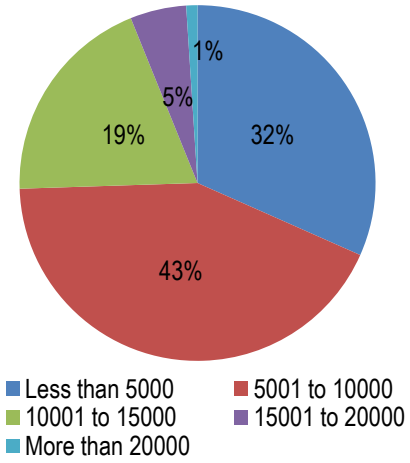



## *Income*

6.6 Rs. 7,833 per month is the average income of the clients across the regions, the maximum income per month goes up to Rs. 26,000 for certain clients in the locality. Around 43% of the households have incomes ranging from Rs. 5,000 to Rs. 10,000. 32% of households have income less than Rs. 5,000; merely one percent of the household has income more than Rs.

20,000. The *Figure 5* below exhibits the income range and the percent of households in the range.

***Figure 5: Income of the households***




The *Table 5* below compares the income level of both clients and non-clients during the midline and endline surveys.

***Table 5: Income levels of Clients and Non-Clients***

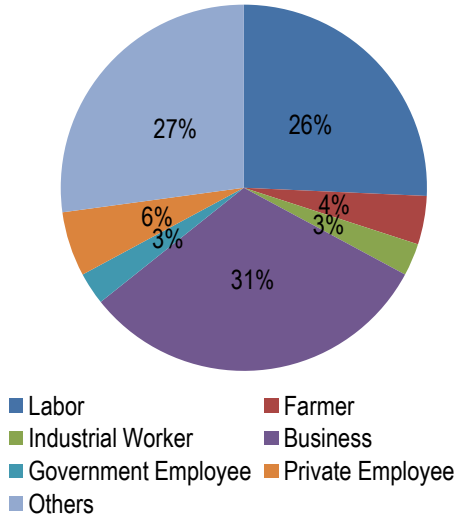
| | Midline | | | Endline | | |
|---|---|---|---|---|---|---|
| (Rs. per Month) | Average | Maximum | Minimum | Average | Maximum | Minimum |
| Clients | 9,894 | 23,000 | 3,000 | 7,833 | 26,000 | 1,000 |
| Non-Clients | 8,406 | 23,000 | 2,000 | 8,627 | 19,000 | 1,300 |

The average income between clients and non-clients is similar. The endline client sample had a lower average income than the midline sample of clients, whereas for non-clients income has increased marginally from midline to endline. Also the maximum level of income of the client has increased during the time. The decrease in average income among the clients can be attributed to the change in samples drawn, which, as discussed above, included only 51% of the same clients and so the mix of the remaining 49% of clients slightly differed from the midline to endline surveys. The sample size, while at 14% of the population, is still small at only 70, so these small changes are not surprising.

## *Occupation*

6.1 Business is the main source of income, since most of the ladies (31%) conduct business for their income including tailoring, petty shops, catering, etc. Apart from business, labor activities such as housemaids, agricultural labor in other lands, etc is the main source of income for around 26% of the population (refer *Figure 6* below).

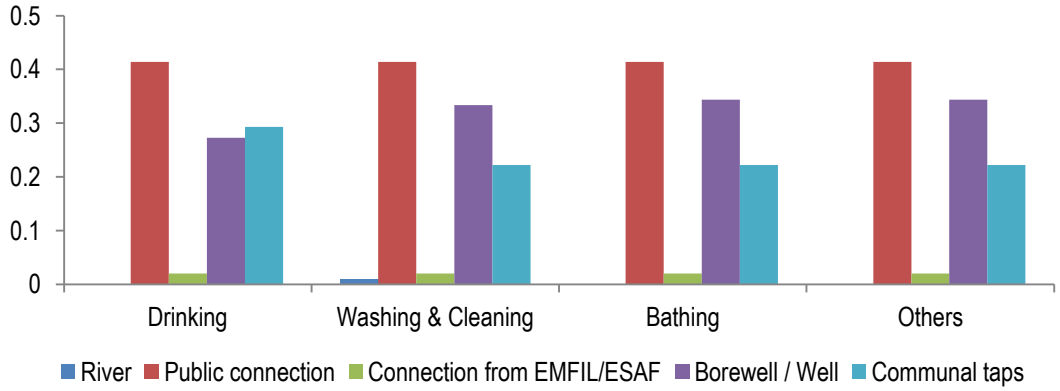
***Figure 6: Occupation***




## *Jeevan Dhara*

6.2 In this endline assessment, we surveyed clients across Pardi, Sadar and Wadi who received ***Jeevan Dhara*** loans.[8] As mentioned above, Jeevan Dhara loans lend women funds up to Rs. 12,000 to build connections to water facilities. In order to get a clear picture on water availability before and after the intervention, Nathan India asked questions regarding water related issues in the region. Before the intervention, the main source of water among the residents was a public connection (41%), with around 32% of the respondents depending on bore well and well water for their daily activities. Below, *Figure 7* shows the usage of water by the respondents before the programme intervention.

***Figure 7: Usage of Water***



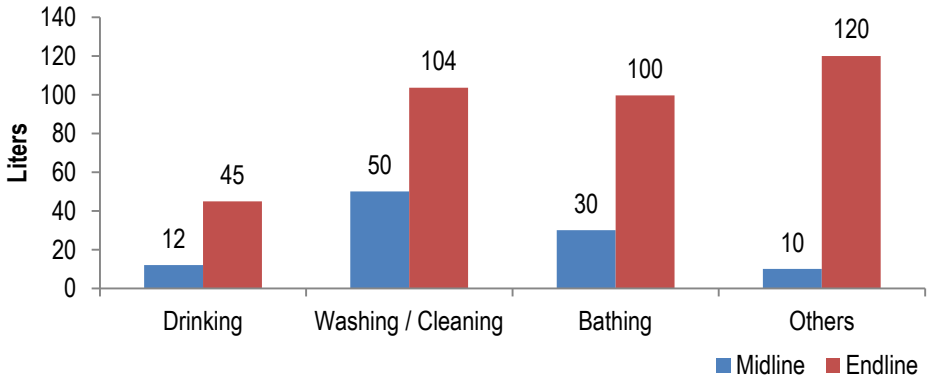

6.3 After the programme intervention, all the JD clients used an ESAF/EMFIL connection for their day to day water needs, compared to before the programme when they depended on bore well/well and communal taps for their drinking, bathing, washing, cleaning and other water

[8] There are no clients for Jeevan Dhara in Ramtek.

related activities. One point to be noted here is that there are instances among the non Jeevan Dhara clients and non-clients who use the tap connections of the Jeevan Dhara connections, for their water related activities; therefore there is opportunity for more people to take JD loans in the future.

6.4 Water usage has increased over time since the midline assessment. The clients have started using more water for drinking, bathing, washing and cleaning purposes. Water usage for drinking has nearly quadrupled, water used for cleaning has doubled, water for bathing has tripled, and water usage for other activities including water used for cattle farming (like cleaning cattle, etc.) has increase in two fold. This shows that before the intervention, the clients did not have easy access to enough water to meet their needs. *Figure 8* compares the usage details during the midline and endline assessments.

***Figure 8: Usage of Water (Midline and Endline)***

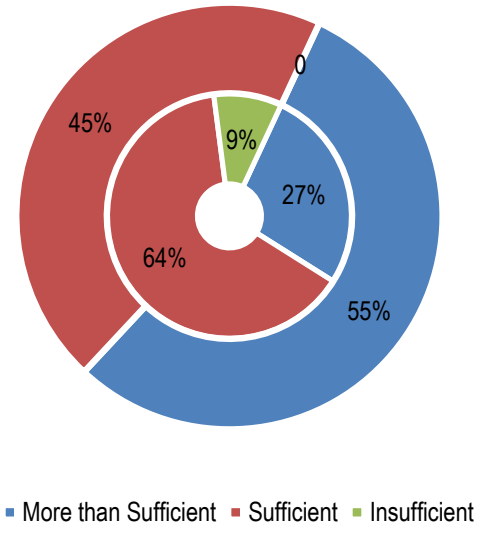



6.5 The water connections built under this programme have been laid to individual houses according to the house structure, main pipeline position, etc. Therefore, in some cases the pipe is laid inside the house, whereas in some cases it is laid outside the house within the range 2 meters to 15 meters from the home. The average distance travelled to fetch water is about 8 meters for clients compared to 20 meters for non clients. With the installation of closer tap connections, the clients are able to save time amounting to around 34 minutes per day and are utilizing the saved time for other domestic activities such as assisting children in schooling, or economic activities such as they can spend more time on their business. Around 73% of the clients have respondent that they can spend more time with their children with the time saved and 25% have said they can spend more time on their business and are able to generate more income.

6.6 Below, *Figure 9* shows the pattern of availability of water. Around 27% of the clients have said that the available of water is more than sufficient in the midline assessment, whereas in the endline assessment it has increased to 55%, where more clients have accepted the quantity is more than sufficient. All JD clients have also reported that there is an increase in

availability of water in the last year. This is collaborated by the clients' increased usage of water, shown above in Figure 8.

***Figure 9: Availability of Water***



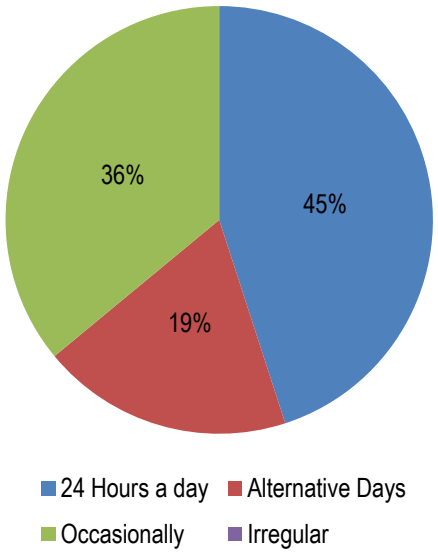

*Note: Inner circle represents midline assessment and outer circle represents endline*

6.7 Further, the quality of water is getting better over time. Since the midline assessment, all the clients have said the quality is better and ready to drink, up from 92% at the midline assessment.

6.8 Water storage has been substantially reduced during end line assessment compared to midline. On an average, a household's water storage was 32 bindulas for all four purposes (drinking, washing, bathing, others) during the midline assessment, which has been reduced to 27 bindulas during the endline. This may be a result of the households often getting water from the tap with regular availability, so households do not feel the need to keep such large stockpiles.

6.9 Households are satisfied with the frequency of water supply; about 45% of the households say that they are getting water for 24 hours in a day. The below *Figure 10* exhibits the frequency of water provided to the locality. No clients have reported that the water is irregular.

***Figure 10: Frequency of Water***




6.10 The average expenditure per month also has been reduced during the endline survey. There is a reduction up to 70% in the expenditure for water from the midline. Earlier clients spent on an average of Rs.150 per month on water, but now only spend Rs. 45. None of the clients has reported for selling water from the connection.

6.11 Among the JD clients, 2 clients have reported requesting an additional JD loan; one to renovate the toilet and another to construct a new toilet. From the three localities, the average loan amount received from the programme was Rs. 9,000 and average amount utilized was Rs. 10,091, meaning that the JD loan size did not cover the entire cost of the toilet and that the borrowers also had to use an alternative additional source of funding. This is confirmed by the observation that about 36% of the clients spent more on the connection than the loan amount that they have received.

6.12 Moreover, 10% of the non-clients showed their interest in taking out a loan for building a new water connection, indicating that there is additional demand for JD loans that is not currently being met.

6.13 In general, 60% of the clients say "Better access to water" and about 40% say "Convenience" has attracted them towards the WATSAN's Jeevan Dhara programme.

### *Nirmal*

6.14 In this endline assessment, we have surveyed 59 ***Nirmal*** Loan clients across Pardi, Ramtek, Sadar and Wadi. This section provides in-depth findings about the usage of toilets constructed under the ***Nirmal*** loan, behavioural measures such as hand wash after every toilet use and other hygienic measures, source of water in the toilet, sewage connection, etc.

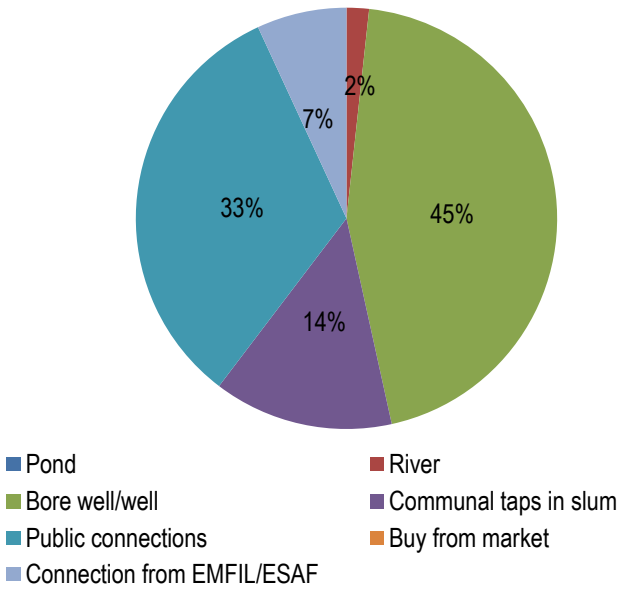
6.15 Sanitation in India is low compared to other developed countries, with rural areas of India being the most vulnerable. Many villages do not have proper toilet systems, which leads to a variety of communicable diseases.[9] Therefore sanitation plays a vital role along with water in rural areas. In order to measure the sanitation level and the maintenance of toilets constructed under the ***Nirmal*** loan, we framed a set of questions involving these factors.

6.16 In the overall sample, 71% of respondents did not own a toilet for their personal use prior to the ***Nirmal*** loan. Among those without toilets in their own homes, 50% preferred open defecation, 47% preferred using public toilets and 3% use toilets of their neighbors. Among the clients, nearly 59% of them used open defecation, 39% used public toilets and 2% used their neighbor's toilets before the intervention of programme.

6.17 After the intervention, 79% of Nirmal clients now have working toilets in their homes. 96% of the clients have said that all members of the family use the toilet regularly.

6.18 Among the ***Nirmal*** loan clients, 71% of those who currently have toilets in working condition constructed a toilet with a septic tank while the remainder built toilets that connect to a corporation sewage line. However, only 21% have proper water facilities servicing their toilets. 69% of the clients have said that they have plenty of water available for the use in toilet, but rest have complained that there is lack of water for toilet use. *Figure 11* below shows the different sources of water used by clients for their toilets, indicating that 45% of clients depend on their borewell/well for their toilets, while 33% depend on the public connections.

***Figure 11: Sources of Water***




[9] Squatting Rights: Access to Toilets in Urban India, Dasra and Forbes Marshall, September 2012

6.19 Now that clients have toilets in their own homes, they use their home toilets instead of open defecation. Further, there is increase in the usage of toilets by female members of the family. The below *Table 6* shows the usage of toilets by gender.

***Table 6: Usage of toilets by Gender***

| | Midline | | Endline | |
|---|---|---|---|---|
| | Male | Female | Male | Female |
| Use own toilet | 97% | 91% | 97% | 98% |
| Public toilet | 2% | 6% | 3% | 1% |
| Open defecation | 1% | 3% | 0% | 1% |

6.20 For constructing their toilet, 79% of clients have reported that the amount provided in the loan was not sufficient, and that they were forced to borrow the remaining amount from local money lenders. Nearly 10% have also received an extra loan to complete the construction. The average amount borrowed for constructing a toilet (including the ***NL*** loan) is at maximum Rs. 12,000, whereas the average amount spent was Rs. 23,333 per toilet, equivalent to about three to four months earnings for the average surveyed client. The extra expenses were made from the client's savings and the daily earnings.

6.21 In order to maintain their toilets, 95% of clients use their day-to-day earnings but 4% have to depend on their savings and a small number borrow from neighbors in order to pay for maintaining their toilet. In the last year, clients have spent an average of Rs. 715 for maintaining their toilets.

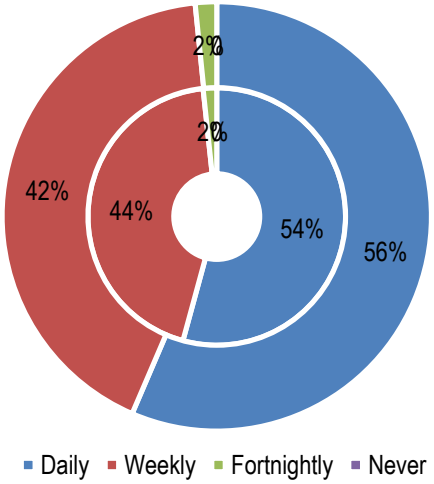
6.22 Among the ***Nirmal*** loan clients, 34 clients have showed an interest in getting additional funds from the ***Nirmal*** Loan fund. Specifically, 53% have said they need additional funds for renovation and 32% need additional funds for completing the current construction.

## *Behavioural, Socio-Economic and Environmental Impacts of WATSAN*

6.23 This section will shed light on the basic behaviour of clients towards maintaining their toilets, clients' hygienic activities, the impact of the toilet programme on their socio-economic conditions, and the environment.

6.24 In general, 56% of clients are cleaning their toilets on a daily basis and 35% of clients clean their toilets on a weekly basis. Compared to midline assessment, the daily cleaning of toilets among clients has improved. Below *Figure 12* shows the pattern of cleaning the toilets among the clients.

***Figure 12: Maintenance of toilets (Cleaning)***




*Note: Inner circle represents midline assessment and outer circle represents endline*

6.25 In both assessments, all the clients have accepted that they will clean their hands with soap after every use of the toilet.

6.26 There has been an increase in the number of water connections and toilets constructed in the locality after inspiration from clients, increasing the cleanliness among the neighborhood as a whole due to the programme. Around 95% of the clients have said that their neighbors have incorporated the cleanliness measures taken by them. The below *Table 7* shows an approximate figure of the spillover effect of water connections and toilet construction by non-loan members.

***Table 7: Spillover effect of WATSAN programme***

| Programme | Numbers* |
|---|---|
| Water Connections | 48 |
| Toilet Constructions | 124 |

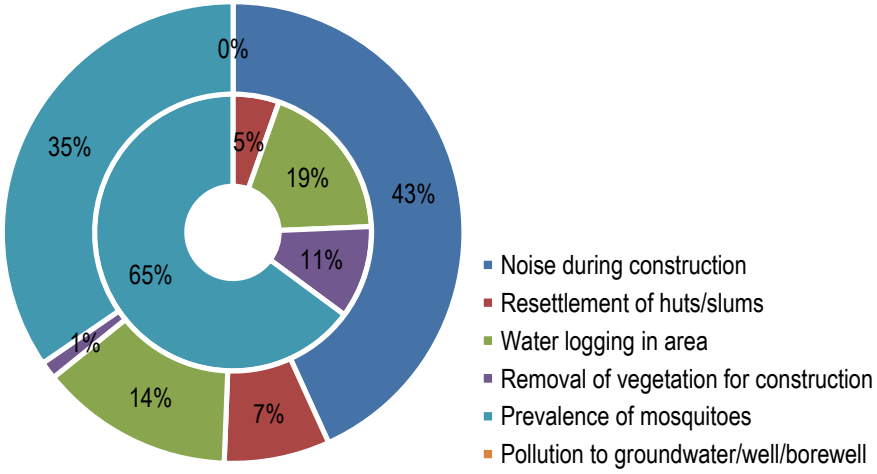
**approx numbers*

6.27 Compared to midline assessment, since there is an increase in usage of toilets in homes, there is decrease in usage of public toilets. Therefore, scuffles, heated arguments and fights among the neighborhood in the public toilets have been reduced in the endline assessment.

6.28 The impact on the environment due to the programme is very minimal. While most of the clients said that there was some noise pollution because of the construction of toilets, this is a common, short term issue. Apart from that, because of septic tank work there were instances where water stagnated in and around, causing a prevalence of mosquitoes in some areas for a short time. This too has been mitigated from the midline to endline, since 65% of clients have said this was an issue in midline assessment whereas only 35% have said the same in the

endline assessment. Below *Figure 13* depicts clients' views of environmental issues that arose due to the programme.

***Figure 13: Environmental Impacts (Midline and Endline)***




6.29 The economic conditions of clients has improved in endline assessment compared to midline, as 20% of clients have reported that they have saved money because of the WATSAN programme whereas in the midline assessment only 3% of client had said the same. In addition, as noted above, JD clients spend fewer amounts on water and have an extra 34 minutes per day to spend on domestic and business activities. Further, as described below, clients spend less money on health related issues as a result of the programme.

## *Impact on Health*

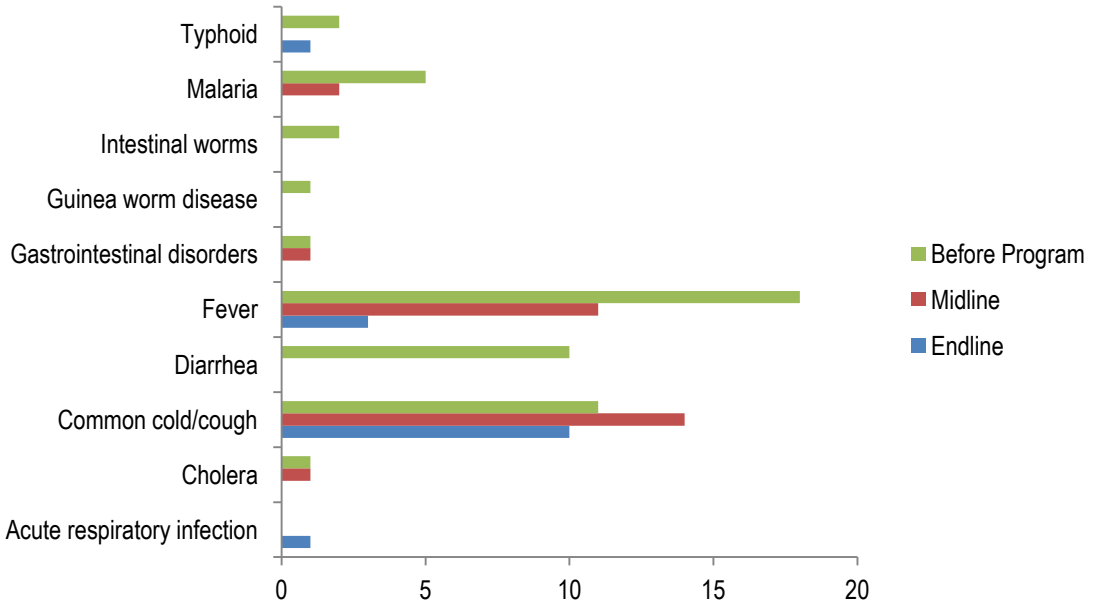
6.30 The physical health of a person is dependent on the hygiene activities he or she follows as many diseases are transferred by poor hygienic practices. One of the first steps of maintaining proper hygiene is having access to proper water and sanitation facilities. In order to measure the programme's impact on disease and the health of participants, we included an exhaustive list of water and sanitation prone diseases from the World Health Organization (WHO) and National Centre for Biotechnological Information (NCBI) as an attachment to the questionnaire. The respondents were given a clear picture of those diseases (refer Annex B regarding the details of diseases and their symptoms) and were asked to respond if any of the family member(s) was/are being affected to those diseases. The main idea of this aspect of the survey was to get clear idea of how the WATSAN programme has helped prevent its clients from getting these diseases.

6.31 There were no instances of Arsenicosis, Dengue Hemorrhagic Fever, Fluorosis, Schistosomiasis and Trachoma among the households during the survey period. As mentioned earlier in the midline assessment report, there are no instances of these diseases even before

the programme and after the intervention of the programme, indicating that they may not have been an issue in the surveyed areas prior to the intervention. However, our sample size was small so the overall impact on the greater population may have just been unobserved in our survey.

6.32 On the other hand, there was drastic drop in reported cases of more common diseases such as Malaria, the common cold and cough, and Gastrointestinal disorders. The below *Figure 14* exhibits the comparison of diseases (in numbers reported) before the programme[10], at the midline assessment and at the endline assessment. Among the children, there were only a few instances where a common cold and cough was reported, including one instance where a child was absent to school because of cold and cough.

***Figure 14: Diseases (Before, Midline and Endline)***




6.33 In addition, health expenses were also reduced during the endline assessment. Before the intervention of the programme, on an average, a household was spending Rs. 1,073.86 on health. By the midline assessment, expenditures were reduced to Rs. 608.37. And at the endline, health expenditures were further reduced to Rs. 466.66. This sign shows a positive impact of the programme on both physical health as well as on the financial part of the households.

## *Female Empowerment*

6.34 In the study region, privacy and safety of women using public toilets is generally poor. In our survey we included an exclusive section for women to answer regarding female

[10] The data regarding "Health Status before programme intervention" was collected during the midline assessment as a separate section, since there was no baseline assessment certain sections were included in the midline to cover the baseline effect.

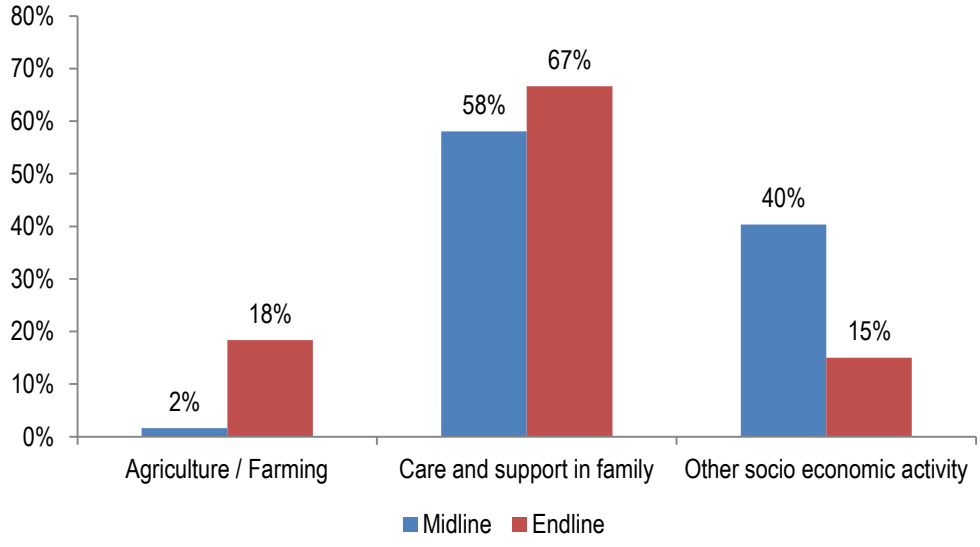
empowerment, their privacy and safety. Accordingly, 77% of the female respondents indicated that there is no safety in the public toilets. Also, the level of privacy in the toilets is low according to 55% of the respondents, while 37% of them said it is at a moderate level.

6.35 Between the midline and endline surveys, the safety level for women has increased as the majority of women in the programme started using their toilets built under Nirmal Loan. 95% of the clients have reported that there has been an increase in their safety level since the programme intervention. Also 92% are happy for the convenience and easy access to their toilets.

6.36 The project has reduced the burden among the women respondents of getting water from ponds, lakes, etc. Earlier 64% of them reported that the project has reduced their burden, whereas in the endline assessment around 86% of reported the same.

6.37 The project also has impacted women in other ways such as allowing women to have more time to participate in other activities such as caring for and supporting their family, participating in farming and agriculture, and other social/economic activities. There is large increase (from 2% to 18%) in women participation in farming and agriculture activities during midline and endline assessments while participation in other socio-economic activity fell from 40% at midline to 15% at endline. The below *Figure 15* exhibits the women participation in other activities compared to the midline assessment.

***Figure 15: Women Participation (Midline and Endline)***




6.38 The programme has increased the female participants' standard of living, i.e., 65% of the women have responded that their household income has improved after the increase in above charted activities (care and support to family, participation in farming and agriculture, etc).

# 7. Recommendations

7.1. Jeevan Dhara and Nirmal loans have changed most of the lives of their borrowers in a positive way. Among the clients, 26% have said the programme is "**very good**", 52% of reported that the programme is "**good**", 16% are "**satisfactory**" with the programme, and rest (6%) have reported that the programme is "**average**". While 78% rated the programme as "**good**" or "**very good**," the MFI could aim to increase the number of "**very good**" ratings and should find out why 22% only thought the programme was satisfactory or average.

7.2. As discussed earlier in the section 2.10 above, at the midline report, Nathan India recommended few recommendations based on the observations on the field. According to that, FWWB has increased the number of trainings, but not on intensive way. Since the present assessment doesn't have much impact from the trainings, this show the training sessions were in minimum numbers. Also, regarding the tracking of loan, as observed from the field it seems to be an improvement in recording the day to day happenings of the business. In general, there is need of personal loan in the locality, all the residents are approaching ESAF/EMFIL for personal loans, and in this regard the FWWB as well as ESAF/EMFIL has to make it clear about its stand in the region.

7.3. Nathan India, from the data collection and mutual interaction with clients in the region points out a few recommendations in order to strengthen the WATSAN programme:

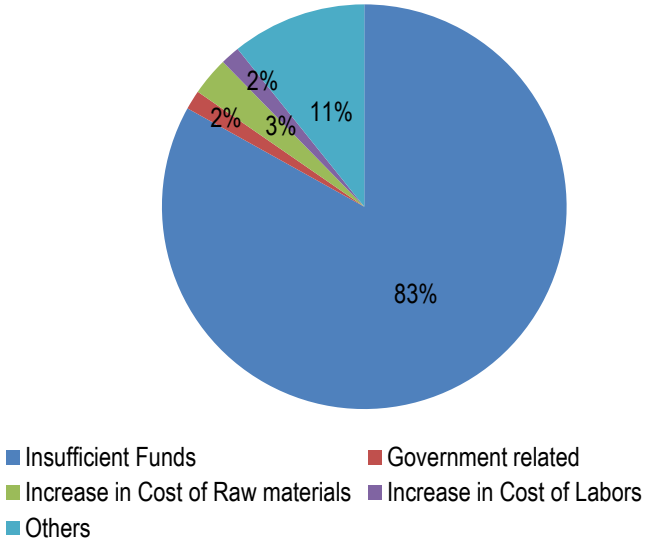
a. On an average, it took about 4 weeks for clients to receive their loan after applying for it. On the margins, it took a maximum of 24 weeks while a few clients received within 1 week. While the majority of participants received their loan in a month, for others the processing time could be improved.

b. The majority of Nirmal loan participants indicated that their toilets did not have connections to water or a consistent supply of water. Only 21% have proper water facilities servicing their toilets and 31% do not have enough water available for using the toilet. While building toilets is imperative, without the proper infrastructure and water supply, they will not remain in good working condition and will need renovation or become useless. Nathan India recommends that FWWB review water sourcing in regions where Nirmal loans are disbursed and consider a join Nirmal and Jeevan Dhara loan programme that combines access to water and toilets in one programme. Without proper access to water, the Nirmal loan programme will produce sustainable results in the long run.

c. In order to complete the construction of their toilets, some clients have faced various challenges ranging from government licenses to increases in cost of raw materials. The below *Figure 16* depicts the challenges faced by clients during the construction

of toilets or getting the tap connection. Among the challenges, most of the clients have reported that they faced insufficient funds for completing their activities.

***Figure 16: Challenges faced by Clients'***




d. It was revealed from the respondents that the loan of Rs. 12,000 disbursed for setting up of amenities was insufficient, as indicated by 83% of participants who cited insufficient funds as the largest problem that they faced. 57% of the clients have indicated that they needed additional loan funds or credit for completing the construction or to construct a new toilet. A loan of 12,000 INR only covers about half of what the average client paid for constructing a toilet while the average JD loan of 9,000 was 10% under the average amount spent on a water connection. Nathan India recommends that FWWB reconsider the maximum loan amount for Nirmal loans, and revise the structure so that a larger loan can be taken out than current guidelines allow. For JD loans, the current average amount loaned is less than both the maximum allowed and average amount needed for construction, so we recommend that FWWB consider increasing the average loan size closer to the maximum to cover the remaining 10% of costs that currently are not covered for most clients. No clients surveyed said that they defaulted on their loans, indicating that current loans are not too large for clients to handle and further supporting the recommendation that the average/maximum loan size should be re-reviewed in conjunction with the project cost and income level of the client.

e. In certain cases, the funds were not utilized fully by clients for the intended purposes. FWWB should develop a monitoring system in order to ensure the proper usage of the loans.

f. WATSAN has had positive spillover effects to the rest of the village, outside of the client population. Some non-clients use client toilet facilities. Others have constructed

water connections or toilets after seeing their neighbors doing so using WATSAN funds. This indicates that there is potential for the MFI to expand the programme to cover more people in the village, who are currently not being served by WATSAN loans but have expressed the demand for products covered under the programme.

g. ESAF/EMFIL has initiated various trainings in order to create awareness among locals regarding water and sanitation. 90% of the clients have attended various trainings that have been organized, and among them, 59% have attended trainings related to health and hygiene, savings and investments. The attendees have shared that they have gained awareness and the training that was useful to them and training has been seemingly effective so far in influencing behavior and health outcomes. Nathan India recommends that training be continued on a regular basis so that these gains are sustained.

h. Finally, the WATSAN programme appears to have a positive impact on clients' access to water and sanitation, health, and finances, and so should be expanded to cover additional clients in other areas of India. With this recommendation, we caution that the results of this study may not replicate in areas with different demographic characteristics, infrastructure, weather etc and recommend that FWWB continues to pilot its programme on smaller groups of clients before fully expanding it to all clients nationwide.

# 8. Annexure

## *A. Questionnaire*

**Impact Evaluation of Water & Sanitation programme (WATSAN)**
Questionnaire for Nagpur Region

| Interviewer Name | City | District | Area / Locality / Region | Membership ID | Date of Visit |
|---|---|---|---|---|---|
| | Nagpur | Nagpur | | | DD/MM/YYYY |

| Client/Non-client | Loan ID |
|---|---|
| | |

**1 HOUSEHOLD DEMOGRAPHICS**

The respondent should be the client of the EMFIL/ESAF. If client of EMFIL/ESAF is unavailable, continue survey with any other adult member of the household. (*Enter details of the head of the household in the first row in the table below.*)

| 1.1 Name | 1.2 Age (in years) | 1.3 Gender *[**1**=Male; **2**=Female]* | 1.4 Education *[**1**=Primary (1st - 8th std); **2**=Secondary (9th – 12th std); **3**=Under graduate; **4**=Post graduate; **5**=Others (diploma, ITI, etc.) **6**= Illiterate]* | 1.5 Occupation *[**1**=Labor; **2**=Farmer; **3**=Industrial worker; **4**=Business; **5**=Government employee; **6**=Private employee; **7**=Others (student, etc)]* | 1.6 Marital status *[**1**=Single; **2**=Married; **3**=Divorced; **4**=Separated; **5**=Widowed]* | 1.7 Monthly income (in Rupees) |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Total monthly income (**in Rupees**) of the household (**Sum** of all individual income of household members) | | | | | | |

**2 WATER (before availing JEEVAN DHARA LOAN) (non clients must answer questions 2.1 to 2.4.8)**

| 2.1 Do you have drinking water facility at home? *[**1**=Yes; **2**=No]* | |
|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2.2 Since when do you have the water connection? (in months) | | | | | | | |
| 2.3 Sources (check all that apply) *[**1**=pond; **2**=river; **3**=public connection; **4**=buy from market; **5**=neighbours EMFIL/ESAF connection; 6=bore well/well; 7=communal taps in the slum]* | **Drinking** | | **Washing / Cleaning** | | **Bathing** | | **Others** |
| | | | | | | | |

| **2.4 Indicate source, usage, distance travelled, quality, availability and expenditure on water consumption (after availing JEEVAN DHARA LOAN)** | **Drinking** | **Washing / Cleaning** | **Bathing** | **Other domestic needs including feeding / cleaning animals** |
|---|---|---|---|---|
| 2.4.1 Sources (check all that apply) *[**1**=pond; **2**=river; **3**=public connection; **4**=buy from market; **5**=connection from EMFIL/ESAF; **6**=bore well/well; **7**=communal taps in the slum]* | | | | |
| 2.4.2 Usage in bindulas /day (for entire household) | | | | |
| 2.4.3 Distance travelled to fetch (in meters) | | | | |
| 2.4.4 Quality of water *[**1**=ready to use; **2**=needs treatments; **3**=not fit for use]* | | | | |
| 2.4.5 Water storage in bindulas/per day | | | | |
| 2.4.6 Availability *[**1**=more than sufficient; **2**=sufficient; **3**=insufficient]* | | | | |
| 2.4.7 Expenditure (Rs/month) | | | | |
| 2.4.8 Storage and transportation costs (Rs/month) | | | | |

| | | | |
|---|---|---|---|
| 2.4.9 How often do you get water supply from the tap? *[**1**=24 hours in a day; **2**=alternative days; **3**=occasionally; **4**=irregular]* | | 2.4.14 Total loan amount received from the program (in Rupees) | |
| 2.4.10 Do you sell water to others? *[**1**=Yes; **2**=No]* | | 2.4.15 Total loan amount utilized (in Rupees) | |
| 2.4.11 If yes, how many bindulas do you sell per day? | | 2.4.16 Do you have *Jeevan Dhara* loan default under this program? *[**1**=Yes; **2**=No]* | |
| 2.4.12 How much do you charge? (in Rs./ bindula) | | 2.4.17 Mention your current loan cycle | |
| 2.4.13 In general, has availability of water increased in the past 1 year? *[**1**=Yes; **2**=No]* | | 2.4.18 Do you want to avail a new loan? *(Jeevan Dhara)* If yes, state purpose (check all that apply) *[**1**=for completing current connection; **2**=new connection; **3**=renovation]* | |

| | | | |
|---|---|---|---|
| 2.4.19 What attracted you towards the WATSAN's *Jeevan Dhara* program? Check all that apply.<br>*[**1**=for better access of water; **2**=for quality water; **3**=convenience; **4**=time consuming; **5**=for dignity; **6**=others (specify)_ _ _ _ _ _ _ _ _ _ _ _ _ _ _]* | | | |
| **3 SANITATION (before availing NIRMAL LOAN) (non clients must answer questions 3.1 to 3.3)** | | | |
| 3.1 Do you have toilet facility in your home? *[**1**=Yes; **2**=No]* | | 3.3 What is the nature of toilet that was in usage?<br>*[**1**=own toilet; **2**=public toilet; **3**=neighbour's toilet; **4**=open defecation]* | |
| 3.2 Since when do you have the facility in your home? (in months) | | | |
| **3.4 SANITATION (after availing NIRMAL LOAN) (for clients)** | | | |
| 3.4.1 Since when do you have toilet facility under *Nirmal* loan?<br>(in months) | | 3.4.10 Do you want to avail a new loan? (*Nimral*) If yes, state purpose (check all that apply) *[**1**=for completing current construction; **2**=new toilet; **3**=renovation]* | |
| 3.4.2 Type of toilet constructed<br>*[**1**=Septic tank; **2**=Connection to corporation sewage line]* | | 3.4.11 State the source(s) of money for the maintenance of the toilet *[**1**=earnings; **2**=borrow from others; **3**=savings; **4**=loan balance amount]* | |
| 3.4.3 Availability of water facility in the toilet<br>*[**1**=available in plenty; **2**=lack of water]* | | 3.4.12 In the last 1 year, what is the total amount incurred for maintenance? | |
| 3.4.4 Mention your current loan cycle | | 3.4.13 Do you have a fully functional sewage and water connection for the toilet? *[**1**=Sewage; **2**=Water Connection; **3**=Both]* | |
| 3.4.5 Do you have *Nirmal* loan default? *[**1**=Yes; **2**=No]* | | 3.4.14 In general, has access to sanitation increased in the last 1 year? *[**1**=Yes; **2**=No]* | |
| 3.4.6 Whether disbursed amount was sufficient?<br>*[**1**=Yes; **2**=No]* | | 3.4.15 Does anybody from the neighbourhood (non household member) use your toilet?<br>*[**1**=Yes; **2**=No]* | |
| 3.4.7 Did you receive any additional loan for completion of the construction? *[**1**=Yes; **2**=No]* | | 3.4.16 If yes, how many usages per day? | |
| 3.4.8 Total amount borrowed for constructing toilet/sewerage (in Rs) | | 3.4.17 Do you charge for it? *[**1**=Yes; **2**=No]* | |
| 3.4.9 Total amount spent for constructing the toilet/sewerage (in Rs) | | 3.4.18 If yes, how much do you charge per person per usage? | |
| 3.4.19 What attracted you towards the WATSAN's *Nirmal* program? Check all that apply.<br>*[**1**=for better health; **2**=for dignity; **3**=for safety; **4**=for privacy; **5**=for convenience; **6**=others (specify)_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _]* | | | |

| **3.5 For each of the type of toilets your household uses, state distance from home, hygiene levels and source of water for usage in the toilet.** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **3.5.1 Type of toilet** | **3.5.2 Distance from home** (in meters) | **3.5.3 Hygiene levels** *[**1**=clean and hygienic;**2**=moderate;**3**=poor hygiene; **4**= very unhygienic]* | **3.5.4 Usage by house hold members** *[**1**=regular by all; **2**=regular by females only; **3**=regular by males only; **4**=irregular]* | **3.5.5 Source of water for the toilet** *[**1**=pond; **2**=river; **3**=bore well/well; **4**=community taps in the slum;**5**=public connection; **6**=buy from market; **7**=connection from EMFIL/ESAF]* | **3.5.6 Number of household members using different toilet facilities** | | **3.5.7 Usage fees if applicable** (in Rs./per day) |
| | | | | | Male | Female | |
| Own toilet availed under program | | | | | | | Not Applicable |
| Public toilet | | | | | | | |
| Open area (open defecation) | | | | | | | Not Applicable |
| Use neighbour's toilet | | | | | | | |

| **4 Behavioural, Socio-economic impact** | | | |
|---|---|---|---|
| 4.1 How often have you been cleaning your toilet in the last 1 year? *[**1**=daily; **2**=weekly; **3**=fortnightly; **4**=never clean]* | | 4.5 Has the cleanliness in the neighbourhood increased after people have constructed toilets? *[**1**=Yes; **2**=No]* | |
| 4.2 What do you use to clean the toilet? *[**1**=Acid; **2**=Detergent; **3**=Liquid toilet cleaner]* | | 4.6 Is there any improvement in means of increase in water connectivity / toilet construction in your locality after your participation in WATSAN program? | |
| 4.3 In the last 1 year, have you been using soap to clean your hands after using the toilet? *[**1**=always; **2**=sometimes; **3**=do not use]* | | 4.6.1 Increase in water connections? *[**1**=0-2 connections; **2**=3-5 connections; **3**=5-10 connections]* | |
| 4.4 Have there been lesser instances of scuffles, heated arguments or fights in your neighbourhood as a result of more availability of water and access to sanitation in last 1 year? *[**1**=Yes; **2**=No]* | | 4.6.2 Increase in toilet constructions? *[**1**=0-2 constructions; **2**=3-5 constructions; **3**=5-10 constructions]* | |
| **5 Women prospects (ask women only)** | | | |

| | | | |
|---|---|---|---|
| 5.1 What is the level of privacy for women in using public toilets? *[**1**=high; **2**=moderate; **3**=low]* | | 5.4 In the last 1 year, do you feel safe and convenient in using the toilet built under the NIRMAL loan program? *[**1**=Yes; **2**=No]* | |
| 5.2 Whether public toilets are safe for women users (in health, hygiene and social prospects) *[**1**=Yes; **2**=No]* | | 5.5 Has the water project (*Nirmal loan*) reduced your burden of collecting water from the ponds, river etc.? *[**1**=Yes; **2**=No]* | |
| 5.3 Has women's safety level increased after you got the connection under NIRMAL loan? *[**1**=increased; **2**=no change in safety level]* | | 5.6 In the last 1 year, has the women's participation increased in the following because of the JEEVAN DHARA/NIRMAL loan connection? *[**1**=agriculture/farming; **2**=care and support to family and children; **3**=other social/economic activities (specify)]*_ _ _ _ _ _ _ _ _ _ _ | |
| 5.7 Has household income/standard of living improved because of increase participation in activities mentioned in **5.6**? *[**1**=Yes; **2**=No]* | | | |

**6 Health status (Refer reference notes for details on symptoms of the following diseases/illness) (Before availing JEEVAN DHARA/NIRMAL loans)**

6.1 Before availing the loan, did you or your family member(s) suffer from any of the following disease?

| 6.1.1 Disease/Illness | 6.1.2 Whether affected? *[**1**=Yes, **2**=No]* | 6.1.3 Count of household members affected and length of illness | | | | | | | 6.1.4 Medical expense incurred including doctors fee (in Rupees) |
|---|---|---|---|---|---|---|---|---|---|
| | | 6.1.3.1 Male | | 6.1.3.2 Female | | 6.1.3.3 Children | | | |
| | | Count | Length of Illness (days) | Count | Length of Illness (days) | Count | Length of Illness (days) | Whether child was absent for school because of illness? *[**1**=Yes, **2**=No]* | |
| Acute respiratory infection | | | | | | | | | |
| Arsenicosis | | | | | | | | | |
| Cholera | | | | | | | | | |
| Common cold/cough | | | | | | | | | |
| Dengue & Dengue Hemorrhagic Fever | | | | | | | | | |
| Diarrhoea | | | | | | | | | |
| Fever | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Fluorosis | | | | | | | | | |
| Gastrointestinal disorders | | | | | | | | | |
| Guinea worm disease | | | | | | | | | |
| Intestinal worms | | | | | | | | | |
| Malaria | | | | | | | | | |
| Schistosomiasis | | | | | | | | | |
| Trachoma | | | | | | | | | |
| Typhoid | | | | | | | | | |
| **Total medical expenses including doctor fees (in Rupees)** | | | | | | | | | |

**6.2 Health status (Refer reference notes for details on symptoms of the following diseases/illness) (After availing JEEVAN DHARA/NIRMAL loans)**

After you received water connection/constructed a toilet through ESAF/EMFIL, did you or your family member(s) suffer from any of the following disease?

| 6.2.1 Disease/Illness | 6.2.2 Whether affected? *[**1**=Yes, **2**=No]* | 6.2.3 Count of household members affected and length of illness | | | | | | | 6.2.4 Medical expense incurred including doctors fee (in Rupees) |
|---|---|---|---|---|---|---|---|---|---|
| | | 6.2.3.1 Male | | 6.2.3.2 Female | | 6.2.3.3 Children | | | |
| | | Count | Length of Illness (days) | Count | Length of Illness (days) | Count | Length of Illness (days) | Whether child was absent for school because of illness? *[**1**=Yes, **2**=No]* | |
| Acute respiratory infection | | | | | | | | | |
| Arsenicosis | | | | | | | | | |
| Cholera | | | | | | | | | |
| Common cold/cough | | | | | | | | | |
| Dengue & Dengue Hemorrhagic Fever | | | | | | | | | |
| Diarrhoea | | | | | | | | | |
| Fever | | | | | | | | | |
| Fluorosis | | | | | | | | | |
| Gastrointestinal disorders | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Guinea worm disease | | | | | | | | | |
| Intestinal worms | | | | | | | | | |
| Malaria | | | | | | | | | |
| Schistosomiasis | | | | | | | | | |
| Trachoma | | | | | | | | | |
| Typhoid | | | | | | | | | |
| | | | | | | | | **Total medical expenses including doctor fees (in Rupees)** | |

| **7 Training** | | | |
|---|---|---|---|
| 7.1 Whether any training was given to you/your household member by EMFIL/ESAF? *[**1**=Yes; **2**=No]* | | 7.2 If yes, list the nature of training programs you have attended? *[**1**=Health & hygiene ; **2**=Savings & Investments; **3**=Operations & training; **4**=Environmental issues; **5**=Others (specify) _ _ _ _ _ _ _ _]* | |
| 7.3 How far you and your family benefitted from the trainings? Has awareness increase in *[**1**= Health & Hygiene; **2**=Savings & Investments; **3**=Environment]* | | | |

| **8 Environmental Impact** | |
|---|---|
| 8.1 Was there any of the following disturbance to quality of life in your neighbourhood during construction(s) in your area? (check all that apply) *[**1**=noise during construction; **2**=resettlement of huts/slums; **3**=water logging in area; **4**=removal of vegetation (flora/fauna) for construction; **5**=prevalence of mosquitoes; **6**=pollution to **groundwater/well/borewell** due to proximity of toilet with a range of 10 meters]* | |

**9 School attendance, enrolment and Body Mass Index (BMI)* for children below 15**
*BMI will be calculated automatically in the data entry tool.

| **9.1 Name of the child** | **9.2 Age (in years)** | **9.3 Gender** *[**1**=Male; **2**=Female]* | **9.4 Whether enrolled in school** *[**1**=Yes, **2**=No]* | **9.5 Whether any child was enrolled in the last 1 year** *[**1**=Yes, **2**=No]* | **9.6 Approximate height** | | **9.7 Approximate weight (in kgs)** |
|---|---|---|---|---|---|---|---|
| | | | | | Feet | Inches | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

| **10.1 Program / Product / Service related ( ask only to clients of EMFIL/ESAF)** |
|---|

| | | | |
|---|---|---|---|
| 10.1.1 Which of the following loan products have you availed? *[**1** = JEEVAN DHARA**; 2** = NIRMAL; **3** = Both]* | | 10.1.6 Did you face any difficulties in getting the connection? (Check all that apply) *[**1**= insufficient funds; **2**=license related /government related; **3**=increase in cost of material; **4**=increase in cost of labor; **5**=others (specify)]*_ _ _ _ _ _ _ _ _ | |
| 10.1.2 How many connection(s) do you own from the programme? | | 10.1.7 What is the status of the connection? *[1=Just begun; 2=Ongoing; 3=Completed]* | |
| *Jeevan Dhara loan*<br>*Nirmal loan* | | *Jeevan Dhara loan*<br>*Nirmal loan* | |
| 10.1.3 Is your tap/toilet currently in use? *[**1**=Yes; **2**=No]* | | 10.1.8 Do you want more loan/credit? If yes, state purpose *[**1**=For completing current construction; **2**=New toilet; **3**=Renovation]* | |
| 10.1.4 How long did it take to receive connection? (in weeks) | | 10.1.9 What are the reason(s) for availing loan from WATSAN program? (Check all that apply) *[**1**=low interest rate; **2**=flexible installments/prepayments; **3**=easy formalities; **4**=no other sources]* | |
| 10.1.5 How did you come to know about government schemes? *[**1**=directly approach municipality; **2**=ESAF/EMFIL helped them]* | | | |
| **10.2 Perceptions after program intervention** | | | |
| 10.2.1 Has there been any change in the time saved after you got the connection from EMFIL/ESAF? *[**1**=saved; **2**=no improvement; **3**=need more]* | | 10.2.4 Has there been any change in the quantity of water supply after you got the connection from EMFIL/ESAF? *[**1**=available in plenty; **2**=no improvement; **3**=lack of availability]* | |
| 10.2.2 If saved, how many minutes saved per day? | | 10.2.5 Has there been any change in the quality of water after you got the connection from EMFIL/ESAF? *[**1**=better; **2**=no improvement; **3**=deteriorated]* | |
| 10.2.3 How do you use the saved time? *[**1**= economic activities; **2**=domestic activities; **3**=other activities(specify) _ _ _ _ _ _ _ _ _ _ _ _ _ _ _]* | | 10.2.6 Who performed the work to build/repair your toilet? (Check all that apply) *[**1**=women; **2**=women's husband; **3**=other family members; **4**=hired labourers]* | |
| 10.2.7 Has there been any change in the amount of money saved after you got JEEVAN DHARA/NIRMAL loan from EMFIL/ESAF? *[**1**=saved; **2**=no improvement; **3**=need more]* | | 10.2.8 How do you maintain the toilet? *[**1**=required no maintenance; **2**=needed some repair since I got it; **3**=difficult and/or expensive to maintain]* | |

| | |
|---|---|
| 10.2.9 Has there been any change in the health status of your household after you got JEEVAN DHARA/NIRMAL loan from EMFIL/ESAF?<br>*[**1**=better; **2**=no improvement; **3**=worse]* | |
| **11 Overall views** | |
| 11.1 On scale of 5, how would you rate EMFIL/ESAF program<br>*[**1**=very good; **2**=good; **3**=satisfactory; **4**=average; **5**=bad]* | |
| **12 General feedback (if any)** | |
| | |
| **Thanks for your co-operation.** | **Save paper. Save trees.** |

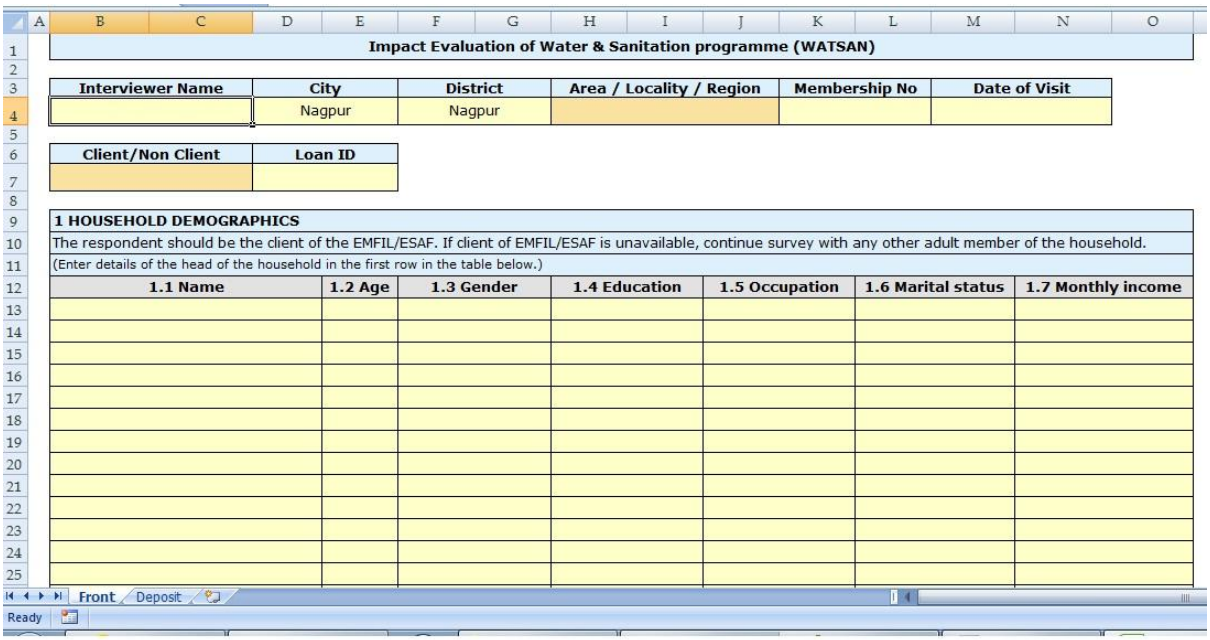
## *B. Disease list and explanations*

| Disease/Illness | Symptoms | Disease/Illness | Symptoms |
|---|---|---|---|
| **Acute respiratory infection**<br>*An acute respiratory infection is basically infection of the respiratory system.* | • Runny or stuffy nose<br>• Scratchy throat<br>• Cough<br>• Sore throat<br>• Sneezing<br>• Fever<br>• Muscle aches<br>• Headache<br>• Chills<br>• Sweats | **Common cold/cough**<br>*The common cold generally involves a runny nose, nasal congestion, and sneezing. Respondent may also have a sore throat, cough, headache, or other symptoms.* | • Cough<br>• Sore throat<br>• Runny nose<br>• Nasal congestion<br>• Conjunctivitis (pink eye)<br>• Muscle aches<br>• Fatigue<br>• Headaches<br>• Shivering<br>• Loss of appetite |
| **Arsenicosis**<br>*Arsenicosis is the effect of arsenic poisoning, usually over a long period such as from 5 to 20 years.* | • Headaches<br>• Confusion<br>• Severe diarrhea<br>• Drowsiness<br>• Convulsions and changes in fingernail pigmentation<br>• Diarrhea<br>• Vomiting<br>• Blood in the urine<br>• Cramping muscles<br>• Hair loss<br>• Stomach pain<br>• Convulsions<br>• Organs affected: Lungs, Skin, Kidneys, and Liver. | **Cholera**<br>*Cholera is an infection of the small intestine that causes a large amount of watery diarrhea.* | • Abdominal cramps<br>• Dehydration<br>• Diarrhea has a "fishy" odor<br>• Dry mouth<br>• Dry skin<br>• Excessive thirst<br>• Leg cramps<br>• Low urine output<br>• Low Blood Pressure<br>• Nausea<br>• Rapid heart rate<br>• Sunken eyes<br>• Tiredness<br>• Unusual sleepiness<br>• Vomiting<br>• Watery diarrhea |
| **Fever**<br>*Fever is a common medical sign characterized by an elevation of temperature above the normal range of 36.5–37.5 °C (98–100 °F) due to an* | • Shivering<br>• Sweating<br>• Headache | **Diarrhea**<br>*Diarrhea is the condition of having three or more loose or liquid bowel movements per day.* | • Dehydration<br>• Weakened immune systems<br>• Thirst |

| | | | |
|---|---|---|---|
| *increase in the body temperature regulatory set-point. This increase in set-point triggers increased muscle tone and shivering.* | • Lack of appetite<br>• General weakness<br>• Muscle aches<br>• Dehydration<br>• Confusion<br>• Hallucinations<br>• Convulsions<br>• Irritability seek | | • Less frequent urination<br>• Dark-colored urine<br>• Dry skin<br>• Fatigue<br>• Dizziness<br>• Light-headedness |
| **Dengue and Dengue** *Hemorrhagic Fever*<br>*Dengue hemorrhagic fever is a severe, potentially deadly infection that spreads by certain species of mosquitoes* | • Bleeding<br>• Decreased appetite<br>• Fever<br>• Headache<br>• Joint aches<br>• Malaise<br>• Muscle aches<br>• Vomiting<br>• Restlessness<br>• Ecchymosis<br>• Generalized rash<br>• Petechiae<br>• Cold<br>• Clammy extremities<br>• Sweatiness (diaphoretic) | **Fluorosis**<br>*Fluorosis (Dental) is a health condition caused by a child receiving too much fluoride during tooth development. The critical period of exposure is between 1 and 4 years old; children over age 8 are not at risk.* | • Chalky white teeth patches<br>• Yellow stained teeth<br>• Brown stained teeth<br>• Discolored teeth<br>• Weak teeth |
| **Gastrointestinal disorders**<br>*Gastrointestinal Disorders (GI) is a digestive disorder that interferes with the workings of the intestine.* | • Stomach Pain<br>• Heartburn<br>• Diarrhea<br>• Constipation<br>• Nausea<br>• Fatigue<br>• Headache<br>• Stomach Upset<br>• Constipation<br>• Dizziness<br>• Musculoskeletal | **Malaria**<br>*Malaria is caused by a parasite that is transmitted from one human to another by the bite of infected Anopheles mosquitoes. In humans, the parasites (called sporozoites) travel to the liver, where they mature and release another form, the merozoites. These enter the bloodstream and infect the red blood cells.* | • Fever And Flu-Like Illness<br>• Shaking Chills<br>• Headache<br>• Muscle Aches<br>• Tiredness<br>• Nausea<br>• Vomiting<br>• Diarrhea |
| **Trachoma** | • Cloudy cornea | **Schistosomiasis** | • Fever |

| | | | |
|---|---|---|---|
| *The initial symptoms of trachoma include: mild irritation of the eyes, and a discharge of pus and/or mucus from the eyes*<br>*Trachoma is caused by infection with the bacteria Chlamydia trachomatis. Trachoma is spread through direct contact with infected eye, nose, or throat secretions or by contact with contaminated objects, such as towels or clothes. Certain flies can also spread the bacteria.* | • Discharge from the eye<br>• Swelling of lymph nodes just in front of the ears<br>• Swollen eyelids<br>• Turned-in eyelashes | *Schistosoma infection spreads through contact with contaminated water. The parasite in its infective stages is called a cercaria. It swims freely in open bodies of water. On contact with humans, the parasite burrows into the skin, matures into another stage (schistosomula), then migrates to the lungs and liver, where it matures into the adult form.* | • Chills<br>• Lymph node enlargement<br>• Liver and spleen enlargement<br>• Itching and a rash<br>• Abdominal pain and diarrhea<br>• Frequent urination<br>• Painful urination<br>• Blood in the urine |
| **Intestinal worms**<br>*Intestinal Worms are parasites, which infect human beings. These worms hatch and multiply again and again where there is dirt and filth, and are a very common occurrence, especially in the tropic countries.* | • Voracious appetite<br>• Worms in stool<br>• Coughing up worms<br>• Loss of appetite<br>• Fever Vomiting<br>• Foul breath<br>• Dark circles under the eyes<br>• Anemia and pale face<br>• Shortness of breath<br>• Coughing<br>• Headaches<br>• Bloating<br>• Gas and Diarrhea<br>• Abdominal cramps<br>• Itching at the anus which may turn red<br>• Nausea<br>• Intestinal blockage.<br>• Weight Loss<br>• Skin Itching<br>• Bloody Stools | **Typhoid**<br>*Typhoid is a common worldwide illness, transmitted by the ingestion of food or water contaminated with the feces of an infected person, which contain the bacterium Salmonella enterica enterica, serovar Typhi. The bacterium grows best at 37°C / 98.6°F – human body temperature.* | • Weak<br>• Chilly<br>• Tired<br>• Headache<br>• Backache<br>• Diarrhea<br>• Constipation<br>• Loss of appetite<br>• Temperature rises<br>• White patches which causes oily taste in mouth<br>• Inflammation of the bone |

## *C. Tool snapshot*



**Impact Evaluation of Water & Sanitation programme (WATSAN)**

| Interviewer Name | City | District | Area / Locality / Region | Membership No | Date of Visit |
|---|---|---|---|---|---|
| | Nagpur | Nagpur | | | |

| Client/Non Client | Loan ID |
|---|---|
| | |

**1 HOUSEHOLD DEMOGRAPHICS**

The respondent should be the client of the EMFIL/ESAF. If client of EMFIL/ESAF is unavailable, continue survey with any other adult member of the household.

(Enter details of the head of the household in the first row in the table below.)

| 1.1 Name | 1.2 Age | 1.3 Gender | 1.4 Education | 1.5 Occupation | 1.6 Marital status | 1.7 Monthly income |
|---|---|---|---|---|---|---|
| | | | | | | |
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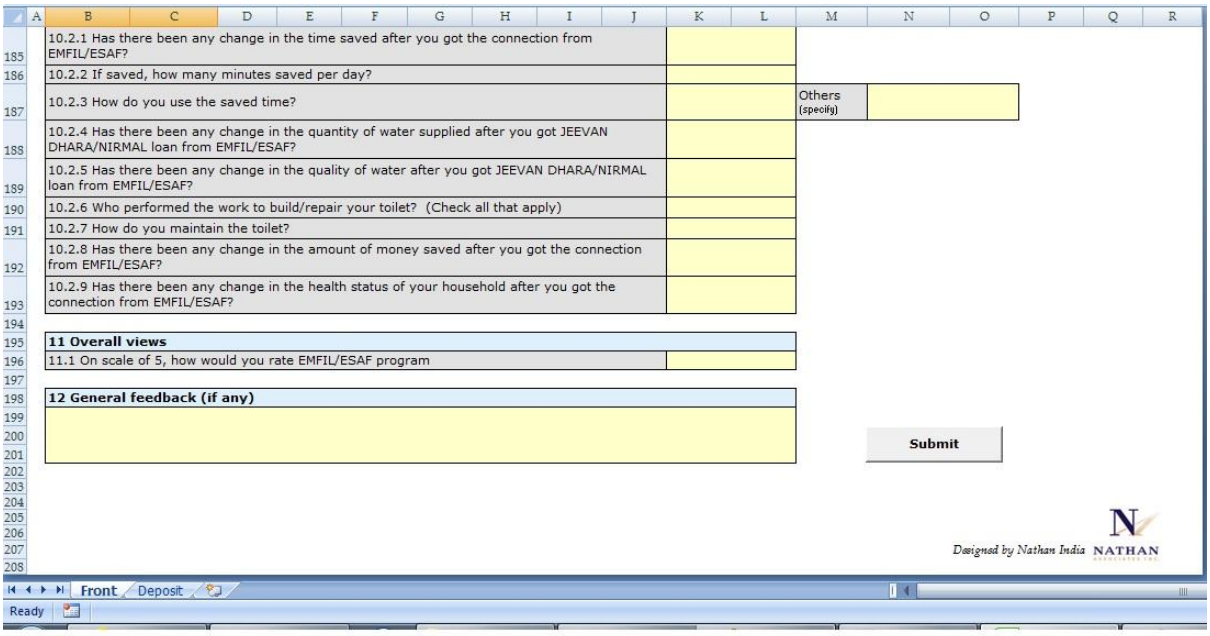
Front Deposit

Ready



| | |
|---|---|
| 10.2.1 Has there been any change in the time saved after you got the connection from EMFIL/ESAF? | |
| 10.2.2 If saved, how many minutes saved per day? | |
| 10.2.3 How do you use the saved time? | |
| 10.2.4 Has there been any change in the quantity of water supplied after you got JEEVAN DHARA/NIRMAL loan from EMFIL/ESAF? | |
| 10.2.5 Has there been any change in the quality of water after you got JEEVAN DHARA/NIRMAL loan from EMFIL/ESAF? | |
| 10.2.6 Who performed the work to build/repair your toilet? (Check all that apply) | |
| 10.2.7 How do you maintain the toilet? | |
| 10.2.8 Has there been any change in the amount of money saved after you got the connection from EMFIL/ESAF? | |
| 10.2.9 Has there been any change in the health status of your household after you got the connection from EMFIL/ESAF? | |

Others (specify)

| 11 Overall views | |
|---|---|
| 11.1 On scale of 5, how would you rate EMFIL/ESAF program | |

**12 General feedback (if any)**

Submit

Designed by Nathan India NATHAN

Front Deposit

Ready

## *D. Blocks covered*

| Branch | Block / Panchayat Name | Purpose | Samples | Substitutes | Non clients |
|---|---|---|---|---|---|
| PARDI | PARDI | SANITATION | 11 | 11 | 5 |
| PARDI | PARDI | WATER CONNECTION | 3 | 3 | 1 |
| RAMTEK | AMADI | SANITATION | 2 | 2 | 1 |
| RAMTEK | MANSAR | SANITATION | 6 | 6 | 2 |
| RAMTEK | NAGARDHAN | SANITATION | 5 | 5 | 1 |
| RAMTEK | NAYAKUND | SANITATION | 3 | 3 | 1 |
| RAMTEK | PANCHGAON | SANITATION | 3 | 3 | 1 |
| RAMTEK | PATGOVARI | SANITATION | 2 | 2 | 1 |
| RAMTEK | RAMTEK | SANITATION | 3 | 3 | 1 |
| RAMTEK | WAHITOLA | SANITATION | 6 | 6 | 2 |
| SADAR | DOBEE | SANITATION | 1 | 1 | 1 |
| SADAR | GONDPURA | SANITATION | 1 | 1 | 1 |
| SADAR | KHASADA | WATER CONNECTION | 2 | 2 | 1 |
| SADAR | LASHKARIBAGH | SANITATION | 1 | 1 | 1 |
| SADAR | MECOSABAGH | SANITATION | 2 | 2 | 1 |
| SADAR | NAGPUR | SANITATION | 2 | 2 | 1 |
| SADAR | RAJIV GANDHI | SANITATION | 2 | 2 | 1 |
| SADAR | TANDAPETH | SANITATION | 1 | 1 | 1 |
| WADI | DIGDOH | SANITATION | 1 | 1 | 1 |
| WADI | NMC | SANITATION | 2 | 2 | 1 |
| WADI | NMC | WATER CONNECTION | 8 | 8 | 2 |
| WADI | WADI | SANITATION | 2 | 2 | 1 |
| WADI | WANADOGARI | SANITATION | 1 | 1 | 1 |
| | | | **70** | **70** | **30** |