

# **Evaluation Report**

**of**

## **Baddi Township Integrated Water, Wealth, Health and Agriculture, India Project**

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## **Abbreviations**

CHM: Community Health Motivator

DOTS: Directly Observed Treatment, Short Course

FGD: Focus Group Discussion

IDF: International Diabetes Foundation

IRDP: Integrated Rural Development Program

ODF: Open defecation Free

RUCHI: Rural Centre for Human Interests

SHG: Self Help Group

TB: Tuberculosis

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At the outset, I would like to extend my sincere thanks to RUCHI who undertook the 3 years project in this hilly terrain of Himachal Pradesh with partnerships fund from RNZWCS Limited (Rotary New Zealand World Community Services) to give me an opportunity to know more about the organisation and conduct the evaluation work.

This study became possible because of the support extended by the staff of RUCHI, especially Mr. Madan Chauhan and Mr. Mukesh Kumar, Mrs.Pushpalata (CHM) and other CHMs who were resourceful, always accompanied me in villages/slums and were a source of inspiration for me working in this tough terrain with steep slopes and climbs.

I also express my gratitude to Mr. Dharamvir Singh, Director, RUCHI who was always available to give inputs and clarification whenever needed. I am thankful to all Community Health Motivators (CHMs) of the project and other project staff for arranging meetings with villagers and making the project related data available. I must admit the CHMs have established excellent rapport with the villagers which made this evaluation work easier. Last but not least, I would like to thank the people of the 30 project villages and slums who spared their valuable time and extended their support to complete this evaluation work.

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## EXECUTIVE SUMMARY

Project Title: Baddi Township Integrated Water, Wealth, Health and Agriculture Project

The purpose of this study is to evaluate the work done and to study the impact of this integrated project at the end of the 3<sup>rd</sup> year. The project began in March 2015 in Baddi area comprising of 23 villages and 7 slums. The project was carried out by RUCHI with partnerships fund from RNZWCS Limited (Rotary New Zealand World Community Services). The aim of the project is to reduce extreme poverty by increasing access to and management of water, health and social protection mechanisms.

The evaluation work in the villages was carried out keeping in mind the following criteria:

- Relevance
- Effectiveness
- Efficiency
- Impact
- Sustainability

Besides these, different learning and observations were obtained from the study.

### Scope of the Study

The study was confined to the 30 communities in and around Baddi Township. RUCHI had been working for several years in some of these villages. The focus of the project is holistic aiming at improving the quality of life of people through their interventions in areas of water resource development and management, environment, health care, women empowerment to play a proactive role in this male dominated society, good governance and income generation for sustainability. Maximum of the respondents were females as men go out for work during day and mostly were not available for the survey.

## Methodology

A cross sectional data was collected using questionnaire and interview guideline. Informal observations were also made. Like the previous year three respondents each were surveyed from each village/slum. Convenient sampling technique was used to collect data. In order to maintain comparability of data collection and reporting, the same set of questionnaire was used as in the previous years. In addition to the questionnaire used in previous years, the evaluation work was conducted to explore the relevance, effectiveness, impact, sustainability and efficiency of the project.

## Sources of Data

The data was gathered from respondents from each of the 30 communities where RUCHI had undertaken the work of development using questionnaire and also through informal interviews. Focus Group Discussions (FGDs) were conducted in some selected villages among females with regard to the benefits of SHGs. The previous base line studies of the project were also used for reference.

## Major Findings

The achievements of the short term outcomes are most striking, viz.: 99.5% (average) of the target have been achieved in terms of farm management, 100% (average) of the target have been achieved for environmental management, 98.7% (average) of the target have been achieved for water management, 96.1 % (average) of the target have been achieved for promotion of Self Help Groups(SHGs). Further, the initiative undertaken by RUCHI yielded in >90% of the tuberculosis positive (TB+ve) screened cases who were subsequently confirmed by DOTS centre and are availing proper treatment at the DOTS centre. The project also helped in detection of villagers with high blood sugar levels (9.3%) who were referred to Medical practitioners for timely medication and treatment.

Self Help Groups (SHGs) comprising of women members, played a key role in execution of this project and will also contribute to the sustainability of the project in the long term. Men mostly go out to work either on their own land or elsewhere for

the whole day. And women are equally busy in multitasking like household chores and tending to their animals, fetching fodder and water, household maintenance, child care and even contributing their labour on their farms, etc. SHGs have facilitated women to break through the four walls of the kitchen and come out of their homes and domestic chores to attend meetings once every month. The women group also contributes in community development processes like cleaning the natural springs locally known as '*Bawari*' and trash bins constructed by RUCHI. The level of participation in SHGs varied from group to group. SHGs are more successful in the hilly villages as compared to economically well-off villages near the towns. The SHGs have been instrumental in developing saving habits among women and use their savings for inter-lending among their own members and others outside the group as well in times of need. The income so generated either from interest from loans or their private enterprises go a long way in supplementing their family income. In addition to financial and social empowerment, the SHGs have become quite informative on issues like cleanliness, garbage disposal, knowledge about government schemes, safe water and prevention of water borne diseases, maternal and child health. Besides these, SHGs have promoted women to be entrepreneurs while still fulfilling their role as homemakers.

The construction of percolation tanks /earthen ponds, irrigations tanks, protection of natural springs and ferro-cement tanks for individual household water storage tanks, etc. were very relevant to the villagers. The development of water bodies have increased soil moisture and accessibility to water for irrigation, provision of clean and safe drinking for both humans and their cattle. It is a humble start towards the agenda of the Sustainable Development Goals of India 2030. The trainings and farm visits organised by RUCHI for farmers have enriched their knowledge and encouraged them to start growing cash yielding vegetables/crops. Villagers were also benefitted through the seed bank and organic composting units as they help in timely seed availability and decreased crop diseases and use of fewer chemicals.

### Conclusion

India has its ancient tradition of community-based water harvesting, however it is declining and this has led to water mismanagement. Therefore, it has become

necessary to revive community and household management of water. The people themselves must play a more active role. This is more important in the hilly terrains due to the area being above a higher Mean Sea Level (MSL). Baddi Township is 426m above sea level. A proper mechanism for water management is essential to sustain the soil moisture and maintain water level.

Baddi is an industrial township area and is expanding vastly. The surrounding area whose economy is mainly agriculture is impacted by the growth of industries and increases their dependence for cash income on industries. Most of the parents send their children to school in nearby towns for education, so the new generation who are educated prefers to work on a fixed monthly salary where cash is received immediately rather than work on their farms. The reason being that there is uncertainty due to weather and moreover physical hard work is required in the farms. However, the hilly villages away from township are still dependent on agriculture for sustenance and livelihood. With creation of more facilities in terms of easy access to water for drinking and irrigation, provision of good quality seeds, trainings in farm management and demonstration, women empowerment will further motivate the villagers to be involved in farming.

The roles of Community Health Motivators (CHMs) have been found to be indispensable in bringing about awareness on various aspects of life thereby empowering women. Because of their consistent efforts on health education and prevention of diseases the incidences of water borne diseases have decreased due to the interventions of CHMs. The womenfolk are organised as Self Help Groups where they are trained in different fields. Meetings of SHGs are organised once in a month to discuss problems related to community/personal and also to discuss about achievement of the savings.

A component of the project which is to create awareness among the community members has been able to involve people in attending and having a say in local village panchayat meetings and avail of government schemes benefits which is a step forward for sustainability.

## **1. Background and purpose**

Water scarcity remains a major hurdle in the overall development of the people especially those living on hilly terrain, and it is one of the major reasons for their various health problems also. Integrated water management is very important to enhance socio-economic development by increasing access to water for agriculture, safe drinking water through proper management of water resources, improvement of health and social protection mechanisms.

### ***Location of the project: Baddi, Himachal Pradesh***

Baddi is a Municipal Council city in district of Solan, Himachal Pradesh. The Baddi city is divided into 14 wards for which elections are held every 5 years. The Baddi Municipal Council has population of 29,911 of which 19,332 are males while 10,579 are females. Population of Children with age of 0-6 year is 3883 which is 12.98 % of total population of Baddi. In Baddi Municipal Council, Female Sex Ratio is of 547 against state average of 972. That confirms more of male migration to Baddi than females in search of work. Moreover Child Sex Ratio in Baddi is around 831 compared to Himachal Pradesh state average of 909. Literacy rate of Baddi city is 86.33 % higher than state average of 82.80 %. In Baddi, male literacy rate is around 90.28 % while female literacy rate is 78.61 % (Census of India, 2011).

Baddi is one of the fastest growing towns in Himachal Pradesh, India. In the recent past Baddi has become a manufacturing hub for Indian and Multinational Companies. The industrial town Baddi is located in Solan District of Himachal Pradesh around 65 kms from the District HQs Solan. Baddi is around 40 Km from the Capital of Punjab and Haryana, the city beautiful Chandigarh. Hundreds of Companies have set up their manufacturing units in Baddi and number of other Indian companies and MNCs are looking to relocate their manufacturing facilities to Baddi because of tax concessions being offered by the Himachal Government and Central government. In order to provide facilities to the manufacturers and to boost the business the Indian Government has also decided to link Baddi in Himachal rail network. Today there are around 1000 Medical and pharmaceutical companies operating in Baddi. Apart from this there are over 200 packaging / printing units alone in Baddi Himachal Pradesh. There are hundreds of other factories of various sizes in Baddi. Baddi has provided lot of job opportunities to the youth in Himachal Pradesh. Thousands of jobs have been created by these plants, factories and manufacturing units in Baddi. However, there are still many villagers who are unwilling to take up the unskilled jobs in the industries and shift to Baddi industrial area but rather prefer to continue farming in their fields.



Map of India



Map of Solan district



Map of Baddi Township

The project was carried out by RUCHI with partnerships fund from RNZWCS Limited (Rotary New Zealand World Community Services). The aim of the project is to reduce extreme poverty by increasing access to and management of water, health and social protection mechanisms.

In March 2015, RUCHI started working on this herculean project with a holistic approach to improve the quality of lives of 30 communities through improved area of farmland by enhancing the water resources, water management, improvement of health care through

timely intervention, advocacy on sanitation and environmental protection. Villages/slums selected for the study:

- |                        |                      |
|------------------------|----------------------|
| 1. Haripur sandoli     | 16. Dhamuwala        |
| 2. Khabari sandoli     | 17. Surajpur         |
| 3. Dharam kanta slum   | 18. Upper Tipra      |
| 4. Khabri slum         | 19. Lower Tipra      |
| 5. Jhar Majri          | 20. Pipli Tipra      |
| 6. Chhatipura          | 21. Dora Bhogpur     |
| 7. Sikka Hotel slum    | 22. Haripur Mahua    |
| 8. Shivalik Nagar slum | 23. Dhaar            |
| 9. Chhatipura Slum     | 24. Dhamrot          |
| 10. Lakker depot slum  | 25. Kathloh          |
| 11. Majhotu            | 26. Tujhar Piplata   |
| 12. Upper Bated        | 27. Thedpura         |
| 13. Lower Bated        | 28. Kandol           |
| 14. Center Bated       | 29. Dhanyon          |
| 15. Baluwana           | 30. Piple Chowk Slum |

To fulfil the above mentioned aim, various tools were identified ranging from creating assets, provisions of trash bins for waste disposal, farm exposures and trainings, imparting awareness through Community Health Motivators (CMHs), Tuberculosis (TB) screening and blood sugar testing for timely referrals to the DOTS centres and hospitals as the case may be. Besides these, RUCHI provided seeds to farmers at a very nominal rate by creating seed banks, farm demonstrations were also organised to encourage and enrich the knowledge of the farmers. Trees including fruit trees and napier were planted as well. Along with that, RUCHI through their CHMs also created Self Help Groups (SHGs) in 23 villages for empowerment of women. In the 7 slums, RUCHI was unable to organise any SHGs due to the reason that the slum dwellers were all migrant populations from different adjoining states (RUCHI-Annual Survey Report, 2017) hence there was lack of trust among the members themselves because of heterogeneous membership.

## **2. Evaluation scope, criteria and questions:**

### ***Scope:***

The study was confined to the 30 project communities in and around Baddi township. In some of these villages, RUCHI had been working for over five years. The focus of the project is holistic aiming at improving the quality of life of people through their interventions in areas of water resource development and management, environment, health care, women empowerment to play a proactive role in this male dominated society, good governance and income generation for sustainability. To maintain comparability of results and to assess the the impact on the work completed, it was decided to survey the same families . A majority of the respondents were females as many men go out for work during day and were mostly not available for the survey. Also, women have been more involved in the organization's work, primarily through Self Help Groups (SHGs). This evaluation report has been prepared on the basis of a well designed cross sectional survey through convenient sampling method. The villagers/ slum dwellers were interacted with and interviewed from the communities where the project work has been implemented.

### ***Evaluation Criteria***

The evaluation has been carried out keeping in mind the following criteria:

- Relevance
- Effectiveness
- Efficiency
- Sustainability
- Impact

Besides these, different learning to capture understandings and issues during the period were gathered from the study.

All these have been included to explore the extent of project success, its probable outcome in the short term/long term and to recommend certain actions/ activities which might be implemented in future by people themselves for its sustainability and recommendations for similar activities elsewhere.

Information gathered: The questions asked pertained to water resources and its management, wealth, community health, agriculture, etc.

### **3. Methodology:**

Keeping in mind the objectives to be achieved a set of questions was prepared to assess the impact of the project.

Care was taken to select the same respondent families as in previous years for filling the survey questionnaires. However, this year we included 50 more respondents using convenient sampling method. The evaluation survey was conducted across 23 villages and 7 slums. The CHMs of the project assisted in collection of data. Informal interviews and self help group meetings as well as Focus Group Discussions (FGDS) were also used as source of data. Focus Group Discussions (FGDs) were conducted in the villages among females with regard to the benefits of Self Help Groups (SHGs) and in general about the benefits received through the efforts of RUCHI under the aegis of the present project. The previous base line studies of the project were also used for reference.



The evaluator with the respondents at Dhaar village



Focus group discussion of the evaluator with the villagers at Dhanyon village



Focus group discussion of the evaluator with the villagers at Chhatipura village

#### **4. Achievement Status:**

At the end of the 3 year project the achievements have been summarised and are displayed with the help of tables and figures as follows:

Table 1: Details of farm management

Description	Target	Status in 3rd Year	Percent Achievement
Beneficiaries using seed bank	0	85	>100%
Farm demonstration	6	12	>100%
Composting Units	32	32	100%
No. of farmers trained	400	390	97.5%
No. of exposure visits	0	21	>100%

Table 1 displays the details of work undertaken by RUCHI in farm management. Though, no target was made in terms of seeds provision to the farmers, it was an essential part of the project to help the farmers for easy access to high yielding seeds to improve the crop yield and thereby leading to getting better returns. The number of farm visits done completed in the 3<sup>rd</sup> year of the project exceeded the target keeping in mind the need and requirement of the farmers. The numbers of farmers trained was 2.5% less than the target due to their pre-occupation on farm and non availability.

Figure 1: Depiction of details of farm management

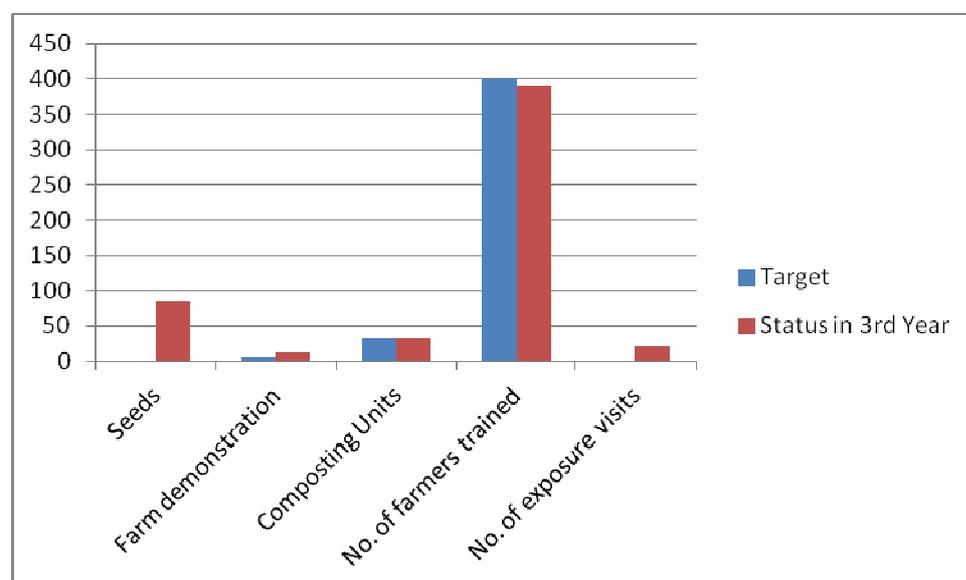


Table 2: Details of trees planted for environmental management

Description	Target	Status in 3rd Year	Percent Achievement
Trees planted	3000	3140	>100%
Fruit trees planted	2500	2780	>100%

Table 2 displays the the number of trees planted during the 3 year project. It is noteworthy that the number of trees planted exceeded the target number. These trees have been procured by RUCHI based on the demand of farmers. In the 3<sup>rd</sup> year 600 Napier roots were distributed by RUCHI for plantation. In addition to the fruit trees like guava, mango, lemon, orange; pears was also planted in the 3<sup>rd</sup> year as per local demand. The villagers have been made aware by RUCHI through about the impact of afforestation or the impact of trees plantation on the environment and their lives.

Figure 2: Depiction of trees planted for environmental management

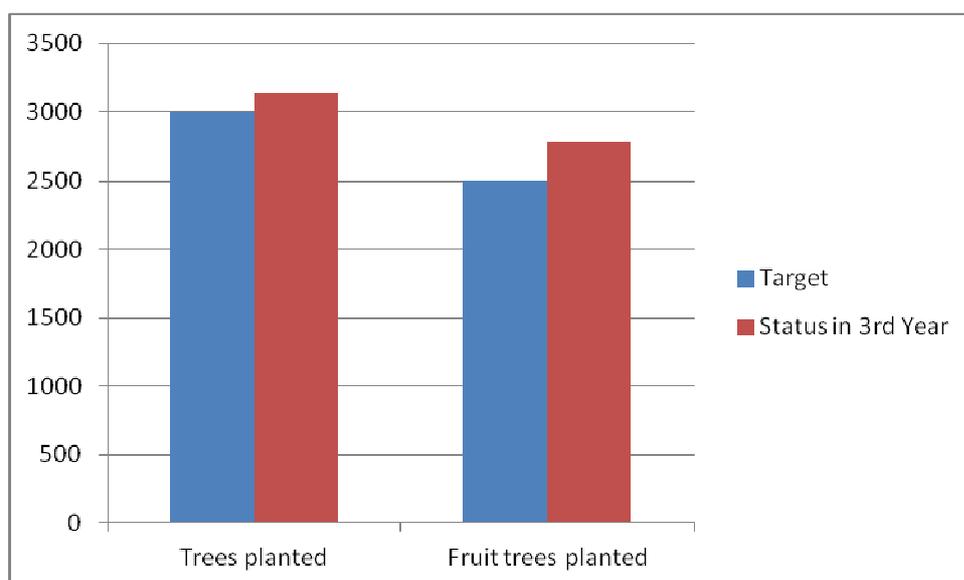


Table 3a: Details of water resource development (Target range 4 to 40)

Description	Original Target	Revised Target	Status in 3 <sup>rd</sup> Year	Percent Achievement
FCT 2500 lit	30	40	40	100%
Natural spring	11	13	12	92.3%
Irrigation tank	9	6	6	100%
Percolation tank	10	No change	10	100%
Check dam	8	4	4	100%

Table 3a displays that RUCHI has embarked on the work of water resource development and completed its target for constructions of ferro-cement tank (FCT) of 2500 litres capacity for individual households, irrigation tanks for agricultural purposes for community welfare and percolation tanks locally known as '*johar*' for multipurpose. However, in case of natural

springs, out of the 13 number targeted to be constructed, 12 have been constructed and used by the villagers. The 13<sup>th</sup> natural spring was cancelled because the selected site was close to many other natural springs and its viability was in question. The targets were revised in year-3 with the approval of MFAT as were demanded by the situation with funds relocations.

Table 3b: Details of water management (Target range 0 to 600)

Description	Target	Status in 3rd Year	Percent Achievement
Gully plugs/Gabion (cum)	150	165	-
Dry stone masonry	450	436	-
Total	600	601	>100%

In table 3b, the target of gully plugs with dry stone masonry and subsequently supplemented with gabion work was completed for prevention of silting in the catchment areas of the check dams constructed by RUCHI.

Figure 3a: Depiction of details of water management (Target range 4 to 40)

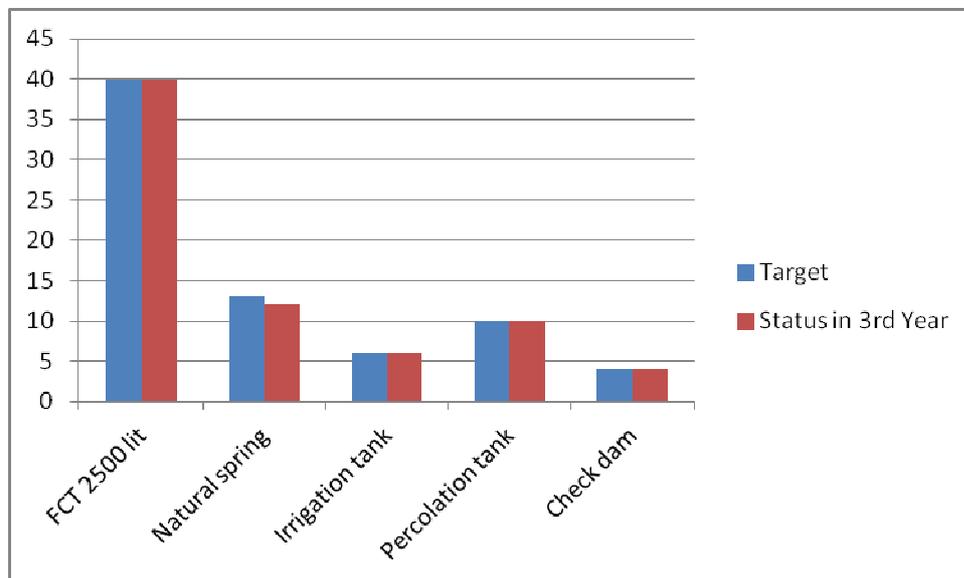


Figure 3b: Depiction of details of water management (Target range 0 to 400)

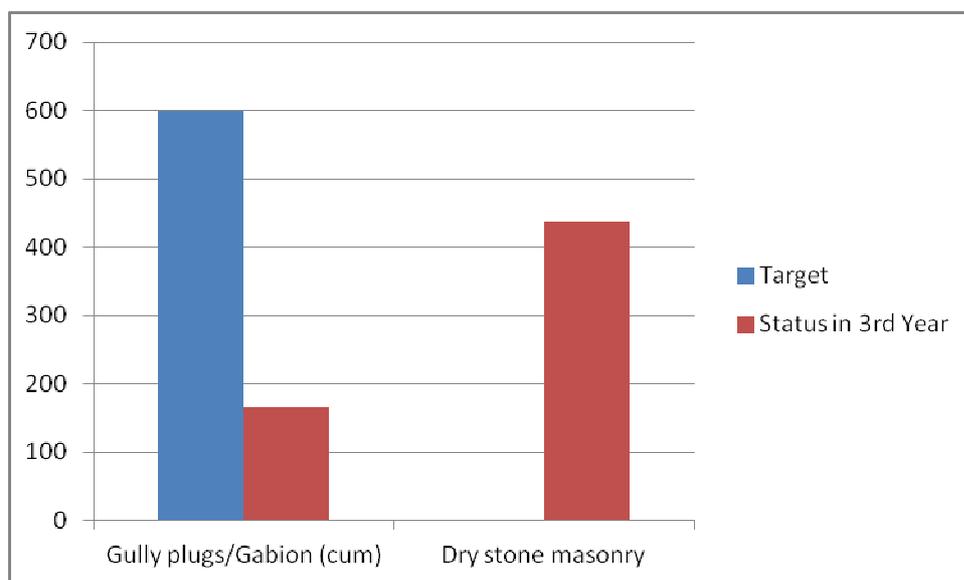


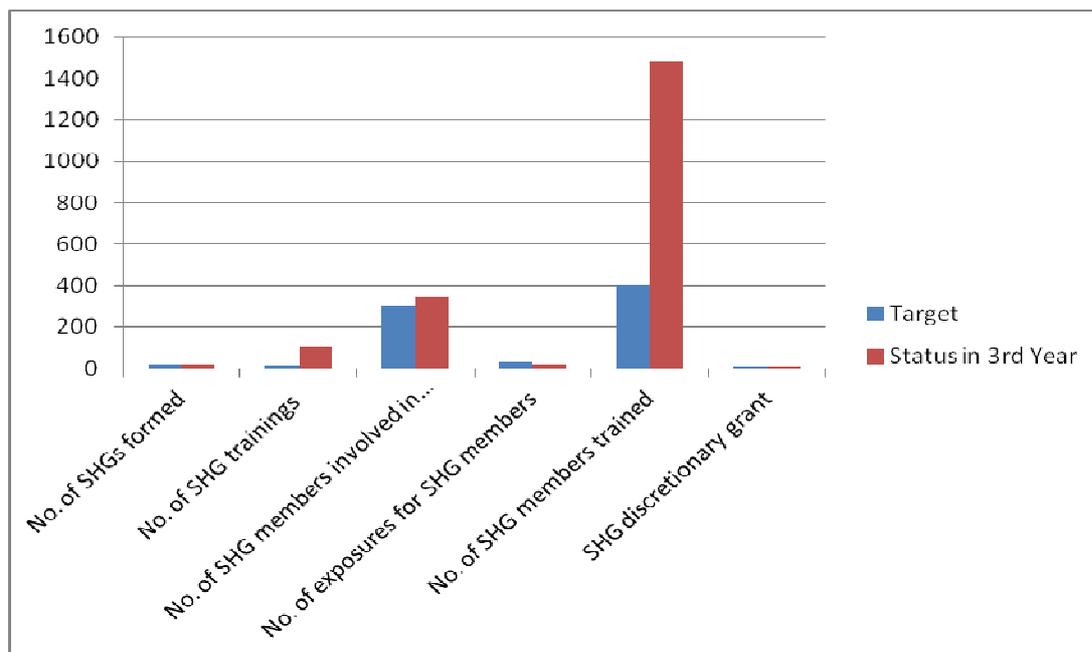
Table 4: Self Help Groups and initiatives undertaken

Description	Original Target	Revised Target	Status in 3rd Year	Percent Achievement
No. of SHGs formed	30	23	23	100%
No. of SHG trainings	15	No change	102	>100%
No. of SHG members received training at RUCHI	300	No change	344	>100%
No. of exposures for SHG members	30	No change	23	76.7%
No. of SHG members trained indirectly	> 400	No change	1480	100%
SHG discretionary grant	12	No change	12	100%

Initially, the project targeted to form Self Help Group (SHG) in all the 30 communities where the project work is undertaken. However, after making all genuine efforts over a year, it was found that it was not possible to set up SHG in the 7 slums due to various reasons (cited in RUCHI-Annual Survey Report, 2017). The target was then revised with a decision that SHGs will be formed only in 23 formal communities where the population is homogeneous. The number of trainings and members trained directly and indirectly was more than the target at the end of the 3<sup>rd</sup> year. Number of members trained was at a striking high of 1480 females,

which highlights the active participation of females and the benefits achieved by them. However, I would like to clarify here that this figures includes the women who have also been participating in training every year. The number of exposures was less than originally planned but the coverage of women is more than planned. Obviously, more women joined in some exposures. RUCHI also provided SHG discretionary grant of 10,000 rupees to 12 women groups for development works in their villages. Subsequently and rightly at year end two, this grant was converted to seed money and used for loaning to groups. The loan amount ranging from Rs. 1 lakh to 1.5 lakh was extended to SHGs. Though the target for number of exposures visit for the SHG members appears to be short but in reality the strength in each exposure was more than expected and hence the target of women trained was achieved with less numbers of study tours.

Figure 4: Depiction of Self Help Groups and initiatives undertaken



The loans received by members were used for both productive (establishing vending shops, purchasing agricultural tools/implements and seeds etc., retreading tyres for their small commercial vehicles, purchase of milking animals, sheep, goats and so on..) as well as consumption purpose (purchasing school fees, dresses, books and even for family consumables and weddings etc..). That helped people not only in discharging their social responsibilities but also supplement their family income in small ways. That has made women feel more powered, respected and be able to support their families in need).

Table 5: Number of villagers screened for TB using Lionex TB Kits and subsequently confirmed by DOTS centers

Description	Target	No. of participants	Percent Achievement
Tests done with Lionex Kits	12000	7553	62.9%
TB +ve cases by Lionex kits	-	128	-
TB +ve confirmed by DOTS Centre	-	71	-
TB cases taking treatment	-	64	-

It was found that >90% of the TB +ve screened cases and subsequently confirmed by DOTS centre were availing proper treatment at the DOTS centre. The TB referrals accessing DOTS centre by the year 3 is admirable. The credit goes to the health workers in convincing the patients about the benefit of proper timely TB treatment.

Figure 5: Depiction of percentage distribution of TB Cases detected by Lionex TB test kits

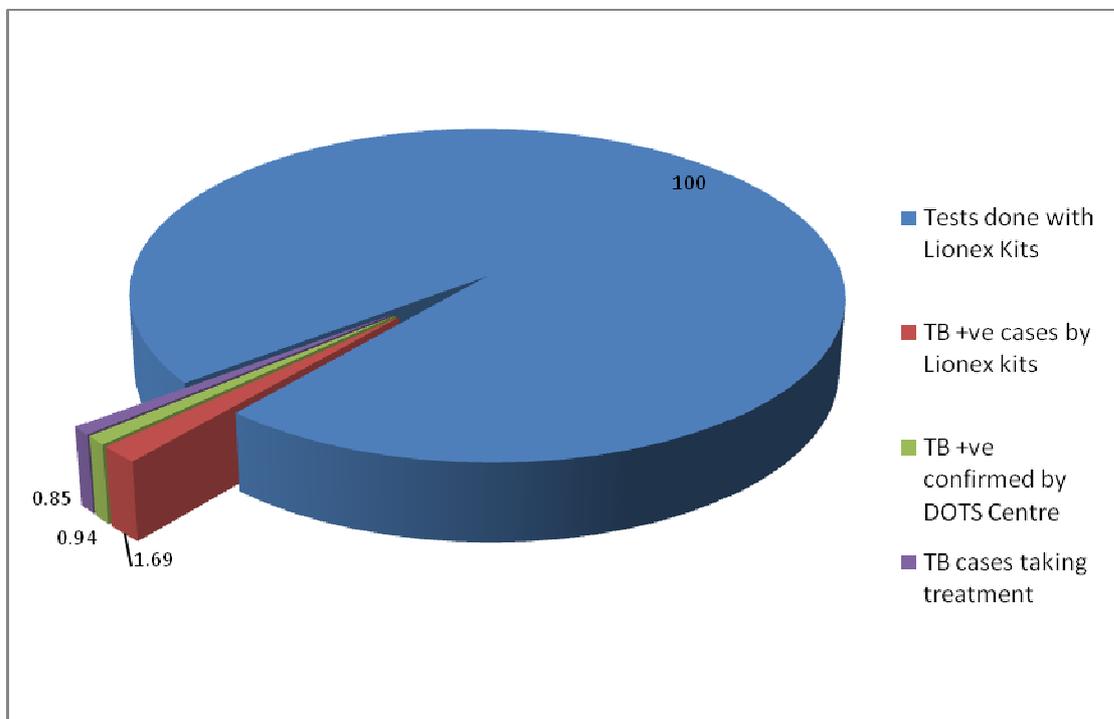


Table 6: Number of Random blood sugar tests conducted

Description	Target	No. of tests	Percent Achievement
Random Blood Sugar tests	12000	8111	67.6%
Borderline cases	-	492	-
Diabetic with high blood sugar level	-	251	-

Table 6 displays the number of random blood sugar tests conducted by RUCHI. Out of the total tests of 8111 (covering about 2700 heads), the number of borderline cases was 492 which makes it about 18.22% and the number of respondents who were found to be diabetic with high blood sugar level were 251 ( 9.3%). Most of the villagers on whom the blood sugar tests were conducted were unaware about their sugar levels. So, villagers with borderline cases were advised to take precautions on their food intake and take up exercises. They were also counselled about the consequences of high blood sugar levels. The villagers with high blood sugar levels were advised to visit the doctor for any further medication, if needed. Preventions, like avoiding fried and junk food, sugary items, rice, potatoes etc were advised to be followed.

Figure 6: Depiction of percentage distribution of random blood sugar test conducted on villagers

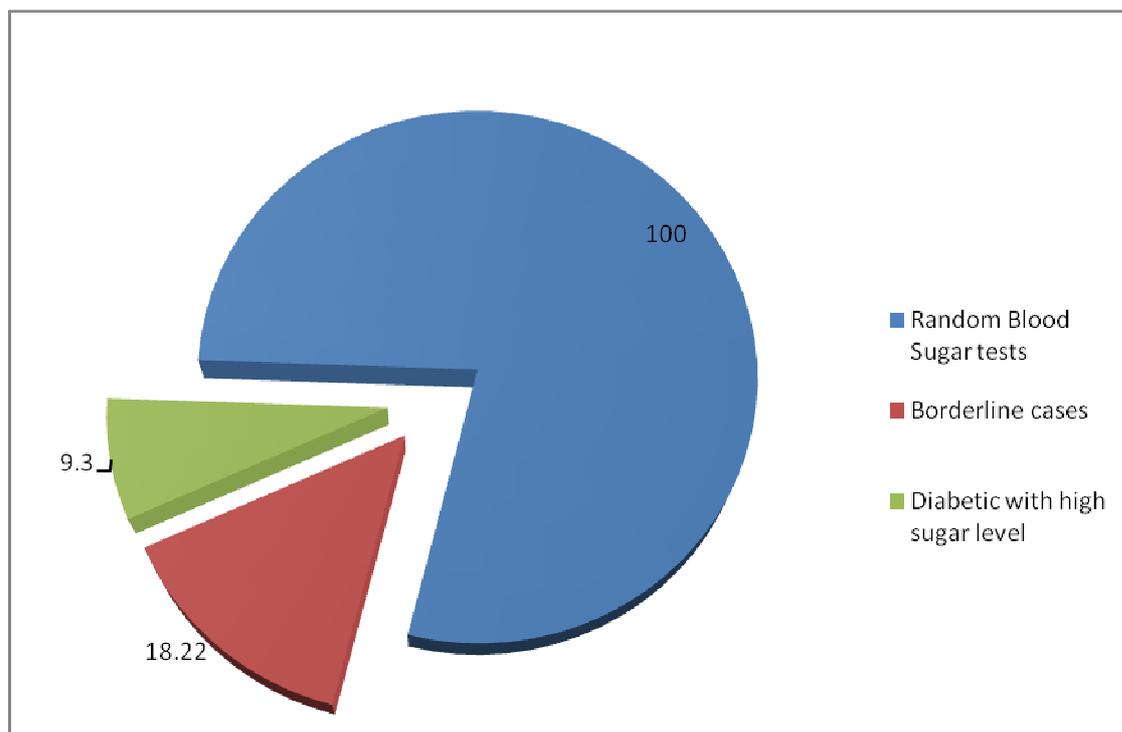
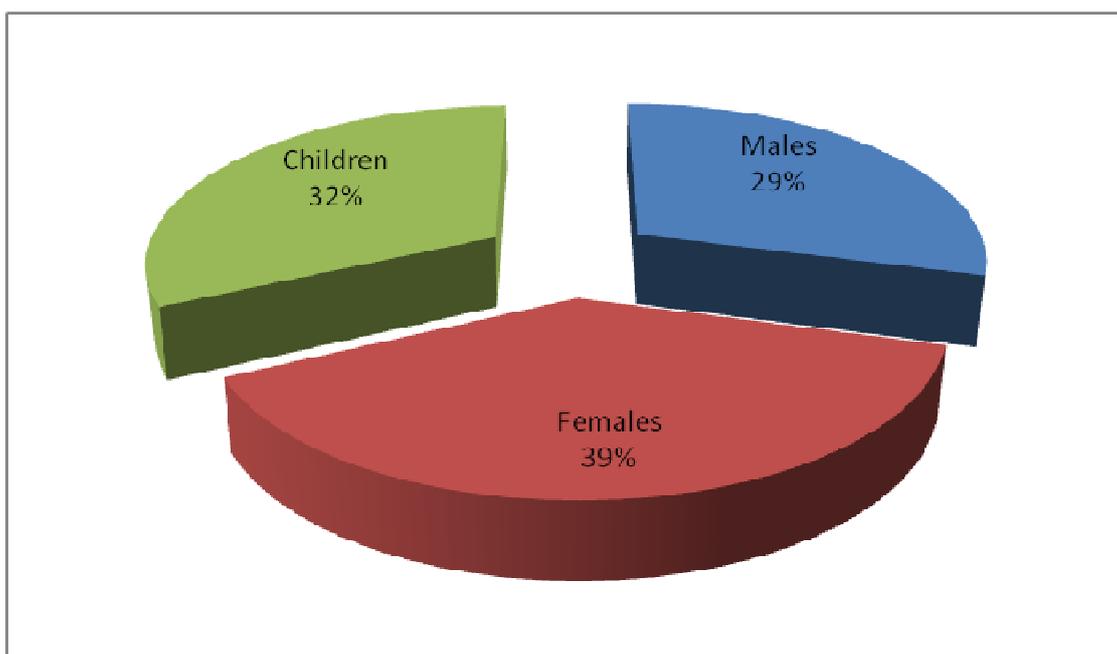


Table 7: Number of villagers checked during the health check up camps

Description	No. of patients checked
Males	456
Females	601
Children	501
Total	1558

Table 7 clearly displays the gender bias in favour of females participating in the health check up camps. The number of females who attended the check up camps was highest (39%) followed by children (32%). Among males 10% less involvement was observed as compared to their counterpart females.

Figure 7: Depiction of villagers checked during the health check up camps



## 5. Description of Achievements:

**Relevance:** The project is very relevant as water is an integral part of agriculture and agricultural based economy which leads to the promotion of health and wealth for humankind. The present work undertaken by RUCHI has impacted the lives of as many as 700 households in terms of:

*Water management:* the initiative undertaken by RUCHI under the sponsorship of RNZWCS Limited (Rotary New Zealand) for water management through check dams, irrigation tanks, ferro cement tanks, construction of sheds for the natural springs locally known as ‘*bawari*’ has benefitted the villagers.

*Irrigation Tanks:*

A total of 6 irrigation tanks are constructed during the 3 years project in village Lower Bated, Thedpura, Dhaar Surajpur and RUCHI farms. Besides these, the Heritage tank at Tujhaar Pipalta was also renovated and is now used by the farmers for irrigation. More than 50 households benefitted from the irrigation till date. It is expected that more families will get the benefit in the coming seasons. About 50 households have started growing vegetables and started double cropping. Each farmer can now make an average income of INR 5000 to 7000 during a season from the sale of vegetables. The irrigation tanks have increased the area of green cultivation. As per the data gathered an area of 42 bigha (approximately) has been brought under irrigation. Earlier most of the fields were rainfed, so they solely depended on the monsoon rains. Due to which they could only plant one crop in a year. But now, the situation is different as the number of crops have increased due to proper water management, The villagers now felt that with availability of more water for irrigation they will continue to grow more vegetables and cash crops in addition to the the maize crops and wheat plantation. Many of the farmers now are able to make use of their fields which were otherwise cultivable waste.



Irrigation tank constructed by RUCHI in village Surajpur



Renovated Heritage tank by RUCHI at Village Tujhaar for irrigation purpose

Table 8: Area brought under irrigation and increased farm income

<b>Village</b>	<b>Area brought under irrigation</b>	<b>Additional crops grown</b>	<b>Additional income of Family per annum (INR)</b>
Bated	7 bigha	Tomato, onion, garlic & other seasonal vegetables	20,000
Tujhaar Pipalta	8 bigha	Tomato, onion, garlic & other seasonal vegetables	25,000
Thedpura	8 bigha	Potato, onion, garlic, okra, tomato	25,000
Dhaar	7 bigha	Potato, onion, garlic, okra, tomato	20,000
Surjapur	10 bigha	Potato, onion, garlic	30,000
RUCHI farms	2 bigha	Onion, garlic, capsicum, cauliflower, broccoli	Demonstration unit
Average	8 bigha		24,000 per family

*Ferro-Cement Tanks (2500 lit):* A total of 40 ferro-cemented tanks with 2500 litres capacity are constructed during the 3 years period of the project. Each tank is privately owned by a household. They are well maintained by the individual household as they meet their immediate needs.



Ferro cement Irrigation tank constructed by RUCHI for multipurpose use

Table 9: Villages with number of ferro-cement tanks constructed by RUCHI and being used

Sl.no.	Name of village	No. of ferro-cement tank
1	Dhaar	1
2	Dhanyon	7
3	Thedpura	2
4	Centre Bated	1

5	Kendol	2
6	Haripur Mahua	2
7	Tujhaar Pipalta	5
8	Dhamrot	7
9	Upper Bated	2
10	Kathloh	1
11	Damuwala	3
12	Surajpur	3
13	Lower Tipra	2
14	Majothu	1
15	Pipli Tipra	1
	Total	40

*Check Dams:* A total of 4 check dams in villages of Surajpur, Tujhaar pipalta and Damrot are constructed. More than 45 households are being benefitted from the check dams and more household are expected to benefit in the coming seasons. The check dams are also expected to help retain the soil moisture in the areas around. The first two check dams constructed in the starting year of the project which were non functional due to cloud burst and silted as already reported (Annual Survey Report, 2017) have been made functional. The silt accumulated was removed from the immediate catchment of the dams and gabion wired gully plugs have been put up to prevent further silting in future.



Check dam constructed by RUCHI at Surajpur



Removal of silt deposited the catchment area of the check dam constructed by RUCHI



Gabon wired mesh with stone masonry work to prevent silting of check dam constructed by RUCHI at Damrot village

*Percolation Tanks:* A total of 10 percolation tanks or earthen ponds are constructed in different villages. These are earthen ponds constructed to capture run off water and enable the collected water to percolate into soil and increase soil moisture and recharge the natural springs in the surroundings areas. These tanks have multiple purposes like it increases soil moisture, increases accessibility to water for animals and subsequently for irrigation also. All these percolation tanks are functional and are maintained by SHGs.



A percolation tank constructed by RUCHI at Dhaar village

*Natural Springs:* A total of 12 natural springs were protected by construction of sheds by RUCHI under this project. The natural springs have been the source of water for the villagers but due to the animals being let free in the open to graze, these natural springs are required to be protected for contamination by the cattle. After the construction of the protection sheds the villagers in the project area are now getting clean natural water for drinking purposes. These natural springs are well maintained by the SHGs in the respective villages.



Newly constructed protection shed for the natural Spring at Dhaar village by RUCHI

#### *Awareness Regarding Tuberculosis (TB) and Diabetes:*

The awareness level of the villagers regarding diseases at the start of the project was very low (about 20%). Tuberculosis is an infectious disease and there is a social stigma attached to it. It is indeed an extraordinary task undertaken by RUCHI to work in the area of tuberculosis screening. The screening for TB was done with Lionex TB test kits. Out of the 7553 subjects tested, the positive cases (128) found with the TB test kits were advised/counselled to visit DOT centers. Subsequently 71 (56%) of our positive cases were confirmed and tested pulmonary TB positive by the TB DOTS Centre. This showed the accuracy of our tests and got acknowledgement of free service from patients. At the end of three year project the positive patients constituted roughly 1% of the total people tested. The low percentage of confirmed TB positive cases highlights a higher index of improved community health education programme due to the intervention of RUCHI. The credit goes to awareness creation efforts for a healthy life by RUCHI Community Health Motivators.

The slum dwellers were only aware of disease like diarrhoea, fever, cough and cold, but were not much aware that diseases like hypertension and diabetes which are referred to as silent killer diseases. Through the intervention of RUCHI by organising health camps, educational camps, etc. the knowledge and awareness level of the villagers/slums regarding diseases and its management has been enhanced. More than 75% of the people from villages and slums confirmed that they now have better knowledge of many ailments and diseases including TB and diabetes. They also informed that educational camps and village level meetings organised by RUCHI provided them with knowledge on health and hygiene, common diseases and their preventions and management. The people have realised the importance of personal hygiene and have started washing hands with soap and clean water before and after eating, after using toilets, covered their open soak pits, used boiled water or use chlorinated water for drinking and trying to keep their surroundings clean.



Health check up camp organised by RUCHI

The Community Health Motivators have been instrumental with regard to having balance diet, nutrition and overall health. Also, it is noteworthy that the females who benefitted from the test comprised of about 60%.

Diabetes is a chronic illness characterized by elevated levels of blood glucose, accompanied by disturbed metabolism of fats and proteins (Roglic, 2016). Diabetes can strike anyone from any walk of life. Worldwide diabetes afflicts more than 422 million people (WHO, 2017) and there were over 72 million cases of diabetes in India in 2017 as reported by the International Diabetes Federation, Southeast Region (IDF, 2018). According to Barhum (2017) when

hypertension and diabetes co-exist, the effects of one disease tend to make the other worse and makes it a deadly combination for the health of an individual. Diabetes does three things that may increase blood pressure: 1) decreasing the blood vessels' ability to stretch; 2) increasing the amount of fluid in the body and 3) changing the way the body manages insulin. To spread more awareness about this disease which demands expensive and life long treatment, health camps were organised by RUCHI and screening for blood sugar level was undertaken. The borderline cases were advised to follow healthy life style and those with high blood sugar levels were referred to the medical doctors.

***Effectiveness:*** The project outcomes have translated into increase in farm yield.

Farm yield: After the intervention work of RUCHI under the sponsorship of RNZWCS Limited (Rotary New Zealand) in the area of water management like construction of irrigation tanks, percolation tanks, etc. the farmers have started raising cash crops of vegetables which are sold off in the nearby market or in larger towns. This generated cash for the farmers.

Staple crops in the area are maize and wheat. Maize (corn) is the major produce of the region which is grown during the monsoon (Kharif) season, along with wheat which is sown in the winter (Rabi) season. It must be noted that maize has all along been staple food for the hill people. However, over the years, wheat is replacing maize as the major staple food. As a result, farmers are now being able to sell surplus maize. Another reason for growing maize and promote it as a selling commodity is its increasing demand as snacks like popcorns, corn flour, corn syrup, etc. Other vegetables like capsicum, peas, cauliflower, ginger, tomato and onion are being grown by the farmers for household consumption and also have become a source of income for the farmers.

Roughly 40% of the crops grown are cash crops which have improved the earnings of the farmers and it has increased from an average of Rs. 13,000/- per annum in the year 2016-17 to Rs.24,000/- per annum during 2017-18. There is also an increase in irrigated cultivated area in each village from average 6.3 bigha to 8 bigha.

### *Community Health care:*

The Community Health Motivators (CHMs) with the help of some Medical doctors have gone a long way in the reduction of the incidence of common diseases as reported from villages. Most of the water borne diseases were contained and their occurrence was reduced with training imparted by RUCHI (CHMs) through water purification. There is also remarkable improvement in cases reported for gastroenteritis (reduced by 70% as compared to last year). However, the most striking experience is that there is an increased incidence of diabetes cases and reported hypertension cases. Also as reported by a chemist at Patta village, majority of the villagers come from as far as 10-15 km for diabetes testing and blood pressure.

### *Water Disinfection:*

RUCHI provided the villagers with 'chlorine' for disinfection of water at household levels (RUCHI-Annual Survey Report, 2017). These have decreased the incidence of water borne diseases. The villagers have reported positive effect of this form of water purification and according to the villagers; the water related health problems have also reduced drastically. This was carried out in more villages particularly those around the slums.

Drive against use of Tobacco & Alcohol: Smoking and alcohol consumption is quite high in slums. There are many incidences of domestic violence under the influence of alcohol. The CHMs are educating the slum dwellers on ill effects of smoking and alcoholism on their health and social life. As reported by CHMs, roughly 60% of people smoke and drink and many of them use excessive alcohol which threatens their personal life.

A large majority of people attend educational camps/sessions organised by RUCHI in both slums and villages. That proves the effectiveness of RUCHI Health Education outreach effort. All employed CHMs are women and they have now established cordial relations with women in project area and hence 75% of women participate in the sessions. The attendance of males in such sessions is as low as 25%.

Self Help Groups (SHGs): The exposure of women through Self Help Groups have enabled them to be part of the local governance like different welfare schemes. One of the achievements of SHG is that the womenfolk have now developed the habit of saving money. The members of the SHGs are responsible for maintenance of cleanliness of the village and

are also trained to help in community health promotion. Most of the women in the SHGs are homemakers, farmers, menial labourers or self employed. SHGs has also provided a common platform for women to take decision at the community level and also share their personnel problems faced in their day to day lives. The savings collected are given as loans either for their personal or household needs. The SHGs in the meetings also discuss about the social evils prevalent in the society and fight together against them. They have also achieved in fighting many social evils in the society (RUCHI-Annual Survey Report, 2017). Besides all these, women in the SHGs also get the opportunity to go out of their homes for educational and agriculture exposures to further enrich their knowledge.



A women meet held at RUCHI

Sanitation: A total of 10 trash bins were constructed by RUCHI as targeted and are considered to be very useful in all the villages. The trash bins are routinely cleaned by members of the SHGs. The slum dwellers are made aware of the ill effects of open defecation and maintenance of hygiene. The number of people who defecate in the open have decreased and many have opted to use the public toilets on payment of @ Rs 2/-. RUCHI have created awareness amongst the villagers about the good habits of washing hands before meal and overall cleanliness. These, have brought down the incidence of disease at a great extent.



Bhogpura village women involved in a cleaning drive

**Efficiency:** RUCHI have wisely allocated the funds in each areas of water resource management, advocacy and improvement of health, conducting trainings for farmers, etc. The training imparted to the farmers have enriched their knowledge and understanding about farm land utilisation and management. Now, with the availability of water from irrigation tanks and expected long term impact of the percolation tanks, retention of water through check dams and protection of other water bodies have increased the agricultural yields considerably and is expected to impact further in the coming years. It has also provided access to safe drinking water to about 700 families and perennial availability of drinking water. The project have also empowered the women through the trainings and exposures conducted for women. These have helped women to come out from the four walls of the kitchen. In a sense the women in many villages have started participating in the panchayat meetings for community development and are also involved in decision making. A quick comparison of costs of works done by RUCHI and the government was done informally and it was heartening to know that people liked and preferred the work of RUCHI on three parameters: quick decision, better quality and lower costs. Therefore, it can be said that project funds were used in most efficient manner.

**Sustainability:** The assets constructed under this project will be sustained with help of the members of SHGs in the respective villages. However, the process of imparting awareness with regard to health education has to be ongoing through the Community Health Motivators. At present the CHMs are employed by paying honorarium to them. So, it will be essential to retain the CHMs for follow up and obtain a long term impact on the health, social awareness and other fronts. The trainings and farm demonstration imparted to farmers will yield a long lasting impact.



Farm demonstration at RUCHI

The trees planted will in the long run provide shade, fruits, fodder for the cattle and also provide ecological balance in the environment. The vermicomposting units are encouraging and adopting organic farming.



Trees stock for plantation at RUCHI

**Local governance:** Due to the trainings imparted by RUCHI in regard to participation in panchayats and local governance by making them aware about the different government schemes and benefits. Many of the villagers have applied for Gaushala (cow shed), toilet scheme, polygreen houses, solar fencing, solar lights and construction of roads. The women group in Surajpur told us that the government have agreed to construct a play ground for the village and also a health centre in their village. In some villages the villagers took benefit of loan of Rs. 50,000/- @ 7% per annum for buying buffalo under the Integrated Rural Development Program (IRDP). The farmers are now able to feed more cattle with the Napier grass given for plantation by RUCHI.



#### **Success story of SHG**

Mrs. Anju aged 35 years from Tujhaar village had taken loan from the SHG and set up a variety store in her house which is next to her Kitchen. She has now become a home maker as well as earner in the family. Due to her earnings and contribution to the income of the family, she has gained more independence, respect and has been actively involved with the decision making in the family as well as in the village community.



Another success story- SHG



### **The leaf lady at Dhanyon village**

Ms. Kamla Devi aged 59 years is the Secretary of the SHG in Dhanyon village. She collects leaves from the forest and makes leafplates. These plates are sold in the village itself and are bought by the villagers during festivals and marriages. Whatever she earns from selling, she has started saving and puts the collection in the SHG bank.

### ***Learning & Observations:***

1. It is worth spending time and money on awareness creation and education of people in any project and especially when it involves construction works like this project.
2. The people are more interested in short term gains than long term gains where the people live on subsistence levels.
3. In Surajpur village animals are feared as they finished off the crops. So, the villagers constructed small hut where they undertake duty by turn at night and beat drums/produce sounds to chase away the animals from attacking their fields. Bringing in a long tail *languor* to scare away monkeys was a new thing to learn for people as well as us.
4. In lower dry areas, it was suggested by farmers for provision of hybrid of Amla trees which requires less water. Also in areas which is very often attacked by monkeys and wild pigs, it was suggested that Lemon/Orange may be distributed for large scale plantation.
5. In some villages, villagers used *neem* leaves for preservation of seeds.
6. In some villages, the villagers are making bamboo baskets for nursery plants as well as for carrying construction materials. SHGs can further promote this activity for income generation.
7. In villages where animals are feared to finished off the crops, the farmers have started planting a medicinal plant locally known as '*Kali jeeri*' in English called purple fleabane with its scientific name '*Centratherum Anthelminticum*' which fetches Rs.500/- per kg. The farmers further said that they opted to plant Kali jeeri because:
  - (i) it can be cultivated in dry farmlands or where there is no source of water
  - (ii) It is mostly cultivated in areas which have less water facility for irrigation.

### ***Recommendations:***

1. In Dhaar village, the villagers wanted a washing area to be constructed near the natural spring locally called '*bawari*'.
2. Though rice is also consumed, according to the villagers Rice is not planted due to availability of less water but the possibility of seeds of rice cultivated in dry lands can be provided.
3. In Surajpur village, the people request for cementing a platform close to check dam to put up a pumping generator for water lifting. Subject to funds available, this may be considered. The actual check Dam was constructed at about 100 meters below the

present pumping site and now the people plan to shift the pumping set to next to dam where there is plenty of water. .

4. Some women group felt the need of vocational trainings like stitching and knitting imparted to the ladies by RUCHI as a source of income.
5. The slum dwellers want RUCHI to construct toilets, provide tap water and a proper washing place for them.
6. There is a need to construct toilets for households without such facility to support the State government imitative of Open defecation free (ODF).
7. Area specific trainings should be imparted to the farmers.
8. There is a need to retain the Community Health Motivators (CHMs) for follow up and obtain a long term impact on the health, social awareness and management of assets for agriculture.
9. Construction of more trash bins.

**Overall perception of the villagers and slum dwellers regarding RUCHI:**

1. RUCHI Provides valuable information regarding government schemes, their rights, etc.
2. The SHG set up by RUCHI brought togetherness/oneness among female members and keep them motivated and productively engaged
3. RUCHI provides a platform for exposure and mutual exchange of knowledge and understanding for their betterment. .

**6. Conclusion**

Water is one of the most basic human needs and is indispensable to almost all economic activities, including agriculture, energy production, industry, and mining. With impacts on health, gender equity, education and livelihood, water management is crucial to sustainable economic development and the alleviation of poverty. Growing populations and depletion of ground water reserves makes water supply under unprecedented pressures and due to more demand there is insufficient water to meet human needs, as well as sustaining the environmental flows to keep our ecosystems healthy. These depletion of groundwater reserves occur in many places, leaving current and future generations with close to no buffer against increased climate variability.

The township of Baddi is undergoing rapid industrialization and has impacted agriculture in Baddi area where dependence on industries for cash income is increasing. The new generation with more education and skill prefers to work on a fixed monthly salary where

cash is received immediately rather than work on their farms where there is uncertainty due to weather. However, the hilly villages away from township are mostly still dependent on agriculture for sustenance and livelihood. With creation of more facilities in terms of access and management of water, construction of poly green houses for farming, improvement of roads, farmers' training & exposure, etc. the villagers are motivated to be more involved in farming. They also find it more lucrative than working as industrial labourers and prefer to settle at home. The off season vegetables fetches them a good price. Dhar, Thedpura, Tujhar, Pipalta, Damrot and Surajpur are villages, to mention a few, who love and promote agriculture work whole heartedly.

The Community Health Motivators (CHMs) are effective in bringing about awareness on various aspects of life thereby empowering women. Because of consistent efforts and interventions of CHMs on health education and prevention of diseases, the incidence of water borne diseases and non-communicable diseases has decreased to a great extent. It is also important to note that women benefitted most from the project by their active participation. Female Self Help Groups were also created and it has introduced the practice of saving to many of the womenfolk.

A component of the project which is to create awareness among the community members has been able to involve people in attending and having a say in local village panchayat meetings and avail of government schemes benefits which is a step forward for sustainability.

One of the important step taken by RUCHI for water management is a step forward to meet the great development challenges of the 21<sup>st</sup> century and aide to access to safe drinking water and sanitation for the 30 communities of Baddi Township, Himachal Pradesh. Proper water management have provided clean and liveable villages, food security, income through agricultural growth, and healthy ecosystems.

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**Annexure- 1**

Table 10: Villages with the number of houses without toilet facility in the 23 villages covered under the project

S.no.	Name of Village	No. of households without toilet
1	Thedpura	3
2	Tujhaar Pipalta	4
3	Kathloh	3
4	Rugi-Bhogpur	2
5	Haripur Mahua	3
6	Dhaar	9
7	Kendol	1
	Total	25