# Village in Action for Water Stewardship

## - a community perspective

*from Bhogiramangund and Naglapur Villages of Raichur District, Karnataka, India*

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ALLIANCE FOR WATER STEWARDSHIP

ಸಮೂಹ SAMUHA

Hindustan Unilever Limited
Hindustan Unilever Foundation

# Contents

# Foreword

When AWS first began work to develop an internationally consistent standard for water stewardship, there was a realisation that, to achieve its intended impacts, it would need both local supplementary guidance and the right partnerships. In this way major water using companies and utilities would be able to engage effectively with other stakeholders at the level of catchment, and to do so in diverse settings and sectors where water risk exposure was highest.

The implementation of the AWS Standard in BR Gund described in this report, is in pursuit of both of these objectives: sound local implementation guidance delivered through strong partnerships. It demonstrates that, with the right approach, the internationally-consistent AWS Standard can drive meaningful change on the ground in rural India. It does so by providing a framework for analysis (asking the right questions about community water use) and a framework for engagement (supporting local water governance mechanisms).

Amongst the important findings from this report, are community water stewardship's ability to marry traditional water management practices from rural India with modern mapping exercises, and to support established development methodologies like Participatory Rural Appraisal and enable a group articulation associated with water management.

Implementation of the AWS Standard allows for a cogent articulation on water in BR Gund, that along with ongoing efforts supported by HUF and actioned by communities and SAMUHA, will yield positive results in terms of water saving, with the promise of rejuvenation of communities' water resources, restoration of water quality and biodiversity, and strengthening of equitable water governance over the coming years. All partners in this project are excited about the future potential of community water stewardship, and we expect these to inform additional interventions in rural India in the near future.

**Adrian Sym**
Executive Director

ALLIANCE FOR WATER STEWARDSHIP

**T Pradeep**
Secretary

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CEO

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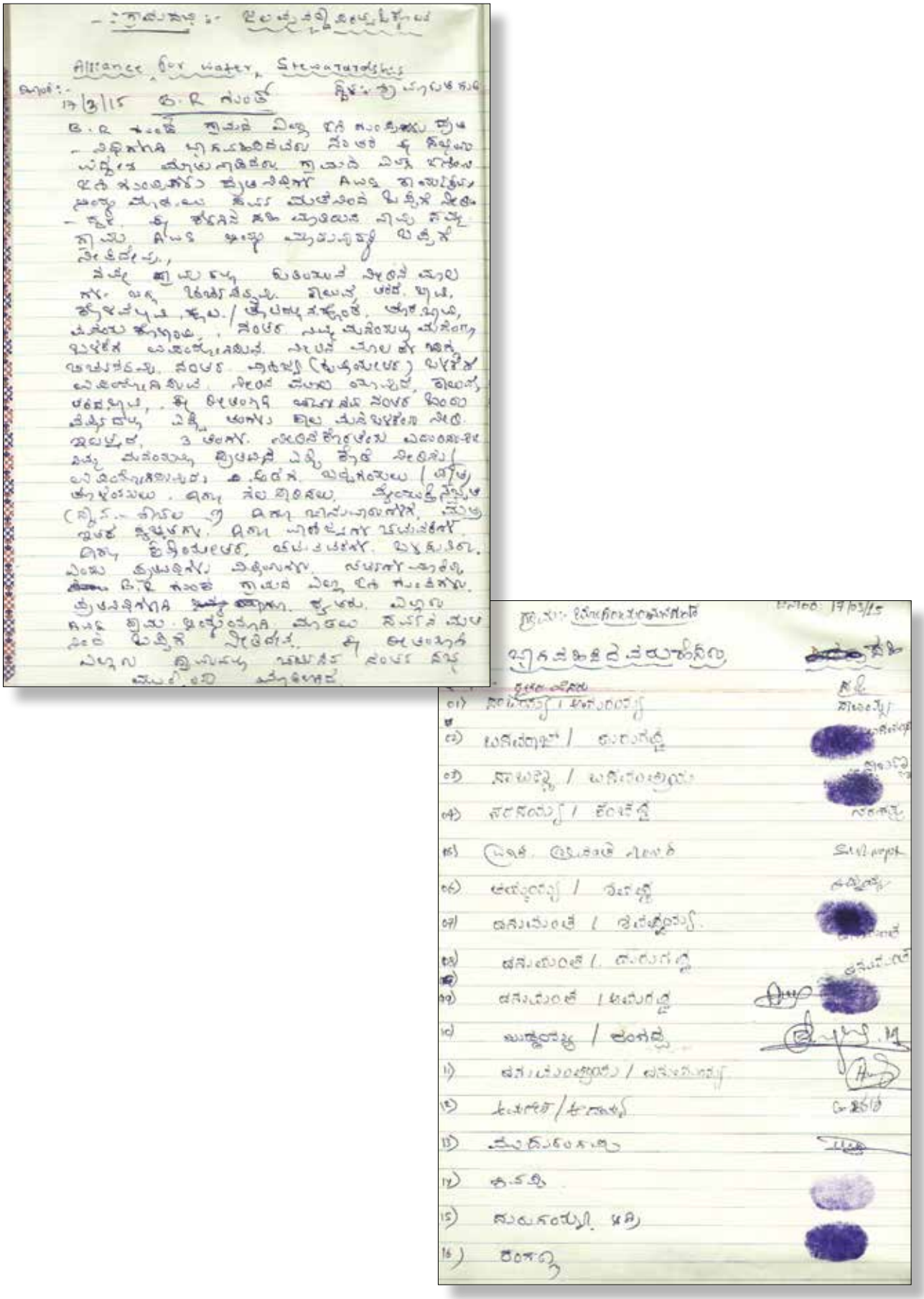
**Extract of the Resolution approving the AWS project as passed in the BR Gund Gram Sabha held on 17th March 2015**



I

# Executive Summary

Water plays a vital role in existence of life forms and development of civilizations. Food security, hygiene and sanitation, livelihoods and environmental sustainability are significantly dependent on water availability, affordability and quality. Water, as a natural resource, demands efficient management through planning, developing, distributing and managing the optimum use of water resources. This holistic approach represents a sub-set of water cycle management. Preferably, water resource management planning encompasses equitable consideration to all the competing demands for water by various stakeholders and seeks to allocate water on a reasonable basis to meet the demands while ensuring sustainability. This calls for a participatory approach for this resource management by imbibing scientific approaches in the practice of all user groups.

Water stewardship is defined as the use of water that is socially equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder-inclusive process that involves site- and catchment-based actions. The structure of the 'Standard' in the Alliance for Water Stewardship (AWS) framework enlists six process steps for water stewardship by Committing, Gathering information and understanding, Planning, Implementation, Evaluation and Communication and Disclosure. Communities face challenges such as climate variability, limited access to infrastructure, legal and regulatory restrictions, bureaucracy, economic uncertainty, pollution and inefficient management of water resources with respect to meeting their needs for water. The present initiative strives to establish a platform for the community to address these issues by collective planning, adoption and implementation of inevitable practices and principles associated with sustainable water resource management. The community water stewardship aims for outcomes such as good water governance, sustainable water balance, good water quality status and healthy status of important water-related areas.

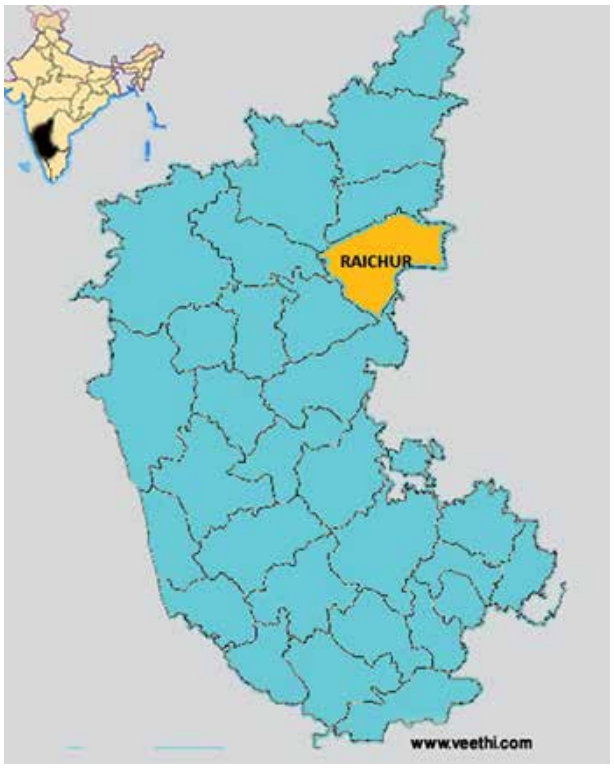
**Fig. 1: Canal Sub-distributary In BR Gund**

II

# Introduction

The ever-increasing global population poses mammoth challenges for present agricultural systems for food security. Simultaneously, changing lifestyles, socio-economic activities and climate change are mounting pressure on the limited resources of fresh water. Keeping in view the projected threats for social, economic and environmental health in future due to water scarcity, an initiative for responsible water management was introduced by the 'Alliance for Water Stewardship' (AWS) in 2009. Committed to an equitable, open and transparent approach, AWS launched the first International Water Stewardship Standard in April 2014, also known as the "AWS Standard". The Standard calls for responsible water use by water stewards through understanding the water use, catchment contexts and shared concerns in terms of water governance, water balance, water quality and important water-related areas, engagement in meaningful individual and collective actions with the sole objective of benefiting people and nature.

**Fig. 2: District Map of Raichure**




SAMUHA, denoting 'an organized group or society' in Sanskrit, has been committed to socioeconomic development of the vulnerable communities in Karnataka state. With its mission of 'improving the Quality of Life of vulnerable people within defined periods of time', SAMUHA has always been committed to bringing in innovations in natural resource management thereby ensuring sustainability of natural eco-systems and socioeconomic empowerment of communities. SAMUHA's initiatives for low input and low cost agriculture have benefitted vulnerable farming communities from dry land regions of Karnataka for the last twenty-five years.

To ensure greater sustainability to agriculture under such challenging agro-climatic zones, SAMUHA implemented 'AWS Standard' in 2014. As a piloting initiative, two villages were selected in Raichur district, Karnataka.

## 2.1 The Background

The district derives its name from its headquarters town Raichur (origin of name Rayachooru in Kannada). Racha being derived from Raja (i.e., King) and oor meaning a place of town, Rachavoor means 'King's place' in Kannada. In Hindi and Urdu, the equivalent of Raya being Rai, it was spelt as Raichur in Urdu, later bringing that usage into vogue in English as well. In terms of geographical area, the district occupies the third place among the districts of Karnataka State, while in respect of population it occupies the tenth place.

Raichur district is situated between 150 09' and 160 34' N latitude and 750 46' and 770 35' E longitude. The general slope of the district is from the north-west towards the south-east, its average height above the Mean Sea-Level being just 1,311 feet. Two major rivers

**Fig. 3: Base Map of GR Gund**


in this district are the Krishna and the Tungabhadra, which run through the entire northern and southern boundaries of the district, respectively.

## 2.2 Objectives

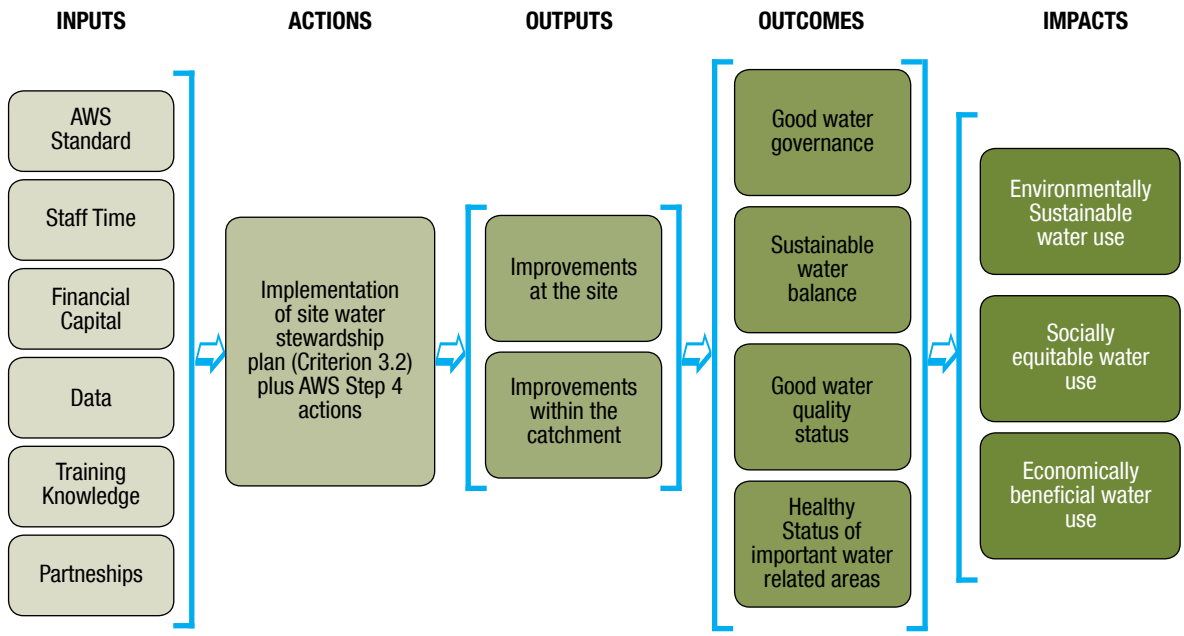
This socio-developmental initiative aims at the following key objectives.

1) To promote good water governance in the use, development and management of water resources and the delivery of water services
2) To restore sustainable water balance considering the amount and time of water use, volumes withdrawn, consumed, diverted and returned,
3) To ensure good water quality status in terms of physical, chemical and biological properties
4) To restore and sustain healthy status of important water-related areas

## 2.3 The AWS Theory of Change

The AWS Theory of Change advocates for a series of inputs bundled with a set of good water stewardship practices (actions) aiming for short-term outputs (improvements at the site and within the catchment) resulting in long term outcomes (water governance, water balance, water quality and important water-related areas). This initiative focuses on imparting appreciable impact on social, environmental and economic aspects involving various stakeholders. This broad framework allows participatory planning, execution, monitoring, evaluation, policy advocacy and governance involving all stakeholders for optimum effectiveness.

**Fig. 4: AWS Theory of Change (Source: The AWS International Water Stewardship Sandard, 2014)**



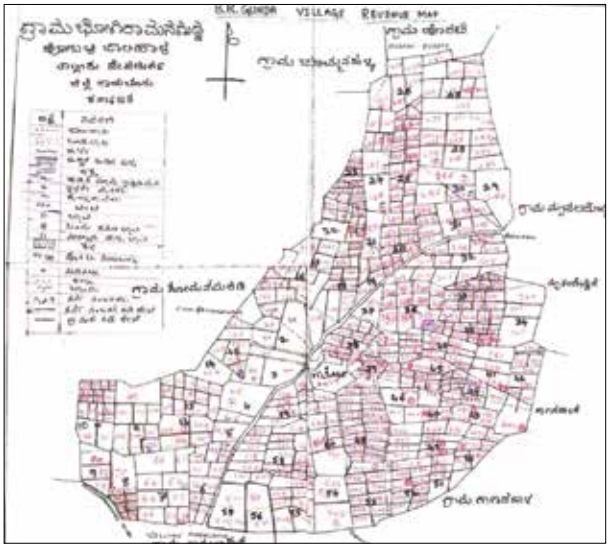
## 2.4 Step 1: Commit to being a Responsible Water Steward

This initial step of water stewardship documents and drives commitments for a holistic approach. These commitments are continually revisited during the phases of planning, execution and assessment to advance and drive leadership and commitments in the space of water stewardship.

### 2.4.1 Establishment of a Leadership Commitment on Water Stewardship

A Village Climate Change and Development Committee (VCCDC) was constituted in Bhogiramangund and Naglapur with membership of 297 households. The executive committee had equal representation of both the genders. Similarly proportionate representation of all caste groups, tribes and religious groups was ensured during formation of the executive committee.

**Fig. 5: Village Revenue Mapof BR Gund**



The translated commitment by the VCCDC in English is as follows.

We, the residents of Bhogiramangund and Naglapur villages, commit to support the site's pursuit of responsible stewardship. We shall support the site's efforts to achieve the outcomes of water stewardship, namely good water governance, good water balance, good water quality and healthy Important Water-Related Areas. We shall respect the right of all stakeholders on-site to have access to safe water, adequate sanitation and hygiene. We commit that the site will attempt to engage stakeholders throughout its efforts in an open and transparent manner and that the site will comply with all legal and regulatory requirements as well as respect legal and water-related rights and relevant water-related national and international treaties. We shall coordinate with and support public-sector agencies in their efforts to encourage water-related planning and implement water-related policies. We shall support the site's efforts to continually improve and adapt its water stewardship actions and plans and ensure that there is sufficient organizational capacity to successfully implement these programmes.

### 2.4.2 Development of a Water Stewardship Policy

To provide all-encompassing guidance for the site on organizational approach to stewarding water resources, a water stewardship policy was drafted. To achieve the policy goals, the VCCDC in collaboration with SAMUHA, will

- Communicate and reinforce sustainable water management practices to all stakeholders;
- Comply with applicable legal and other requirements;
- Consider environmental consequences and sustainability concepts in planning and decision-making;
- Provide leadership in environmental conservation with focus on restoration of regional biodiversity;
- Strive to use water efficiently and minimize water loss in all uses of water;
- Strive to prevent pollution and promote reduction, reuse, recycle and proper disposal of waste;
- Strive to engage all stakeholders in efficient water management efforts, communicate periodically and facilitate mid-course corrections, if required, for greater effectiveness.

## 2.5 Step 2: Gather Data to Understand Water Risks, Impacts and )pportunities

### 2.5.1 Approach and Methodology

The study process followed in community water stewardship includes a combination of traditional processes and advanced mapping exercises. The baseline data collection takes into account both primary and secondary data collected from all

stakeholders. The primary data has been collected at three tiers.

1. A structured questionnaire enquiring about knowledge, attitude and practices of households related to water management. This further involved collection of information on demographic, social, educational and economic profiles of households. A prior informed consent was received from all the participating households under the study area. All households were allotted a unique identification number and household names were replaced with these numbers to ensure privacy. The investigators for undertaking the survey, were selected for their proficiency and diligence, community sensitivity, understanding of the task and commitment. Each investigator was allotted 5 households per day and was able to devote adequate time to each respondent. The investigators were trained on conducting the survey following instructions mentioned in the structured questionnaire. The supervisors repeated the survey in randomly selected 10% households for verification. Stress was laid on avoiding human errors in data entry by capacity building of data entry operators and re-checking the entered data against the hard copies of the questionnaire.
2. GIS/MIS data backbone employed in this study allows all data a spatial framework. GPS coordinates of all the households were collected and placed on the map by linking the household through a place-marker. Similarly all agricultural plots were GPS'd and were linked to corresponding households on the map. The source for secondary data is local administration and self-governance bodies. Digitization of data and presentation of the same through spreadsheets allows project staff and researchers to access information in an error-free and convenient manner. A website dedicated to this purpose was hosted and all project related documents and spreadsheets were shared through this website. This was further facilitated by providing download links to all documents and maps.
3. Village level information was collected employing social tools such as transect walk and participatory rural appraisal (PRA). This was aimed at collecting information on use of water in the social, economic, religious and aesthetic purposes. Attention was paid to equal representation of genders, castes and resource owning categories in all participatory processes.

## 2.5.2 Definition of the Physical Scope

Water sources for BR Gund include both immediate or proximate water sources from which the site draws directly and the ultimate water source. The site draws water directly from sources of groundwater such as bore well and dug well. The canal network serves as the ultimate water source for this region. All the water sources are fresh in nature, and none of these are brackish or saline. Grey water from agricultural land contaminated with synthetic pesticides and inorganic fertilizers is the major source of water pollution.

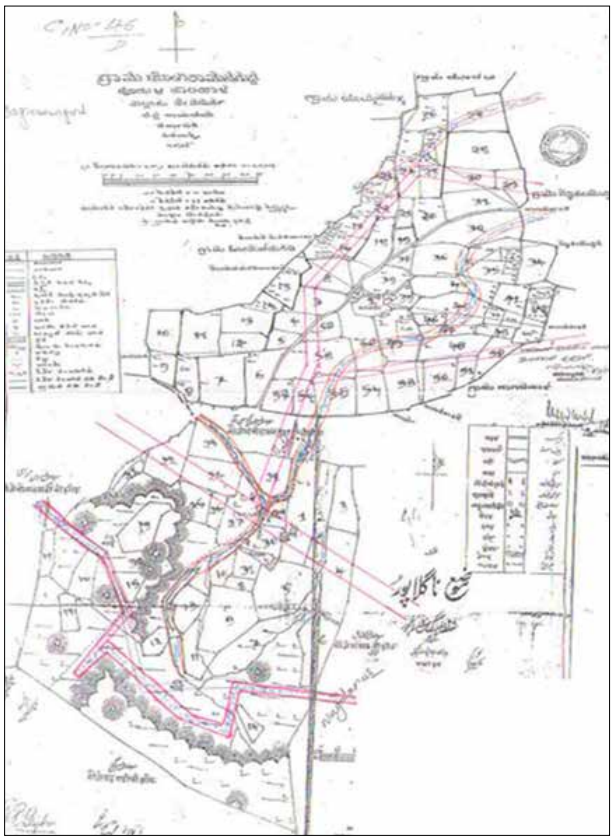
## 2.5.3 Site's Boundaries

The two villages are spread over 601.145 hectares with 581.58 hectares of land under agriculture. The site is surrounded by villages Mykaldoddi, Gandhal and Ooti in east, Horahatti in north, Somanmardi and Bandebhavi in west and Yalaghatta in south.

## 2.5.4 Site's Water Sources

The water sources within the site include both proximate and ultimate water sources. Three farm ponds, two streams, sixty dug wells and one bore well

**Fig. 6: Water source in BR Gund**



serve as proximate water sources from which water is drawn directly. Piped water service to community posts installed on village streets, is provided by the Water Resources Department under the State Government of Karnataka. Water for this service is sourced from groundwater. Two distributaries branch out from the main canal under the Upper Krishna Project irrigating agricultural land in the site.

### i. Site's Receiving Water Bodies

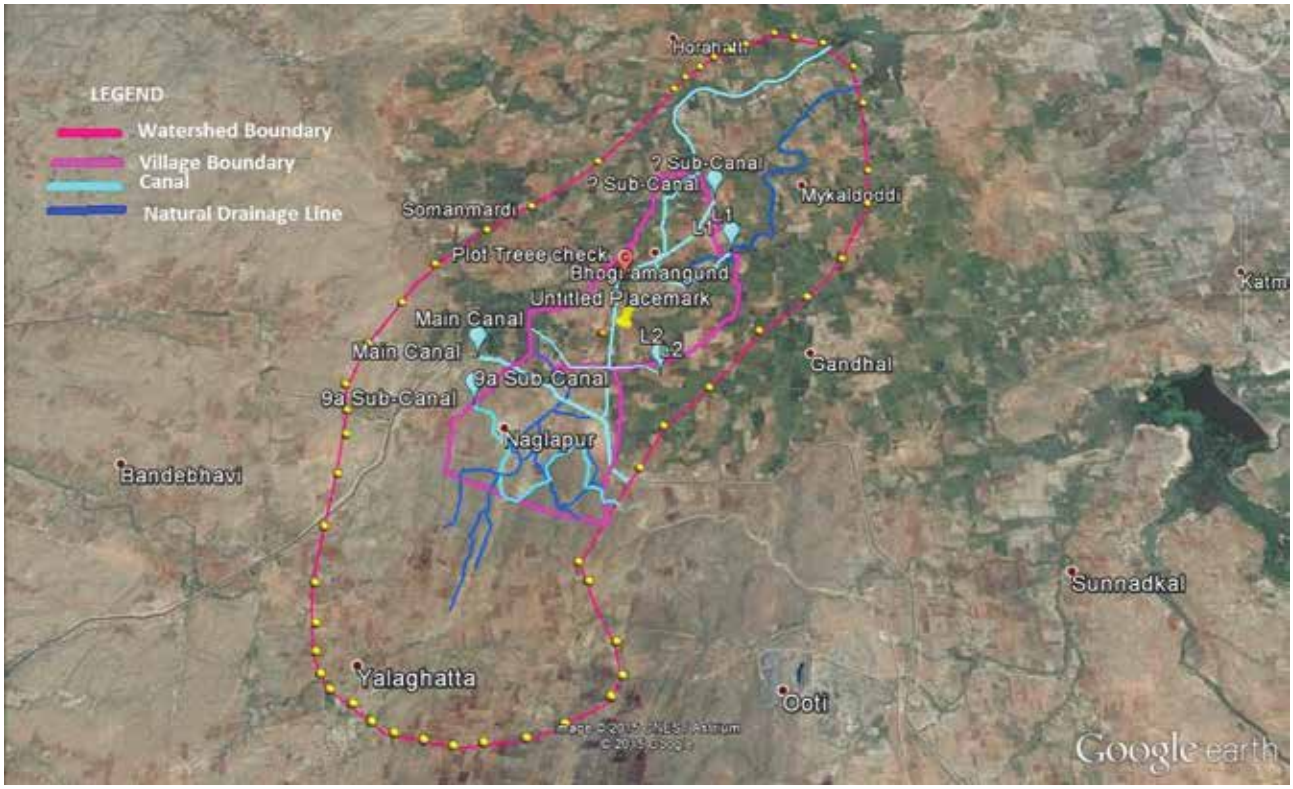
The canal network is the most significant receiver of water in the identified hydrological boundary. Rest water contributes towards recharge of ground water thereby augmenting water level in dug wells and bore wells. Some natural drainage lines flow into the adjoining villages and recharge sources of surface water and ground water.

### ii. Site's Catchments

The catchment of the site is spread over 2790.78 hectares with a perimeter of 23.735 kilometers. The GPS coordinates of the two extreme ends of this polygonal area are 16.3411654°, 076.7976767° and 16.2652241°, 076.7354562°with the midpoint represented by 16.3035248°, 076.7645448°. The catchment area of this watershed extends beyond the village boundaries of BR Gund and Naglapur and includes part of neighboring villages such as Mylakdoddi, Horahatti, Somanmardi, Yalaghatta and Ooti. The land area of the geographical region under the villages BR Gund and Naglapur is 1485.458 acres.

The natural drainage lines extend beyond the geographical boundary of the area under study and contribute water to Yalaghatta and Ooti. Similarly this

**Fig. 7: Watershed boundary of BR Gund**



site receives water through natural drainage lines from the village Mykaldoddi. This area receives an average annual rainfall of 611 mm. Simultaneously, the canal network across the region under study receives water from the greater watershed in the basin of Krishna River. This is further enriched by contributions from a few natural drainage lines in the area under study. The canal network under the Upper Krishna Project (UKP) not only supports water demand of this region with water fed from the catchment area of Krishna river, but also it carries water received from natural drainage lines in this watershed region to geographical locations beyond the above demarcated watershed boundary.

## 2.6 Identification of Stakeholders, their Water-Related Challenges and the Site's Sphere of Influence

The stakeholders are entities and people that

- Share the water resources as well as the challenges
- Contribute (positively or negatively) to the status of the catchment due to their withdrawal and discharge;
- Rely on the catchment for non-business purposes (e.g., health, sanitation, recreation, cultural measures);
- Are directly or indirectly affected by water use (upstream or downstream effects);
- Directly or indirectly affect water sources (upstream or downstream) and potentially contribute to the site's water risks

The positioning of stakeholders in this initiative is undertaken considering the relative interest, control, power and level of influence through three indices.

- Stakeholders and Sphere of Influence
- Stakeholder power, interest and engagement matrix
- Stakeholder influence and engagement matrix.

**Fig. 8: Stakeholders and Sphere of Influence in BR Gund**

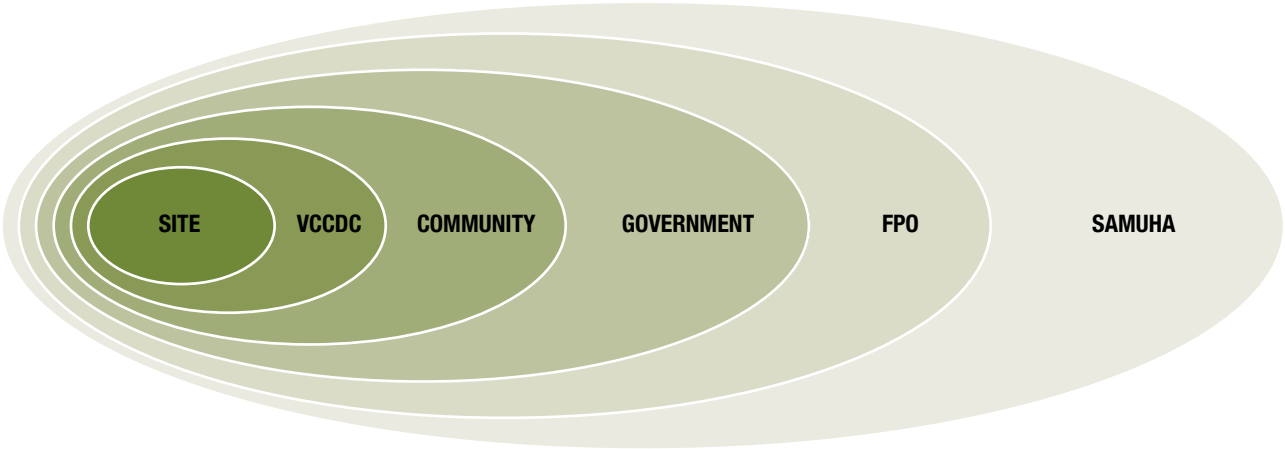


**Table.1: Stakeholders and Sphere of Influence in BR Gund**

| Stakeholder | Type of Stakeholder | Water related Concerns and Level of Interest | Ability to influence/ be influenced | Engagement to date |
|---|---|---|---|---|
| VCCDC (SH-1) | Environmental – Civil Society | Impacts on local high lands, | High – Moderate | Creation of awareness on water conservation through village meetings |
| Community (SH-2) | Farming and agri-business | Availability of water for domestic, drinking, sanitation, animal husbandry, agricultural and religious purposes | High- Moderate | Contribution of labour and land for construction of watershed structures |
| Government (SH-3) | Local Self-governance and administrative authority | Responsibility of providing water to the community for domestic and agricultural purposes | Moderate – Moderate | Construction of farm ponds and trench cum bunds in farmers' field under National Rural Employment Guarantee Programme, provision for drinking water under Rural Water Supply initiative |
| FPO (SH-4) | Famer- business | Impact on local agrarian economy | Low - High | Construction of 33 trench cum bunds, digging of five open wells and two bore wells, |
| SAMUHA (SH-5) | Non-Government Organization | Increasing water use by the community with inadequate provisions for water conservation and water harvesting | High - High | Awareness creation on sustainable agriculture |

The community as a stakeholder comprises a) women, b) children and youth and c) tribal community.

The evaluation of stakeholders is carried out keeping in view

- Willingness to engage
- Level of influence
- Risk of engagement
- Opportunity for benefit

The community water stewardship denotes sustainable water governance by the community facilitating equitable resource allocation. The VCCDC, a community based organization with equitable representation of castes, genders and economically weaker sections of the society, plays the lead role in implementing this imitative. The community as a whole, is targeted for inculcating behavioral adaptations through precisely designed interventions. Incorporating sustainable practices with reinforcement of knowledge, favoring desired changes in perception and attitude, is of utmost importance in intervention planning and implementation. For financial and institutional sustainability in undertaking this stewardship, support from local administration and multi-tier self-governance institutions is pivotal. Leveraging funds under social welfare programmes by the government strengthens this initiative by fostering public-private partnership and managing common resources in a responsible manner. For continuance of these pro-nature, pro-women and pro-poor practices in the proposed and neighboring geographical areas in future while ensuring financial benefits to this agrarian community, a farmers' producer group (FPO) was formed. This will extend the benefits of collective action in organized marketing of agricultural produce to small and marginal farming household through the FPO. SAMUHA, a not-for-profit organization with a few decades experience in efficient natural resource management in the South Indian state of Karnataka, acts as a facilitator of the 'community water stewardship' concept while engaging all stakeholders in furthering this breakthrough idea.

Fig.9: Stakeholder Power, interst and Engagement Matrix

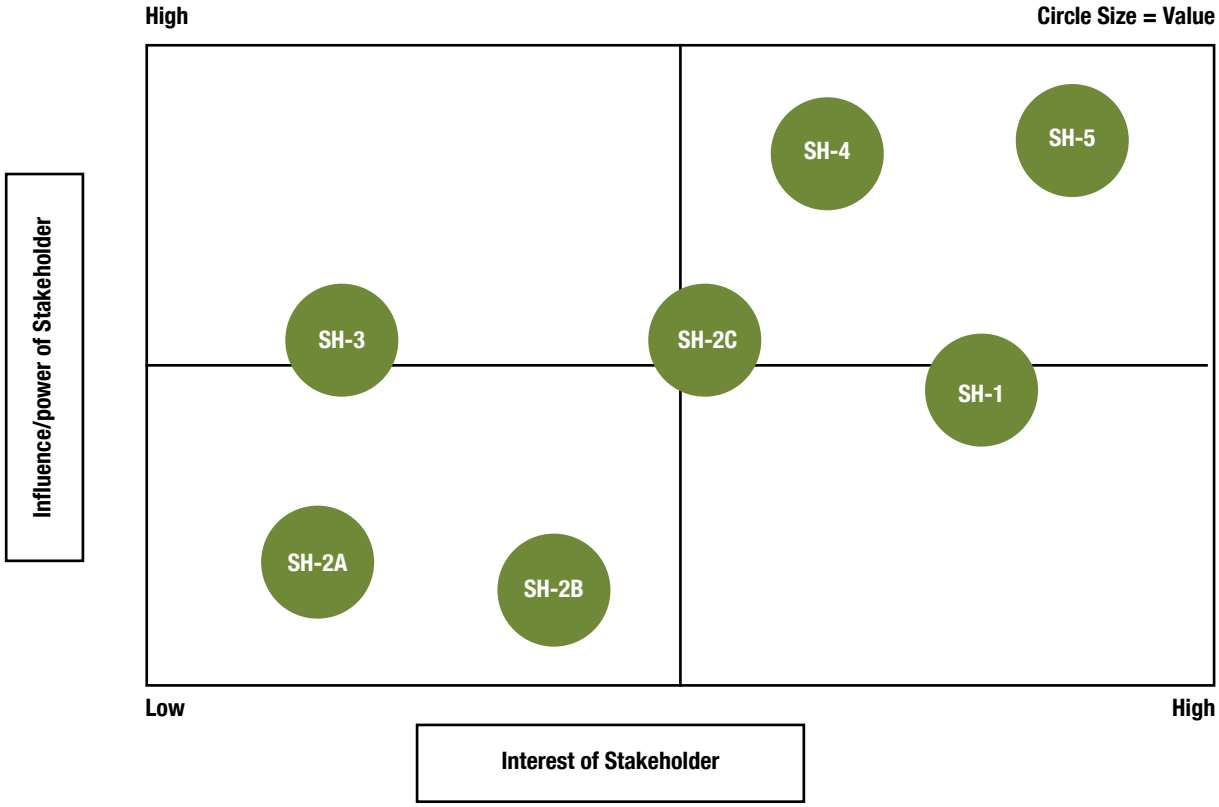



Fig.10: Stakeholder Influence and Engagement matrix

## 2.7 The Demographic Profile

The AWS initiative has been implemented in two villages namely BR Gund and Naglapur.

**Table.2: Location**

| Sl No. | Name of the Village | Village Code | Name of the Revenue Village | Name of the Gram Panchayat | Name of the Hobli | Name of the Taluk | Name of the District | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 1 | BR Gund | 486100 | BR Gund | H.Siddapur | Jalahalli | Devduraga | Raichur | 16”18’31.08N | 076”46’09.96E |
| 2 | Naglapur | 486300 | Naglapur | H.Siddapur | Jalahalli | Devduraga | Raichur | 16”17’51.78N | 076”45’.36.69E |

**Table.3: Household Profile**

| Villages | Sex Ratio | No. of Children 0 to 5 years | No. of Minors | No. of Adults up to 58 years | No. of Adults | No. of SC HHs | No. of ST HHs | No. of BC HHs | No. of OBC HHs | No. of FC HHs | No. of people with disability | No. of women headed HHs | No. of HHs migrating |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B.R. Gund | 910 | 162 | 571 | 812 | 953 | 27 | 250 | 2 | 1 | 17 | 10 | 48 | 22 |
| Na-glapur | - | - | - | - | - | - | - | - | - | - | - | - | - |

BR Gund has 297 households with additional 22 households those have permanently migrated to nearby urban and semi-urban regions. As members of these 22 households occasionally visit the village, these households have not been taken into consideration during data collection and analysis. Eight households of Naglapur have permanently shifted to BR Gund while residents of both the villages hold agricultural land in Naglapur. 2.8Social Resources

## 2.8 Social Resources

The area under study has one school, one anganwadi (child care) center and a few religious places of worship. The village has been provided with piped drinking water facility at common points. Primary healthcare and commercial banking facility are not available in the village. The village has poor connectivity with respect to public transport facility.

**Fig.11: Social Resource Map of BR Gund**

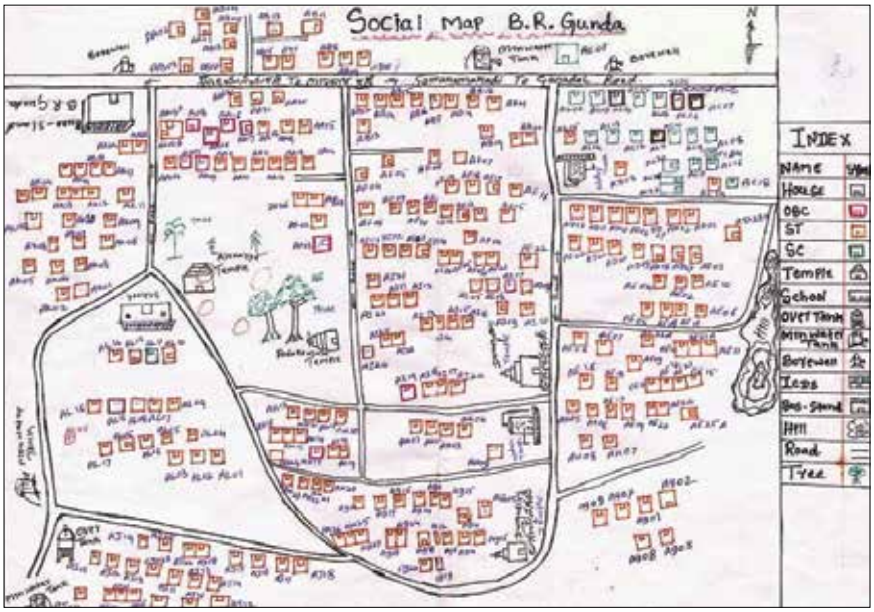
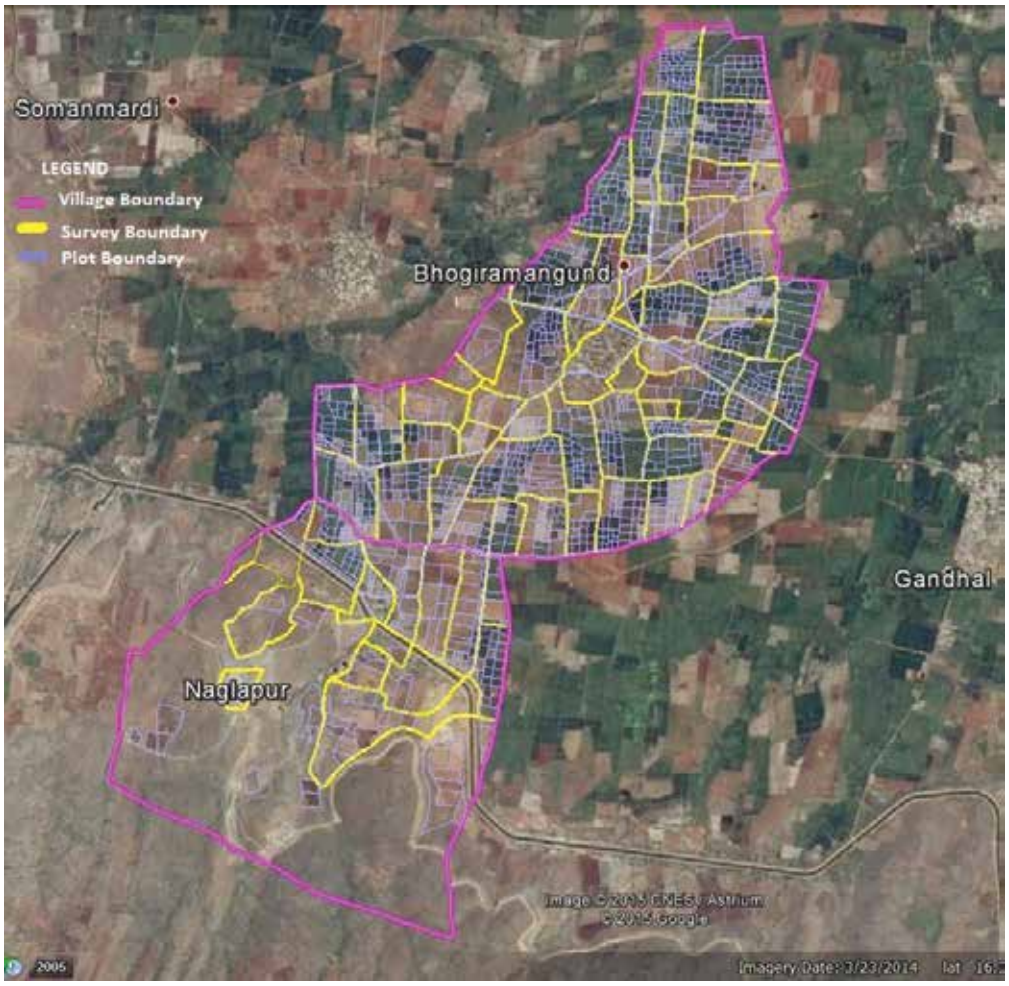


**Fig.12: Plot Map of BR Gund**




The total agricultural land area is 1437.11 acres comprising 602 plots. The Data collection at plot level includes information on plot area, land ownership status with linkage to respective households, soil type, cropping pattern, source of irrigation, GPS coordinates and biodiversity. GPS coordinates of plot boundaries have been collected and tagged on the map for identification, intervention planning and monitoring. Each plot has been linked on the map to the corresponding household for effective monitoring. Digitization of database has been undertaken holistically while sharing the same on the website devoted to community water stewardship.

## 2.9 Sex Ratio

The 297 households comprise  a population of 1524. 47.7% of the household population is female

Sex Ratio by Social Factors:

- The population comprises  Hindu households only with a derived sex ratio of 910.
- At 923, 865, 809, 600 and 600, the derived sex ratio declines from ST to SC, FC, BC and OBC.
- At 1085, 1044, 908, 848, 591 and 428, the derived sex ratio declines from Low medium, Landless, Marginal, Small, Medium to Large landholding households. Derived sex ratios of a very small population under the medium and large landholding household categories may not be true representatives of sex ratio value for these categories.

**Table. 4: Sex Ratio**

| N = | 1524 | Sex Ratio 910 |
|---|---|---|
| Religion | | |
| Hindu | 1524 | 910 |
| Christian | - | - |
| Muslim | - | - |
| Other | - | - |
| Caste | | |
| SC | 138 | 865 |
| ST | 1292 | 923 |
| BC | 8 | 600 |
| OBC | 8 | 600 |
| Forward Caste | 76 | 809 |
| Landholding | | |
| Landless | 278 | 1044 |
| Marginal -0 to 2 acres | 727 | 908 |
| Small – 2 to 5 acres | 366 | 848 |
| Low medium - 5 to 7 acres | 98 | 1085 |
| Medium- 7 to 9 acres | 35 | 591 |
| Large - >9 acres | 20 | 428 |

## 2.10 Household: Age by Sex

- Minors (0–18 years) account for 37.5% of the population.
- People >58 years account for 9.25%.
- People in the 19–28 years age group, account for 20.34% of the population. This is the most appropriate age group for Livelihoods.
- Interestingly enough, the sex ratio in this group is lower than the project median.

The derived Sex Ratio provides another insight:

- The best derived sex ratio is in the age group 49–58 years which shows a healthy sex ratio in olden times.
- The second best derived sex ratio is in the age group 0–5 years, which is contrary to the national scenario in India.
- However, the sex ratio is lowest in the 6–18 years age group. This impacts directly on Education as a critical focus area.
- The derived sex ratio in the 29–38 years group is almost the same as the district ratio.

## 2.11 The Academic Profile

- 9.64% of the population in the area under study is non–literate.
- 81.2% of the population are drop outs who have not completed any of the levels of schooling.
- 93.3% of the persons who have received vocational training belong to the ST social category.
- The persons who have received formal education to the level of graduation and post graduation constitute only 0.72% of the population.
- 35.3% of the population has received education up to anganwadi level only.

**Table. 5: Household: Age by Sex**

| N = | 1524 | Sex | | Derived Sex Ratio |
|---|---|---|---|---|
| | | Male | Female | |
| **Total** | **1524** | **798** | **726** | **910** |
| % | 100% | 52.4% | 47.6% | - |
| 0 to 5 years | 162 | 79 | 83 | 1051 |
| 6 to 18 years | 409 | 232 | 177 | 763 |
| 19 to 28 years | 310 | 169 | 141 | 834 |
| 29 to 38 years | 192 | 100 | 92 | 920 |
| 39 to 48 years | 178 | 88 | 90 | 1023 |
| 49 to 58 years | 132 | 56 | 76 | 1357 |
| More than 58 years | 141 | 74 | 67 | 905 |

**Table. 6: Educational Status**

| N = 1524 | SC | ST | BC | OBC | FC | Total |
|---|---|---|---|---|---|---|
| | 9.06% | 85.17% | 0.52% | 0.27% | 4.98% | 100% |
| **Total** | **138** | **1298** | **8** | **4** | **76** | **1524** |
| Anganwadi | 34 | 480 | 0 | 1 | 23 | 538 |
| Primary School (Grade 1 to 5) | 57 | 547 | 5 | 2 | 34 | 645 |
| Upper Primary School (Grade 6 to 7) | 0 | 16 | 0 | 0 | 0 | 16 |
| High School(Grade 8 to 10) | 0 | 23 | 0 | 0 | 0 | 23 |
| PUC | 4 | 16 | 0 | 0 | 11 | 31 |
| Vocational Training | 0 | 14 | 0 | 0 | 1 | 15 |
| Diploma | 5 | 11 | 0 | 0 | 4 | 20 |
| Graduation | 1 | 10 | 0 | 0 | 0 | 11 |
| Post graduation | 0 | 3 | 0 | 0 | 0 | 3 |
| Non Formal | 0 | 8 | 0 | 0 | 0 | 8 |
| Madrasa | 0 | 0 | 0 | 0 | 0 | 0 |
| Non-literate | 28 | 113 | 3 | 0 | 3 | 147 |
| Not eligible (≤ 3 years of age) | 9 | 57 | 0 | 1 | 0 | 67 |

## 2.12 The Economic Profile

Unskilled labour, home making and agriculture are the three most predominant occupations at 61.84%, 22.82% and 11.84% respectively. The universe of 1056 is based on a population ≥ 18 years. Although more than one occupation contributes towards income, only the primary occupation was taken into considerations in case of the above respondents. Animal husbandry contributes towards household income in case of 74% households directly and 16% households indirectly whereas this serves as the primary source of income for one household only. Migration, skilled labour, professional employment and self-employment provide employment to a small number of households whereas no caste related occupation exists in the area under study. 2.12.1 Monthly Income.

**Table. 7: Primary Occupation**

| | Agric-ulture | Unskilled labour | Skilled labour | Profes-sional | Animal husba-ndry | Self-employed | Employed (govt/ non govt/ private) | Caste related occupation | Home maker and not working | Migration | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | 11.84% | 61.84% | 0.19% | 0.19% | 0.09% | 0.76% | 1.33% | 0% | 22.82% | 0.19% | 0.75% |
| | 125 | 653 | 2 | 2 | 1 | 8 | 14 | 0 | 241 | 2 | 8 |
| SC | 5 | 68 | 0 | 0 | 0 | 0 | 5 | 0 | 22 | 0 | 0 |
| ST | 104 | 537 | 1 | 2 | 0 | 5 | 8 | 0 | 196 | 1 | 8 |
| BC | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| OBC | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| FC | 12 | 43 | 1 | 0 | 1 | 3 | 1 | 0 | 9 | 1 | 0 |

## 2.12.1 Monthly Income

The universe of 1056 is based on a population ≥ 18 years whereas 80 persons are not working. Out of 976 working individuals, 29.62% earn less than Rs.1000 per month. Similarly 35.66% and 22.95% persons belong to income groups of Rs.1001–2000 and Rs.2001–3000 respectively. Therefore, 88.23% of the working population shows financial vulnerability. Only 0.82% of this population belongs to the group earning more than Rs.10000 a month.

**Table. 8: Monthly Income**

| Monthly Income(in Rs*) | 1000 or less | 1001 to 2000 | 2001 to 3000 | 3001 to 4000 | 4001 to 5000 | 5001 to 6000 | 6001 to 7000 | 7001 to 8000 | 8001 to 9000 | 9001 to 10000 | More than 10000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N = 976 | 29.62% | 35.66% | 22.95% | 4.41% | 2.86% | 0.82% | 0% | 0.82% | 0.92% | 1.12% | 0.82% |
| Total | 289 | 348 | 224 | 43 | 28 | 8 | 0 | 8 | 9 | 11 | 8 |
| SC | 29 | 41 | 22 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| ST | 241 | 282 | 195 | 37 | 22 | 7 | 0 | 8 | 9 | 11 | 7 |
| BC | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OBC | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FC | 17 | 20 | 7 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 1 |

## 2.12.2 Landholding

- In the study area, the marginal Farmers are 47.6%, followed by Small Farmers at 23.6%, accounting for a total of 71.2% of the households.
- Only 1.7% of the total households are Large Farmers, followed by Medium and Lower Medium Farmers at 1.7% and 4.7%, respectively.
- If the Landholdings by Social factor are viewed by category, Marginal Farmers physically account for the largest segment in each column.
- Landless households constitute 21.2% of the total number of households.

**Table. .9: Landholding by Social Factors**

| N = 1524 individual and 297 households | Gender (in number of persons) | | Religion (in number of households) | | | | Caste (in number of households) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Hindu | Muslim | Christian | Others | SC | ST | BC | OBC | FC | Total |
| Total | 52.3% | 47.6% | 100% | 0% | 0% | 0% | 9.09% | 84.1% | 0.7% | 0.3% | 5.7% | 100% |
| Landless | 136 | 142 | 63 | 0 | 0 | 0 | 14 | 46 | 0 | 1 | 2 | 21.2% |
| Marginal -0 to 2 acres | 381 | 346 | 140 | 0 | 0 | 0 | 11 | 124 | 1 | 0 | 4 | 47.1% |
| Small - 2 to 5 acres | 198 | 168 | 70 | 0 | 0 | 0 | 2 | 59 | 1 | 0 | 8 | 23.6% |
| Low medium - 5 to 7 acres | 47 | 51 | 14 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 2 | 4.7% |
| Medium- 7 to 9 acres | 22 | 13 | 5 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 1.7% |
| Large - >9 acres | 14 | 6 | 5 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 1.7% |

### 2.12.3 Entitlement

Households in the study area demonstrate high level of awareness on their entitlements. 25.9% households are benefited under Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS). 97.9% households have voter identity cards while financial inclusion through possession of savings bank accounts has been extended to 70% households. Significantly 87.2% households have Aadhar card. 79.1% households enlisted under below poverty line (BPL) and Antyodaya categories; receive subsidized / free food as per provision.

**Table.10: Entitlements**

| | MGNREGS Card | Voter ID Card | Aadhar Card | Bank Account | BPL Card | APL Card | Antyodaya Card |
|---|---|---|---|---|---|---|---|
| Total | 25.9% | 97.9% | 87.2% | 70.03% | 76.4% | 2.35% | 2.7% |
| BR Gund | 77 | 291 | 259 | 208 | 227 | 7 | 8 |
| Naglapur | - | | - | - | - | - | - |

**Benefits from Government Welfare Programmes:**
The area under study has received moderate benefits from government supported social welfare programmes directly contributing towards water conservation. Under MGNREGS programme, 2308 trench cum bunds (6m x 1.5 m x 0.6m)and have been excavated. In addition to these, two check dams have also been established in the area under study. Ganga Kalyan scheme was devised by the Karnataka state government to help farmers with small land holdings in accessing ground water for irrigation. A bore well was provided to a ST household under this programme

**Table.11: Benefits from Government Welfare Programmes**

| Village | MGNREGS | Ganga Kalyan | Other |
|---|---|---|---|
| BR Gund | 32 | 1 | 0 |
| Naglapur | - | - | - |

for irrigation in agricultural land. The interaction with self governance representatives and PRA exercise undertaken with farming households revealed that limited fund allocation and lack of collective action were the major hurdles in accessing and implementing the above mentioned social welfare programmes.

## 2.13 Water and Households: Sources and Consumption

- Access to water in BR Gund shows that bore wells serve as the main source of water for drinking and domestic use. 96% and 86.5% households depend on bore wells for drinking purpose and domestic use.
- Public stand posts are the second most important source of water. 9.4% households depend on this source for domestic use.
- Farm ponds and canals serve as minor sources of water in the area under study for non-agricultural use.
- No household depends on open wells, streams or any other source of water for domestic use and drinking purpose. As the facility of piped water connection at household level has not been availed by households, this service does not benefit the local population.
- No household avails any manual water delivery service. Similarly no water is used for any commercial purpose or non-agricultural occupation at household level.

**Table.12: Source of Water for Households**

| N = 297 households | Canal | Open Well | Bore Well | Farm Pond | Stream | Tap Connection at Home | Public Stand Posts | Other |
|---|---|---|---|---|---|---|---|---|
| For drinking purpose | 0 | 0 | 285 (96%) | 12 (4%) | 0 | 0 | 0 | 0 |
| For domestic use | 1 (0.4%) | 0 | 257 (86.5%) | 11 (3.7%) | 0 | 0 | 28 (9.4%) | 0 |

**Time Spent Every Day for Fetching Water at Household Level**

- Majority of households (44.4%) spend 15 minutes to 30 minutes a day for fetching water, mostly from public stand posts and bore wells. This is followed by the categories of households spending 30 minutes to 1 hour and less than 15minutes a day at 27.6% and 24.9% respectively.
- Only 3.1% of the households spend more than an hour a day on fetching water. It may be inferred that the responsibility of fetching water for drinking purpose and domestic use is moderately challenging in comparison to that in water scarce regions in the same district.

**Table.13: Time Spent on Water**

| N = 297 households | Less than 15 minutes | 15 minutes to 30 minutes | 30 minutes to 1 hour | More than one hour |
|---|---|---|---|---|
| Time spent on Water | 24.9% | 44.4% | 27.6% | 3.1% |
| | 74 | 132 | 82 | 9 |

### Annual Domestic and Non-agricultural Water Consumption

Personal hygiene accounts for 35.2%of the total household water consumption followed by washing and cleaning activities at 29.04% and 10.63% respectively. Collectively these activities represent

## 2.14 Water in Agriculture: Sources and Consumption

Agriculture in the area under study is dependent on surface water and ground water.

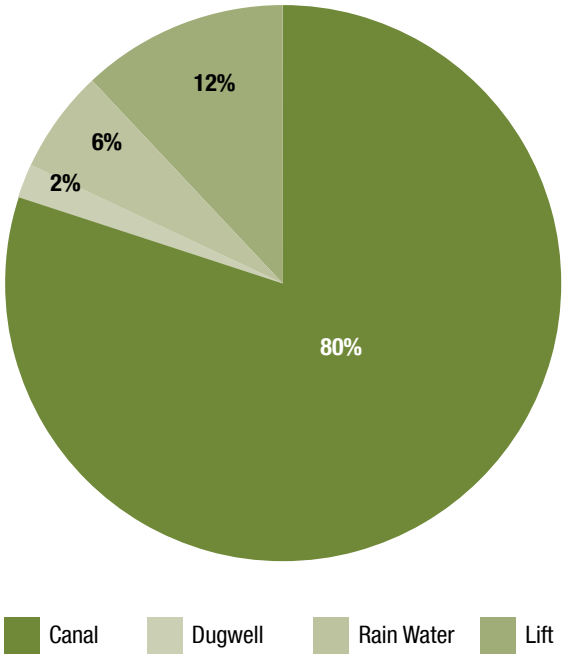
**Table..14: Annual Domestic and Non-agricultural Water Consumption**

| N = 297 households<br>Activity | Average use of water per household per day (in m3) | Total annual use of water by households (in m3) | Fraction of Total |
|---|---|---|---|
| Total | 0.401 | 43836.5 | 100% |
| Cooking | 0.035 | 3803.3 | 8.68% |
| Washing | 0.117 | 12731.2 | 29.04% |
| Cleaning | 0.042 | 4657.4 | 10.63% |
| Personal hygiene | 0.142 | 15432.2 | 35.2% |
| Animal Husbandry | 0.058 | 6372.9 | 14.54% |
| Other uses | 0.004 | 511 | 1.16% |
| Commercial activities(non-agricultural) | 0.003 | 328.5 | 0.75% |

74.87% of the total water consumption at household level. Animal husbandry makes up 14.54% of the total water consumption. As the small scale animal husbandry under Indian farming system possesses cattle sheds or animal shelters close to the homestead plot and mostly women collect water from nearest water source for this non-agricultural purpose, this form of water consumption is considered as an integral part of the household water consumption.

Cooking consumes 8.68% of the total water available in the household. The other uses include uses for religious, aesthetic and recreational purposes, totaling at 1.16%. Traditionally water plays a pivotal role in all religious ceremonies and celebration in this tropical country. This close association with water adds high social values to water conservation in most Indian societies. The water consumption for commercial activities (non-agricultural) is only 0.75% because of absence of any cottage-industry activity.

**Fig.13: Source of Irrigation for Agriculture**



- The canal irrigation contributes 80% of the requirement. Lift irrigation, accounting for 12% of the total requirement, is dependent on surface water available through the canals.
- Thus surface water plays a vital role in assuring water for agriculture in 92% agricultural land area.
- Rainfed agriculture is practiced in 6% of the cultivable land area because of no access to any other source of irrigation. Only 2% agricultural land is irrigated by ground water from dug wells.

The annual agricultural cycle comprises three cropping seasons such as kharif, rabi and summer seasons. The kharif season receive most of the rainfall thereby demonstrating all available cultivable land under farming during this season. Cultivation during the rabi season is highly dependent on the availability of irrigation facility. Therefore, the area under rainfed agriculture drops down to 10.52 acres in the rabi season from that of 47.5 acres during the *kharif* season.

Out of the total crop area of 1067.65 acres, the area under paddy cultivation is 643.6 acres representing 60.28% of the crop area. Bajra, groundnut and cotton are cultivated in 23.44%, 14.21% and 1.82% crop area respectively. Paddy cultivation constitutes 75.11% of the total crop area under canal irrigation followed by bajra and groundnut in 14.25% and 9.74% crop area respectively. Under lift irrigation, bajra, a crop belonging to the minor millet group, occupies 55.96% of cropping area followed by groundnut at 34.16%. A negligible 0.09% of total crop area is cultivated during the summer season because of lack of access to water.

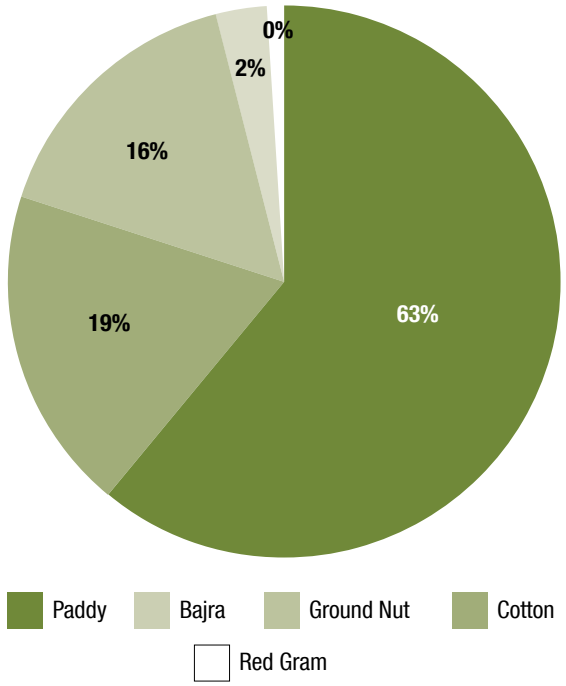
As obvious from the previous table depicting the crop area under each crop, the water used in paddy cultivation represents 63% of the overall consumption. This is followed by the cultivation of bajra, groundnut and cotton consuming19%, 16% and 2% of the total quantity of water used in agriculture respectively. This information is vital for crop planning keeping in view the prevailing and impending water stress in the region.

**Table.15 Agricultural Water Consumption during the *Kharif*, *Rabi* and Summer Seasons**

| | Area under Agriculture (in acres) | Source of Irrigation for agricultural land (in acres) | | | | Crop Water Requirement (in 000 $m^3$/ha)* | Water Consumed (in 000 $m^3$) |
|---|---|---|---|---|---|---|---|
| | | Canal | Dugwell | Rain water | Rain water | | |
| **Kharifseason** | | | | | | | |
| Paddy | 337.3 | 333.3 | 1 | 0 | 3 | 5.35 | 730.58 |
| Bajra | 240.79 | 111.54 | 8 | 47.5 | 73.75 | 4.55 | 443.56 |
| Ground nut | 15 | 11.5 | 0 | 1.5 | 2 | 2.6 | 15.78 |
| Cotton | 17.5 | 5.5 | 3 | 1 | 8 | 5.2 | 36.84 |
| Red gram | 2.5 | 0 | 0 | 2.5 | 0 | 4.88 | 4.93 |
| **Rabi season** | | | | | | | |
| Paddy | 306.3 | 304.3 | 0 | 0 | 2 | 6.5 | 806.05 |
| Bajra | 9.5 | 9.5 | 0 | 0 | 0 | 4.55 | 17.49 |
| Ground nut | 135.76 | 70.22 | 10 | 10.52 | 43.02 | 6.5 | 357.26 |
| Cotton | 2 | 2 | 0 | 0 | 0 | 5.8 | 4.69 |
| **Summer season** | | | | | | | |
| Ground nut | 1 | 1 | 0 | 0 | 0 | 6.5 | 2.63 |
| Total | 1067.65 | 848.86 | 22 | 63.02 | 131.77 | - | 2419.81 |

** The values represent crop specific water requirements in red soil of Karnataka state.*
*Source: Water and Land Management Institute (WALMI), Dharwad, Karnataka state, India.*

Fig.14: Cropwise Water Consumption




## 2.15 Constraints Associated with Agriculture and Animal Husbandry

### Constraints Associated with Agriculture at Present

The local economy of the area under study is based on agriculture. The major constraints associated with agriculture at present are high input costs, access to credit, agricultural land availability, pest and disease incidences and manpower availability. Water scarcity, access to insurance, access to technical advice and climate risks are other deterrents for modern day agriculture.

In an attempt to prioritize the constraints identified during the household survey, the respondents were asked to make out the most important five constraints that they would like to address collectively. The constraints in terms of their priority are as follows.

1) Access to insurance
2) Agricultural land availability
3) Climate
4) Access to technical advice
5) Water scarcity

Identification of constraints is essential in terms of intervention planning and prioritization. In an agrarian economy, ensuring vital agricultural inputs such as water and organic manure hold high importance. Livestock rearing, as a subsidiary activity undertaken in Indian agriculture, is an integral part of conventional agriculture. While byproducts of agricultural produce provide the lion's share of feed requirement of the livestock, the livestock excreta along with crop residue serve as the major source of organic manure i.e. farm yard manure (FYM), for agriculture. In addition to this, the supplementary income from animal husbandry strengthens the economic sustainability of agricultural system as a whole. Therefore, risk assessment in case of agriculture and animal husbandry is critical for intervention planning in AWS initiative.

### Constraints Associated with Rearing Livestock at Present

Animal husbandry has been an integral part of the regional agrarian economy. The major constraints associated with rearing livestock at present are disease incidence, decreasing grazing land area, climate and

Fig.15: Constraints Associated with Agriculture

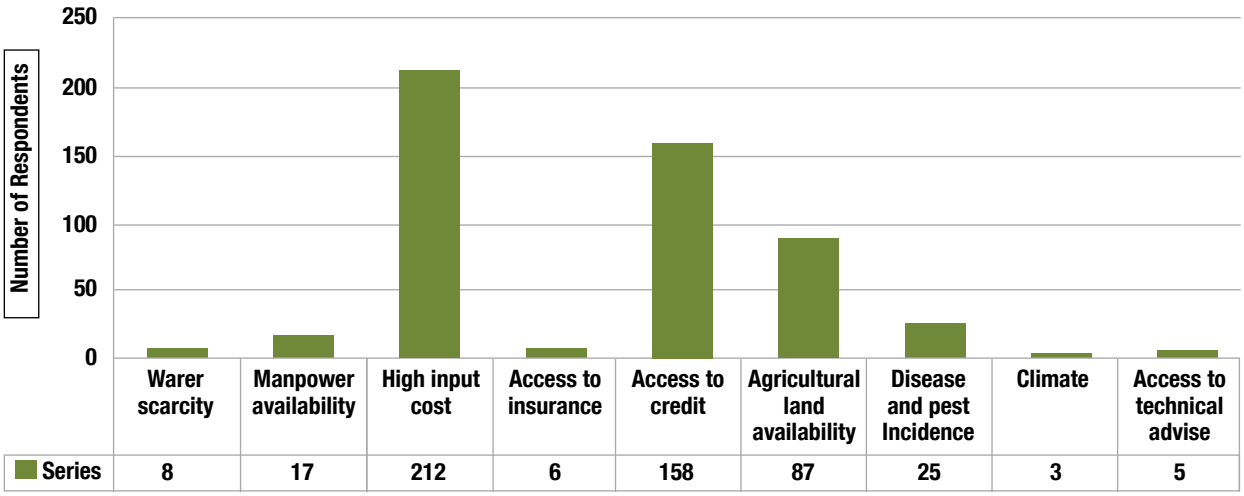
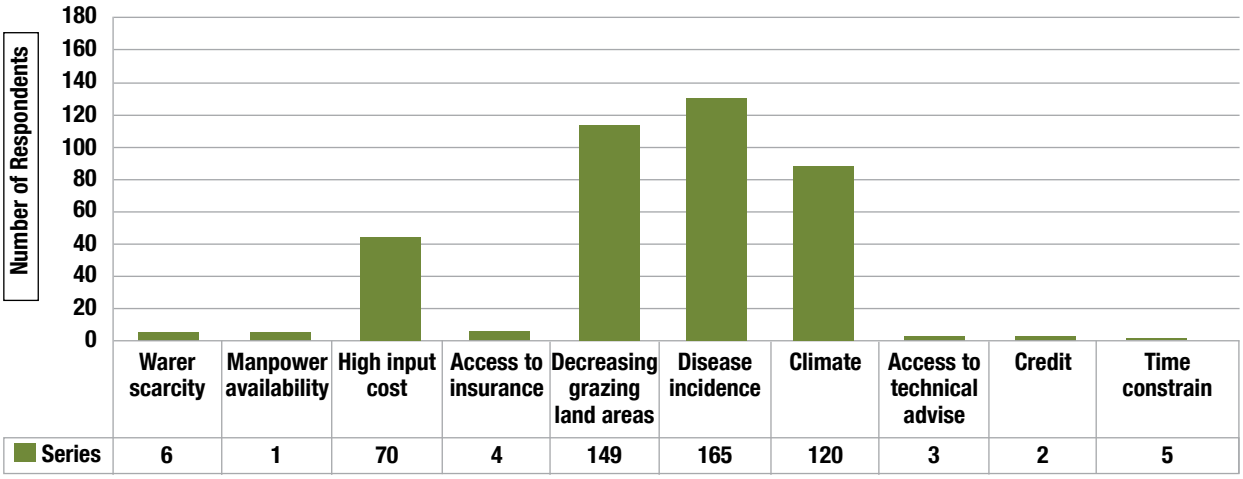


Fig.16: Constraints Associated with Rearing Livestock




high input costs. Water scarcity, manpower availability, access to insurance, access to technical advice, access to credit and time constraint are other deterrents for present day animal husbandry.

In an endeavor to prioritize the constraints identified during the household survey, the respondents were asked to make out the most important five constraints that they would like to address collectively. The constraints in terms of their priority are as follows.

1) Access to insurance
2) Access to credit
3) Access to technical advice
4) Climate
5) Water scarcity

## 2.16 Site's Water Balance

**Basic Information**

Total watershed area 6896.166 acres

Area under study 1485.458 acres

Average annual rainfall 611 mm

Rainwater harvesting potential of the total area under the watershed (per annum)

= Area (sq m) x average annual rainfall (m)

x runoff-coefficient (for mixed land use

= 27907910.41 m2 x 0.611 m x 0.4

= 6820693.304 m3= 6820.693 Tm3

Rain water harvesting potential of the area under study = 6820.693 / 6896.166 x 1485.458

= 1469.2 Tm3

Total annual water consumption in the area under study = 43.836 + 2419.81 = 2463.646 Tm3

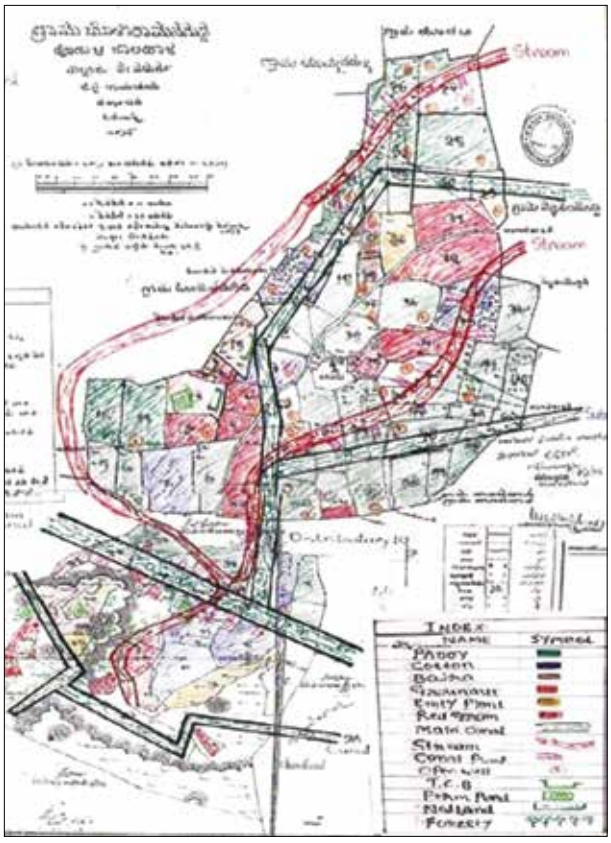
Annual Water Balance of the site

= 1469.2 Tm3 -2463.646 Tm3

= -994.446 Tm3

Considering the water received by BR Gund and Naglapur as part of a greater watershed and the water consumption for agricultural, domestic and commercial activities in the corresponding region, a net annual water deficit of 994.646 thousand m3 was noticed. The findings were shared with all the stakeholders for participatory planning of water related initiatives to address this water deficit.

Fig.17: Water Sources in BR Gund



## 2.17 Biodiversity in BR Gund

The area under study is part of the Deccan plateau in the eastern plains of Karnataka state. This area receives low rainfall and the topography is usually rocky. The ambient temperature remains relatively higher than that of the Western Ghat evergreen forest spread over the coastal belt of the state. Therefore, the local vegetation is mostly thorny scrub. Thinly growing natural forests are scattered all over and in small pockets, but are well known for possessing rich biodiversity in terms of plant and animal species. The hardiness of various species to endure the vagaries of nature in the form of extreme heat and moisture stress has resulted in a distinct habitat favoring unique biodiversity in this area.

Paddy, sorghum (jowar), finger millet (ragi), pearl millet (bajra), ground nut, red gram, green gram, horse gram, black gram, cotton and sunflower are widely cultivated in BR Gund. A wide range of vegetables such as carrot, radish, brinjal, ocra, flat bean, cluster bean, cucumber, bitter gourd, ash gourd, ridged gourd, pointed gourd, snake gourd, banana, tomato, onion, potato and chili are commonly grown in agricultural land.

This loss of biodiversity may be traced to four significant environmental problems, namely, (a) unsustainable harvests of living resources, (b) habitat destruction and fragmentation, (c) impacts of pollutants, and (d) competition with colonizing, often exotic, invasive species. Unsustainable use for traditional healing purpose has led to substantial depletion of medicinal plants and other non- timber forest resources in this region. In addition to this, widespread mining of granite stone in this region over decades has been a significant cause of depletion of biodiversity. Wild honey- bee populations have been decimated because of the loss of nesting trees and sources of pollen and nectar, and use of pesticides in agriculture.

**Table. 16: Wild Plant Species in BR Gund**

| Sl # | Wild Plant Name | *Local Name in Kannada* | Sl # | Wild Plant Name | *Local Name in Kannada* |
|---|---|---|---|---|---|
| 1 | Acacia nilotica (v) Willd. | *Karijali* | 15 | Michelia champaca L. | *Sampige* |
| 2 | Achyranthes aspera L. | *Uttharani* | 16 | Mimosa pudica L. | *Muttidare muni* |
| 3 | Acorus calamus L. | *Baje* | 17 | Moringa oleifera Lam. | *Nugge mara* |
| 4 | Adhatoda zeylanica Medic. | *Aadu soge* | 18 | Ocimum tenuiflorum L. | *Thulsi* |
| 5 | Aegle marmelos (L.) Corr. | *Bilva pathere* | 19 | Phyllanthus amarus Schunn. & Thonn. | *Nela nelli* |
| 6 | Aerva lantana (L.) Juss. | *Bilihindeesoppu* | 20 | Piper longum L. | *Hippali/Pippali* |
| 7 | Aloe vera L. | *Lole sara* | 21 | Piper nigrum L. | *Kari menasu* |
| 8 | Azadirachta indica A.Juss. | *Bevu* | 22 | Punica granatum L. | *Dalimbe* |
| 9 | Bacopa monnieri (L.) Penn. | *Neeru brahmi* | 23 | Saccharum officinarum L. | *Kabbu* |
| 10 | Centella asiatica (L.) Urban. | *Ondelga* | 24 | Saraca asoca (Roxb.) de Wilde | *Ashok* |
| 11 | Ficus racemosa L. | *Hathi hannu* | 25 | Tectona grandis L.f. | *Saguvani* |
| 12 | Hedyotis corymbosa (L.) Lam. | *Kallu sabbasige* | 26 | Terminalia chebula Retz. | *Alale/Haritaki* |
| 13 | Heliotropium indicum L. | *Chelu kondi* | 27 | Tinospora cordifolia (Willd.) H.f.& Th. | *Amritha balli* |
| 14 | Jasminum officinale L. | *Jaajimallige* | 28 | Zizipus mauritiana Lam. | *Bare hannu* |

**Table. 17: Biodiversity in Livestock**

| Type of Livestock | Indigenous Breeds | Crossbred and Exotic Breeds |
|---|---|---|
| Cattle | Amrithmahal, Khillar, Hallikar, Deoni, Non descript | Jersey crossbred |
| Buffalo | Dharwad/Pandharpuri, Non descript | Murrah crossbred |
| Sheep | Bandur, Hassan, Deccani, Bellary, Yelaga, Non descript | - |
| Goat | Osmanabadi, Nandidurga, Nondescript | - |
| Poultry birds | Asheel, Giriraj, Non descript | - |

III

# The Action Plan

A participatory planning activity was undertaken keeping in view the interest, power, feasibility for financial and social contributions, expertise of all stakeholders and access to relevant technologies. A thorough analysis of the renovation of aging and non-functional water structures in the study area was found quite promising for diminishing the water deficit. Assurance of voluntary contribution of labour by the community was found remarkable in bridging the gap. Financial and institutional support assured by the local self governance bodies and administration along with extension of technical reinforcement helped in identifying suitable geographic locations for water related interventions. The holistically developed action plan focuses on creating an enabling environment for community water stewardship through awareness creation, visioning exercise, capacity building and leadership development in the community.

The action plan involves a total budget of Rs. 9.755 million over three years, out of which 32.1% will be met by a cumulative fund allocation of Rs. 3.135 million by the local administration and self governance bodies. A labour contribution worth Rs. 2.3 million by the community accounts for 23.6% of the total proposed budget. A financial grant from corporate bodies supporting the cause of sustainable water resource management will be vital for meeting the rest budgetary requirement.

With a net annual saving of more than 1052.7 Tm3 of water, the community perspective of alliance for water stewardship envisages to secure a positive water footprint in BR Gund over next three years. Reinforcing social growth through sustainable and equitable water resource management by implementation of the 'AWS Standard' promises rejuvenation of water resources, restoration of water quality and biodiversity, and behavioral changes leading to responsible water governance.

url: http://www.aws.akasmika.net/

The full Baseline study and GIS/MIS Data backbone are presented as a web-enabled document. This allows the document to be circulated by emailing the link instead of hardcopies. The Landing Page of http://www.aws.akasmika.net/is linked to web-enabled maps and documents for effective sharing of information and experiences on the community perspective on AWS.

**Fig.18: Village Action Plan**

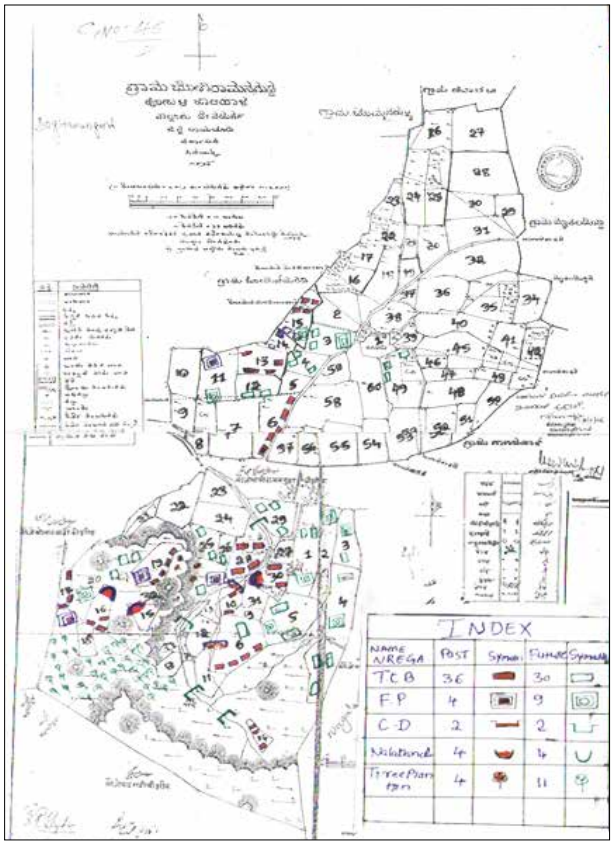


**Table.18: Action Plan for Community Water Stewardship**

| Sl. # | Objective | Activities | Timeline | Budget (in Rs.) | Source of Funding | Outputs | Outcomes | Priority |
|---|---|---|---|---|---|---|---|---|
| 1 | To create awareness on conservation and sustainable management of water resources | 1. Organization of awareness camps involving stakeholders such as children, youth, women, farmers, members of local self governance bodies and FPOs,<br>2. Street plays focusing on water conservation<br>3. Sharing of videos and successful case studies on water initiatives<br>4. Educating children on climate change and water issues through Children's Clubs<br>5. Raising awareness level of farmers using community based organizations such as Joint Liability Groups and Self help groups as a platform | 1 year | 1.08 million | Financial grant from corporate bodies | 1. Awareness creation<br>2. Knowledge empowerment<br>3. Sharing of ideas and experiences<br>4. Creation of an enabling environment for CWS | 1. Development of community ownership in natural resource management<br>2. Constructive changes in attitude and perception towards water issues | 1 |
| 2 | To augment water harvesting | 1. Renovation of existing 2308 trench cum bunds (6m x 1.5 m x 0.6m) in participation with the community<br>2. Desilting of existing four farm ponds (9m x 9m x3m)<br>3. Renovation of aging structures (two check dams and four nala bunds with a total water carrying capacity of 14 T $m^3$<br>4. Desilting of existing sixty dug wells | 2 years | 2.3 million | Community contribution | 1. Community labour contribution for 116.7 T $m^3$ of annual water harvesting | 1. Recharge of ground water<br>2. Improvement in water quality<br>3. Positive effect on biodiversity | 2 |
| 3 | To promote watershed activities | 1. Excavation of 1321 trench cum bunds (6m x 1.5m x 0.6m)<br>2. Excavation of five farm ponds (9m x 9m x3m)<br>3. Construction of two nala bunds<br>4. Establishment of percolation pits and drainage channels<br>5. Enhancement of water carrying capacity of the existing tank<br>6. Construction of a check dam on a stream | 2 years | 3.135 million | Local administration and self governance bodies | 1. Leverage of funds for community water stewardship<br>2. 448 $Tm^3$ of annual water harvesting | 1. Recharge ground water<br>2. Improvement in water quality<br>3. Positive effect on biodiversity | 3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 7. Provision for clean drinking water at household level | | | | | | |
| 4 | To promote water smart agriculture | 1. To promote system of rice intensification (SRI) for cereals<br>2. To introduce drip irrigation system for horticultural crops<br>3. To introduce sprinkler irrigation in ground nut cultivation<br>4. To practice intercrop and mulching in rainfed agriculture<br>5. To cultivate less water demanding crops instead of water intense crops<br>6. To promote application of organic fertilizers contributing towards greater water holding capacity of soil<br>7. To promote □P□ and organic agriculture ensuring better water quality in the area | 1 year | 2.16 million | Financial grant from corporate bodies | 1. Reduction of water used for irrigation with a net annual saving of 483 $Tm^3$ of water<br>2. □ore crop per drop<br>3. Reduction of pollutants in water | 1. Climate adaptation in agriculture<br>2. Improved water quality | 2 |
| 5 | To promote efficient domestic water management | 1. To recycle the effluent from households and animal sheds for kitchen gardens<br>2. To optimize the use of surface water while minimizing the use of ground water for domestic use<br>3. To create awareness on reducing water use under avoidable circumstances<br>4. To discourage open air defecation and promote use of toilets<br>5. To set up soak pits at household level promoting ground water recharge<br>6. To introduce roof top water harvesting | 1 year | | | 1. Reduced use, reuse and recycling of water at household level<br>2. Improved hygiene<br>3. Around 5$Tm^3$ of water harvested | 1. □ehavioral change towards economic water use<br>2. Increased dietary diversity | 2 |
| 6 | To promote effective water governance | 1. To build capacity of community to establish □CCDC with proportionate representation of caste, gender and economic class<br>2. To communicate between all stakeholders for collective decision | 1 year | 1.08 million | Financial grant from corporate bodies | 1. Platform for discussing issues and controlling progress<br>2. Leverage of funding for social pro□ects | 1. Efficient self governance on issues relating to water and climate change | 1 |

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| | | making and implementation<br>3. To facilitate leverage of funds from government for implementation of interventions under ?G?REGA<br>4. To facilitate social forestry and agro forestry in collaboration with the forest and horticulture departments<br>5. To liaison with local self governance bodies for better development of natural resources<br>6. To promote democratic principles in self governance for effective conflict management<br>7. To monitor progress periodically in collaboration with all stakeholders and decide on necessary midcourse corrections | | | | through collective action<br>3. Community asset building | 2. Socially equitable access to water<br>3. Environmental sustainability in natural resource management<br>4. Coexistence of biodiversity along with financial growth | |

## AWS

The Alliance for Water Stewardship (AWS) is a multi-stakeholder organization dedicated to enhancing water stewardship capacity, and guiding, incentivizing and differentiating responsible water use. AWS employs three mutually-reinforcing programs to drive improved water stewardship: a standard and verification system, membership of a multi-stakeholder association, and training. Together, these programs are designed to build capacity and provide a forum through which knowledge on water stewardship can be generated, accessed and shared, helping us to address our shared water challenges. At the heart of all three programs is the stakeholder-endorsed AWS Standard. Our Vision is that water users and managers are responsible water stewards, who protect and enhance freshwater resources for people and nature. Our Mission is to promote responsible use of fresh water that is socially and economically beneficial as well as environmentally sustainable. AWS network of regional partners make our system accessible to a wide range of stakeholders from industry, agriculture, public sector and civil society. Our innovative partnership-based approach allows global consistency to team up with local expertise, placing AWS at the leading edge of the drive for collective responses that address local water challenges. AWS is currently transitioning to a multi-stakeholder governance structure in which Board members will be elected by AWS members. Until this transition is complete, AWS is governed by a Board of organizations namely Water Stewardship Australia, Water Mandate, UNEP, The Nature Conservancy, Water Witness International, CDP, the Pacific Institute, World Wildlife Fund, Water and Environment Federation, European Water Partnership.

## SAMUHA

SAMUHA works with vulnerable people to improve their quality of life within defined periods of time. SAMUHA derives its name from the Sanskrit. SAMUHA means an organized group or society. This reflects our belief that development is best sustained when undertaken through group processes. We began our operations in January 1987, in the Deodurg Taluk of Raichur district in North Karnataka. SAMUHA's Mission is "To improve the Quality of Life of vulnerable people within defined periods of time". SAMUHA works with women, children, people deprived of social justice, the resource-poor and communities that are climate-challenged.

SAMUHA believes that all development is defined and parametered by issues of power and domina¬tion; that poverty and discrimination exist, and are nurtured because people profit from the many para¬sitic opportunities that these provide.
The poor, in the areas where SAMUHA works, often do not have an alternative, since the environment they live in is defined by low/no basic infrastructure and services, and by scarce investment opportuni¬ties. Private enterprise here is primarily based on the export of whatever resources that there are, and on the absorption of the little capital that this generates, primarily for consumption purpose. Benefits from this traditional model are restricted, since there is very little competition, and there is no pressure to provide people with choice or quality. By default, given that there is very little profit to be made in most areas; people are dependent on State services for even their basic needs. This is compounded by the low/no systemic pressure of governance on these services. The poor quality of these services often un¬dermines the very value of these services. Despite this, SAMUHA believes that the environments in which our people live can meet their needs if interventions are based on equitable development. SAMUHA works in Raichur and Koppal, districts; and with communities deprived of social justice across Karnataka.

## HUF

Future demand for water resources will increase significantly as the population, rate of economic development, and consumption grows. Estimates tell us that by 2030, the supply of water in India could be significantly lesser than the demand. The adverse impact of climate change on agriculture will further compound problems arising due to linkages between food, energy, and livelihoods in the country. To understand and partake in meeting this challenge, Hindustan Unilever Foundation (HUF) was formed in 2010.

By 2020, the cumulative impacts of our collective actions are expected to generate:

Water potential of 500 billion litres

Employment of more than one million person days.

Annual additional agricultural production of 0.1 million tonnes
HUF is a not-for-profit company that anchors various community development initiatives of Hindustan Unilever Limited. HUF supports national priorities for socio-economic development through its 'Water for Public Good' programme. Its projects also comply with the requirements of the Companies Act, 2013.

ALLIANCE FOR WATER STEWARDSHIP
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