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Status and Role of Gram Panchayats in Water Supply and Sanitation in Rural Area: An Empirical Study from Karnataka

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This paper tries to present the status of rural water supply and the role that has been played by the Gram Panchayats (GPs) has been examined. The paper is mainly based on the primary data collected from 235 households spread across 4 Gram Panchayats in Dharwad district in Karnataka. The paper finds that in the selected GPs almost all the households depend on safe drinking water sources, but only few households are satisfied with the quantity and quality of water supplied. The households satisfied with the quantity and quality of water are 73 per cent and 51 per cent respectively. As far as sanitation is concerned, only 23 per cent of households have individual latrines and their utilization is also very low. There is wide disparity in the status of water supply and sanitation between developed and less developed GPs i.e. developed GPs have better water supply and sanitation facilities. This is mainly because of better education and awareness of the households in developed GPs. The paper also reveals that GPs have failed to create community awareness about the importance of safe drinking water and sanitation and raise community contribution for provision of water supply and sanitation. The paper is organized in four sections. The first section gives introduction, the second gives details of methodology and the third section provides findings and the last section concludes.

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1. Introduction

The provision of safe and adequate drinking water supply and sanitation facility is a prerequisite for human resource development, to maintain clean environment and also fundamental in building blocks in the development process, influencing economic development, employment, agriculture, housing, health and numerous other sectors. These benefits are spread broadly across societal concerns. Often, the role of drinking water is neglected in the health indices. Reflecting on this, Dr. Halfdan Mahler (1984), former director general of the world health organization (WHO) said that, "The number of water taps per 1000 persons is a better indicator of health than the number of hospital beds".

Images of big dams, bridges, roads, power plants, airports, etc.., evoke the word 'infrastructure'. But, a few think of the toilet bowl or the water tap in the house as infrastructure, which remain the most commonly needed items of basic infrastructure. Recent studies have shown that investing in infrastructure will improve the health of the people, which in turn will increase productivity (Mavalankar and Shankar 2004). The demand for water supply and sanitation services is growing fast owing to the interactive effects of demographic growth, economic development and improvement in living standards.

Since the beginning of the sixth five-year plan (1980-85), and the launch of the international drinking water supply and sanitation decade, India has substantially increased its commitment to the water supply and sanitation sector. The provision of safe drinking water supply and sanitation facilities is a basic necessity of life and a crucial input in achieving the goal of *Health for All*. The Ninth Five Year Plan envisaged provision of potable drinking water to every settlement in the country on a sustainable basis and pursued all possible measures for the rapid expansion and improvement of sanitation facilities in rural and urban areas. The 2002 National Water Policy of the Government of India (GOI) states that "provision for drinking water should be a primary consideration" in water resource development projects and that "drinking water needs of human beings and animals should be the first charge on any available water" (GOI, 2002).

One sixth of the world's population approximately 1.1 billion people, do not have access to safe drinking water, and 2.4 billon lack basic sanitation. Six thousand children die every day from diarrhoeal disease alone and a large proportion of diarrhoel disease in the developing world is due to poor water, sanitation and hygiene (UNICEF, 2003). The most affected people are in developing countries, living in extreme conditions of poverty, normally peri-urban dwellers or rural inhabitants. Among the main problems which are responsible for this situation are: lack of priority given to water supply and sanitation facilities, lack of financial resources, lack of sustainability of water supply and sanitation services, poor hygiene behaviors, inadequate sanitation in public places including hospitals, health centers and schools. Providing access to sufficient quantity of safe water, provision of facilities for a sanitary disposal of excreta, and introducing sound hygiene behavior are of capital importance to reduce the burden of disease caused by these risk factors. As put forth by Kofi Annan, United Nations' Former Secretary-General "We shall not finally defeat AIDS, tuberculosis, malaria, or any of the other infectious diseases that plague the developing world until we have also won the battle for safe drinking water, sanitation and basic health care".

Provision of safe drinking water and sanitation is a State subject and is the primary responsibility of the States. Government alone cannot take up the responsibility of heavy costs of rural water supply and sanitation programmes, and their operation and maintenance. People's involvement enhances not only the economic viability of operation and maintenance, but also helps in better upkeep and increases the life span of the system created. The government of India has considered these issues, under the 73rd and 74th amendments to the Constitution and, has assigned rural water supply and sanitation as one of the prime duties of Gram Panchayats. And State Governments provide technical and financial assistanance to the ZPs. Based on the requirements of TPs and GPs the programmes are designed by ZP.

Ravichandra and Boopathi (2002) have pointed out that huge capital and maintenance cost of the water supply schemes make the budgetary allocation to the sector inadequate. Hence, the constitutional amendment of 1972 empowered the Panchayat Raj Institution with the financial autonomy to raise the funds in order to fulfill the responsibility of the operation and maintenance of water supply and sanitation system.

In Karnataka drinking water supply can be broadly classified into two categories. The first category includes the schemes owned and operated by the state government through the Karnataka Rural Water Supply and Sanitation Board (KRWS&S) and local governments. The second category comprises of family managed drinking water supply which includes individual families creating their own drinking water recourse by construction of wells in the premises of their house and managing water supply and sanitation by themselves.

While rural drinking water supply and sanitation will continue to face many challenges a lot can be done socially and collectively, to ensure both equitable access and economic viability in Karnataka. Many studies Das (2000), Rajsheker et. al., (2006), Raju et. al., (2006) indicate the benefits from improvements in water supply and sanitation. Improved water supply and sanitation practices are instrumental in reducing infant mortality, preventing diarrohea, and improving nutrition and overall health, and this fact could be used as a powerful lever in garnering support for improvement in water supply and sanitation.

The state of Karnataka is one of the largest states in the country, having an area of 1.91 lakh sq.km. As per 2001 census about 3.48 crore people live in rural areas of Karnataka, spread over 56,682 habitations. Currently water is being provided to rural areas through 18919 Piped Water Supply (PWS), 24813 Mini Water Supply (MWS) and 199556 hand pump bore wells. In Karnataka, about 35 per cent are partially served by bore well with hand pumps and open well, 9 per cent by mini water supply schemes and 56 per cent by a mix of piped water supply and hand pump schemes (Saleth and Sastry 2004:163). Access to clean drinking water is one fundamental right as enunciated in the right to life under Article 21 of the Constitution of India judgments delivered in December 2000 (Ramachandraiah, C. 2001).The centrally sponsored Minimum Needs Programme and the Accelerated Rural Water Programme have increased access to safe water sources within 1.6 km and the desired quantity of water per day at least 40 liters per person. Government of Karnataka aims at providing 55 liters per capita per day (lpcd) to the rural inhabitations. The norms also prescribe water quality standard that is free from bacterial and chemical contamination and specify that the distance of availability of water to be within 500 meters from the place of residence. The service level of water supply stands 55 liters per capita per day (lpcd) in 37886 (67 per cent) habitations, and below 45 liters per capita per day

(lpcd) in 18796 habitations. Thirty seven per cent of people are facing problems of quality drinking water and insufficient supply of water in rural Karnataka. Many schemes like Rajeev Gandhi Drinking Water Supply Scheme, Rain Water Harvesting, externally aided Rural Drinking Water Supply and Sanitation Projects, World Bank Assisted Jal Nirmal Project, Swajaldhara Project, etc., are being implemented through the Gram Panchayats in Karnataka. Further, in Karnataka, as per 2001 census only 17.4 per cent of rural households were covered by toilets facility as against 6.8 per cent in 1991 while 75.2 per cent urban households had access to toilet facility in the year 2001 as against 62.5 per cent in 1991. It is clear that there is high disparity in access to sanitary facility between urban and rural areas. In this context the government of Karnataka implemented many schemes like Nirmala Karnataka, Swacha Grama etc., to improve the sanitation facility in the state. As a result there is slow improvement in the access to toilet facility in rural areas. The provision of sanitary facility not only depends on government schemes or programmes, but requires more individual's effort and awareness in rural areas. Many studies relating to the water supply and sanitation sector in Karnataka have examined the financing of water supply and sanitation, inter- district disparities with regard to the provision of adequate and safe drinking water and sanitary facility, and subsidies relating to water supply and sanitation sector. Almost all studies have concentrated either on water supply or on sanitation sector. But water supply and basic hygiene (sanitary facility) are correlated to each other. **The present paper tries to study both water supply and sanitation aspects to fill the research gap. The paper tries to present the present status of water supply & sanitation and the role that has been played by the Gram Panchayats (GPs) in Karnataka, has been examined.**

2. Methodology and Data Source

The study covers four Gram Panchayats in the state of Karnataka for understanding the nature of rural water supply and sanitation services in general. Dharwad district has been selected in particular. There are 5 taluks in the district. They are Kundagol, Navalgund, Kalaghatagi, Dharwad and Hubli. According to High Power Committee Report (2002) Dharwad and Hubli taluks are relatively developed taluks and Kundagol, Navalgund, Kalaghatagi are backward taluks (HPC, 2002). Among the taluks of Dharwad district, Kalaghatagi is the most backward taluk while Dharwad taluk is relatively developed. We have selected these two taluks for the study purpose. On similar grounds we have selected two Gram Panchayats from each

taluk. Based on the objectives of the study, we have chosen one developed and one less developed Gram Panchayat from each taluk in order to be able to identify factors that influence performance. To identify the developed and less developed Gram Panchayat seven indicators relating to demographical, social and economic factors were considered. These include density of population, sex ratio, percentage of SC and ST population to total population, per capita income of the GP, Proportion of villages having safe drinking water facility (LPCD). After listing out the entire villages of 4 GPs, two villages were randomly selected from each of the two GPs. Totally 8 villages are covered in the study to collect village level and household information. The study is based on five stage systematic sampling method with households as basic unit of survey. To elicit household level information on water and sanitaion, we have interviewed 10 per cent of the household from each selected village. Accordingly the total sample size amounted to 235 households in 8 villages of 4 Gram Panchayats. The study is mainly based on primary data collected from the selected households. The information from households was collected through administration of pilot tested schedules. Descriptive statistics are used in the analysis of the data in the study.

3 Findings of the Study

3.1 Status of Drinking Water

Dharwad district depends mainly on ground water resources for water supply in rural areas, with water supplied in the villages through piped water supply schemes (PWS), mini water schemes (MWS), and bore well with hand pumps. In the selected Gram Panchayats, almost all the households depend on safe drinking water sources, such as, MWS, PWS and Handpump/Borewells. Only 14 per cent of households depend on traditional water sources for washing/bathing purpose. There is no such variation in proportion of households depending on safe drinking water sources in different types of GPs. Table 1 shows percentage of households depending on modern and traditional water sources for various purposes in selected GPs.

Table 1: % of Households Depending on Diffirent Water Sources

		Drinking Water		Cooking		Washing/Bathing		
	GP Name	Modern	Traditional	Modern	Traditional	Modern	Traditional	Total
Developed GPs	Madakihonnihall	100.0	-	100.0	-	87.5	12.5	100.0
	Yarikoppa	97.8	2.2	100.0	-	91.3	8.7	100.0
Backward GPs	Galagi	100.0	-	100.0	-	77.2	22.8	100.0
	Kanakur	100.0	-	100.0	-	100.0	-	100.0
Total of GPs		99.6	0.4	100.0	-	86.0	14.0	100.0

If we look at the location of the water sources, about 87 per cent of the selected households have water source within the premise or outside dwelling but within the premise. Remaining 13 per cent of households have to travel a distance to collect water. The proportion of households travelling long distance is only 0.4 per cent. Table 2 shows distance of dwelling from drinking water supply source.

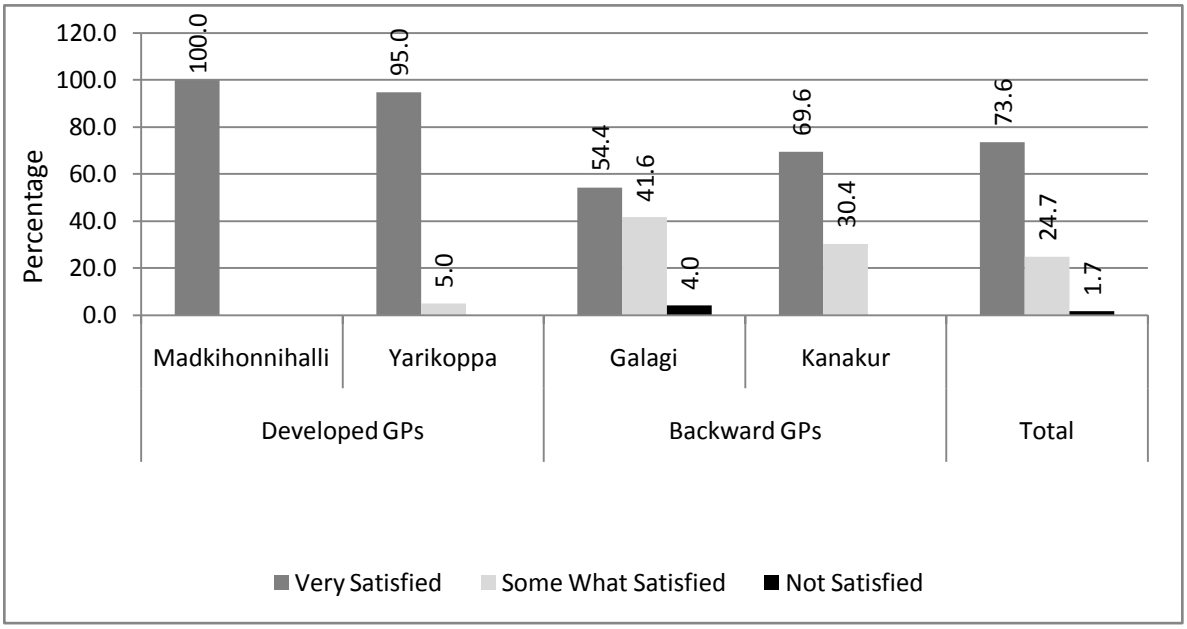
Table 2: Distance of Dwelling from Drinking Water Supply Source

	GP Name	Within premises /dwelling	Outside dwelling but within premises	Outside premises at distance <0.25 km	Distance 0.25 km to 0.50 km	Distance 0.50 km to 1 km	Total
Developed GPs	Madkihonnihalli	31.3	58.3	10.4			100
	Yarikoppa	32.5	47.5	17.5	2.5		100
Backward GPs	Galagi	27.7	61.4	7.9	2.0	1.0	100
	Kanakur	32.6	52.2	13.0	2.2		100
Total		30.2	56.6	11.1	1.7	0.4	100

Figure 1 shows households' opinion on adequacy of water supply. It shows more than 73 per cent of the households are satisfied with their access to drinking water supply. Higher proportions of households are satisfied with the quantity of water supplied in developed Gram Panchayats i.e. 100 per cent and 95 per cent respectively in Madakihonnihalli and Yarikoppa.

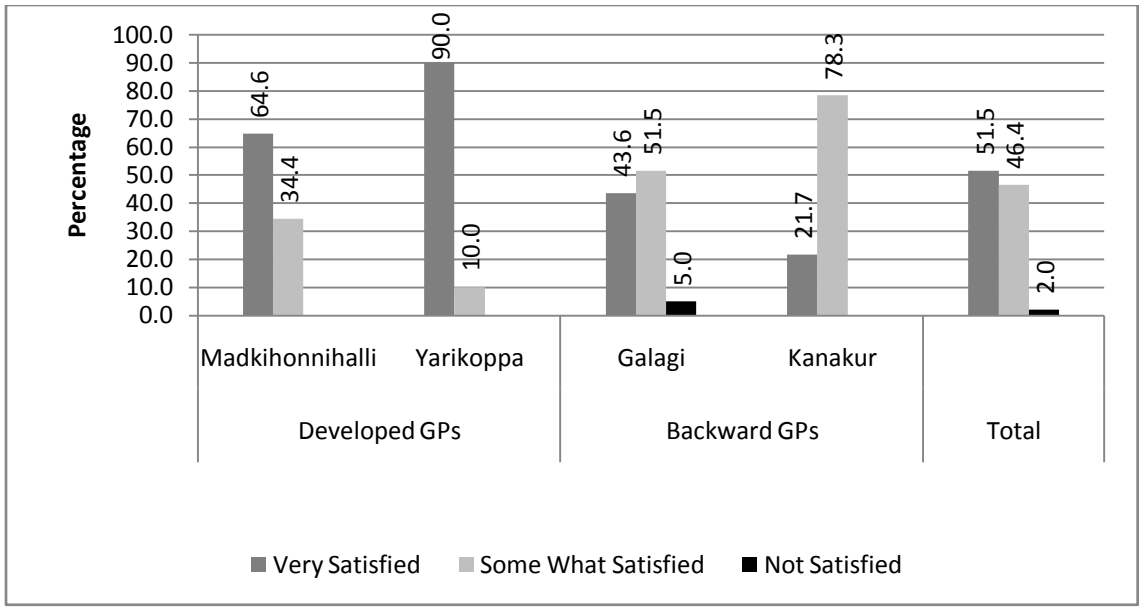
Figure 1 shows households satisfaction with access to safe drinking water supply in selected GPs.

Figure 1: Households Satisfaction with Access to Safe Drinking Water Supply



The quality of the available water is a major problem faced by the households in the selected GPs. Figure 2 shows Percentage of households having a satisfactory quality of drinking water. It shows that only about 51.5 per cent of households reported receiving water with satisfactory quality. The households in the developed GPs appear to be more satisfied about the quality of water than the households in backward GPs.

Figure 2: Households Opinion about Quality of Drinking Water



Among the 4 GPs, 49.5 per cent of households are not very satisfied with the quality of drinking water made available for various reasons, the breakup of which is given in Table 3. About 93 percent households feel that they are getting polluted or water containing excess of iron and other minerals.

Table 3: Reasons for Dissatisfaction with Water Quality (% of HHs)

	GP Name	Known to be polluted	Clean but contains excess of iron or other mineral	Bad taste due to unknown causes
Developed GPs	Madkihonnihalli	70.6	29.4	-
	Yarikoppa	-	75.0	25.0
Backward GPs	Galagi	94.7	1.8	3.5
	Kanakur	52.8	33.3	13.9
Total		74.6	18.4	7.0

Although households know that water is polluted they do not treat the water in selected GPs. This speaks about their low awareness and little concern for health (see table 4). 81 per cent of the households are not using treated water and they think that fluoride water is tastier without filtering and lack awareness about its effects or seriousness of poor water quality.

Table 4: Usage of Water Treatment

	GP Name	Filtering by plain clothes	Boiling of water	No treatment
Developed GPs	Madkihonnihalli	12.5	2.1	85.4
	Yarikoppa	-	-	100.0
Backward GPs	Galagi	27.7	7.9	64.4
	Kanakur	2.2	2.2	95.7
Total		14.9	4.3	80.9

3.2 Status of Sanitation

A preliminary idea of the extent to which households have access to latrine facility in the selected GPs can be seen from the table 5. It shows that on an average only 21.5 per cent of the households have individual latrine facilities in the selected GPs. In developed GPs higher proportion of households are having individual latrine facility than backward GPs i.e. 28.7 and 22.5 per cent respectively.

Table 5: Sanitary Facility in Selected Households

	GP Name	HHs having Individual Latrines (%)
Developed GPs	Madkihonnihalli	25.0
	Yarikoppa	32.5
Backward GPs	Galagi	7.9
	Kanakur	37.0
Total		21.5

Table 5 indicates that among 4 GPs, the Galagi Gram Panchayat has fewer latrine facilities than the other GPs. One of the villages Hasarambi does not have any latrine facilities

among the selected sample households from Galagi GP. About 37 per cent of households have been covered by individual latrine facility in Kanakur GP, which received money under the swacha gram scheme for three villages in the year 2005-06. One of the villages Kavalageri has utilised swacha gram scheme properly and constructed around 150 individual latrines under this scheme with a subsidy of Rs 3500. The other two villages including GP headquarter, Kanakur have not utilised the funds so far. According to Kanakur GP secretary, the fund have not been utilized because people do not cooperate in construction of drainage and latrine. The major reasons for not constructing latrine are economic problem and scarcity of place in the rural areas.

If we look at the usage of individual latrine facility, it shows that only some portion of the households are using latrines, i.e. 66 per cent (Table 6). Usage is less because; rural people often find it very convenient to defecate in the open fields. It is usual for them to carry a small tin of water, which hardly suffices for proper cleaning. This shows their poor awareness and negligence for personal hygiene and public health.

Table 6: Distribution of Households According to Use of Latrine Facility

	GP Name	HHs Using Latrine Facility (%)
Developed GPs	Madkihonnihalli	75.0
	Yarikoppa	46.2
Backward GPs	Galagi	87.5
	Kanakur	64.7
Total		66.0

Sanitation related illnesses affect young children heavily, not only because of their lower immunity to pathogens, but also because of their carelessness for hygiene. This means that they are more likely to come into contact with excreta, the primary cause of diarrhoeal disease and intestinal parasites, as well as other pathogens. A study conducted by UNICEF's India office found that only one per cent of children below the age group six-use latrine[3]UN-HABITAT, 2003. As presented in table 7 none of the children use latrines in rural households from selected

[3] UN-HABITAT (2003): "***Water and Sanitation in the Worlds Cities: Local action for Global Goals***" , United Nations Human Settlements Programme (UN-HABITAT) published by Earthscan publication Ltd, Landon PP: 77

GPs. Usually rural children go for open defecation nearby their houses. Table shows that about 97 per cent of the children go outside their dwelling but within the premises for open defecation.

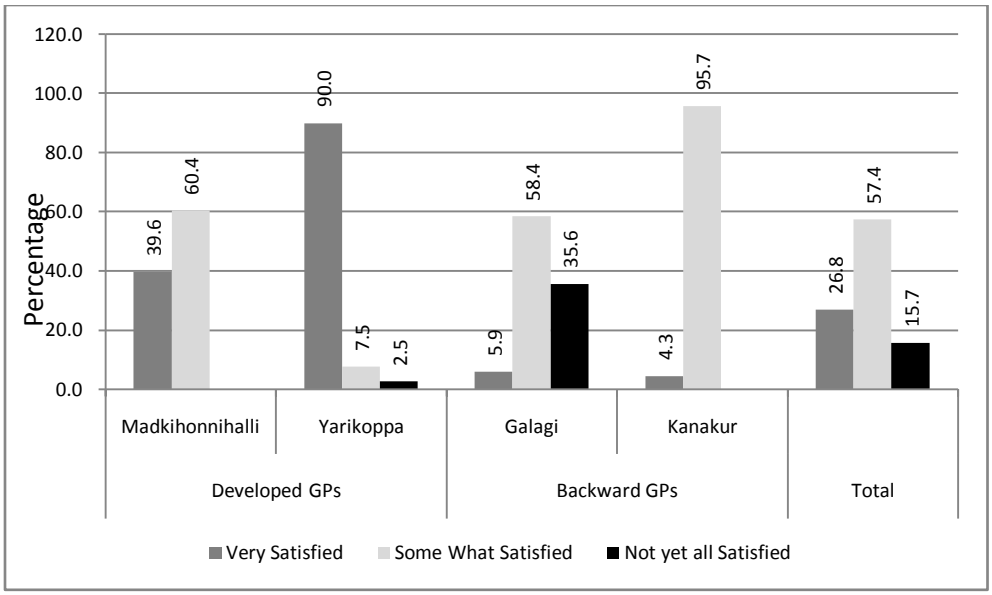
Table 7: Percentage of Children Using Latrine Facility

	GPs Name	Outside dwelling but within premises	Outside premises at distance <0.25 km
Developed GPs	Madkihonnihalli	100	-
	Yarikoppa	83.3	16.7
Backward GPs	Galagi	100	-
	Kanakur	85.7	14.3
Total		96.2	3.8

Community latrines are useful for those who are facing scarcity of place and have too little income to construct latrines. It is found that only Kanakur Gram Panchayat has constructed community latrine facility 5 years ago but people are not using it due to lack of maintenance. Other GPs have also received grants for community and women's latrine; however, because of the scarcity of place, GPs have sent back the money to Taluk Panchayat. So, literally none of the GPs have community latrines.

Figure 3 shows households' opinion about the village sanitation service in selected GPs. More than 73 percent of households are not satisfied with their village sanitation services. The percentage of household satisfied with village sanitation services is higher in developed GPs. More than 95 percent of households are not satisfied with village sanitation services in backward GPs. The main reason is being poor maintenance of village sanitation by the GP.

Figure 3: Households Satisfaction over Village Sanitation Services (% of HHs)



3.3 Role of Gram Panchayats in Rural Water Supply and Sanitation

The role of GPs in water supply and sanitation has been examined by considering following aspects;

1. Issues Discussed on Water Supply and Sanitation in Gram Sabha Meetings
2. Work Completed after the Gram Sabha
3. Expenditure on Water Supply and Sanitation by Grama Panchayat
4. Water tax collection

Table 8 presents discussions made by households on various issues related to water supply in Gram Sabha. Most of the discussion was on new pipe line connection and new schemes. Around 26 per cent people discussed about timeliness of water supply in Galagi GP. We observed from the survey that most of the households are engaged in agricultural work. They have to wait to collect water until provided by GPs. As a result household members sometimes miss important functions and lose wages because of irregularity of water supply in this GP. From the Gram Sabha discussions it is felt that rural people are not much concerned about water quality issues in. About 43.7 per cent people discussed about quality of water only in the Kanakur GP as there are many problems related to water supply in this GP. The reason for

poor quality of water in Kanakur GP is leakage in pipe line and negligence on the part of water man to clean the tank.

Table 8: Discussion by Households Water Related Problems in Gram Sabha

Water Related problems	Galagi	Madkihonnihalli	Kanakur	Yarikoppa
New pipeline connection	22 (34.4)	18 (50.0)	12 (37.5)	15 (40.5)
New Scheme	20 (31.3)	18 (50.0)		
Water supply at right time	17 (26.6)			
Shortage of water supply	4 (6.3)		2 (6.3)	13 (35.1)
Behavior of Water Men	3 (4.7)			
Borwell repair	1 (1.6)		4 (12.5)	8 (21.6)
Quality of Water			14 (43.7)	1 (2.7)
Total	**67 (100)**	**36 (100)**	**18 (100)**	**37 (100)**

Table 9 shows discussions made by households on sanitation related problems in Gram Sabha. Most of the discussion was on cleaning drainages, new sanitation scheme and village cleanliness. In the rural areas, although more than 75 per cent of people don't have latrine facilities they are more concerned about drainages, cleaning and village cleanliness rather than getting individual or community latrine facility.

Table 9: Discussion by Households on Sanitation Related Problems in Gram Sabha

Sanitation Related Problems	Galagi	Madkihonnihalli	Kanakur	Yarikoppa
Drainage and Village Cleaning	22 (84.6)	18 (60)	13 (81.3)	19 (76.0)
New Sanitation Scheme	4 (15.3)	12 (40)	3 (18.7)	1 (4.0)
Construction of drainage				3 (12.0)
Maintenance of School and Public Latrines				2 (8.0)

Total	26 (100)	30 (100)	16 (100)	25 (100)

We have explained in the earlier tables the discussions made by households on various issues regarding water, sanitation and other village problems. Table 10 presents reaction of household members on the follow-up or action taken by GP on issues discussed in Gram Sabha. Except Kanakur GP, others have attended to water supply problems in the selected GPs. The rural sanitation problems are neglected in rural areas. More than 70 per cent households opined that, except Yarikoppa GP, remaining GPs have not attended to sanitation problems.

Table 10: Work Completed after the Gram Sabha

Problems	Work Progress	Galagi	Madkihonnihalli	Kanakur	Yarikoppa
Water Supply	Action taken	18 (72.0)	17 (94.4)	5 (31.3)	23 (95.8)
	Action not taken	7 (28.0)	1 (5.6)	11 (68.8)	1 (4.2)
Sanitation	Action taken		4 (22.2)	2 (12.5)	15 (62.5)
	Action not taken	25 (100)	14 (77.8)	14 (87.5)	9 (37.5)

Per Capital Expenditure on Rural Water Supply and Sanitation by Grama Panchayat

The financial source of the Gram Panchayat constitutes all proceeds from the tax, fees and government grants. The source of income can be put under two categories: own sources (like Tax and other fee), and grants from government (Central and State Govt). But expenditure of GPs largely depend on amount received from the Zilla Panchayat, Taluk Panchayat, or governments (Central and State) in a particular year. Table 6.42 shows per capita expenditure on water supply and sanitation in the selected GPs during the period 2005-08. On an average, the selected GPs spend Rs. 1035 per person. The per capita total expenditure among the GPs varies from Rs. 700 to Rs. 1894. The developed GPs spend more than the developing GPs. Although the water supply and sanitation are the basic needs they received less attention by the local governments. **GPs spent only 10.2 per cent on these two sectors.** This shows that local governments are not keen to maintain

sanitation and to construct latrine facility in rural areas. The Per capita expenditure on water supply and sanitation differ substantially among the GPs. The average per capita expenditure on water supply is Rs 81 and it varies between Rs 42 to Rs 136 among the selected GPs. Very less amount of money is spent on sanitation sector as compared to magnitude of the problem. The average per capita expenditure on sanitation is Rs 25 in the selected GPs (i.e only 2.4 per cent). It should be noted here that the percapita expenditure on water supply and sanitation is higher in developed GPs.

Table 11: Per Capita Expenditure on Water Supply and Sanitation -2005-08 (in Rs)

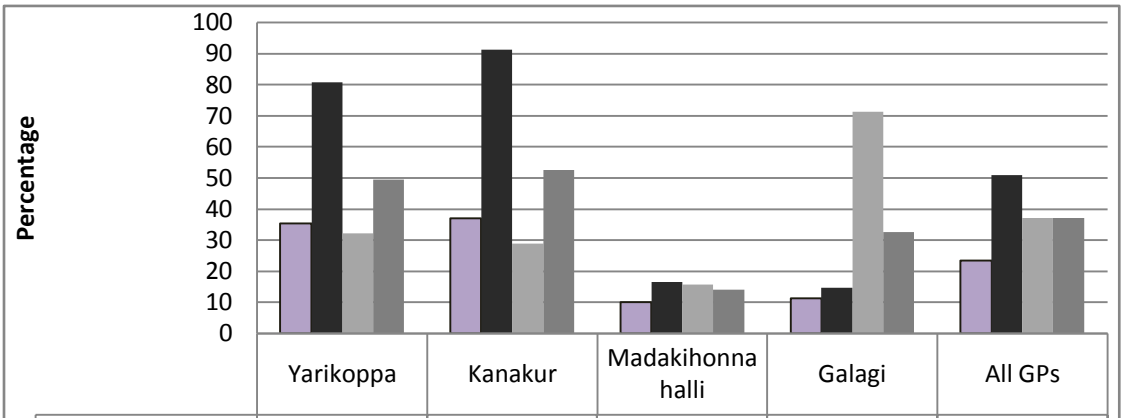
GP_NAME	Developed GPs		Backward GPs		Average Per Capita Exp in Selected GPs
	Developed Taluk GP	Backward Taluk GP	Developed Taluk GP	Backward Taluk GP	
	Yarikoppa	Madakihonnahalli	Kankur	Galagi	
Per capita Expenditure on Water Supply	79 (4.2)	136 (14.4)	67 (7.1)	42 (6.0)	81 (7.8)
Per capita Expenditure on Sanitation	20 (1.0)	44 (4.6)	19 (2.0)	17 (2.4)	25 (2.4)
Per capita Expenditure on Water and Sanitation Facility	99 (5.2)	180 (19.0)	86 (9.1)	59 (8.4)	106 (10.2)
Total Per capita Expenditure on all schemes of GP	1894 (100)	947 (100)	945 (100)	700 (100)	1035 (100)

Note: Figure in parentheses is percentage to respective total

The Government of Karnataka has transferred the responsibility of maintenance of PWS and MWS schemes and handed over power to GP for operation and maintenance of drinking

water supply[4]. Gram Panchayats can levy user charges on water supply and can also levy water connection fee for individual household connections for maintenance of the existing systems at the GP level. Collection of water charges vary from one GP to another. Firstly, water taxes are not based on the cost incurred on operations and maintenance; charges are based on the discretion of the GPs. The government has suggested that every GP has to maintain and repair the water supply sources through tax collection (own resource) from households. In reality, the cost of O&M is much higher than the amount charged. **The study found that the GPs were unable to meet the total cost of operation from the amount derived as user charges and also that user charges did not have any influence on the efficient functioning of the systems. This is observed across GPs.** For instance in Kanakur GP households received inadequate quality of water even though they paid user charges regularly. This is attributed to reasons such as drying up of the source, bad service system (especially inefficiency of waterman) and electricity problems.

Figure 4: Water Tax Collection in Selected GPs (in per cent)



	Yarikoppa	Kanakur	Madakihonna halli	Galagi	All GPs
2005-06	35.38	37.07	10.08	11.29	23.46
2006-07	80.72	91.16	16.38	14.68	50.74
2007-08	32.19	28.88	15.73	71.29	37.02
Average 2005-08	49.43	52.37	14.06	32.42	37.07

[4] PRAct section 58 (1), 77,78,82,85, and 86 makes GP to perform various functions including: Construction, repairs and maintenance of drinking water wells, tanks and ponds of GPs to make bye-laws regarding provisions of water supply: and maintaining water supply works either on its own or by annual contract by generating adequate resources.

Figure 4 shows GP-wise water tax collected in the selected GPs during the year 2005-08. Although there is an increase in the rate of tax collected during the period 2005-08, it is clear that only one fourth of the demand is raised through tax collection. In such cases it would be difficult to manage all the works with a shortage to the extent of 75 per cent.

Table 12: Water Tax paid by Household (2008-09)

GPs Name	No of HHs who paid Water Tax
Galagi	60 (59.4)
Madkihonnihalli	28 (58.3)
Kanakur	33 (71.7)
Yarikoppa	35 (87.5)
All GPs	156 (66.4)

Note: figure in the brackets show percentage of HHs

As shown in table 11 about 66.4 per cent of households paid water tax, while 33.6 per cent households defaulted. The payment of water charges by households is higher in developed taluk GPs like Yarikoppa and Kanakur than the backward taluk GPs like Madakihonnihalli and Galagi GP.

4. Concluding Observations

It is found that almost all the households in the selected Gram Panchayats depend on safe drinking water sources. Some portion of the households are satisfied with the quantity and quality of water supplied. Higher proportions of households are satisfied with quantity and quality of water supplied in developed GPs. The paper also reveals that only 21 per cent of Hhs are having individual latrines and only very few households are using these latrine facilities. This indicates poor awareness and negligence for personal hygiene and public health. The fact that half of the households are dissatisfied with the quality of water and three fourth with sanitation facility explains the risk factors associated with occurrence of water borne and sanitation related diseases. These also indicate the necessity for appropriate intervention by GP

to provide hygienic environment for the better health of the people. Therefore, there is a need for trained local personnel to maintain and manage the treatment plant at village level. Quality problem as a whole should be handled with a planned approach beginning from identification to completion. It is the responsibility of GP to create awareness about safe drinking water and the importance of sanitation among villagers and provide safe drinking water to the public. Gram Panchayats can play a major role in reducing the disease burden by providing improved water supply and sanitation. Such improvements reduce child mortality and, water and sanitation related diseases in rural areas. In rural areas Gram Sabha is a powerful and democratic means of communicating villagers' needs. It is necessary that these needs are included in the developmental programmes of the GP and later realized in to works through actual implementation.

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Appendix 1.1: Role of the Gram Panchayat in Rural Water Supply and Sanitation

Section 58 of Karnataka Panchayat Raj Act 1993 has enlarged the role of the Gram Panchayat in Water Supply

Schedule- I (Item VIII, XXXI) Item VIII

Drinking Water

1. Construction, repair and maintenance of drinking water wells, tanks and ponds.
2. Prevention and control of water pollution.
3. Maintenance of rural water supply scheme.

Section 77- Power for providing adequate and pure drinking water supply

Section 78 – Power of GPs to make bye-laws regarding provisions of water supply: Making bye-laws for conserving.

Section 82- Powers and duties with regard to sources of water supply.

Section 85- Power to prohibit use of water from sources.

Section 86- Penalty for using water for certain purposes.

Section 87- Abatement of nuisance from polluted water.

4. Providing sanitary latrines to not less than ten per cent of the households every year and achieve full coverage as early as possible.
5. Constructing adequate number of community latrines for the use of men and women and maintaining them.
6. Providing sanitation and proper drainage.
7. Earmarking places away from the dwelling houses for dumping refuse and manure.

Source: RDPRD Strategy paper; 2005