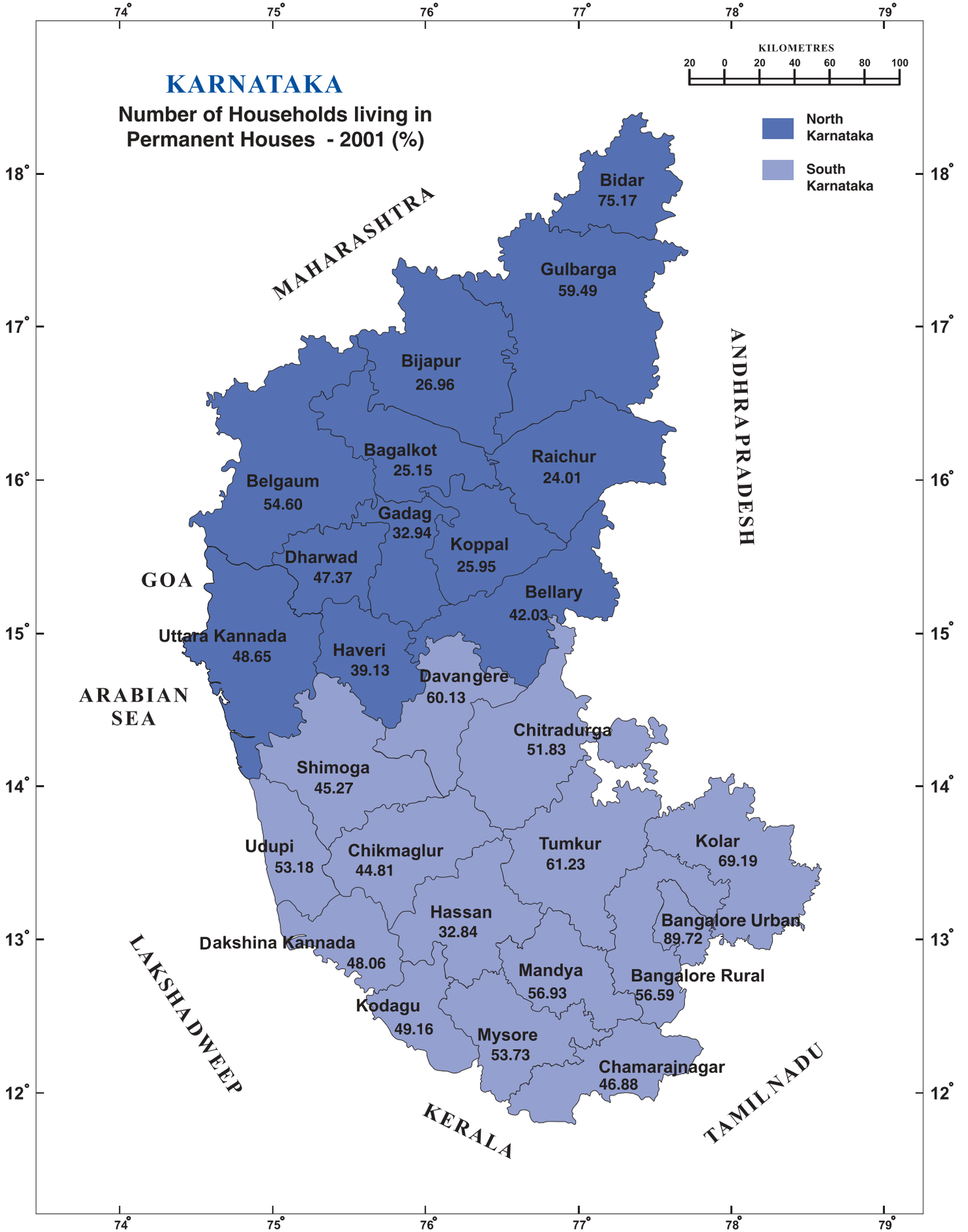
Housing, Water Supply and Sanitation


KARNATAKA
Number of Households living in Permanent Houses - 2001 (%)
KILOMETRES
20 0 20 40 60 80 100
North Karnataka
South Karnataka
74° 75° 76° 77° 78° 79°
18° 17° 16° 15° 14° 13° 12°
MAHARASHTRA
ANDHRA PRADESH
GOA
ARABIAN SEA
LAKSHADWEEP
KERALA
TAMILNADU
Bidar 75.17
Gulbarga 59.49
Bijapur 26.96
Bagalkot 25.15
Raichur 24.01
Belgaum 54.60
Gadag 32.94
Koppal 25.95
Dharwad 47.37
Bellary 42.03
Uttara Kannada 48.65
Haveri 39.13
Davangere 60.13
Chitradurga 51.83
Shimoga 45.27
Udupi 53.18
Chikmaglur 44.81
Tumkur 61.23
Kolar 69.19
Hassan 32.84
Bangalore Urban 89.72
Dakshina Kannada 48.06
Mandya 56.93
Bangalore Rural 56.59
Kodagu 49.16
Mysore 53.73
Chamarajnagar 46.88

Housing, Water Supply and Sanitation

Introduction

Shelter is a basic need for human existence – for protection from the elements as well as to raise families. And, just as provision of shelter facilitates human existence, access to drinking water, sanitation and hygiene rank foremost among the basic services that affect human development. Access to safe drinking water and basic sanitation impacts not only poverty and health indicators, but also has critical gender implications in terms of women's work and women's health. This chapter deals with these three facets of human development in Karnataka.

I. HOUSING

While all human beings need shelter, for the poor, even the most basic shelter may be beyond reach because they do not own land or because the cost of building materials and construction is too high. Shelter is a basic human need. The National Housing and Habitat Policy, 1998 provides the framework for the implementation of shelter programmes in the country. The national agenda on housing envisages the creation of 2 million houses every year. The Habitat policy and the national agenda recognise housing activity as an engine for substantial employment generation in the country.

The 'Working Group on Housing' for the preparation of the 'Tenth Plan Approach Paper' has observed that 90 per cent of the housing shortage relates to the poor and that there is need to increase the supply of affordable housing to low income groups through a proper process of allocation of land, extension of funding assistance and provision of support services. All the issues identified by the Working Group relate to the sphere of activity and responsibility of state governments and local bodies, and therefore, the success of the National Housing Policy depends largely on the efforts of state governments.

Providing better living conditions for people is now a global concern. The Millennium Development Goals envisage achieving significant improvements in the lives of at least 100 million slum dwellers by the year 2020. In this context, urban planning and governance structures have to be made more effective, and incorporate an explicitly pro-poor focus on land rights and affordable low-cost housing to meet the burgeoning demand for shelter in urban areas.

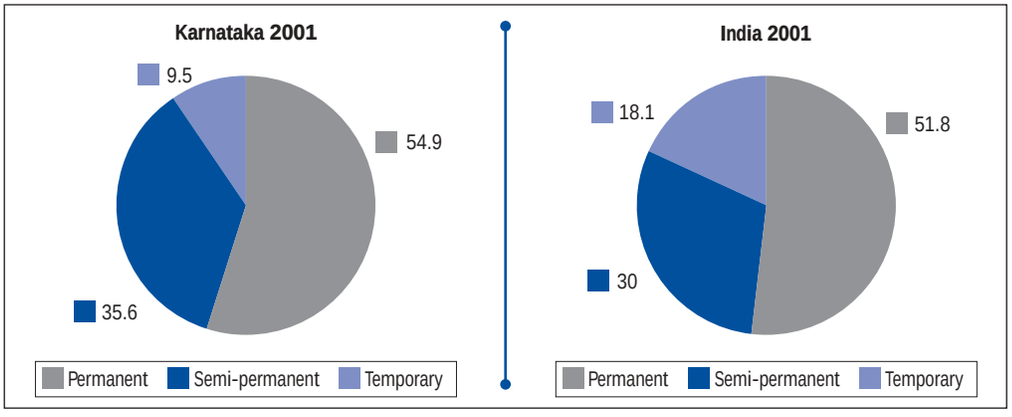
The housing scenario

In Karnataka, 54.9 per cent of households live in permanent houses, as compared with Kerala, which

While all human beings need shelter, for the poor, even the most basic shelter may be beyond reach because they do not own land or because the cost of building materials and construction is too high.

FIGURE 7.1

Number of houses by type: Karnataka and India 2001



has the highest percentage of households (68.1 per cent) living in permanent houses among the southern states. This is above the national average of 51.8 per cent. A high 35.6 per cent of households in Karnataka have semi-permanent houses, a high proportion among southern states, and above the national average of 30 per cent. Urban households perform better, with 77.9 per cent households living in permanent houses, as compared with only 42.6 per cent in rural areas. The scenario is reversed with regard to temporary houses. (Table 7.1)

Karnataka (78.5 per cent) stands fourth among the southern states with regard to the number of households living in houses that they own. This is less than the national average of 86.66 per cent. Karnataka, with 18.7 per cent households living in rented houses, ranks just after Tamil Nadu (19.9 per cent) among the southern states. However, the proportion of households owning houses in rural areas is quite high at 91.2 per cent (Table 7.1).

Across districts, only 24 per cent households in Raichur district live in permanent houses and 44.3 per cent are in semi-permanent houses, as compared with Bangalore Urban district, where 89.7 per cent households live in permanent houses. The proportion of temporary houses is the highest in Koppal district (33.8 per cent) followed by Raichur (31.7 per cent), Gadag (28.1 per cent) and Bellary (24.5 per cent), all of which are in north Karnataka (Appendix Tables: Series 9).

Bangalore Urban district tops the state in respect of households living in permanent houses in urban areas (92.1 per cent) while Bidar (a low HDI district) tops the state in respect rural households living in permanent houses (74.5 per cent). Raichur has the lowest percentage of rural households living in permanent houses (13.7 per cent) and Gadag has the lowest percentage of urban households (41.3 per cent) living in permanent houses. Data indicates that Bangalore Urban has the least percentage of semi-permanent houses (6.4) in respect of urban areas (Appendix Tables: Series 9).

Data on the tenure of households indicates that the lowest percentage of families (45.69) that own houses are to be found in Bangalore Urban, which is below the state average of 78.46 per cent. The highest percentage of households in Bangalore Urban lived in rented houses (50.73). The highest percentage (90.94) of households that own houses is in Chamarajnagar (a low HDI district) followed by Udupi (90.42) and Bidar (90.19). In Udupi, a high HDI district, we find only 7.37 per cent of households in rented houses. A low 68.3 per cent of rural households in Kodagu district own their houses, followed by Bangalore Urban (69.0 per cent) while 95.7 per cent of rural households who own houses are situated in a relatively underdeveloped district like Bidar. The urban scenario shows that in Bangalore Urban, only 43 per cent households own houses while 54 per cent live in rented houses (Appendix Tables: Series 9).

BOX 7.1

Karnataka's Habitat Policy

The state's millennium policy envisages:

1. Construction of 2,00,000 houses each year and 10,00,000 houses during the period 2000-05 through state government sponsored *Ashraya* and *Ambedkar* (the latter scheme is for Scheduled Castes and Scheduled Tribes) housing programmes as well as Centrally sponsored housing programmes for the poor;
2. Preparation of a reliable database for implementing housing programmes for the poor in rural and urban areas;
3. Ownership of the dwelling units shall be in the name of women except in the case of widowers, ex-servicemen, and the physically disabled;
4. Quotas for the Scheduled Castes/Scheduled Tribes in allocation - in 2002-03, the quotas increased to 40 per cent for SCs from 30 per cent and for STs to 10 per cent from three per cent;
5. Quotas for the physically disabled were enhanced from three per cent to five per cent in 2003 and for senior citizens without any income, it is two per cent;
6. Establishing a Special Purpose Vehicle (SPV), the Rajiv Gandhi Rural Housing Corporation as the nodal agency to implement the housing programmes;
7. Providing a subsidy at Rs.10,000 per unit to all (poor) beneficiaries and an additional subsidy of Rs.10,000 for SCs/STs for houses constructed in rural areas;
8. Procuring, preferably by direct purchase from landowners, lands required for housing in rural and urban areas;
9. Providing house sites free of cost to eligible beneficiaries in both rural and urban areas;
10. Encouraging beneficiary participation in construction;
11. Providing guarantee for funds borrowed from HUDCO and other financial institutions;
12. Facilitating housing for certain socio-economic groups such as beedi workers, porters in agricultural market yards, weavers, artisans, leather artisans, safai karmacharis, fisher people; and
13. Beneficiary selection through gram sabhas.

TABLE 7.1

Distribution of households by tenure and type: Karnataka and selected states: 2001

('000s)

State	Area	Tenure Status				Type		
		Total	Own	Rented	Any other	Permanent	Semi-permanent	Temporary
India	Total	191964	166353	20230	5380	99432	57664	34816
	%	100.0	86.66	10.53	2.80	51.8	30.0	18.1
	Rural	138272	130491	4913	2867	56829	49402	32010
	%	72.03	94.37	3.55	2.04	41.1	35.7	23.1
	Urban	53692	35862	15317	2513	42602	8262	2806
	%	27.97	66.79	28.53	4.68	79.3	15.4	5.2
Karnataka	Total	10232	8028	1909	295	5613	3645	971
	%	100.0	78.5	18.7	2.8	54.9	35.6	9.5
	Rural	6675	6085	416	174	2843	3009	821
	%	65.24	91.2	6.2	2.6	42.6	45.1	12.3
	Urban	3557	1943	1493	121	2770	636	150
	%	34.76	54.6	42.0	3.4	77.9	17.9	4.2
Kerala	Total	6595	6110	332	154	4494	1424	673
	%	100.0	92.6	5.0	2.3	68.1	21.6	10.2
	Rural	4943	4663	163	116	3191	1185	564
	%	74.95	94.3	3.3	2.4	64.6	24.0	11.4
	Urban	1653	1447	169	37	1303	239	109
	%	25.05	87.5	10.2	2.3	78.8	14.5	6.6
Tamil Nadu	Total	14174	11007	2822	345	8295	2572	3304
	%	100.0	77.7	19.9	2.4	58.5	18.1	23.3
	Rural	8275	7554	556	165	3914	1672	2688
	%	58.38	91.3	6.7	2.0	47.3	20.2	32.5
	Urban	5899	3452	2266	180	4381	900	616
	%	41.62	58.5	38.4	3.0	74.3	15.3	10.4
Andhra Pradesh	Total	16850	13795	2715	340	9221	3589	4034
	%	100.0	81.9	16.1	2.0	54.7	21.3	23.9
	Rural	12676	11457	1001	218	5962	3077	3633
	%	75.23	90.4	7.9	1.7	47.0	24.3	28.7
	Urban	4174	2337	1713	123	3259	512	401
	%	24.77	56.0	41.1	2.9	78.1	12.3	9.6
Maharashtra	Total	19063	15311	3020	732	11021	6553	1475
	%	100.0	80.3	15.8	3.8	57.8	34.4	7.7
	Rural	10994	9891	724	378	4434	5274	1281
	%	57.67	90.0	6.6	3.4	40.3	48.0	11.7
	Urban	8070	5419	2296	354	6587	1279	194
	%	42.33	67.2	28.5	4.4	81.6	15.9	2.4
Gujarat	Total	9644	8207	1181	256	6300	2849	492
	%	100.0	85.1	12.2	2.7	65.3	29.5	5.1
	Rural	5886	5458	324	104	3000	2453	431
	%	61.03	92.7	5.5	1.8	51.0	41.7	7.3
	Urban	3758	2749	857	152	3300	395	62
	%	38.97	73.2	22.8	4.1	87.8	10.5	1.6

Source: Registrar General of India, Census of India 2001, Housing Profile,Tables H-4, H-5 and H-6.

There appears to be little correlation between the economic development of a district and house ownership patterns. House ownership is high in the predominantly agrarian north Karnataka districts where land values are less likely to be affected by speculation consequent on urbanisation as in Bangalore Urban. Migration to cities is a factor that pushes up the percentage of persons living in rented houses.

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Policy interventions

Given the relatively low percentage of house ownership in the state, Karnataka has long recognised the significance of housing as an important component of the Minimum Needs Programme. Indeed, Karnataka had launched a state-funded housing programme for the poor through the *Ashraya* and *Ambedkar* housing programmes in 1993-94, long before the National Habitat Policy was formulated. The state has one of the best housing programmes in the country.

Housing schemes

The *Ashraya* programme provides assistance of Rs.20,000 of which Rs.10,000 is a subsidy and the remaining Rs.10,000 is a loan. For SC/ST beneficiaries in both *Ashraya* and *Ambedkar* programmes, the entire provision of Rs.20,000 is a subsidy. In the urban *Ashraya* programme, the assistance is Rs.25,000 with a beneficiary contribution of at least Rs.5,000.

The state launched the ambitious 'One Million Housing Programme' in October 2000, which envisaged the construction of one million dwelling units in rural and urban areas during the period 2000-05, i.e. 2,00,000 houses each year. Rural housing has been given primacy with an annual target of about 1,70,000-2,20,000 houses. The annual target for the urban programme is 30,000. The cost of urban projects is usually very high.

BOX 7.2

Some innovative strategies

- **Beneficiary participation**

Local bodies and SPVs have traditionally constructed housing projects with little input from beneficiaries. Over the last five years, however, beneficiary construction has become the preferred mode of implementation, particularly in the districts of south Karnataka. This mode of construction is facilitated by the presence of reasonably skilled construction labour such as masons and underemployed farm labour, which doubles as semi-skilled or unskilled construction labour. At present, about 80 per cent of the construction of houses for the economically weaker sections (EWS) in rural areas is constructed by beneficiaries. This has the advantage of ensuring that dwelling units address the social, cultural and occupational needs of the beneficiaries far more effectively than agency-constructed core housing could hope to achieve. Beneficiary participation takes the form of direct participation in construction, supervision of work, attending to simple, yet significant, tasks such as curing cement blocks or masonry to provide additional funds for construction of the dwelling unit. The generation of local employment and use of locally available building materials is a crucial economic outcome of this approach. There is better accountability for the funds since these are made available to the beneficiaries only when they attain the prescribed benchmarks. 'Self-help' housing does not, however, mean that beneficiaries are deprived of technical inputs. Taluk panchayat engineering staff, Nirmithi Kendras and the Karnataka Land Army Corporation (KLAC) provide construction support to beneficiaries who are unable to construct their own houses. In urban areas, 'core' housing is provided by agencies as a matter of policy to prevent speculation in land, since land markets are poorly organised and there is heavy demand for house sites, even by the non-poor and there is every likelihood that sites may be sold to speculators, thus defeating the purpose of the programme.

- **Women's empowerment**

The decision of the state to select only women beneficiaries for assistance under the housing programmes (barring some exceptions) and give *hakku patras* (title deeds) for house sites and houses only in the names of the women of the household, has had a critical impact on ownership patterns in a society where land, houses and assets traditionally belong to men. It is a significant step towards promoting gender equity.

- **Community participation**

The selection of beneficiaries was initially entrusted to the Ashraya Committee. Now gram panchayats identify and select beneficiaries, and the very poor will hopefully now be in a position to articulate their demands. This is a significant step towards governance through community participation.

- **Social equity**

There is specific targeting of Scheduled Caste and Scheduled Tribe people through the *Ambedkar* (100.0 per cent) and *Ashraya* programmes (50.0 per cent).

TABLE 7.2

Houses constructed under State and Central schemes: 1999–2004

(Nos.)

Sector	Area	Scheme	Years					Total
			1999-2000	2000-01	2001-02	2002-03	2003-04	
State	Rural	Ashraya	53630	71794	136886	115267	108747	486324
		Matsya Ashraya		1598	1851	1066	264	4779
		Ambedkar	22712	17619	26489	18415	16274	101509
	Urban	Ambedkar		2999	3058	1727	1121	8905
		Ashraya	7746	28702	34274	20020	17966	108708
		KSCB (Hudco)	2000	1985	2291	2080		8356
		KSCB (SC/ST)		1000	1080	1000		3080
	Total		**86088**	**125697**	**205929**	**159575**	**144372**	**721661**
Central	Urban	KSCB (Vambay)				10312	7968	18280
	Rural	Indira Awas Yojana (I.A.Y.)	36626	27785	29096	28910	24222	146639
		PMGY			2217	3360	4112	9689
	Total		**36626**	**27785**	**31313**	**42582**	**36302**	**174608**
Grand Total			**122714**	**153482**	**237242**	**202157**	**180674**	**893189**

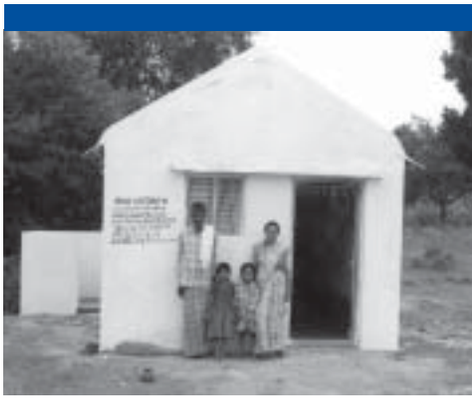
Source: Rajiv Gandhi Rural Housing Corporation Limited, progress reports of various years.

A village-wise demand survey was conducted by gram panchayats during May-June 2003 and it has been estimated that there are 12.26 lakh houseless people and 10.43 lakh people without house sites who have asked for assistance under the programme. Since 2001-02, a large number of new village settlements known as *Navagramas* has been created adjoining, and preferably abutting existing village settlements to decongest villages. So far 2,399 *Navagramas* have been created to provide better amenities.

Table 7.2 gives details of houses constructed under the state and Central government sponsored housing programmes during 1999-2004. State sponsored schemes constitute 80 per cent of the rural housing programmes and 87.5 per cent of the urban housing programmes implemented in Karnataka. The state had invested over Rs.18,912 million till March 2004 to create 8,96,269 dwelling units.

Recommendations

- It would be no exaggeration to state that the poor find it difficult to borrow for housing. Commercial banks are unwilling to lend to the poor, and even if they are willing to do so, lending norms, guidelines and collateral security requirements mean that the most needy get excluded. Hence, in Karnataka, institutional lending is channelled through the state government. The concerns of banks can be met by organising an institutional partnership with local bodies and microfinance structures that would ensure loan recoveries cost-effectively and also facilitate savings for home loans to meet credibility requirements. There is definitely a need for banks to have a fresh look at the lending norms for the poor to enable them to access funds for housing.
- Currently, provision of infrastructure facilities like water, electricity, sanitation, internal roads and drains is not being financed under any housing programme. This has resulted in poor occupancy and a poor quality of life for occupants in the settlements. Infrastructure provision is extremely resource intensive and should not be left to cash-starved local bodies to provide; it should be funded by the state



since the ability of the poor to contribute is meagre.

- In Karnataka the state survey reveals that 14.31 lakh families are houseless and 15.08 lakh families do not own house sites. The number of houseless families is the highest in Belgaum (1.07 lakh) followed by Gulbarga (1.02 lakh), Kolar (0.99 lakh), Mysore (0.96 lakh) and Tumkur (0.94).[1] Public policy must focus on targeting resources to districts where the problem of houselessness is most acute.
- An evaluation-cum-audit of the gender sensitive initiative that mandates that house title deeds shall be in women's names must be taken up to assess the impact of this step in changing gender relations and empowering women.
- The National Urban Renewal Mission (NURM) is expected to be the major vehicle for urban renewal in the country, providing substantial financial assistance for urban infrastructure and provision of basic services for the urban poor. Accordingly, the city development plans and strategies must focus on enabling the poor to better access civic services. Those working in the urban informal sector, especially women, must be included in the agenda for urban regeneration.

Infrastructure provision is extremely resource intensive and should not be left to cash-starved local bodies to provide; it should be funded by the state since the ability of the poor to contribute is meagre.

TABLE 7.3

Distribution of households by location of drinking water: Karnataka 2001

('000s)

Location	Total	Per cent	Rural	Per cent	Urban	Per cent
Access within the premises	3248	31.7	1236	18.5	2011	56.5
Access outside the premises	4749	46.4	3696	55.4	1054	29.6
Access away from the premises	2235	21.8	1743	26.1	492	13.8
Total no. of households	**10232**	**100.0**	**6675**	**65.2**	**3557**	**34.8**

Source: Registrar General of India, Census 2001, Housing Profile, Karnataka.

[1] *Samanya Mahiti*: District-wise statistics on Housing prepared by Rural Development and Panchayat Raj department based on the Census 2001 data.

II. DRINKING WATER AND SANITATION

Among the basic services that affect human development are access to drinking water (defined in terms of availability, proximity and quality), sanitation and hygiene. Access to drinking water has implications not only for health status and human development parameters but also for opportunities depending upon the opportunity cost of time. This has special implications for women and children. The responsibility for fetching water, sometimes over long distances, for household needs is invariably assigned to women or girls, who drop out of school to attend to these chores. Hence, the ready availability of safe drinking water lays the foundation for improvement in literacy and health indicators in communities.

According to the 2001 Census estimates, 31.7 per cent of all households in Karnataka had access to drinking water within their premises, 46.4 per cent outside the premises, and a substantially lower number (21.8 per cent) had access away from the premises.[2] Disaggregated data shows that urban Karnataka is doing better in terms of facilities; in rural Karnataka, only 18.5 per cent of households had access to drinking water within the premises compared with a high 56.5 per cent for urban Karnataka. However, the statistics are reversed with regard to access to drinking water outside the premises, with 55.4 per cent rural households having access to drinking water outside the premises as against 29.6 per cent for urban areas. This unequal pattern continues with reference to the percentage of households with access to drinking water away from the premises: it is 26.1 per cent for rural Karnataka and 13.8 per cent for urban Karnataka (Table 7.3).

However, this pattern holds good for other states as well: countrywide, access to drinking water is markedly better in urban areas than in rural areas. The principal sources of drinking water are taps, hand pumps, tube wells, wells, tanks, ponds,

[2] Away from the premises is defined in the Census as a water source that is beyond 500 metres from the dwellings in rural areas and beyond 100 metres in urban areas.

lakes, rivers, canals and springs, etc. Forty-eight per cent rural households and 78.4 per cent urban households access their drinking water from taps. In rural areas, however, 22.9 per cent of households rely on hand pumps and 15.6 per cent on wells while in urban areas; taps constitute the dominant source (Table 7.4).

Some important indicators available for sanitation relate to access to bathroom and latrine facilities. Here, too, the rural–urban difference is marked. While 79.1 per cent urban households had a bathroom in the premises, the proportion for rural areas was 48.1 per cent. While a high 82.5 per cent of rural households had no latrines in the premises, only 24.7 per cent urban households did not have latrines. As many as 44.9 per cent urban households had water closets. Both urban and rural households were relatively on a par when it came to drain connectivity for waste water (rural: 31.1 per cent; urban: 39.3 per cent), the real difference lies in the fact that 64.6 per cent rural households, by and large, did not have any kind of drainage connectivity whereas only 19 per cent urban dwellers lacked this facility (Table 7.5).

Rural drinking water

Karnataka has been giving high priority to rural drinking water over the last two decades. While the national norm stipulates provision of 40 litres per capita per day (lpcd) of safe drinking water within 500 metres of the place of residence, Karnataka has set a target of 55 lpcd.

Since the beginning of the 1980s, bore-wells have been the main basis of water supply schemes in the state. The policy of the government is to provide bore-wells with hand pumps to habitations with a population of less than 500, mini water supply schemes to habitations with a population between 500 and 1,000, and piped water supply schemes to habitations with a population of more than 1,000. In the last few years, the groundwater level is being depleted very quickly in most districts, resulting in a large number of bore-wells drying up. Strategically, drilling new bore-wells is now seen to be less efficient than deepening existing bore-wells to improve water yields. Surface water sources are also being explored as an alternative to bore-wells. There has been considerable progress in the provision of rural drinking water in the last one and a half decades. Currently, there are 1,90,716 bore-wells, 22,101 mini water supply

TABLE 7.4

Distribution of households by source of drinking water: Karnataka 2001

('000s)

Source of water	Total	Per cent	Rural	Per cent	Urban	Per cent
Tap	6025	58.9	3236	48.5	2790	78.4
Hand pump	1750	17.1	1530	22.9	220	6.2
Tube well	876	8.6	609	9.1	267	7.5
Well	1269	12.4	1038	15.6	230	6.5
Tank, pond and lake	111	1.1	101	1.5	10	0.3
River and canal	112	1.1	105	1.6	7	0.2
Spring	31	0.3	28	0.4	2	0.1
Any other	58	0.6	28	0.4	31	0.9

Source: Registrar General of India, Census 2001, Housing Profile, Karnataka.

TABLE 7.5

Number of households with bathroom, latrine and drainage facility: Karnataka 2001

('000s)

Sl. No.	Type of amenities	Total	%	Rural	%	Urban	%
1	Total number of households	10232		6675		3556	
2	No. of households having bathroom within the premises	6023	58.9	3208	48.1	2815	79.1
3	Type of latrine within the premises						
A	Pit latrine	1368	13.4	632	9.5	736	20.7
B	Water closet	1907	18.6	311	4.7	1595	44.9
C	Other latrine	561	5.5	217	3.3	343	9.7
	With latrine	3836	37.5	1160	17.5	2674	75.3
	No latrine	6395	62.5	5513	82.5	881	24.7
4	Type of drainage connectivity for waste water outlet						
A	Closed drainage	1766	17.3	285	4.3	1,481	41.6
B	Open drainage	3475	34.0	2076	31.1	1398	39.3
	With drainage	**5241**	**51.3**	**2361**	**35.4**	**2879**	**80.9**
	No drainage	**4989**	**48.7**	**4312**	**64.6**	**677**	**19.0**

Source: Registrar General of India, Census 2001; Housing Profile: Karnataka – Table H-10.

TABLE 7.6

Distribution of households by location of drinking water: Karnataka and selected states

('000s)

State	Area	Total no. of households	Within premises	Outside premises	Away
India	Total	191964	74803	85112	32048
	%		39.0	44.3	16.7
	Rural	138272	39699	71561	27012
	%		28.7	51.8	19.5
	Urban	53692	35105	13552	5036
	%		65.4	25.2	9.4
Karnataka	Total	10232	3248	4749	2235
	%		31.7	46.4	21.8
	Rural	6675	1236	3696	1743
	%		18.5	55.4	26.1
	Urban	3557	2011	1054	492
	%		56.5	29.6	13.8
Kerala	Total	6595	4720	1085	790
	%		71.6	16.5	12.0
	Rural	4943	3416	860	667
	%		69.1	17.4	13.5
	Urban	1653	1304	225	123
	%		78.9	13.6	7.4
Tamil Nadu	Total	14174	3835	8620	1718
	%		27.1	60.8	12.1
	Rural	8275	989	6183	1103
	%		12.0	74.7	13.3
	Urban	5899	2846	2437	615
	%		48.2	41.3	10.4
Andhra Pradesh	Total	16850	5272	8238	3340
	%		31.3	48.9	19.8
	Rural	12676	2883	7016	2777
	%		22.7	55.3	21.9
	Urban	4174	2388	1222	563
	%		57.2	29.3	13.5
Maharashtra	Total	19063	10182	6530	2351
	%		53.4	34.3	12.3
	Rural	10994	4272	4828	1894
	%		38.9	43.9	17.2
	Urban	8070	5911	1702	457
	%		73.2	21.1	5.7
Gujarat	Total	9644	4488	3689	1466
	%		46.5	38.3	15.2
	Rural	5886	1724	2939	1223
	%		29.3	49.9	20.8
	Urban	3758	2764	750	244
	%		73.5	20.0	6.5

Source: Registrar General of India, Census 2001, Housing Profile – Table H-10.

schemes and 17,170 piped water schemes (Annual Report 2004-05: Rural Development and Panchayat Raj Department). Accordingly, the percentage of households with access to safe drinking water has increased from 67.3 per cent in 1991 to 96.08 per cent in 2001 and to 99.0 per cent in 2004. The water supply service level in terms of litres per capita per day (lpcd) has also improved since 1991. There were 20,398 habitations with 40 lpcd and above in 1991, 38,701 habitations in 1999 and in 2004 as many as 41,115 habitations had water availability of 40 lpcd and above.

Access

Accessibility of drinking water improved to over 80 per cent in all districts in 2001. In rural Karnataka, 18.5 per cent households had access to drinking water within the premises, as compared with 12.0 per cent in Tamil Nadu, 22.7 per cent in Andhra Pradesh, 38.9 per cent in Maharashtra and 69.1 per cent in Kerala. Except Kerala, most states, including Karnataka, have been able to provide drinking water outside the premises (Table 7.6). However, a high 26.1 per cent of rural households in the state access drinking water away from their premises. Karnataka is close to Andhra Pradesh's 21.9 per cent in this respect. There are still some habitations where drought conditions lead to water being transported in tankers or by train. Continuous drought conditions from 2001-02 to 2003-04 led to water being transported to about 500 villages in the state. Almost 48.5 per cent of rural households access their drinking water from taps compared with 60.5 per cent in Tamil Nadu. Rural areas primarily rely on hand pumps and wells while taps constitute the dominant source in urban areas (Table 7.7).

Among districts, Udupi (56.0 per cent), Dakshina Kannada (54.0 per cent) and Uttara Kannada (42.0 per cent) have the highest percentage of rural households with access to drinking water within the premises. Raichur (9.0 per cent), Gulbarga and Bijapur (10.0 per cent) all in north Karnataka have the lowest percentage of rural households with access to drinking water within the premises. Districts with the highest percentage of rural households with access to

drinking water away from the premises are Raichur (43.0), Gulbarga (41.0) and Bijapur (36.0). Districts with the lowest percentage of rural households with access to drinking water away from the premises are Mandya (14.0), and Dakshina Kannada (15.0). The arid, water-starved districts of north Karnataka have problems of access and sustainability while the coastal and *malnad* districts perform better in terms of access (Appendix Tables: Series 9).

The data on the distribution of households by location of drinking water reveals that some districts are heavily dependant on wells, viz. Udupi (80.0), Dakshina Kannada (70.0) and Uttara Kannada (65.0) while Chamarajnagar (46.0), Bijapur (42.0), and, to a lesser extent, Tumkur (36.0) are primarily dependant on hand pumps. The remaining districts derive drinking water principally from taps (Appendix Tables: Series 9).

Quality

There are over 21,008 habitations with major quality issues: excess fluoride: 5838; brackishness: 4460; nitrate: 4077 and iron: 6633. The water in these villages is contaminated with fluoride (>1.5 mg/litre), total dissolved salts (>1500 mg/litre), nitrate (>100 mg/litre) and/or iron (1mg/litre). Under the Rajiv Gandhi National Drinking Water Mission, there is a sub-mission to deal with the problem of contaminated water. So far 47 projects have been implemented, covering 628 fluoride affected habitations. Defluoridisation plants have been set up in 200 villages. Individual household filters are also being supplied at a subsidised cost in fluoride affected villages. Ingestion of fluoride contaminated water causes fluorosis which causes staining and pitting of the teeth and, in more severe cases, skeletal abnormalities, leading to physical disability and weakness, a consequent fall in labour productivity and a decline in income levels.

Sustainability

The sustainability of water supply schemes is a major concern of the government. Over 95 per cent of rural water supply schemes depend on ground water sources. Over-exploitation of

TABLE 7.7

Distribution of households by source of drinking water: Karnataka and selected states - 2001

('000s)

State	Area	Total	Tap	Hand pump	Tube well	Well	Other
India	Total	191964	70449	68456	10677	34873	7510
	%		36.7	35.7	5.6	18.2	3.9
	Rural	138272	33584	59737	7930	30733	6287
	%		24.3	43.2	5.7	22.2	4.5
	Urban	53692	36865	8720	2746	4140	1221
	%		68.7	16.2	5.1	7.7	2.3
Karnataka	Total	10232	6025	1750	876	1269	312
	%		58.9	17.1	8.6	12.4	3.0
	Rural	6675	3236	1530	609	1038	263
	%		48.5	22.9	9.1	15.6	3.9
	Urban	3557	2790	220	267	231	50.0
	%		78.4	6.2	7.5	6.5	1.4
Kerala	Total	6595	1346	72.0	124	4739	313
	%		20.4	1.1	1.9	71.9	4.7
	Rural	4943	687	57.0	91.0	3814	293
	%		13.9	1.1	1.8	77.2	5.9
	Urban	1653	659	16.0	33.0	925	20.0
	%		39.9	1.0	2.0	56.0	1.2
Tamil Nadu	Total	14174	8863	2528	735	1505	543
	%		62.5	17.8	5.2	10.6	3.8
	Rural	8275	5005	1679	374	938	279
	%		60.5	20.3	4.5	11.3	3.4
	Urban	5899	3858	849	361	567	264
	%		65.4	14.4	6.1	9.6	4.5
Andhra Pradesh	Total	16850	8106	4399	1000	2779	566
	%		48.1	26.1	5.9	16.5	3.4
	Rural	12676	5105	3911	727	2478	456
	%		40.3	30.9	5.7	19.6	3.6
	Urban	4174	3001	488	273	300	111
	%		71.9	11.7	6.5	7.2	2.7
Maharashtra	Total	19063	12203	2459	554	3390	457
	%		64.0	12.9	2.9	17.8	2.4
	Rural	10994	5007	2097	418	3129	343
	%		45.5	19.1	3.8	28.5	3.1
	Urban	8070	7197	362	136	261	113
	%		89.2	4.5	1.7	3.2	1.4
Gujarat	Total	9644	6001	1606	494	1128	406
	%		62.3	16.7	5.1	11.7	4.2
	Rural	5886	2889	1340	296	1075	286
	%		49.1	22.8	5.0	18.3	4.9
	Urban	3758	3120	266	199	53.0	120
	%		83.0	7.1	5.3	1.4	3.2

Source: Registrar General of India, Census 2001, Housing Profile.

Over-exploitation of groundwater for irrigation has led to a progressive decline in the water table and drying up of aquifers.

groundwater for irrigation has led to a progressive decline in the water table and drying up of aquifers. This has rendered many water supply schemes non-functional. While efforts are being made to rejuvenate these schemes by taking recourse to deepening and hydro fracturing bore-wells, a more sustainable strategy is the recharging of groundwater through watershed development. This strategy has been adopted in the implementation of the Drought Prone Area Development Programme, Desert Development Programme, Integrated Wasteland Development Programme, Western Ghat Development Programme, etc. This has helped to recharge groundwater in these areas.

Rural sanitation

Compared to the progress in rural water supply in Karnataka, the progress in rural sanitation has not been very satisfactory. While there has been a sustained attempt to improve the provisioning of safe drinking water since the 1980s, no such parallel effort or investment was evident in rural sanitation. It was only in the 1990s that this area became the focus of policy interventions with the launch of special schemes to provide toilets and sanitary facilities in villages, viz. *Nirmala Grama* and *Swasthi Grama*. Another programme, *Swachcha Grama*, was launched in 2001 with an integrated focus aimed at providing five facilities: (i) paving internal roads and streets in the village; (ii) construction of efficient sullage and storm water drainage; (iii) providing community compost yards and removal of manure pits from the dwelling areas of the village; (iv) providing smokeless *chulahs* for all households; and (v) construction of household, community and school latrines in all villages. That these schemes still have to make an impact is clear from the data from the 2001 Census. A high 82.5 per cent of rural households had no latrine in the house but this is more or less on par with other neighbouring states except Kerala (18.7 per cent only). The percentage of rural households with bathrooms is 48.1 per cent, which is higher than Maharashtra (46.1 per cent), Tamil Nadu (21.0 per cent) and Andhra Pradesh (27.1 per cent) except Kerala (56.5 per cent). Admittedly, 64.6 per cent of rural households had no drainage connectivity for the wastewater outlet, but this was still better than Gujarat (86.3 per cent), Kerala (84.0 per cent) and Tamil Nadu (72.6 per cent) (Table 7.8). Lack of drainage facilities and toilets results in a highly unsanitary environment, which is a precursor to high morbidity rates.

District-wise data reveals that Udupi has the best coverage of latrines (49.9 per cent) followed by Kodagu (48.5 per cent), Dakshina Kannada (47.2 per cent) and Bangalore Urban (41.0 per cent). A high 96.7 per cent of rural households in Bijapur do not have latrines, followed by Gulbarga (94.9 per cent) and Bagalkot (94.6 per cent) (Appendix Tables: Series 9).

Urban water supply and sanitation

Urbanisation

The urban population in Karnataka has grown from 16,40,000 in 1901 to 1,79,10,000 in 2001. The proportion of urban population to total population of Karnataka is 33.98 per cent, higher than the average for the country, which is 27.78 per cent. The state accounts for 6.28 per cent of the country's urban population, lower than Maharashtra's 14.37 per cent and Uttar Pradesh's 12.09 per cent. Among the 27 districts of the state, Bangalore Urban district has the highest concentration of urban population, with almost 88.08 per cent of the district population residing in urban areas. The district accounts for over 32 per cent of the urban population of the state. The next highest concentration of urban population is in Dharwad district (4.92 per cent) while Kodagu district has only 0.42 per cent of urban population, the lowest among all districts in the state. Haveri district has seen the highest decadal growth rate of urban population of 46.69 per cent between 1991 and 2001.

About half of the urban households in Karnataka have access to drinking water within the premises, which is below the national average of 65.4 per cent. A third of households in Karnataka have access to drinking water outside the premises which is lower than 41.3 per cent in Tamil Nadu but higher than Kerala (13.6 per cent), Gujarat (20.0 per cent) and Maharashtra

(21.1 per cent). In Karnataka 13.8 per cent of households have access to drinking water away from the premises, which is the highest among the southern states (Table 7.6). The source-wise data reveals that taps constitute the major source of drinking water in urban Karnataka (78.4 per cent), which is higher than the national average of 68.7 per cent. Maharashtra leads with 89.2 per cent followed by Gujarat (83.0 per cent) (Table 7.7).

Across districts, in Koppal only 27.0 per cent of households have access to drinking water within the premises followed by Raichur (33.0 per cent), Gadag (34.0 per cent), Bagalkot and Bellary (36.0 per cent). Certain districts such as Mysore (91.0), Gadag (89.0), Hassan and Bellary (88.0), Bangalore Urban, Chamarajnagar and Chitradurga (87.0), Tumkur and Kolar (86.0), perform better in terms of access to tap water than Bangalore Rural (80.0). Bidar performs poorly, with only 59.0 per cent except for Udupi, Uttara Kannada and Dakshina Kannada where well water is the dominant source of drinking water. In both Bidar and Dharwad, 4.0 per cent of urban households depend on other sources like tanks, ponds, lakes, rivers, canals and springs (Appendix Tables: Series 9).

Urban local bodies in Karnataka comprise six municipal corporations, 40 City Municipal Councils (CMCs), 91 Town Municipal Councils (TMCs) and 82 Town Panchayats. These bodies are entrusted with the duty of managing water supply and sanitation in urban areas. A persistent charge levelled against urban areas is that they appropriate the lion's share of the state's resources in water supply and sanitation. Certainly, urban households across the country, have better access to drinking water and sanitation facilities than their rural counterparts (Tables 7.6, 7.7 and Appendix Tables: Series 9). However, urban water supply and sanitation has its own constraints and inequities.

Urban water supply

Water is essential to life and a vital natural resource in economic activities, but lack of access to adequate, safe drinking water at an affordable

TABLE 7.8

Distribution of households by bathroom, latrine and drainage: Karnataka and selected states

('000s)

State	Area	Bathroom within house	Latrine within house	Overall drainage connectivity
India	Total	69371	69884	89067
	%	36.1	36.4	46.4
	Rural	31569	30304	47259
	%	22.8	21.9	34.2
	Urban	37802	39580	41807
	%	70.4	73.7	77.9
Karnataka	Total	6023	3836	5241
	%	58.9	37.5	51.3
	Rural	3208	1160	2361
	%	48.1	17.4	35.4
	Urban	2815	2674	2879
	%	79.1	75.3	80.9
Andhra Pradesh	Total	6709	5559	8686
	%	39.8	32.9	51.6
	Rural	3434	2300	5252
	%	27.1	18.1	41.4
	Urban	3275	3258	3434
	%	78.5	78.1	82.3
Tamil Nadu	Total	5653	4910	6394
	%	39.9	35.1	45.1
	Rural	1735	1187	2263
	%	21.0	14.4	27.4
	Urban	3917	3794	4130
	%	66.4	64.3	70.1
Kerala	Total	4096	5540	1300
	%	62.1	84.1	19.7
	Rural	2792	4020	790
	%	56.5	81.3	16.0
	Urban	1304	1520	510
	%	78.9	92.1	30.9
Gujarat	Total	4875	4301	3745
	%	50.6	44.6	38.8
	Rural	1845	1274	803
	%	31.4	21.7	13.7
	Urban	3029	3026	2942
	%	80.6	80.6	78.3
Maharashtra	Total	11651	6688	11592
	%	61.1	35.1	60.8
	Rural	5066	2001	4522
	%	46.1	18.2	41.1
	Urban	6584	4686	7067
	%	81.6	58.1	87.6

Source: Registrar of India, Census 2001: Housing Profile.

price has been a problem for most urban local bodies (ULBs), especially its poorer residents. Urban water supply is inefficiently managed with massive investments being wasted. Most of water squandering takes place because of the under-pricing of water. In addition, excessive use of water also causes severe water pollution, groundwater depletion and soil degradation. Moreover, water is distributed very unevenly (with the southern parts of Karnataka at an advantage over the relatively drier northern counterparts)[3] in the state and many villages and towns currently face critical water shortages that undermine human health and economic development.

Urban water supply is inefficiently managed with massive investments being wasted. Most of water squandering takes place because of the under-pricing of water. In addition, excessive use of water also causes severe water pollution, groundwater depletion and soil degradation.

Most ULBs receive water only for a few hours on alternate days. The reasons include limitations in source availability, inefficient distribution networks, erratic power supply and poor management practices. Losses through retail distribution, illegal connections and public fountains contribute to a high level of 'unaccounted for water' (UFW). Though accurate data is not available on UFW, the estimates vary between 30 and 70 per cent for most ULBs.

Consumption is not metered, except in Bangalore Urban district, hence volumetric tariffs are not levied in the state. Since the rationalisation of tariffs, most ULBs charge a flat tariff of Rs.45 per household per month. The tariff structure also prescribes a separate debt-servicing levy, which is not implemented in practice. Compared to the O&M expenses of Rs.206 crore incurred in 2002-03, the revenue realisation from water tariffs (including connection charges) was Rs.4,600 lakh (about 22 per cent of O&M expenses). Additional revenue support is also available through apportionment of water cess from property tax realisations. This amount was about Rs.1,000 lakh for 2002-03, resulting in a net operating deficit of Rs.15,000 lakh. This deficit is met through other revenue (non-water related) of ULBs like property tax, SFC devolutions and other grants/loans.

Most ULBs did not/could not supply water in accordance with design norms as of year-end 2001. Lpcd in individual ULBs vary over a wide range. Thus, even though the calculated lpcd of ULBs is high, the actual water availability is low. Most ULBs have water supply on alternate days and one or two hours per day.

Piped water is also supplied through public fountains (PFs) for local communities, typically comprising the urban poor or where individual household connections cannot be provided, either for economic reasons or due to physical constraints. There are an estimated 73,000 public fountains in Karnataka (excluding Bangalore). Water supply through public fountains is erratic and is also contingent on availability of power. Typically, water is supplied two or three times a week for only a few hours. Water losses from PFs are high due to improper water management practices and faulty (leaking) taps and pipes. PFs have also become a source for unauthorised access to water for vendors, who exploit the potential for commercial gains from sale of such water.

Urban sanitation

Nearly 80 per cent of urban households in Karnataka have bathrooms within the premises, which is above the national average of 70.4 per cent. Over 75 per cent of urban households have latrines within the premises in Karnataka compared with 92.1 per cent in Kerala and 78.1 per cent in Andhra Pradesh. In Karnataka overall drainage connectivity (80.9 per cent) is better than the national average of 77.9 per cent. A high 91.1 per cent of households in Bangalore Urban district have latrines while 66.5 per cent of households in Gadag lack this facility (Appendix Tables: Series 9). Among the four mahanagara palikas in Karnataka, Bangalore city has the maximum households with latrines (91.1 per cent) followed by Mysore with 89.7 per cent and Gulbarga has the least with

[3] Compared to 84 per cent of towns in south Karnataka, 92 per cent of towns in north Karnataka suffer from inadequate water supply (Report of High Power Committee for Redressal of Regional Imbalances, 2002). The inadequacy of source of water is also more acute in north Karnataka, given weak monsoon activity in the region, especially in summer. Places like Dharwad, Gulbarga, Bidar and Raichur actually are forced to rely on containerised supply of water from other places to meet their needs in summer. Coastal Karnataka and the Cauvery region have adequate sources availability and relatively better than other parts of the state.

57.2 per cent. By and large, the towns of north Karnataka have inadequate latrine facilities.

Water supply and sanitation in urban slums

Urban slums have high concentrations of poor people living in very basic conditions in the middle of affluence. Table 7.9 gives the distribution of the main source of drinking water supply in notified and non-notified slums in Karnataka, in comparison with the all-India average.

TABLE 7.9
Distribution of main source of drinking water in urban slums

(Per cent)

	Notified slums				Non-notified slums			
	Tap	Tube well	Well	Others	Tap	Tube well	Well	Others
Karnataka	89	11	0	0	77	16	0	8
All-India	84	10	2	0	71	22	2	5

Source: NSS 58th round on 'Conditions of Urban Slums – 2002' Government of India, December 2003.

As this table indicates, Karnataka's performance is better than the national average in terms of access to water from a relatively efficient source namely taps. Further, only 28 per cent slums in Karnataka are water-logged during monsoon (in both notified and non-notified slums) as compared to the national average of 36 per cent for notified slums and 54 per cent for non-notified slums. This, again, shows that Karnataka performs better than the national average in terms of drainage facilities. However, 66 per cent of notified slums in Karnataka have no latrines as against the national average of 17 per cent. The gap for non-notified slums between Karnataka and the national average appears to be less with Karnataka recording 53 per cent against the Indian average of 51 per cent. Similarly, only 23 per cent of notified slums in Karnataka have under ground drainage (UGD) facilities as against the national average of 30 per cent. However, 24 per cent of non-notified slums in Karnataka have UGD coverage as against the national average of 15 per cent.

Financing water and sanitation

The plan and non-plan allocation by the government for water and sanitation[4] as a ratio of the state's GDP is presented in Table 7.10.

Financing patterns prescribed for category of urban local bodies (ULBs) comprise contributions from Government of Karnataka, ULBs and loans from funding agencies. Since the government guarantees the loans, loan service obligations are met out of funds released by government out of SFC grants. The low allocation to the urban sector and lack of timely availability of funds have partly contributed to the sub-optimal service delivery of water and sanitation services. The rural sector is slightly better served in terms of fund flows. The Karnataka Urban Water Supply and Drainage Board (KUWSDB) estimates that Rs.4,79,699 lakh (approximately US$ 1 billion) is required to enable ULBs to conform to minimum design standards. In sum, Karnataka has done well in the rural sector as far as drinking water supply is concerned, but there are challenges in the path to reaching accepted norms across all districts. The biggest challenges are in the urban sector, where complex issues of tariffs have to be faced.

The low allocation to the urban sector and lack of timely availability of funds have partly contributed to the sub-optimal service delivery of water and sanitation services. The rural sector is slightly better served in terms of fund flows.

TABLE 7.10
Plan and non-plan allocation of funds for water sector

(Rs. lakh)

Year	Plan allocation*	Non-plan allocation*	Net State Domestic Product (SDP) #	Percentage of total allocation to SDP
1996-97	23800	1600	4473655	0.56
1997-98	30200	1400	4751682	0.66
1998-99	26600	1600	5396093	0.52
1999-2000	34600	1500	5654327	0.63
2000-01	28200	600	6258100	0.46
2001-02	28300 (RE)	793 (RE)	6298200	0.46
2002-03	24100 (BE)	658 (BE)	6741800	0.37

Sources:
1. *: Finance Department, Karnataka.
2. # Directorate of Economics and Statistics, Karnataka.

Notes:
RE: Revised Estimate.
BE: Budget Estimate.
QE: Quick Estimate.

[4] Includes allocation towards rural sector.

Tariff setting: efficiency in governance

The State Urban Drinking Water and Sanitation Sector Policy states 'The longer term objective is to establish an appropriate cost recovery mechanism through adequate tariff to ensure that revenues cover operations and maintenance costs, debt service plus a reasonable return on capital… Tariff will be structured in a manner such as to disincentives excessive consumption and wastage of water, whilst ensuring at least a minimum "life line" supply to the poor.'

Subsidies to drinking water end up favouring the rich disproportionably, since they have more ready access to public water supplies.

There are typically two principal forms of water subsidisation — grants and low-interest loans — both found in Karnataka. With the estimated investments for the sector very likely to grow, since the unit costs of new water supplies will double, and in some cases, even triple, compared with the present systems, even before including environmental costs, there is an urgent need to efficiently manage the finances. This is particularly critical as the real cost of water may soon be out of reach for the economically weaker sections. The initiatives in this regard include savings from regularising illegal connections, savings from improved efficiencies, contributions from the users and higher charges, wherever feasible. Many believe that water subsidies are necessary for social purposes, in particular to support the poor. In fact, subsidies to drinking water end up favouring the rich disproportionably, since they have more ready access to public water supplies. The evidence reveals a vicious circle: when services are heavily subsidised, their quality is low and service expansion relatively slow because of lack of resources and their inefficient use. The consequences are that the rich benefit while the poor still have relatively high water expenses. At the same time, the health of the poor suffers because of inefficient water services. Current subsidies do not always reach the target groups and require to be restructured.

It could be inferred that low water prices generally do not benefit the poor. However, this does not necessarily imply that water subsidies are bad and should always be avoided. Instead, they must target the (financing) needs of the poor more cost-effectively. Governments may, for instance, choose to provide subsidies for micro-credit in order to ensure income access, or issue subsidised water stamps for the poor or apply 'life line' water pricing (a low rate for a basic service level and an increasing rate above). When carefully implemented and targeted, such a reform of water subsidies may very well improve the lot of the poor.

Proper water policies and action plans are needed to adequately address current and future problems of water misuse, increasing scarcity and pollution. It points to the need for demand-driven water policies to complement the traditional supply-oriented approach, to reallocate existing water supplies, to encourage a more efficient use and to ensure an equitable access. A key priority is reallocation between various users. Reforms of current pricing and incentive measures, institutional changes, technical improvements and education and information are all needed to promote most sustainable forms of water development and use.