POLICY BRIEF

Providing Community Streetlights in Karnataka

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INTRODUCTION

Community streetlights are a public good considered essential in order to improve the quality of life and promote orderly social life. Article 243G of the 73rd Constitutional Amendment transfers the function of rural electrification to *Panchayati Raj* institutions. Community lighting and rural electrification progra-mmes gathered momentum in India after the Third Five Year Plan (1961-66). While the number of towns and villages in Karnataka with electricity in 1959 stood at 7 percent, the number had increased to 100 percent by 2001. A *Zilla Panchayat* (ZP) in the State is responsible for identifying villages, hamlets and colonies that are to be electrified and formulates projects in coordination with Karnataka Power Transmission Company Limited (KPTCL). The *Gram Panchayat* (GP) is responsible for identifying suitable land for installing electric transmission poles, operating and maintaining streetlights. Section 58 of the Karnataka *Panchayat Raj* Act, 1993 notes that GPs have the obligatory duty to provide adequate number of streetlights and pay electricity charges regularly. The State government provides annual untied grant to each GP. Beginning with an annual grant of Rs. 1.0 lakh per GP in 1993-94, the grant has since increased to Rs. 3.5 lakh in 2000-01, Rs. 5.0 lakh in 2003-04, Rs. 6.0 lakh in 2006-07 and to Rs. 8.0 lakh in 2011-12.

Untied funds contribute to the expenditure autonomy of local elected bodies. GPs cannot function as 'institutions of self-government' unless they are endowed with untied funds that can be spent on activities prioritised by the people in the *gram sabha.* However Section 206 allowing GPs to use untied grants for the provision of services virtually negates the principle behind such funds. Further, the use of grants in the provision of services introduces negative incentives to GPs and weakens the downward accountability. Local bodies have often indicated that they are unable to provide and maintain the quality of basic services such as drinking water, sanitation and streetlights in Karnataka due to insufficient funds.

This policy brief examines issues related to the provision of community streetlight services by GPs in Karnataka covering the actual status as well as affordability of such provision in the State. Based on the data on receipts and expenditure collected across 5,212 GPs for the year 2002-03, this policy brief recommends specific measures to improve the affordability of streetlight services in Karnataka[1].

KEY FINDINGS

• Status of Community Lighting in Karnataka

The total number of villages and hamlets covered by 5,212 GPs was 49,473; of them, 67 per cent (or 33,098 villages) were provided with streetlights. The average size of the village increases as one moves from highly developed to highly backward category of districts (Table 1).

Table 1: Background Information on Streetlight Provision and Number of Streetlights

Category of Districts	Size of the village (no. of households)	Habitations with streetlights (%) to total	Number of streetlights installed per habitation	Number of HHs per streetlight
Highly Developed	102	57.15	25	7
Developed	104	37.86	39	7
Backward	155	90.65	30	6
Highly Backward	198	91.56	45	5
State	135	66.90	34	6

The total number of streetlights installed in all the 33,098 habitations in Karnataka was 1,136,452 in 2002-03. The number of streetlights per habitation in the State was 34 (Table1). The average number of streetlights installed varied from as low as 15 in Chikmagalur to as high as 82 in Gadag. The norm in the State is that one streetlight should be installed for every 7-10 households. This norm was met only in 18.5 per cent of GPs in the State.

Expenditure and Receipts on the Provisions of Streetlight Services: In order to provide streetlight services, GPs incur expenditure on electricity and maintenance. The total expenditure on providing streetlight services by 5,088 GPs was Rs. 95.83 crore. On an average, each GP spent Rs. 188,341 for providing streetlight services during 2002-03 (Table 2). The expenditure was somewhat high in the highly backward districts.

Table 2: Expenditure and receipts on the provision of streetlight services

(Rs. in lakhs)

District	EXPENDITURE			RECEIPT	Electricity charges to total expenditure (%)	Maintenance charges to total expenditure (%)	Light cess to total expenditure (%)
	Electricity charges for streetlights	Maintenance charges	Total	Light cess			
HIGHLY DEVELOPED							
Bangalore Urban	276	88	364	13	75.74	24.26	3.45
Bangalore Rural	418	129	546	16	76.42	23.58	2.87
Chikmagalur	179	89	268	9	66.70	33.30	3.52
Dakshina Kannada	99	62	161	12	61.32	38.68	7.35
Kodagu	40	67	108	5	37.48	62.52	4.76
Mysore	315	105	420	10	74.92	25.08	2.49
Udupi	71	71	142	9	50.10	49.90	6.26
Total	1,397	612	2,009	74	69.52	30.48	3.68
DEVELOPED							
Belgaum	360	144	505	45	71.38	28.62	9.00
Bellary	199	79	278	11	71.60	28.40	4.07
Dharwad	104	52	156	10	66.89	33.11	6.67
Shimoga	191	91	282	45	67.73	32.27	16.15
Uttara Kannada	140	71	211	10	66.54	33.46	4.68
Total	995	436	1,431	123	69.50	30.50	8.56
BACKWARD							
Bagalkot	198	76	273	19	72.34	27.66	7.04
Chamarajanagar	196	50	247	9	79.53	20.47	3.48
Davangere	227	106	334	11	68.16	31.84	3.41
Hassan	380	222	602	16	63.16	36.84	2.62
Haveri	200	88	288	16	69.45	30.55	5.41
Mandya	560	134	695	12	80.68	19.32	1.76
Tumkur	498	225	723	20	68.89	31.11	2.80
Total	2,260	901	3,161	103	71.49	28.51	3.26
HIGHLY BACKWARD							
Bidar	188	38	227	12	83.14	16.86	5.33
Bijapur	185	80	265	40	69.78	30.22	14.90
Chitradurga	309	99	408	11	75.73	24.27	2.77
Gadag	124	48	172	9	72.20	27.80	5.33
Gulbarga	506	91	597	25	84.72	15.28	4.24
Kolar	609	115	724	15	84.13	15.87	2.05
Koppal	182	78	260	13	70.01	29.99	4.90
Raichur	258	71	329	11	78.47	21.53	3.30
Total	2,361	620	2,981	136	79.21	20.79	4.55
All districts	7,013	2,570	9,583	435	73.18	26.82	4.54

Expenditure on Electricity : Only 8.7 per cent of GPs in the State installed meters during 2002-03. Although some GPs had installed meters, they were not put into effective use. On an average, each GP spent Rs. 137, 833 towards the electricity charges for providing streetlight services. However, this expediture was rather high given that streetlights are often not lit throughout the night on account

of scheduled and unscheduled power cuts and disruptions in the electricity supply.

Expenditure on Maintenance of Streetlights : GPs incur expenditure on maintenance of streetlights such as replacement of bulbs, tubes and, at times, the entire lighting equipment. The total expenditure on mainte-nance by all GPs was Rs. 25.7 crore and the average expenditure was Rs. 50,509 in 2002-03.

Receipts Towards the Provision of Streetlights : Although GPs, on an average, incurred considerable expenditure on the provision of streetlight services, the average revenue in the form of light cess was only Rs. 8,554 in 2002-03. The revenue has been, thus, very small in comparison to the total expenditure on streetlight services. The same is borne out from the proportion of light cess to total expenditure in Table 2, which shows that the light cess met only less than five per cent of the total expenditure.

• Affordability of Streetlight Services

Across different GPs in the State, the expenditure for every rupee of the revenue varied from as low as Rs. 0.61 to as high as Rs. 6,661 (Table 3). The average ratio of expenditure to receipt, which was Rs. 103.93 in the State varied across the districts. There were also variations across districs in the distribution of GPs by ratio. In the case of as many as 40 per cent of GPs in the State, the expenditure was between Rs. 20-50 for every one rupee of revenue. In the case of 22.3 per cent of GPs, the expenditure was Rs. 10- 20 for one rupee of revenue. Notably, about 15 per cent of GPs spent less than Rs. 10 for every one rupee of revenue that they collected in the form of light cess. In the case of about 23 per cent of GPs, the expenditure was more than Rs. 50 for one rupee of revenue.

Table 3: Distribution of GPs (%) by Ratio of Expenditure on Streetlights to Total Receipts

District	Ratio of expenditure to receipt						Minimum Ratio	Maximum Ratio	Average Ratio
	< 10	10-20	20-50	50-100	>100	Total			
Highly Developed	16.53	24	36.71	14.76	8	1,125	0.61	2743.72	45.77
Developed	24.19	29.38	32.54	9.32	4.57	1,137	0.83	2334.53	32.15
Backward	6.18	17.6	48.13	18.1	9.99	1,392	1.27	1016.92	52.7
Highly backward	15.97	19.87	38.7	15.34	10.11	1,434	1.11	6661.05	60.15
State	15.25	22.29	39.47	14.62	8.37	5,088	0.61	6661.05	48.67

The function of management and operation of the streetlights is, thus, costly for GPs. Such an inefficient system leaves the GPs burdened with an expenditure function without a viable alternative arrangement for revenue autonomy.

Factors contributing to affordability of Streetlight Services : The number of households per installed streetlight has significant influence. If there is an increase of one household for every installed streetlight the expenditure will decline by 2 paise. The implication of this is that if GPs violate the norm of installing a streetlight for among seven households, the costs will increase.

Grants to GPs will increase the ratio of expenditure as larger grant amounts allow GPs to spend resources on the operation and maintenance of streetlights in somewhat indiscriminate manner.

Fixation of meters does not have an influence at the state level and in highly developed, developed and backward districts. However, this variable had significant influence in the highly backward districts suggesting that fixation of a meter would reduce the expenditure by 20 per cent. This is because the calculations of electricity charges are likely to be accurate in the case of GPs that have installed meters.

Gender factor also influences the affordability of streetlight services. In the backward category of districts, the ratio of expenditure on streetlights to receipts declines by 8 per cent wherever a GP has woman president as the women are known to have more social concern.

POLICY RECOMMENDATIONS

• Adhere to the Official Norm:

GPs should follow the official norm on the coverage of households per installed streetlight. GPs should not succumb to the pressure of installing one streetlight for less than seven households.

• Adequate Coverage:

The coverage was inadequate in over 17per cent of GPs and grossly inadequate in about 3 per cent of GPs. Most of these GPs are located in hilly districts where large number of hamlets together with their scattered location makes it difficult to provide streetlight services. In the case of these GPs, financial assistance to install and manage solar streetlights is to be provided.

• Create a Congenial Incentive Structure:

Allocation of grants without taking performance of GPs into account proved to be less incentive for better performing GPs. This results in inefficient use of the grants for developmental works and in less downward accountability. Creating a congenial incentive structure to promote the mobilisation of own revenue (which does not unduly compromise with equity) is, therefore, essential. If the grants are linked with the performance of GPs, this can act as an incentive for them to make an efficient use of these grants.

- **Fix Meters to Track Consumption:**

Only a small proportion of the GPs in the State had fixed the meters to monitor electricity charges. In the absence of the meter, electricity charges were arrived at on the notional basis rather than on actual basis by KPTCL. This resulted in huge electricity bills for GPs. In order to curb this faulty procedure, the department of Rural Development and *Panchayat Raj* had entered into an understanding with KPTCL that it should fix meters in all GPs before February 2004. Since fixation of meter reduces expenditure and improves affordability, there is a need to give serious attention to fixing, meters in all GPs.

- **Introduce Centralised Switching System:**

Expenditure on maintenance is another area for improvement. Maintenance charges on account of replacement of bulbs have been reportedly high on account of fluctuation in power supply, breaking of bulbs by miscreants, etc. Another reason for high maintenance charges is the lack of a centralised system of controlling the operations of streetlights. This has resulted in non-switching of streetlights, and hence, frequent damage to bulbs leading to increase in both maintenance expenditure and electricity charges.

- **Use Low Energy Consuming Bulbs:**

Another area of concern is usage of high energy consuming bulbs for streetlights. Instead of mercury bulbs and sky lamps, usage of florescent tube lights for streetlights should be encouraged for its long durability and less consumption of electricity in comparison to the former. GPs should also use Solar Voltaic / Lighting for streetlights. This is because although installation charges are high, electricity and maintenance charges would be very minimal. Further, they are highly suited to GPs with scattered habitations. These measures will reduce expenditure on electricity and improve affordability.

- **Review Rotation Policy of GP Presidents:**

An interesting finding was that the GPs headed by women tend to be more efficient in managing the expenditure and thus improving the affordability of streetlights. The policy implication is, therefore, to provide more encouragement to women to contest for GP executive positions, and review the current policy of rotation of GP presidents once in 20 months.

In sum, despite the availability of untied grant to GPs in Karnataka, their expenditure autonomy is eroded due to high expenditure on the provision of services such as streetlights. As a direct consequence, these untied grants are often not utilised for activities that would improve the employment and growth potential in the GP jurisdiction. Hence, certain policy measures as suggested above are needed to improve the affordability of GPs in the streetlight provision and reduce the utilisation of untied funds for the service provision at the expense of developmental goals.

[1] For the complete report see D. Rajasekhar and R. Manjula 2012. *Affordability of Streetlight Services by Gram Panchayats in Karnataka: Status, Determinants and Ways Forward.* Centre for Decentralisation and Development. Institute for Social and Economic Change. See also in the Journal of Rural Development, Vol. 31(4): 419-434, 2012

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