



**GOVERNMENT OF KARNATAKA**

**Finance Department**

**REVENUE REFORMS COMMISSION**

**FINAL REPORT**

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**February- 2004**

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**Bangalore**

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**Bangalore**

- Sri. M. Veerappa Moily  
**Chairman**

**Members :**

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- Dr. R.V. Dadibhavi
- Dr. B.S. Sreekantaradhya
- Dr. K.A. Kushalapa
- Sri. K. Nazeer Hussain
- Sri. B.C. Angadi
- Smt. Sobha Nambisan  
**Member Secretary**

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## PREFACE

Sri. S.M. Krishna government constituted the Tax Reforms Commission and subsequently the Revenue Reforms Commission, under my Chairmanship in the year 2000 and 2002 respectively. The recommendations of Value Added Tax and reforms in State Excise Duty, Motor Vehicle Tax, Stamps and Registrations have set a trend not only in Karnataka, but also all over the country. Many other States have also started implementing the recommendations of the said Commission. The pro-reformer Chief Minister Sri. S.M. Krishna implemented 80 percent of the recommendations and consequently the revenue in all the above sectors augmented by leaps and bounds. The Report of Revenue Reforms Commission was also submitted to the State government during November 2003 recommending the reforms in Irrigation, Health, Education and Forest departments.

The economic reforms still have a large unfinished agenda in the country. The fiscal adjustment is far from complete. The physical infrastructure sector urgently needs reforms, both in the management and tariff structures, which would enable us to raise more resources for development of infrastructure. This in turn would enable both the private and public sector to expand operations. There is a tremendous backlog in education and health. We must ensure that development is not promoted on the backs of the poorest people. We must put in place adequate social safety nets to ensure that too much of a burden is not imposed on the weaker sections as we go along. And finally, we should create an environment, which encourages sustainable growth and poverty eradication.

In 1992, the US Internal Revenue Service (IRS) formulated the Business Vision Plan. The plan set forth how the US tax administration would operate in the future and analyzed the changes, which would be needed in existing operations to achieve its future goals. Gap, defined previously, is the difference between the taxes actually paid and the taxes which should be paid according to the existing laws and statutes includes taxes not paid due to tax evasion, tax arrears (taxes declared but not paid), the shortfall in taxes due to tax payer's misunderstanding of the tax laws and any other form of noncompliance.

The Government of Karnataka on 18<sup>th</sup> April 2000 notified the formation of Tax Reforms Commission with me as its Chairman and subsequently appointed six members and a Member Secretary to the Commission. The Commission undertook an indepth analysis and submitted valuable recommendations to the government, many of which were accepted. The Commission was therefore faced with a situation of inadequate tax effort coupled with high tax rates. It was realized by the Commission that high tax rates contribute to high evasion. It was therefore felt that radical reform ranging from change in tax structure, tax rates to improvement in tax administration was the need of the hour.

It was found that the sales tax system in the State was beset with multiple objectives, among which rate differentiation was found to be done even for many non-economic reasons including social and religious etc. In addition tax competition in the shape of low taxes prevailing in Pondicherry and to a lesser extent in Goa, provided for diversion of trade and reduction of taxes. Further multiple tax rates including five general tax rates and another six special tax rates on selected items of consumption and wide ranging exemptions not only for different products but also for different uses reduced transparency and created difficulty in administration. Multiple levies in addition to sales tax, levy of turnover tax, entry tax and infrastructure cess created further difficulties in the matter of administration and assessment, while the consumer gets loaded with distorted prices.

Lack of information system also has contributed to improper assessment. It was felt that there is need for proper information system to undertake assessment in such a complicated tax frame. Databases of tax payers are required to be created in order to increase transparency and avoid evasion. To begin with at least taxpayers with more than Rs. 1 crore turnover could be kept under watch by computerized systems.

The following principles were envisaged by the Commission:

- i. A simple tax system, which should have only a few tax rates and very few exemptions, should be envisaged.
- ii. Low marginal tax rate to minimize resource distortions and reduce incentives for evasion.
- iii. To reduce the complexity therefore, the levy of entry tax in addition to sales tax, turnover tax and infrastructure cess required a rethinking since the combination of the three taxes and cess results in an infinite number of tax rates leading to improper assessment of tax. These should be rationalized by having a single tax system instead of several.
- iv. In order to avoid multiplicity of rates the State government should improve revenue productivity and make a transition to a more rational system keeping in view the floor rates decided in the State Finance Ministers Committee.
- v. It is important for Karnataka to adopt VAT, since all distortions in the tax including the cascading effects would be done away with. Further it was generally accepted that there should be a consumption type of VAT which allows input tax credit for both raw material and capital goods and that it should be on the destination based principle. The recommendations gave state's own road map for the introduction of VAT and the preparations to be made for a sound inter state VAT to be introduced. Further the ideas on the introduction of VAT on services along with VAT on goods have also been envisaged in the recommendations.

Many of the recommendations were accepted and revenue receipts have started increasing as can be seen from the following:-

2002-03 April 2002 to October 2002	: Rs.3500.00 crore
2003-04 April 2003 to October 2003	: Rs.4200.00 crore

According to the present indicators, the excise revenue is likely to shoot up 19 percent. Karnataka which ended up with a revenue of Rs. 890 crore from excise revenue as on 31<sup>st</sup> March 2000 is likely to reach the peak of Rs.2,300 crore by the end of March 2004.



During 2002-03, the Revenue from stamps and registration between April 2002 to October 2002 were Rs.662.68 crore and during 2003-04 from April 2003 to October 2003 these were Rs.706.41 Crore, an increase of 7 percent, that too after reducing the stamp duty for conveyance of immovable property, etc. This should be considered a positive development since in 1998-99 compared to 1997-98 there was about –10 percent growth. Further as a result of e-governance procedures recommended, about 155 sub-registrars offices have been computerized and the general public has been benefited by the transparency of the new system and also documents of registration are being released within a day or two instead of a period of couple of months, which was required earlier due to manual method of registration.

These have largely been accepted by the government, as a result of which increase in revenues has taken place as given here under:-

Revenues from Motor Vehicles Tax

From April 2002 to October 2002	:	Rs.373 Crore
April 2003 - October 2003	:	Rs.435.50 Crore

State's own Tax Revenue Impact will be as follows:

<b>Year</b>	<b>Annual revenue</b>
2000-01	Rs 9042.68 crore
2005-06	(a) Rs.18989.63 crore at 2000-01 price level
	(b) Rs. 25446.10 crore at 2005-06 price level

Thus the annual state's own revenue after 5 years will be higher by 210 percent at the price level of the base year 2000-01 and 281 percent at price level of 2005-06 if all the recommendations are implemented.

## **Revenue Reforms Commission**

After the final report of the Tax Reforms Commission was submitted to the government, the government again referred non-tax issues also for study to the Commission and the name of the Commission was changed as Revenue Reforms Commission. I continued to be the Chairman along with six other Members and Member-Secretary of the Tax Reforms Commission. Among the earlier set of six members of the Tax Reforms Commission, two members were changed in order to meet the requirement of non-tax subjects like irrigation and forest. However, it hardly needs to be mentioned that the procedures of the work of this Commission were as effective as they were of the earlier Commission, since the same guiding spirit of the Chairman steered the work of this Commission. Broadly the Commission considered and recommended regarding :-

- a. the manner in which quality of services could be improved so that service charges may be willingly paid and
- b. the scope for enhancement of revenues from certain sectors

The basic philosophy behind the recommendations has been to ensure that in these sectors arrangements are made by government to provide effective/efficient services either through government or the private sector, which will naturally tend to increase revenues.

Recommendations regarding participatory approach to development as well as effective implementation of the functions of various departments through e-governance methods were made. An estimate is also made of expected revenue increases from the recommendations in the four major departments. It was felt that the present revenue Rs.214.66 crore in 2001-02 will increase to 1800 crore if the recommendations are implemented i.e., an increase of 800 percent at a very conservative estimate. This estimate split sectorwise will be as under:

Statement of Expected Revenue Increases on implementation of the Revenue Reforms  
Commission's Recommendations

<b>Rupees in Crore</b>		
<b>Subject</b>	<b>2001 – 02</b>	<b>Expected (Approximately)</b>
Education	31.77 Gross 25.03 Net	50.00
Health	59.15 Gross 50.98 Net	150.00
Forest	100.00	1500.00
Irrigation	23.74 20.56 (Major Irri)	100.00
<b>Total Revenue</b>	<b>214.66</b>	<b>1800.00</b>

Present State Revenue	: 11 percent
Future State Revenue	: 25 percent
Present State GDP	: 2 percent
Future State GDP	: 5 percent

The discipline of economics is located on the edge of history. It may not be possible to keep its integrity if it has to come to terms every time with the political complexes of those in power. We always find wealth, employment and resources in the country, but they keep hidden in the well entrenched distorted administrative set up. Our economic life is often all too tidy and messy. Common sense does not always lead to correct answer to development economics. A strategy that sacrifices economic growth or consumption in order to create more jobs requires faster, not slower growth. Faster development will trigger off only when structural reforms take off.

The latest evidence comes from the World Bank's Development Research Group. An empirical study of eighty countries over forty years, entitled "Growth is good for the poor", shows that the income of the poor rises one –for- one with overall growth-that is, the income of the poorest of the population rises at the same time and at the same rate as everyone else's. Thus, simple economic growth does more to alleviate poverty than all the subsidies and poverty programs.

The Commission has dealt with departments of Minor Irrigation, Labour and Employment, Crop husbandry, Sericulture and Silk Filature and Co-operative Audit, in this final report.

The Members of the Commission including Member Secretary, who are highly eminent and knowledgeable, made this Report monumental, rich and resourceful. We acknowledge the willing co-operation of Sri B.K. Das, Additional Chief Secretary and Principal Secretary, Finance Department in rendering this Report. Former Member Secretary Dr. R.G. Nadadur and the present Member Secretary Ms. Sobha Nambisan have put in their administrative and academic skill of excellence. The Secretaries of Administrative Departments and heads of departments of Minor Irrigation, Labour and Employment, Crop husbandry, Sericulture and Silk Filature and Co-operative Audit extended their willing hand of co-operation to the ever searching questions.

I should also thank my personal staff and the personnel of the Commission for their support.

Date : 26<sup>th</sup> February 2004

Place : Bangalore

**M Veerappa Moily**

# REVENUE REFORMS COMMISSION

## CHAIRMAN

Sri M. Veerappa Moily

## MEMBERS

Dr. M. Govinda Rao

Sri B.C. Angadi

Sri K. Nazeer Hussain

Dr. K.A. Kushalapa

Dr. B.S. Sreekantaradhya

Dr. R.V. Dadibhavi

## MEMBER & SECRETARY

Dr. (Smt.) Renuka Viswanathan, IAS

from January 16, 2002 to December 13, 2002

Sri L.V. Nagarajan, IAS

from January 29, 2003 to April 16, 2003

Dr. R.G. Nadadur, IAS

from April 16, 2003 to December 8, 2003

Smt. Sobha Nambisan IAS

from December 8, 2003 to date

**CHAPTER I**  
**MINOR IRRIGATION**

## CHAPTER 1

### MINOR IRRIGATION SECTOR

#### Definition of minor irrigation

- 1.1 Minor irrigation projects include tanks, anicuts, bandharas, barrages, pickups, springs, feeders, *voddus*, vented dams, salt water exclusion dams and lift irrigation projects.
- 1.2 Prior to 1970, irrigation projects costing up to Rs. 25 lakhs in the plains and up to Rs. 30 lakhs in hilly regions were classified as minor irrigation projects. After 1970, irrigation projects are classified on the basis of the size of the ayacut. Projects having ayacuts of 2000 hectares and less are classified as minor irrigation projects.

According to G.O. no. ID 2 IFY 87 of 3/8/92, minor irrigation projects irrigating areas less than 4 hectares have been placed under the management of taluk panchayats and those irrigating between 4 hectares and 40 hectares are managed by zilla panchayats. Those irrigating between 40 hectares and 2000 hectares are under the jurisdiction of the Minor Irrigation department, in the State sector.

- 1.3 The net culturable area of Karnataka is 138.92 lakh hectares and the net sown area is 104.82 lakh hectares, according to the compilation of the department of Economics & Statistics. Nearly 75 percent of the State's population lives in the rural areas and is mainly dependent on agriculture. Rain-fed agriculture is a gamble, as the rainfall of the South-West monsoon is very scanty in most parts of the State. Three-fourths of the State's geographical area lies in the rain shadow of the South-West monsoon, to the east of the Sahyadri mountain ranges, with rainfall as low as 38 cm., in the eastern and northern parts of the State.

1.4 The rainfall is also erratic, with the coefficient of variability of rainfall being more than 30 percent in most parts of the State. According to the Irrigation Commission 1972, amongst all the Indian States, the largest extent of the drought-prone area of the country is situated in Karnataka. The situation is even worse than that of Rajasthan. The drought-affected culturable area in Karnataka is 82 lakh hectares, which constitutes 60 percent of the entire culturable area of the State.

**Table I**  
**Table showing Statewise percentage of drought prone areas**

Sl. No.	State	Geographical Area	Drought Prone Area	<i>in hectares</i> % of Drought Prone area
1	Andhra Pradesh	27504500	12511303	45.49
2	Bihar	17387700	4338450	24.95
3	Gujarat	19602400	12123890	61.85
4	Haryana	4421200	1658785	37.52
5	Jammu & Kashmir	22223600	1599930	7.20
6	<b>Karnataka</b>	<b>19049836</b>	<b>15216333</b>	<b>79.87</b>
7	Madhya Pradesh	44344600	8721952	19.67
8	Maharashtra	30771300	12376705	40.22
9	Orissa	15570700	2286241	14.68
10	Rajasthan	34223900	21895045	63.98
11	Tamil Nadu	13005800	8409114	64.66
12	Uttar Pradesh	29441100	4303310	14.62
13	West Bengal	8875200	2672080	30.11

Source: Ministry of Water Resources, GOI, at website: [wrmin.nic.in/development/drought.htm](http://wrmin.nic.in/development/drought.htm)

1.5 In this precarious scenario, the importance of providing irrigation facilities to as large an area as possible is indisputable.

1.6 The net irrigated area to net sown area in Karnataka for 1996-97 (according to the land use statistics of the Union Ministry of Agriculture, as quoted in the Annual Report of the Union Ministry of Water Resources for 2000-2001) is only 21.91 percent. This is the lowest for all major States except Maharashtra (which has a figure of only 14.36 percent). Even Rajasthan has a higher figure of 33.28 percent. More recent figures furnished by the Chief Engineer (Minor



Irrigation-South) for 1999-2000, based on data provided by the Directorate of Economics and Statistics, puts the percentage of net irrigated area to net sown area in the State at 24.8 percent.

- 1.7 In view of the modest water resources available to the State and the very extensive hard core drought affected culturable area of 82 lakh hectares, Karnataka has to spread its water resources thinly to provide the widest possible coverage of irrigation benefits. Thus, most of the irrigation projects of Karnataka provide protective irrigation, mostly of a single light irrigated crop.
- 1.8 There are seven river systems in Karnataka. These are Krishna, Cauvery, Godavari, North Pennar, South Pennar, Palar and the west flowing rivers. The ultimate irrigation potential in the State, from all sources (surface and ground water), is about 65 lakh hectares, of which the share of minor irrigation is 26 lakh hectares [13 lakh hectares from surface irrigation and 13 lakh hectares from ground water resources].

### Creation of irrigation potential

The following table indicates the basin wise details of the ultimate irrigation potential and the potential created up to 1/4/2001 under minor irrigation from surface waters.

**TABLE-II**

River basin	<i>in hectares</i>		
	Ultimate irrigation potential	Potential created up to 1/4/2001	Balance potential to be created
Krishna :			
Under Scheme 'A'	5,10,908	4,91,559	19,349
Under Scheme 'B'	2,96,800	0	2,96,800
<b>Total</b>	<b>8,07,708</b>	<b>4,91,559</b>	<b>3,16,149</b>
Cauvery	3,83,000	3,51,265	31,735
Godavari	26,350	23,125	3,225
Other basins	79,742	69,000	10,742
<b>Total</b>	<b>12,96,800</b>	<b>9,34,949*</b>	<b>3,61,851</b>

(\*) This figure has been revised as 8,40,753 hectares in the Census on Minor Irrigation, 2000-2001. Corresponding basinwise figures have not been made available to the Commission.

1.9 According to the Minor Irrigation Census 2000-2001, a total irrigation potential of about 8.41 lakh hectares has been created under minor irrigation using surface waters. An additional potential of 9.10 lakh hectares has been created from ground water sources, bringing the total creation of irrigation potential under minor irrigation to 17.51 lakh hectares, as against the ultimate potential of 26 lakh hectares from surface and ground water sources.

### Investment on minor irrigation

1.10 The total investment, up to end of March 2001, on minor irrigation using surface water, is Rs. 1013.41 crores. The following table gives the cumulative Planwise investment on minor irrigation (using surface water) and the creation of irrigation potential:

**Table III**

### CUMULATIVE PLANWISE INVESTMENT ON MINOR IRRIGATION AND CREATION OF IRRIGATION POTENTIAL USING SURFACE WATER

Period		Investment Rs. in crores	Potential in ' 000 hectares
Pre-Plan	Up to 1951	n.a.	455
First	1951-56	4.15	462
Second	1956-61	5.08	479
Third	1961-66	20.87	534
Fourth	1969-74	56.08	696
Fifth	1974-78	93.29	808
Sixth	1980-85	219.95	920
Seventh	1985-90	379.78	959
Eighth	1992-97	695.68	994
Ninth	1997-2002	1013.41	<b>841*</b>

**Note:**

1. The financial and potential status of minor irrigation schemes under the district sector is available up to end of 1996-97 only.
2. \* Progress indicated against Ninth Plan is up to end of March 2001, based on the Census 2000-2001 on Minor Irrigation works.

## Data on potential created

- 1.11 There has been considerable discrepancy in the figures of irrigation potential created as furnished by the minor irrigation authorities at different points of time and the department of Economics and Statistics [DES]. The DES figures regarding the potential created are as much as double those of the department of Minor Irrigation. Similar discrepancies in the data occur with regard to utilization of the potential. Despite some efforts no reconciliation has been effected with regard to these two sets of figures.
- 1.12 In 2000-01 the Census of minor irrigation works carried out by the Government of India disclosed a third set of figures. Since this data was obtained after a detailed survey of individual schemes conducted under the supervision of the minor irrigation authorities and officially communicated by the State government to the Government of India, the Commission has decided to accept the Census figures as the authentic statistics regarding both the creation of potential and utilization.
- 1.13 The comparative data regarding the potential created so far in minor irrigation and the utilization as furnished by the Minor Irrigation authorities, the department of Economics and Statistics and the Census 2000-01 is given in the Table below :

**Table IV**

### Potential created and utilized during 2000-01 under minor irrigation.

*in hectares*

Category of M.I. Scheme	According to		
	M.I. Department	D.E.S.	Census 2000-2001
<b>A Potential created</b>			
Tanks	6,93,341	-	4,04,281
L.I. Schemes	94,282	-	3,11,767*
Others	1,38,022	-	1,24,705
<b>Total:</b>	<b>9,25,645</b>	-	<b>8,40,753</b>
<b>B. Potential Utilised</b>			
Tanks	Categorywise break up not furnished	3,03,837	2,32,562
L.I. Schemes		3,39,078	2,52,725
Others		1,21,753	59,652
<b>Total:</b>	<b>3,15,215**</b>	<b>7,48,267</b>	<b>5,44,939</b>

(\*) Includes 2,07,726 hectares under private L.I. schemes.

(\*\*) Comprises 1,28,898 hectares in the State sector and 1,86,317 hectares in the district sector.

- 1.14 Although the Commission relies on the figures compiled in the Census, it strongly recommends that the reasons for such large variations need to be looked into seriously as this will have a bearing on not only the State's interests in the disputes regarding the sharing of waters of the Krishna and Cauvery rivers, but also on the Master plans for irrigation projects in these two basins.
- 1.14 a What is surprising, from the information given by the Census, which is not forthcoming in the statistics furnished by the department of Minor Irrigation, is the large number of private lift irrigation schemes. It is probable that many of them are unauthorized. Even with regard to the authorized schemes, there is no information as to whether the meager annual levy is being collected or not.
- 1.15 Regarding private minor lift irrigation using surface waters, the Commission recommends the following :
- (a) *Regularisation of all cases of private lifts where permission has not been obtained from Government for using surface waters, levying a one time penalty of Rs. 100 per acre and continuous payment of the annual levy at the rates recommended in sub-para (b) below.***
  - (b) *Increase of the annual levy on private lifts from the present meagre rate of Rs. 4 per acre (or Rs. 10 per hectare) to at least Rs. 10 per acre (or Rs. 25 per hectare).***
  - (c) *Non-payment of the prescribed levy on such users for a successive period of three or more years should be treated as an offence under the Irrigation Act, attracting deterrent punishment.***
  - (d) *Levy on such users should be collected by the Water Resources department as it deals with the subject of according permission for such private lifts using surface waters.***
- 1.16 All the figures discussed so far pertain to minor irrigation using surface water. The Planning department does not include figures of minor irrigation potential created from ground water sources since the data provided is considered to be unreliable. Hence the data regarding the creation and utilization of minor irrigation using ground water resources is not discussed in the Report.

## **Utilisation of irrigation potential**

1.17 The utilisation of the irrigation potential created has been abysmally poor as can be seen from Table IV. If the potential created and utilization of minor irrigation tanks alone are considered and if the potential indicated by the department of Minor Irrigation is considered to be the original potential created and the potential indicated by the Census the actual potential now available, then it is evident that the potential has been reduced by 2.9 lakh hectares. The actual utilization is approximately 33 percent of the potential created. The enormous wastage of public resources involved in the construction of minor irrigation works is due to the following reasons:

1.18. Reasons for loss of potential and poor utilization

- a) Inadequacy of yield due to insufficient inflows
- b) Loss of storage due to silting of minor tanks as a result of deforestation and over-cultivation in the catchment
- c) Encroachment of water spread areas for cultivation and other purposes
- d) Denudation of vegetative cover and absence of soil conservation measures in the catchment areas
- e) Leakages through bund, waste weir and sluices
- f) Deteriorating condition of the tanks / head works and canal system due to poor maintenance and ageing
- g) Unsatisfactory distribution of available irrigation water amongst irrigators
- h) Poor and inefficient water management practices
- i) Want of adequate funds for proper and satisfactory O & M works
- j) Damage to lands due to water logging, salinisation and alkalinization.
- k) Absence of drainage works
- l) Lack of or inadequate conjunctive use of canal and ground water
- m) Poor participation by beneficiary farmers

1.19 In a nutshell the reasons for the massive under utilization of the minor irrigation schemes are due to very poor maintenance of the system, poor and inefficient water management, denudation of the catchment area leading to

soil erosion and silting of the tank and lack of involvement and poor participation by the water users.

### **Allocation of funds for Operation and Maintenance**

1.20 The Commission has been unable to obtain information from the department of Minor Irrigation which could help them to present an analysis of (a) the budget allocations for O&M of minor irrigation works, (b) the expenditure presently being incurred (indicating separately the salary and works components) and (c) the minimum requirement for satisfactory O&M of the system. However the department is of the opinion that the funds made available at present are not only inadequate but adhoc. It is not possible to separate the salary and works components in the budget provided. Because of the total non involvement of the water users in the construction and maintenance of the schemes, they do not take action to do basic repairs or minimum maintenance when the funding by the government is erratic or inadequate. This results in the silting up of the canal system and the tank bed, leading to encroachment of the tank bed and drastic reduction in the water holding capacity. Damages to the tank bunds, waste weirs and tank sluices are not repaired, leading to further damage.

1.21 The Commission had suggested, after a detailed study of existing allocation, the following scale of allocation of funds for O & M of major and medium irrigation projects :

	Rs. per hectare
1) Fully lined canal system	350
2) Partially lined canal system	400
3) Unlined canal system	450

1.22 The Commission recommends a similar approach for the funding of O & M for minor irrigation.

## **Management of water**

- 1.23 The irrigation system of the State is designed to provide only protective irrigation, mostly of a simple light irrigated crop. However there is flagrant violation of all rules and the owners of lands in the higher reaches grow water intensive crop such as sugarcane and paddy with the result that tail enders are deprived of water.
- 1.24 There is also much wastage of water. Not only is conjunctive use not made of ground and surface water but economic use is not made of water through drip and sprinkler irrigation.

## **Denudation of catchment areas**

- 1.25 The catchment areas of the tanks are watersheds (generally micro watersheds). When rain falls, water flows from the ridgeline across the hills and uplands, down to the plains and into the tank. In addition, feeder channels such as brooks and streams carry heavy quantities of water from the upper levels down the slopes and into the tank. However, the feeder channels flowing in the catchments to feed water to the tanks have now been diverted, encroached, clogged, filled with sand and obstructed by vegetative growth. They have thereby been rendered incapable of conveying adequate quantities of water to the tanks. In this manner the water holding capacity of the tanks has been reduced.
- 1.26 In addition, the slopes of the ridges and hill tops, which were once full of vegetative growth are now denuded of vegetation, and are barren lands subject to a high degree of soil erosion due to ravages of wind and weather. The lands other than the hills and slopes, that is, the plain cultivable lands in the catchment are unprotected without contour bunds or vegetative bunds and their fertile top soil has been drained down to the feeder channels and tanks. Thus, both the uplands and plain lands are rich sources for the conveyance of silt to the tanks, caused by the velocity of winds and ferocity of rains. The deposition of silt on the floor of the tank has further reduced the water holding capacity of the tank.

## **Lack of involvement of water users**

- 1.27 The persons whose lands are irrigated by the minor irrigation schemes constructed by the government as well as those who make use of the water in different ways have not been consulted while constructing the scheme or managing it. They have made no contribution even to the management of the scheme after it was constructed. There is no democratic process of determining the equitable distribution or use of the water. The people therefore feel that it is a government scheme in which they have no role to play except get what they can out of it. This makes them reluctant even to pay the water rates. The reluctance to pay the water rates is largely attributable to dissatisfaction with the inefficient and negligent management of the system, resulting in poor availability of water. In turn, the poor collection of water rate results in less investment in maintenance.

## **Irrigation water rates**

- 1.28 A pre-requisite for fixing any water rate is that the water supply to each farmer should not only be adequate but also dependable and timely. It has been opined by experts that the irrigation water rates should be (a) on crop basis, (b) within the paying capacity of the farmer, irrespective of the capital investment, (c) differentiated with regard to the category of irrigation projects.
- 1.29. Different authorities have suggested different criteria for fixing irrigation charges. These are indicated briefly below:

### **(a) Irrigation Commission, 1972**

The water rate should range between five to twelve per cent of the gross income of the farmer, the upper limit being twelve per cent. It should be within the paying capacity of the farmer and should aim at full utilisation of the available supply

### **(b) Vaidyanathan Committee 1992**

The level of cost recovery to be aimed at, in the first phase, should at least cover the O&M costs and one per cent interest on capital employed.



**(c) National Commission for Integrated Water Resources Development Plan 1999**

The water rate should cover the operation and maintenance cost plus one per cent of the agricultural income.

**(d) 10<sup>th</sup> Finance Commission**

Irrigation water rate receipts should not only cover the operation and maintenance cost but should also cover one per cent per annum of the capital investment.

1.30 The latest set of rates notified on **13<sup>th</sup> July, 2000**, may be seen in Table V.

**TABLE V**

<b>STRUCTURE OF WATER RATES @</b>	<b>Rs. per acre</b>
<b>I. Normal rate:</b>	
<i>Flow Irrigation</i>	
- sugarcane	400
-paddy	100
-cotton, wheat, groundnut, garden crops, sunflower	60
-jowar, ragi and other semi-dry crops	35
-manurial crops	17
<i>For water users' associations</i>	Rs. 12 per 1000 cum.
<i>Lift irrigation</i>	
-sugarcane and paddy	<b>thrice</b> the normal rates for flow irrigation.
-other crops	<b>twice</b> the normal rate for flow irrigation.
<b>II. Penal rates:</b>	
-violation of cropping pattern	<b>five times</b> normal rate
-unauthorised irrigation	<b>fifteen times</b> normal rate
<b>III. Non-agricultural uses:</b>	
-domestic purposes	Rs. 375 per mcft.
-industrial use:	
* from natural sources	Rs. 1800 per mcft.
* from irrigation works	Rs. 3200 per mcft.
(*50 percent of the rate if water is returned to the source unpolluted)	

1.31 The practice so far has been to fix water rates on the basis of crops. The evolution of crop-based water rates fixed by the Government of Karnataka and the percentage increase from 1976 to date are furnished in Table VI.

**Table VI**

**EVOLUTION OF WATER RATES**

Crop	Water rate in rupees per acre		Increase in Rs. (as a %)
	in 1978	in 2000	
Sugarcane	300	400	100 (33)
Paddy	35	100	65 (186)
Semidry	20	35	15 (75)
Wheat	30	60	30 (100)
Groundnut	20	60	40 (200)
Sun flower	-	60	- -
Cotton	50	60	10 (20)
Garden	-	60	- -
Manurial	9	15	6 (67)

1.32 Table VII gives details of the water rates for minor irrigation prevailing in some of the States.

**Table VII**

Name of State	Water rate for minor irrigation (Rs. per hectare)
Andhra Pradesh	250
Punjab	87.50 to 175
Tamil Nadu	150 to 175
Maharashtra	119 to 297

**Note:**

In **Punjab**, the rate varies with the crops. The rates are very low and are proposed to be revised over the next few years. In **Tamil Nadu**, the rates are different for wet crops and dry crops. The new rates have come into effect in July 2003 and are proposed to be revised at regular intervals. In **Maharashtra**, the rates are for canal flow water. They have been in force from July 2003. The rates vary with the crops. The rate of Rs. 119 is for advance watering (in kharif season for rabi crops) and the rate of Rs. 297 is for crops such as sugarcane, banana, and fruits.

1.33. During visits to the States of Punjab and Haryana, members of the Commission observed that the Irrigation Department is responsible for ensuring the quantity of water supplied at the head of each lateral/water course, to the Water Users Societies (WUS). The WUSs, on their part, are responsible for the equitable distribution of water to each of the farmers/members of WUSs.

#### **Demand, collection and balance of minor irrigation water rates**

1.34 According to the Irrigation Act the water rate demand is determined after a joint inspection of the farmer's land by the representatives of the Minor Irrigation and Revenue departments. However this does not usually happen and the water rate demand is often raised on the basis of hearsay or by merely updating the previous year's figures while sitting in the office. The water rate demand is raised by the department of Minor Irrigation every year. The demand is then communicated to the Revenue department. The Revenue department collects the water rate from farmers along with other dues such as the land revenue. The Revenue department does not however communicate to the department of Minor Irrigation how much water rate is collected. The water rates demands as per the Water Resources department and the demand, collection and balance figures, according to the Revenue department, for the years 1996-97 to 2000-01 are furnished in Table VIII below:

**Table VIII**

**Rs. in crores**

Year	Demand as per WR Dept.			As per Revenue Department		
	Maj & Med Irrigation	Minor Irrigation	Total	Demand	Collection	Balance
<b>Normal Rates</b>						
1996-97	8.73	1.39	10.12	37.77	14.07	23.70
1997-98	8.81	1.41	10.22	32.70	10.82	21.88
1998-99	8.93	1.48	10.41	36.23	16.15	20.08
1999-2000	8.80	1.29	10.09	40.74	10.84	29.90
2000-01	17.93	2.11	20.04	31.08	13.03	18.05
<b>Penal Rates</b>						
1996-97	45.11	1.82	46.93	232.91	0.15	232.76
1997-98	51.52	2.28	53.80	251.23	0	251.23
1998-99	51.82	2.26	54.08	259.60	0.45	259.15
1999-2000	56.07	1.81	57.88	246.48	0.23	246.25
2000-01	82.63	5.08	87.71	248.20	0.20	248.00

- 1.35 The demand of the Revenue department includes that of major, medium and minor irrigation projects since categorywise figures are not available with the Revenue department. It also includes the arrears of previous years. Because of this there are substantial differences in the demand figures furnished by the two departments.
- 1.35a Table VIII shows how poor has been the collection of water rate by the Revenue department. In fact, no water rate is demanded or collected for most of the minor irrigation tanks since there has been no collection of water rates for tanks in the district sector for the last few years because of the misreading of a government order.
- 1.36 One of the reasons given by the Revenue department for the poor collection is that there is invariably delay on the part of the department of Minor Irrigation or the department of Water Resources in communicating the demand, resulting in accumulation of arrears. The Water Resources department, on its part, denies this.
- 1.37 In the department of Water Resources, including the Minor Irrigation sector, once the demand statements are finalized, there does not appear to be any compilation of this important data (of area irrigated and demand raised) at the highest (Chief Engineers' or the Secretariat) level for monitoring as well as for ready reference whenever required. It is necessary that such data be compiled and computerized for easy monitoring.

#### **Feasibility assessment while sanctioning new minor irrigation projects**

- 1.38 There is no ceiling on the cost per hectare of land in the ayacut while considering the sanction of a new minor irrigation scheme. The cost benefit ratio is however fairly roughly computed. The project can be sanctioned if the ratio is 1:1 although there are no hard and fast rules. The problem of course is that the benefits are nowhere near what are envisaged while sanctioning the project, because, as already seen, the utilization of potential, as expressed in hectares, is a very small percentage of the potential created. Even the potential created shrinks because of silting and encroachments both in the tank bed and in the field channels.

- 1.39 On the other hand, the costs are often much higher than those calculated because of escalation of costs due to delay in executing the project. The main reason for delay is the non provision of adequate funds for completing the project in the stipulated time. The available funds are spread thinly over a large number of projects, leading to time over runs and escalated costs.
- 1.40 At present for investment clearance only the engineering infrastructure works of reservoir and canal network have been and are being considered to the exclusion of the development works in the irrigation command area. However without the field channels and command area development water will not reach the fields of farmers.
- 1.41 All this makes a mockery of the exercise of assessing the cost benefit rates while sanctioning new minor irrigation schemes.
- 1.42 **The Commission recommends the following:**
1. *While taking up the construction of a minor irrigation project, thorough field and geo-technical investigations have to be carried out and plans and estimates drawn up according due consideration to not merely the irrigation system but also to the command area development and at the same time keeping in view the benefit cost ratio aspect. All this should be completed within a period of one year.*
  2. *The construction of a project should be completed within a period of one year to avoid cost and time over run and consequent delay in realising the intended benefits.*
  3. *There should be continuous review of the progress of each component of work under execution to ensure that the physical and financial progress are in pace with the awarded contract.*
  4. *There should be a mid-term appraisal of the likely cost of the project as well as the benefit cost ratio.*

*5. After a project is completed in all respects and is functioning satisfactorily for a few years, there should be a post-facto evaluation, to be carried out by an independent and reputable agency.*

*6. No new schemes should be taken up in the district until the old schemes are completed in all respects, including the development works in the command area. This should be made a statutory requirement by amending the Irrigation Act.*

1.43 To sum up, the minor irrigation sector presents a rather disturbing scenario. Reliable data is not available for ground water works. Even for minor irrigation using surface water, there is considerably discrepancy in the data collected from different sources with regard to both potential created and utilized. Moreover, no data is available with regard to the district sector for most years. However, by any estimate, the actual utilization is only a fracture of the potential created at great public cost. The recovery of water rates is so poor that it can cover not even a small part of the cost of maintenance of the system.

1.44 The Commission, after discussions with the Director, Watershed Development, the Executive Director of Jala Samvardhana Yojana Sangha (JSYS), the Secretary and other officers of the Minor Irrigation department and the Secretary, Rural Development and Panchayat Raj, came to the conclusion that the most important reason for the poor utilization of minor irrigation works is the almost total lack of involvement of the water users in the management of the schemes. The remedy therefore is in setting in place a system whereby the minor irrigation works are managed, in a democratic manner, by the persons using them. The Commission recommends that this may be done in the following manner :

#### **1. Minor Lift Irrigation Schemes (LIS)**

1.45 As per the Census 2000-2001, there are 69,423 lift irrigation scheme using surface waters, with a total ayacut of 3,11,767 hectares. Of these, 462 LIS with a total ayacut of 94,282 hectares are in the State sector, under the control of

the Minor Irrigation department. The remaining 68,961 lift irrigation schemes, with a total ayacut of 2,17,485 hectares are reported to be private lift irrigation schemes, not all of which have the permission of the government, as required under the Irrigation Act.

It is reported by the Minor Irrigation department [MI department] that nearly 60 percent of the LIS in the department are sick and that even the remaining are not functioning to their full capacity, for reasons such as non-availability of adequate water from the source, reduction in the capacity of the intake structure due to silting and improper maintenance, rusty pipes and aging mechanical equipment and dilapidated distribution systems.

*Considering the condition of the existing government owned lift irrigation schemes as mentioned above and the mounting arrears of unpaid energy charges, the Commission recommends encouraging, wherever possible, the formation of societies of beneficiaries to operate and maintain entirely on their own, such of the State sector LIS which are in a reasonably satisfactory condition of operation.*

*Those lift irrigation schemes for which societies are not formed, if any, in the State sector, should be transferred to the control of the concerned major irrigation zones, for operation and maintenance.*

## **2. M.I. Schemes other than Tanks and LIS**

1.46 With regard to minor irrigation schemes, other than tanks and lift irrigation schemes, the Commission recommends the following:

- 1. *Barrages across major streams / rivers including those under construction, presently under the control of the Minor Irrigation department, should be handed over to the control of the respective major irrigation zones in the department of Water Resources.***

2. *All the remaining categories of minor irrigation schemes such as anicuts, pickups and bandharas including those under construction, should be handed over to the respective Z.P.Engineering Divisions under the control of the Chief Engineer, Rural Development Engineering Department (RDED), in the Rural Development and Panchayat Raj department [RD&PR].*

### **3. Minor Irrigation (MI) Tanks**

- 1.47. There is already a direction from government that all MI tanks in the command areas of major irrigation projects, including those under construction, should be transferred to the administrative control of the respective Chief Engineers of Major Irrigation. *The Commission recommends that transfer of all such tanks to the major zones be completed immediately, if not already done.*
- 1.48 *The Commission further recommends that action be taken, in the manner described in this Report, to transfer all the remaining functional tanks to the control of the Chief Engineer, RDED, under the RD & PR department.*
- 1.49 Tanks are the most important source for minor irrigation using surface water. They are invaluable assets created to provide water to meet multifarious needs such as drinking water, cultivation, fish rearing, livestock breeding, etc., in rural areas. Very poor maintenance and repair, coupled with neglect of both the catchment and command areas, have resulted in reduction in the potential created and loss of valuable public assets. According to the MI Department, as on 31/3/2000, the number of tanks both under the State and ZP sectors were 36,686, with a combined irrigation potential of 6.93 lakh hectares. This was probably the irrigation potential created when the tanks were first constructed. In the year 2000-01, the MI Census was carried out according to which only 25,267 tanks were found to exist, with irrigation potential of 4.04 lakh hectares. The utilization of these tanks, according to the Census, was only 2.32 lakh hectares. This lays bare the following facts:



- a) (36686 – 25267) or **11419** tanks are in a state of total disrepair, are incapable of storing water and hence are non-functional.
- b) The irrigation potential created has gone down by (6.93 – 4.04 ) or **2.89** lakh hectares.
- c) The potential utilized is reduced by (6.93 – 2.32) or **4.61** lakh hectares.

1.50 The Commission has noted that the reason for the heavy loss of irrigation potential as well as its inadequate utilization has been the maintenance of tanks by government and the zilla panchayats without public participation or the involvement of tank users' groups. Besides this, the government has failed to recognise the inter-dependency of tank systems, i.e., inter-dependency between up-stream and down-stream tank systems in a cascade as well as the inter-dependency between the catchment area and the command area with respect to a single tank. In view of this the Commission recommends for people's participation in the construction and maintenance of M.I. tanks.

### **Tank Panchayat Regulation 1911**

1.51a. The problem of enlisting the assistance of the community in the maintenance of tanks is not of recent origin. This is evident from the Tank Panchayat Regulation 1911.

Normal maintenance of a tank involves the following:

- a) Periodical removal of silt from the tank bed and canals
- b) Periodical earth work to the bund wherever damages have occurred
- c) Periodical repairs to the tank sluice and waste weir
- d) Keeping the catchment area free from encroachment and checking silt coming into the tank

Formerly, the maintenance of a tank or channel was primarily the responsibility of the village community of which the beneficiaries were an important part. However, with the passage of time, destruction by floods, wars and visitation by famines, the Princely State of Mysore (now Karnataka) had to meet the expenses of the British army. Since land was always the main source of revenue, all efforts were made by the government to restore and repair the irrigation works not only to increase food production but also as a source of revenue. However, over a period of time, this led to the realization that undue importance was being given to government's responsibility in the upkeep of tanks, altogether ignoring the farmers' liability although maintenance of tanks involved ordinary earthwork and repairs connected with the tanks and their subsidiary components. Having realized that it was impossible for the government to undertake repair and maintenance of thousands of tanks in the State, it was considered necessary to hand over to the villagers such tanks as were either already in a state of efficient repair or had been restored to the required standard. Certain rules were promulgated in this regard in 1873 AD, prescribing therein the various duties and responsibilities of the concerned, from the Deputy Commissioners down to the village *Patels*. In spite of this, it was observed that the maintenance work was neglected mainly due to disappearance of the community spirit of the villagers and the slackness of the concerned village officers.

It was decided that the remedy was to enlist the co-operation of the villagers by giving them a voice in the measures necessary for maintenance of their tanks, with powers to execute the works and control over funds that might be set apart for the purpose. Accordingly, the Tank Panchayat Regulation Act 1911 was enacted, facilitating constitution of village level Tank Panchayats (TPs), with the following provisions:

- a) TPs for any village if not less than two-thirds of the *ryots* holding not less than half the area of wet lands under the tank so desire
- b) TPs to comprise the *Patel* as Chairman, the *Shanbog* and three or more members elected by the *ryots*. One fourth of the elected members to be from those *ryots* who are not holding wet or garden lands
- c) Term of office of elected members of the TPs to be three years
- d) TPs to control funds comprising (i) collection from *ryots* who do not do assigned duties or desire to commute labour into money payment, (ii) proceeds from sale of fish (in the tank)/trees/grazing rights in tank bed/cutting or removing grass on the tank bund, etc., (iii) rent/share of produce from temporary cultivation in tank bed, (iv) grant from government, from irrigation cess and (v) any other grant/loan from government to the TPs
- e) Power to regulate issue of water from the tank, considering water available in the tank and the area to be cultivated with sugarcane/wet crop.

Though 127 such TPs were existing by 1934-35, only seven worked actively and few were reported to have collected funds. These TPs failed to perform and became defunct due to one or more reasons like (i) lack of co-operation among the *ryots*, (ii) lack of enthusiasm in the *Patel / Shanbog* to enforce the customary obligations, (iii) the *Patel / Village Head* was reduced to a mere titular head, (iv) the *Patel* was no longer residing in the village, (v) development of social or economic groups / factions in the village, (vi) land holders migrating to urban centers. All these developments and the failure of subsequent measures led to the government ultimately taking over the entire management of the minor irrigation tanks and inclusion of a necessary clause in the Mysore Irrigation Act 1932, during 1952.

## **Community Participation**

1.52 The need to secure people's participation in minor irrigation tanks from the construction stage itself is borne out by the project appraisal report of the World Bank aided Community Based Tank Management Project [CBTMP] under the JSYS released in March 2002. In the said appraisal report, it is stated that the unsustainability of the World Bank financed Karnataka Tank Irrigation Projects (1981-89) was mainly due to the lack of involvement of tank users in the project. The main project component of this consisted of construction of 120 to 160 MI tanks, which was revised to 78. Finally 34 tanks were completed to irrigate a command of 25,000 hectares. The increased cost, initial delays, etc., reduced the rate of return from 20 percent at the appraisal stage to 4 percent on completion. Minimal farmer (and village) involvement in planning and implementation of the project contributed to the failure of the project. This was the crucial lesson which emerged from the project. After the project was completed, the limited farmer interest that did exist declined with the result that many tanks are now in a state of disrepair. Keeping these hard realities in view, the Government of Karnataka (GOK) has issued a State Water Policy which emphasises community participation in water management. GOK has also approved a vision statement describing the State's long-term strategy for the development of MI tanks. The State government is committed to 'community based' and 'demand driven' approaches for tank development and initiating a process of transfer of management of all minor irrigation tanks to village level user groups (vide the appraisal report for Karnataka CBTMP - March 2002).

1.53 In fact, legal enactments for the formation of Water Users Societies (WUS), which are empowered to (a) improve the irrigation infrastructure (b) receive and distribute water (c) collect water rates have already been passed. The Jala Samvardhane Yojane financed by the World Bank, commenced from 31/08/2002 and will end by 31/01/2009. This project will cover 2000 tanks with an ayacut of 72,000 hectares. The project aims to demonstrate the viability of a community-based approach to tank improvement and management, by entrusting the main responsibility of tank development to

village level user groups. If successful, the project would provide a useful model for adopting this pragmatic approach Statewide.

- 1.54 However, in view of the dismal scenario in respect of the upkeep of minor irrigation tanks, the Commission considers that it is not desirable to await the outcome of the JSYS project before taking action to involve in an organized manner tank users in the maintenance of tank systems.
- 1.55 At present, out of 36,686 MI tanks, 33,364 tanks with an ayacut area of less than 40 hectares are with the zilla panchayats and the taluk panchayats. Only 3,322 tanks are under the control of the department of Minor Irrigation. These are the major tanks, with an ayacut of 3.91 lakh hectares.

The Commission is of the opinion that in order to improve the maintenance and make optimum use of these valuable assets, all the tanks, including the larger ones, should be under the control and supervision of the persons actually benefiting from them. In order to do so it will not be sufficient to hand them over to the zilla panchayats or the taluk panchayats. The ongoing debate is whether the tanks should be managed by tank user groups (which would include not only the people using the water for the purpose of irrigation but those who use it to grow fish, for drinking water purposes for themselves or their cattle and to wash clothes) or by the gram panchayat. According to JSYS, which is a World Bank assisted project, the beneficiaries or stakeholders for an irrigation tank comprise of all the people in the village in the boundaries of which the tank and its ayacut falls since they are all in one way or another affected by the tank. In the JSYS after a period of social awareness raising and conscientisation with the help of NGOs (this has taken about two years in the initial period but may take less time hereafter) the grama sabha (that is, the community of all the adults in the village – this will include a man and a woman from every family) selects its representatives to form the executive committee for the management of the tank. For major decisions, however, such as whether any water should be released at all for irrigation in years when the water level is very low, the executive committee has to seek the orders of the gram sabha. All interests are represented on the executive

committee and not only those of the owners of irrigated lands. Although under the World Bank assisted scheme, substantial assistance is given to each tank under the Integrated Tank Development Plan (ITDP), it is mandatory that 10 percent of the total amount should be contributed by the village community. The **Appendix** gives information with regard to 68 tanks taken up in the first and second phase of the JSYS (the project covers 2000 tanks) with details of total cost of the project and the community contribution. The community contribution has been forthcoming in all these cases, since it is only thereafter that the JSYS releases money for the project. Obviously the stake holders will take an interest in the proper execution of the project and play an active role since they have contributed to the cost of the project.

This concept, that the best way to ensure proper use of a public asset, is to hand it over to user groups, has been accorded formal acceptance through enactments in various States. Andhra Pradesh, for instance, has taken several major steps towards economic reform in the irrigation sector. The State has 10292 water users associations and 174 distributory committees. The Andhra Pradesh Farmers Management of Irrigation Systems Act, 1997 creates 'Water Users Association' (WUA) in all irrigation projects in the State, gives water rights to the WUAs, provides them functional and administrative autonomy, enables them to resolve conflicts themselves and enables improvement of the irrigation systems by the WUAs based on resources raised by the WUAs themselves.

There have been arguments in favour of handing over minor irrigation tanks to the gram panchayats instead of waterusers associations. The argument is that the panchayat is the elected body at the "grass root" level and it is not a healthy trend to create new bodies and associations which bypass the panchayat. This also sows the seeds of potential conflict between the panchayat and the waterusers associations. As a public asset the tank should belong to the gram panchayat and not to a private group of individuals. It is also possible that the waterusers associations will fall apart and disappear once the external funding stops in a project such as the JSYS. At the same time the JSYS and NGOs argue that the panchayat consists of six or seven villages

whereas the tank and its ayacut may fall within the boundaries of just one or two villages. If decisions regarding the tank are taken by the panchayat it would mean that persons who are not stakeholders would be taking the decisions. It is also possible that the revenue from the tank will be used for other purposes by the panchayat.

The Commission, after detailed discussions, has come to the conclusion that a via media is possible. The gram sabha should elect the persons who will represent different interest groups. These persons, along with the panchayat members who live in and represent the villages within the ayacut of the tank, will form a sub committee of the panchayat (GPS) which should manage the affairs of the tank. The panchayat subcommittee will be constituted under Section 61 (A) of the Karnataka Panchayat Act 1993. Women, who are an important interest group, either as persons who work on the land, whether or not they own it, or as persons who depend on the tank in different ways, should constitute at least 33 percent of the composition of the subcommittee. The owners of lands at the tail end of the irrigation channels should also be represented in the subcommittee.

The panchayat subcommittee should attend to work relating to maintenance and repair of tanks as well as distribution of water. Water rates should be levied and collected by the panchayat subcommittee. The water rates should meet some portion at least of the annual O & M charges and should be approximately 25 percent of the water rates for major and medium irrigation schemes.

It is quite possible that the panchayat will succeed in collecting the water rates where the village accountant failed. Poor service is one of the main reasons for poor collection of water rates. If the farmers are certain that the money collected will be utilized to improve services, they will be willing to pay the charges.

The Commission therefore recommends that the panchayat subcommittee be permitted to utilize 90 percent of the water rate collected for the maintenance and improvement of the tank and remit 10 percent to government.

Similarly, fishing rights may also be given to the panchayat subcommittee and the revenue from this should also be utilized towards the maintenance of the tank.

Government funds for maintenance should also be routed through the subcommittee.

The accounts of the subcommittee should be audited every year and there should be total transparency in its functioning. When important decisions have to be taken the subcommittee should revert to the gram sabha.

The services of NGOs as well as experts in various fields such as in agriculture or in the economic use of water should be utilized by the panchayat subcommittee.

In the case of large tanks where the ayacut is spread over the area of several panchayats, a federation of panchayat subcommittee should be formed. Such cases may not be many. Even in the case of tanks with ayacuts of 1000 hectares and above, not more than four or five panchayats will be involved. Although there is some difficulty of co-ordination in such cases, it is not insuperable.

## **Recommendation**

- 1.56 *The Commission recommends that all minor irrigation tanks, including those with ayacuts of between 40 and 2000 hectares which are presently in the State sector, should be handed over to gram panchayat subcommittees constituted under Section 61 (A) of the Karnataka Panchayat Raj Act, 1993. The subcommittees will be responsible for maintenance and repair of the tanks. Government funds which are budgeted for O & M should be given to*



the subcommittees. They will levy and collect water rates which they should use for the improvement of the tank. Technical assistance should be given to the subcommittees by the engineers of the Irrigation department. The Irrigation Act should be amended accordingly.

- 1.57 Administrative reorganization is required to give technical support to the GPS in repairing and maintenance of the tanks.

### **Administrative Reorganisation**

- 1.58 At present tanks and other minor irrigation works with ayacuts up to 4 hectares are being maintained by taluk panchayat samithies and those between 4 hectares to 40 hectares are being maintained by the zilla panchayats. The Minor Irrigation department is responsible for the maintenance of all MI works with ayacuts of between 40 and 2000 hectares. In the zilla panchayat set up there are one or two executive engineers at the district level (there are 38 executive engineers in the zilla panchayats with two each in Bangalore Rural, Belguam, Bellary, Gulbarga, Hassan, Kolar, Mandya, Mysore, Shimoga, Tumkur and Uttar Kannada districts and one in each of the remaining districts) and one assistant executive engineer for each taluk. These executive engineers and asst. executive engineers of the zilla panchayat are in overall charge of the maintenance of the minor irrigation works, roads, buildings and drinking water supply in their respective jurisdictions. For the entire State there is a chief engineer Rural Development Engineering Department (RDED) who is in overall charge of the minor irrigation works as well as works related to roads and buildings of all the zilla panchayats. The chief engineer, Minor Irrigation (South), Bangalore and the chief engineer, Minor Irrigation (North), Bijapur are responsible for the maintenance of minor irrigation works in the State sector, that is for works with ayacuts of between 40 and 2000 hectares in their respective jurisdictions. These two chief engineers are supported by 4 jurisdictional superintending engineers, 16 executive engineers and 46 assistant executive engineers.

- 1.59 Despite such high level supervision through three chief engineers' zones to take care of the maintenance of minor irrigation works, there has been unsatisfactory maintenance of tanks and heavy reduction in the irrigation potential.

### **Recommendation**

- 1.60 *Complete administrative reorganization is required to ensure better supervision of minor irrigation works.* This is also required because it is proposed to transfer all minor irrigation tanks, bandharas, anicuts and pickups to the gram panchayat samithis.

The Commission recommends as follows :

With the transfer of all minor irrigation schemes either to the Major and Medium Irrigation zones or to the gram panchayats, *the department of Minor Irrigation should be abolished.*

At the same time the zilla panchayat engineering divisions need to be strengthened and a separate minor irrigation sector created within it. This can be done by transferring the 46 sub divisions of the Minor Irrigation department to the zilla panchayat sub divisions. The 46 assistant executive engineers will supervise works pertaining **only** to minor irrigation in the district sector, since this requires specialized knowledge. They will, if necessary, be assisted by some assistant executive engineers in the zilla panchayat sub divisions, who should specialize in minor irrigation. Some of the superintendent engineers and one chief engineer from the department of Minor Irrigation should be transferred to the department of Rural Development and Panchayat Raj to supervise, monitor and give technical assistance for the constructions, repair and maintenance of minor irrigation works.

The administrative set up should be as follows :

4000 hectares of contiguous irrigated land should have one irrigation sub-division in the zilla panchayat.

Every 20000 hectares of irrigated land should have one irrigation division.

There should be one superintending engineer for every 5 divisions.

There should be one chief engineer (minor irrigation) in the department of Rural Development and Panchayat Raj to look after **only** minor irrigation works (this will be in addition to the present chief engineer RD & PR).

There should be a technical design and research cell in each superintending engineer's office as well as in the office of the chief engineer (minor irrigation) RD & PR.

In other words *there should be a separate establishment for minor irrigation in the RD & PR department to supervise minor irrigation works in the district sector.*

Minor irrigation through the use of ground water is at present being dealt by the department of Mines and Geology. This subject should be handed over to the department of Rural Development and Panchayat Raj. *The entire work relating to minor irrigation, whether of surface or ground water, should be dealt with by the minor irrigation engineers of the department of Rural Development and Panchayat Raj.*

As already described in the report, there is much confusion in the data regarding minor irrigation which is collected by different agencies. *The Commission recommends that all data regarding minor irrigation should be collected, updated and consolidated only by the minor irrigation sub divisions and divisions of the RD & PR. The chief engineer (minor irrigation) RD & PR should have the consolidated information relating to both surface water and ground water minor irrigation for the entire State.*

### **Taluk level and District level facilitation teams**

- 1.61 Since heavy responsibilities are sought to be vested with the GPS / Panchayats as mentioned above, the Commission considers it necessary that there should be guidance provided to them through a taluk level facilitation team consisting of engineers (AEE of the ZP Engineering Division, working in the taluk) and experts from the Agricultural, Horticultural, Animal Husbandry, Forest and Fisheries departments who are already working as taluk level representatives of those departments. A representative to be nominated by an NGO recognized at the district level for providing guidance and motivation should also be a member of the taluk level facilitation team.
- 1.62 To oversee and assist the working of the GPS / Panchayats and the taluk level facilitation teams, there should be a district level facilitation team to be chaired by the CEO, ZP and comprising of district officers of the departments of Agriculture, Horticulture, Fisheries and Forest along with the Executive Engineers of the ZP Divisions and an NGO.
- 1.63 The taluk level facilitation team should assist the GPS to formulate one time restoration plans and subsequently the annual action plans for maintenance of minor irrigation works. The progress of the work should be monitored by the facilitation teams at taluk and district levels on monthly and quarterly basis respectively.

### **Release of funds**

- 1.64 Once the tanks are handed over to the concerned GPS, basic repairs have to be carried out with financial assistance from government as described hereafter. After the basic repairs are carried out, the GPS will be responsible for annual repairs and maintenance. The corpus of funds for closing this will consist of :
1. Retention of 90 percent of water rates collected.
  2. The contribution made in cash and kind by the gram sabha of the village panchayat which is served by the tank
  3. The O & M fund to be released by the zilla panchayat directly to the GPS.
  4. Other funds such as earnings of the GPS from fisheries.

- 1.65 **Note** : This GPS should have its own bank account and it should be operated under the signature of one member of the subcommittee and the secretary of the gram panchayat who should be concurrently designated as member secretary of the subcommittee. If the ayacut falls in the jurisdiction of more than one gram panchayat, the subcommittee will consists of members from all those panchayats as in the case of watershed subcommittees of similar type mentioned earlier.

### **Legal issues**

- 1.66 The State has already taken legal action to empower the tank users group to take care of maintenance of tanks and to collect water rates, including retention of 90 percent of the water rate collected for expenditure towards maintenance.

The Commission recommends that this law should be further amended to transfer the power of WUS to the GPS / consortium of gram panchayats in case of MI tank ayacut areas. Similarly, there should be amendments of the Karnataka Panchayat Raj Act 1993 to provide for powers to be given to the GPS / consortium of gram panchayats to undertake all the activities sought to be entrusted as per recommendations given in this report and also to control the corpus of funds which they will be raising.

### **Basic repairs to be first carried out**

- 1.67 GPS cannot be expected to begin the task of maintaining and repairing the tanks in the extremely bad state in which they are now. So the first thing to be done should be to identify the 11419 tanks which are non functional and determine from among them those which it is not economically feasible to repair and those which can be revived and restored by affecting some basic repairs. This will have to be done by the engineers of the zilla panchayat. Besides this, the basic repairs required to be done in the case of other tanks, which are in use but where the potential and utilization have been reduced, should also be identified. The repairs which may be required are described below :

## **Tank structure rehabilitation**

1.68 The tank structure consists of tank bund, waste weir and sluices.

**a) Tank Bund** The tank bunds are often damaged and eroded. According to the Appraisal Report of the Karnataka Community Based Tank Management Project March 2002 (CBTMP), in some cases the top width of the bund is reduced to one metre. Seepage through the tank bund and vegetative growth on it are also common problems. The remedial measures suggested are bund cross-section, rehabilitation and improvement (increase of top width of the bund to at least 2.5 metres). The vegetative growth has to be removed and the bunds repaired.

**b) Tank Sluices** In some places, tank sluices are inoperable or are damaged, with lack of water controlling arrangement, excessive seepage or blockage due to siltation. These need to be repaired and provision of control devices made.

**c) Waste weir** Major damages in the waste weirs are noticed, which are causing scouring and foundation failures. The damage to the waste weir wall needs immediate repairs.

**d) Canals** Canals should be resectioned and redesigned and fully lined so as to prevent transmission losses.

**f) Tank bed** The tank beds are silted up and their holding capacity has been reduced. In some places cultivation has been taken up on the tank bed. Encroachments will have to be removed.

## **Recommendations**

*The GPS be given one time assistance by the government for the restoration of the tank structure by repair and restoration of tank bund, sluices and waste weir and main canal. A rough estimate is that these basic repairs will require approximately Rs.15,000 per hectare. This will require a huge one time investment of approximately Rs.600 crores.*

## **Desilting of tanks**

- 1.69 Restoration of tanks through desilting cannot be taken up as part of the basic repairs as it is too expensive. It can be done as a separate project provided careful calculations are done to examine whether it is cost effective. Capacity survey should be done for each tank. The yield should also be determined by deciding whether desilting is required. One of the models for desiltation is briefly described below.
- 1.70 Silted capacities of minor tanks can be restored through the 'AMRIT' (A Model for Rejuvenation of Irrigation Tanks) Model, which is a new concept suggested by Sri. B.C.Angadi, Retd. Special Secretary to Government of Karnataka, Public Works and Electricity Department.
- 1.71 This concept involves (a) excavating a small fraction (about 15 percent) of the accumulated silt (b) raising the full tank level (FTL) by a small height (between 0.30 mtr. and 0.50 mtr. in most cases) depending on the capacity lost due to silting (c) using the excavated silt for filling up the land on the periphery of the tank i.e., between the existing and new FTLs in order to avoid additional submergence and also to raise the tank bund and its waste weir.
- 1.72 The advantages of this concept are reported to be manifold, important among them being as follows:
- i) Fresh submersion of agricultural lands will be avoided
  - ii) The cost will be only about a sixth of the cost of totally desilting the tanks
  - iii) Justifies the investment criteria, the benefit : cost ratio being more than 1.3
  - iv) Provides fresh irrigation potential in the shortest gestation period
  - v) Prevents a good portion of the existing tank bed from submersion thereby releasing it for cultivation

1.73 All tanks will not benefit from the ‘AMRIT’ model. The World Bank aided Karnataka CBTMP March 2002 (under the Jala Samvardhane Yojane) Appraisal Report has cautioned against taking up desilting without a careful study and without ensuring watershed treatment of the catchment area.

“Desiltation of tanks without integrating the treatment of catchment areas would not be sustainable, as the degraded catchment area would continue to erode and refill the tank with silt.

Desiltation is expensive and needs to be done sparingly and in accordance with the expected benefits. Investments on other components of tank maintenance may be more efficient for additional capture and use of water.

There should be complete community involvement in the management of desiltation, otherwise this will not succeed.”

### **Command Area**

1.74 Improvement of the distribution system in the command area of the tank, on farm development to ensure smooth flow of water and prevention of water logging and the economic use of water in the command area by use of sprinklers and drip irrigation systems are other measures to be taken up to improve the utilization of the irrigation potential created and to increase the ayacut. However, except for repair and desilting of the canals, these do not fall under the definition of ‘basic repairs’ and are to be carried out by the GPS with the funds they have collected through water rates and other revenues and the funds given to them by the zilla panchayats for O & M.

1.75 The tank system consists of –

- a) catchment area which includes foreshore area and the natural feeder channels conveying water from the catchment to the tank
- b) tank structure which includes the tank bund, the waste weir and sluices and the tank bed (reservoir)
- c) command area, including main canal and field channels



- 1.76 In the long run no improvement of the tank structure or the distribution system will be effective unless care is taken to prevent erosion in the catchment area which will result in silting of the feeder channels, the distribution canals as well as the tank used itself. Denudation of the catchment area and consequent soil erosion are the prime causes for the loss of irrigation potential.

### **Funding**

- 1.77 As already indicated, the amount required for basic repairs to the minor irrigation tanks will be approximately Rs. 600 crores. The basic repairs should be completed within two years.

The amount required for capacity restoration through desilting should be estimated after a careful assessment of which tanks will benefit from this process and to what extent the desilting should be carried out.

New tanks will also have to be constructed. It is desirable to construct many small tanks with ayacuts of between 20 and 40 ayacuts rather than a few large tanks.

*The State government should make a strong case to the Central government for at least 50 percent financial assistance to complete basic repairs and restoration of minor irrigation tanks as well as to make new tanks in the drought prone areas of the State.* The fact that Karnataka has a larger drought affected area than any other State is an irrefutable argument.

*The Commission however reiterates that incurring expenditure on restoration of tanks or on new tanks is a waste of public money if adequate funds are not provided every year for the maintenance of the tanks.*

- 1.78 **Catchment area treatment**

a) Watershed technology is required to be applied to the barren slopes of the catchment area. Grass may be grown as a first crop since it will bind the soil. The hilltops, slopes and common lands can be covered by vegetative growth

of forest and horticultural species such as tamarind, mango and pogramia (*honge*). Once the trees are ready tree pattas can be given to landless labourers and marginal farmers to enjoy the benefits of the usufruct from government and common lands. Needless to say, private lands will benefit the landowners by such vegetative growth.

b) In a similar manner it is necessary to remove encroachments from the feeder channels, strengthen their banks and grow trees along their banks. The feeder channels should be intercepted at various points by constructing check-dams, nala bunds, gully plugs and vegetative checks to prevent soil flow to the tanks and conserve some water *in situ* (for extending moisture in adjoining lands) and to allow excess water in the rainy season to flow without silt or a much reduced silt to the tanks. These activities will provide employment opportunities to landless labourers and marginal farmers residing in the catchment of the tank command. The de-weeding and de-silting of the feeder channels should be carried out simultaneously. The silt can be spread over in the cultivators' fields in the catchment area.

c) The foreshore areas of the tanks which lie in the catchment should be protected by planting of trees in addition to contour bunding treatment. If foreshores of tanks on the tank beds are encroached for cultivation, such encroachments should be removed.

d) Construction of small water harvesting structures such as low cost farm ponds, sunken ponds, mini percolation tanks and recharging of dried up open wells by collection of surplus rain water as sources of water storage in the cultivators' fields can also be carried out as per existing practices of the Watershed Department. All such treatments in these watersheds, besides creating employment opportunities, will conserve soil and water in the catchment and reduce soil flow to the tank to minimal levels.

## **Organisational arrangement for catchment area treatment**

1.79 *People's involvement and participation is essential for effective watershed development.* However different models are used in different watershed projects. In the Sujala World Bank project the implementation is through area groups and self help groups. However, according to Hariyali guidelines of the Ministry of Rural Development, Government of India (GOI), the gram panchayats are to be made responsible for the implementation of the projects at field level. In such a situation, the people's group will have only an informal relationship to the executive body, namely the gram panchayat. Subsequent modifications of the Hariyali guidelines have suggested gram panchayat subcommittees (GPS) as the executive body. The GPS will include representatives of the area groups and self help groups besides the gram panchayat members of that area.

## **Recommendations**

1.80 *The Commission recommends formation of watershed Gram Panchayath Subcommittee (GPSs) under Section 61(A) of the Karnataka Panchayat Raj Act 1993, with the co-option of representatives of people's groups such as area groups and self help groups.* The whole gram sabha, which is a PRI, shall be the general body and the GPS to be constituted as recommended above shall be the executive committee of the gram sabha and self help groups with assistance, training and monitoring provided by NGOs.

1.81 Watershed development teams at the district and taluk level, consisting of officers from the Agriculture, Horticulture, Forest and Animal Husbandry departments will assist the GPS in formulating and implementing the plans for the watershed development of the catchment area.

### **Tanks in series**

1.82 In some parts of the State, there are tanks in series, that is, tanks from higher levels down to the lower levels, extending over a distance of several kilometers from each other. In such cases, the catchment areas of the tanks will also lie in series. That is, catchments of individual tanks will be micro watersheds which, along with catchments of other tanks in the series, as a whole, will tend to form a macro watershed. In that event, all the catchments will have to be treated as micro watersheds, including the irrigated and un-irrigated lands of the tanks in upper as well as lower reaches. Thus, all the micro watershed will be treated and this will lead to the treatment of the entire watershed.

### **Release of funds**

1.83 These GPSs should have their own bank account, which can be operated under the signature of two members of the subcommittees, one of them being the Panchayat Secretary. The records, files, maintenance of accounts, etc., will be processed and maintained by the Secretary of the subcommittee. Similarly, for the GPS / consortium of panchayats in case the watershed area extends to more than one panchayat, the funds will be released to the subcommittee of the consortium of the panchayats and the secretary of the panchayat in whose jurisdiction the major portion of the watershed falls, will be the secretary of the consortium of GPSs.

## 'e governance'

1.84 The Chief Engineer's office, the offices of the Executive Engineers of each Division and the offices of the Assistant Executive Engineers of each Sub-Division should maintain, on their respective computers, the profiles of all the existing minor irrigation schemes.

Information profiles to be maintained for various types of schemes are indicated below, categorywise:

### **I. Minor Irrigation Tank**

1. Name of the tank
2. Location
  - a) Name of the village
  - b) Taluk
  - c) District
3. Name of the stream
4. Sub-basin
5. River basin
6. Catchment area, in sq. km.
  - a) Independent
  - b) Intercepted
7. Average annual yield, in Mcum
8. Full Tank Level, in mtrs
9. Water spread area, in hectares
10. Storage capacity, in Mcum
  - a) Live storage
  - b) Dead storage
11. Utilisation, in Mcum
12. Annual evaporation loss, in Mcum
13. Bund
  - a) Length, in mtrs
  - b) Maximum height, in mtrs
  - c) Top width, in mtrs
  - d) Free board, in mtrs

14. Waste weir details
  - a) Type
  - b) Length, in mtrs
  - c) Spillage, in mtrs
  - d) Maximum flood discharge, in cumecs
15. Registered ayacut, in hect
16. Cropping pattern, in hect
  - a) Garden
  - b) Wet
  - c) Semidry
  - d) Total
17. Canals
  - a) Left Bank Canal
    - i) Length, in kms
    - ii) Ayacut, in hectares
  - b) Right Bank Canal
    - i) Length, in kms
    - ii) Ayacut, in hectares
18. Year of construction
19. Cost, in Rs. lakhs

Note: Each tank's profile should be accompanied by a digitized map of the catchment, tank structure and command area, showing all the essential features of each of the above components.

## **II. Minor Lift Irrigation Scheme**

1. Name of the scheme
2. Location
  - a) Name of the village
  - b) Taluk
  - c) District
3. Name of the stream
4. Sub-basin
5. River basin
6. Storage capacity of intake, in Mcum
7. Utilisation, in Mcum
8. Lift involved, in mtrs
9. Lifting devise details

Type of pump*	Make	H.P.	Lift, in mtrs.	Discharging Capacity, in cumecs

(\* ) Electrical / Deisel

10. Registered ayacut, in hect
11. Cropping pattern, in hect
  - a) Garden
  - b) Wet
  - c) Semidry
  - d) Total
12. Canals
  - a) Left Bank Canal
    - i) Length, in kms (ii) Ayacut, in hectares
  - b) Right Bank Canal
    - i) Length, in kms (ii) Ayacut, in hectares
13. Year of construction
14. Cost, in Rs. lakhs

Note: Scheme profile should be accompanied by a digitized map showing the location of the scheme, command and all the essential features of each of the above components.

### III. Other Minor Irrigation Works

1. Name of the scheme
2. Type (Bandhara / Anicut / Pickup / etc.)
  - a) Length, in mtrs
  - b) Maximum height, in mtrs
3. Location
  - a) Name of the village
  - b) Taluk
  - c) District
4. Name of the stream
5. Sub-basin

6. River basin
7. Catchment area, in sq. km.
  - a) Independent
  - b) Intercepted
8. Average annual yield, in Mcum
9. Utilisation, in Mcum
10. Registered ayacut, in hect
11. Cropping pattern, in hect
  - a) Garden
  - b) Wet
  - c) Semidry
  - d) Total
12. Canals
  - a) Left Bank Canal
    - (i) Length, in kms
    - (ii) Ayacut, in hectares
  - b) Right Bank Canal
    - (i) Length, in kms
    - (ii) Ayacut, in hectares
13. Year of construction
14. Cost, in Rs. lakhs      Name of the work

Note: Each scheme's profile should be accompanied by a digitized map of the catchment, scheme structure and command area, showing all the essential features of each of the above components.



### **Monitoring and Review of Progress of Catchment Area Treatment**

1.85 As has already been mentioned in this Report, a comprehensive plan of treatment for the entire catchment area by the application of watershed technology shall have to be formulated by the GPSs under guidance from the Taluk Watershed Development Team (WDT) and the District Watershed Development Team with final approval by the ZP. A project profile of the above referred comprehensive plan indicating, in quantitative terms, the various treatment inputs for the whole duration of the project will be available. This project plan will have to be programmed for implementation for each year and also for each month of every year. This plan will be available on computer at the taluk and district level. A monthly progress report will have to be prescribed, in which physical targets for works to be completed each month should be indicated in the target columns. The monthly progress report form for each tank's catchment area, indicating all the targets, should be printed well in advance in a format which is computer-worthy. The GPSs only need to fill up the columns apportioned for reporting progress against respective targets, and send these forms duly filled up within a week after the close of the month to the Taluk WDT where the progress should be reviewed. The consolidated progress report should be transmitted to the zilla panchayat computer where they will be reviewed in detail each quarter. These outputs should thereafter be sent to the Commissioner, Watershed Department.

### **Monitoring and review of restoration and maintenance of MI tanks**

1.86 A similar exercise of monitoring the repairs and maintenance works carried out by the GPS for minor irrigation tanks at the taluk and district level is necessary. Besides this, training programmes not only in carrying out repair works and economic use of water but also in such matters as conflict resolution should be given to the members of the GPS.

## **Main Recommendations of the Commission**

- 1. Utilisation of potential under minor irrigation:**  
*An indepth study is to be carried out to identify the reasons for the abysmally poor utilization of the potential created and initiation of immediate action to improve the utilisation to acceptable levels.*
- 2. The Commission recommends that all minor irrigation tanks, including those with ayacuts of between 40 and 2000 hectares which are presently in the State sector, should be handed over to gram panchayat subcommittees constituted under Section 61 (A) of the Karnataka Panchayat Raj Act, 1993.**
- 3. Complete administrative reorganization is required to ensure better supervision of minor irrigation. The department of Minor Irrigation should be abolished and most of the engineers of the department transferred to the zilla panchayat divisions and sub-divisions.**
- 4. The gram panchayat subcommittees should be given one time assistance by the government for the restoration of the tank structure by repair and restoration of tank bund, sluices, waste weir and main canal. A rough estimate is that these basic repairs will require approximately Rs. 15, 000 per hectare. This will require a huge one time investment of approximately Rs. 600 crores.**
- 5. Restoration of tanks should be taken up only after capacity survey, determination of yield and assessment of costs and benefits.**
- 6. The water rates for minor irrigation should be 25 percent of the rates for medium and major irrigation.**
- 7. The State government should make a strong case to the Central government for at least 50 percent financial assistance to complete basic repairs and restoration of minor irrigation tanks as well as to construct new tanks in the drought prone areas of the State. The Commission however**

*reiterates that incurring expenditure on restoration of tanks or on new tanks is a waste of public money if adequate funds are not provided every year for the maintenance of the tanks.*

*8. Watershed development is an integral part of the development and maintenance of minor irrigation.*

*9. People's involvement and participation is essential for effective watershed development.*

*10. The Commission recommends formation of watershed Gram Panchayat Subcommittees (GPSs) under Section 61 (A) of the Karnataka Panchayat Raj Act 1993, with the co-option of representatives of people's groups such as area groups and self help groups.*

*11. The Irrigation Act should be amended to transfer the power of water users' societies to the gram panchayat subcommittees / consortium of gram panchayats in case of minor irrigation tank ayacut areas. Similarly, there should be amendments of Karnataka Panchayat Raj Act 1993 to provide for powers to be given to gram panchayat subcommittees / consortium of gram panchayats to undertake all the activities to be entrusted as per recommendations given in this report.*

*12. Close monitoring with the help of computers is essential with regard to the works to be carried out by the gram panchayat subcommittees in the case of both minor irrigation tanks and watershed development.*

*13. While constructing new tanks, thorough field and geo-technical investigations have to be carried out and plans and estimates drawn up according due consideration to not merely the irrigation system but also to the command area development. All this should be completed within a period of one year. The construction of a project should be completed within a period of one year to avoid cost and time over run and consequent delay in realising the intended benefits.*

***14. Private minor lift irrigation using surface waters:***

***a) Regularization of all cases of private lifts where permission has not been obtained from government for using surface waters, levying a one time penalty of Rs. 100 per acre and continuous payment of the annual levy at the rates recommended in sub-para (b) below.***

***b) Increase the annual levy on private lifts from the present meager rate of Rs. 4 per acre (or Rs. 10 per hectare) to at least Rs. 10 per acre ( or Rs. 25 per hectare).***

***c) Non-payment of the prescribed levy on such users for a successive period of three or more years should be treated as an offence under the Irrigation Act, attracting deterrent punishment.***

***d) Levy on such users should be collected by the Water Resources department as it deals with the subject of according permission for such private lifts using surface waters.***