

X. OUTLINES OF A FINANCIAL STRATEGY FOR DROUGHT PROOFING

The basic conclusion of our work is that appropriate irrigation, watershed development and employment generation must be integrated in a planned development strategy for water resources for drought proofing in Chhattisgarh. This arises from three characteristic features of the state: the tribal cultivators in poverty in the hilly underdeveloped areas, who are forced to perpetuate low-productivity agriculture due to inadequate resources and poor infrastructure; the land-starved Scheduled Castes agricultural labourers in poverty in the more developed plains; the imperative of location specific local area development to promote stable growth and work. With this in mind, we examine the state budget and recommend viable financial strategies for the government of Chhattisgarh. Pricing and subsidy have been discussed elsewhere, and here we essentially discuss the quantum of investment required over the next few years.

10.1 Irrigation

The unit cost of installing capacity is lowest for minor irrigation works. However, the utilization of this is low, due to low investment on upkeep, poor infrastructure and resource constraints of farmers.

Table 10.1: Per Hectare Cost of Irrigation and Utilisation of Installed Capacity for Undivided Madhya Pradesh

Type of Project	Expenditure (Rs.)	Created Capacity (Hectares)	Per Unit Cost of Created Capacity	Utilised Capacity (Hectares)	Per Unit Cost of Utilised Capacity	Utilisation of Capacity
Chhattisgarh						
Major	30152300000	1514000	19915.65	975000	30925.44	0.64
Medium	11001000000	626000	17573.48	527000	20874.76	0.84
Minor	14170500000	1166000	12153.09	595000	23815.97	0.51
Average	18441266667	1102000	16734.36	699000	26382.36	0.63
All India			14640.00			

On an average, Chhattisgarh fares better than undivided MP, largely on account of better utilization of major and medium irrigation schemes. This has more to do with the fact that farmers have not altered cropping patterns as much in Chhattisgarh's irrigated belts as they did in MP.

Table 10.2: Utilization of Created Irrigation Potential

Type of schemes	Chhattisgarh			India
	Potential created (Lakh ha)	Potential utilized (Lakh ha)	Percentage utilisation	Percentage utilisation
Major	5.94	4.53	76	
Medium	2.68	2.44	91	87
Minor	4.97	2.35	47	89
	13.59	9.32	69	87

It must be noted that the utilization data on the volume of water released from irrigation structures. The area irrigated is arrived at by assuming a particular depth of irrigation per unit of volume, and not on the basis of the actual acreage that is irrigated.

If the total irrigation potential was to be installed in the state through minor schemes, at the current costs of installation, the total amount of resources required would be as given below (Table 10.3)

Surface water in million cubic meters	5,99,000
Estimated utilisable potential in million cubic meters	4,66,000
Potential Created (Ha)	1340000
Percentage of Net Sown Area	23
Ultimate Irrigation Potential (Ha)	40,81,000
Percentage of Net Sown Area	70
Total Capacity to be Installed (Ha)	2741000
Cost of Capacity Installation through Minor Irrigation Schemes (Rs)	3331,13,73,000
In Rs. Crore	3331.137
Utilisable Groundwater in lakh cu. m	1,56,340
<i>Utilised</i>	6690
<i>Available</i>	1,49,650
<i>Net Utilisable Potential</i>	1,19,600

Compared to this, the budget of the Water Resources Department was Rs 296 crores or roughly 15 per cent of the Plan budget of 2001-02. Out of this, the externally aided and special component schemes are not designated by size. The share of minor irrigation is only 23 per cent in the total WRD Budget.

A/c Head Description	Non-Plan	Plan	Total
Non-plan/Plan Major & Medium	4277.29	3465.90	7743.19
Plan Major & Medium		11402.58	11402.58
Plan Flood Control		17.00	17.00
Plan Tribal Area (Major & Medium)		2855.76	2855.76
Plan Tribal Area (Minor)		1524.24	1524.24
Non-plan/Plan Minor	706.93	215.00	921.93
Plan Minor Schemes		1251.56	1251.56
Plan Externally Aided		537.20	537.20
Plan Special Component Schemes		230.00	230.00
Plan Medium NABARD		0.00	0.00
Plan minor NABARD		3147.47	3147.47
Total	4984.22	24646.71	29630.93
Percentage	17	83	100

The budgetary provision for the WRD increased by 73.4 per cent in 2002-03, a lion's share of which (Rs 178 crores) was for the completion of the Hasdeo Bango large irrigation Project in Korba (which, it is claimed, will install a little over 6 per cent of the remaining irrigation

potential). It now works out to 14 per cent of plan expenditure, without the Hasdeo Bango Project, and 21 per cent including these funds.

Budget 2002-03	Rs. in Crores
Total Receipts	6605.69
Total Expenditure	6858.52
Total Deficit	252.83
Total Revenue	3003.8
Plan Expenditure	2376.47
Non-Plan Expenditure	4482
Water Resources Department (2000-2001)	296.31
Water Resources Department (2002-2003)	513.80
Water Resources Department (2002-2003) excluding Hasdeo Bango Project	335.80

According to our estimate, at current costs of minor irrigation, the full installation of irrigation facilities requires an outlay of Rs 3331 crores. Let us set a 10-year target to fully install the irrigation potential. What would be the best strategy to mobilize resources for this? Let us also assume the current inflation as the annual increase in costs and ignore the extra capacity to be generated by the Hasdeo Bango Project. Let us also, for the moment, assume that no other head of budgetary expenditure is directed towards micro or minor irrigation.

	Capital Cost	Installed Capacity	O&M	Total Fixed & Current Costs
Years	Rs in Crores	Hectares	Rs in Crores	Rs in Crores
Base Year		1340000.00	73.70	73.70
1	333.12	1614100.00	88.78	421.89
2	349.77	1888200.00	103.85	453.62
3	367.26	2162300.00	118.93	486.19
4	385.62	2436400.00	134.00	519.63
5	404.90	2710500.00	149.08	553.98
6	425.15	2984600.00	164.15	589.30
7	446.41	3258700.00	179.23	625.64
8	468.73	3532800.00	194.30	663.03
9	492.16	3806900.00	209.38	701.54
10	516.77	4081000.00	224.46	741.23

Given the vital role that minor and small-scale irrigation play in employment, livelihood and food security, both, in terms of production and labour absorption in agriculture, as well as employment generation during asset creation, this is not a large sum of money. Even after an escalation of 5 per cent compounded annually, the provision for the tenth year is no more than 7.5 per cent of the 2002-03 total budget of Chhattisgarh. We must also note that even at a highly conservative **50 per cent labour component, 300 lakh person days of employment** can be generated each year. Unfortunately, minor irrigation only constitutes a third of the total plan outlay on irrigation and a fourth of the combined plan and non-plan outlay on this sector.

As a second step, let us add a provision for operation and maintenance costs, at the recommended rate for 2000-01 of Rs 538 per hectare by the Vaidyanathan Committee Report. We have made an arbitrary upward revision of this to Rs 550 to take account of some annual increase in costs. Our figure is an overestimate because a part of the O and M costs are recovered from farmers. Even after adding this to the total, we arrive at a figure of Rs 421.89 crores, 6.5 per cent of the 2002-03 budgeted expenditure. In the tenth year, this will become Rs. 721 crores, which comes to 10.5 per cent of this year's budget. Of course, this is the total quantum of investment that is required. Let us try and estimate the net increase in the total budget outlay that would be required in addition to what is already allocated to irrigation, if this capacity is to be installed and properly maintained in the next 10 years.

At present, irrigation receives an average of roughly 5 to 7 per cent of the total budget or 15 to 20 per cent of the plan budget. Ignoring the special provision made for the Hasdeo Bango Project this year, a magnitude of roughly Rs 280 to 290 crores is assigned to the development of irrigation and its maintenance, of which a fourth is non-plan expenditure, to be spent on operation and maintenance (of which 50 to 55 per cent is establishment costs, as against the recommendation of 25 per cent by the Vaidyanathan Committee). We have repeatedly maintained that irrigation is only one part of the required intervention, and employment generation is equally important, both as a part of the water resources development strategy and the rural development strategy. However, the budget for these programmes has actually fallen even in nominal terms in these two annual plans (Table 10.7).

<i>Table 10.7: Sectoral Provisions in Annual Plans</i>		
	2001-02	2002-03
	Rs in Crores	Rs in Crores
Rural Development		
IRDP	11.48	8.54
DPAP	8.12	3.82
JRY	108.54	87.02
Other RD Programmes	14.60	20.88
Community Development	120.23	119.03
Panchayat	86.65	53.20
State, Planning Board (MLA Fund & PP Scheme)	18.20	18.20
<i>Sub-Total</i>	367.82	310.70
Transport		
Roads and Bridges	108.24	119.75
Irrigation and Flood Control		
Major & Medium Irrigation	142.11	274.95
Minor Irrigation	69.86	128.98
Agricultural Department (wells)	2.77	2.91
Micro/Minor Irrigation	2.70	4.16
<i>Sub-total</i>	217.44	410.99
Total Annual Plans	1952.58	2389.47

If irrigation continues to get what it is today, say about Rs 300 crores per annum, the gap between this and what is required over a 10 year growth profile is as shown in Table 10.8.

**Table 10.8: Projected Shortfall in Annual Outlay
for Expansion and Maintenance of Irrigation**

	Total Fixed & Current Costs	Assumed Actual Outlay	Shortfall
Years	Rs in Crores	Rs in Crores	Rs in Crores
Base Year	73.70		
1	421.89	300.00	-121.89
2	453.62	300.00	-153.62
3	486.19	300.00	-186.19
4	519.63	300.00	-219.63
5	553.98	300.00	-253.98
6	589.30	300.00	-289.30
7	625.64	300.00	-325.64
8	663.03	300.00	-363.03
9	701.54	300.00	-401.54
10	741.23	300.00	-441.23
Total	5829.75	3000.00	-2829.75

Therefore, it follows that the Government of Chhattisgarh must gradually raise its outlay on irrigation from the present 5 per cent of total expenditure to at least 10 per cent of the total budget size by the end of this decade, if the budget is no smaller than it is today in real terms. However, we must remember that our calculations are based on the current cost of minor irrigation at a 5 per cent annual increase.

The concentration of irrigation potential and its installation in the plains should come as no surprise. Most of the ongoing projects in the large and medium sector are in the plains, but as expected, the rainshadow areas are again neglected (Table 10.9). The minor irrigation schemes constitute only 16 per cent of the irrigation potential and 25 per cent of the outlay. Their district wise distribution was not available to us.

Table 10.9: Districtwise Distribution of Ongoing Major and Medium Schemes								
District	No. of Schemes	Percentage	Latest estimated cost in Rs.Crore	Percentage	Balanced Funds Required in Rs. Crore	Percentage	Designed Irrigation Potential in Ha	Percentage
Bastar	1	7.69	62.19	3.19	50.49	7.03	11120	1.85
Sub Total	1	7.69	62.19	3.19	50.49	7.03	11120	1.85
Bilaspur	2	15.38	29.22	1.5	21.59	3.01	13790	2.3
Dhamtari	2	15.38	660.59	33.84	257.91	35.92	276571	46.12
Durg	1	7.69	23.81	1.22	21.89	3.05	12145	2.03
Korba	1	7.69	1020	52.25	0	0	255000	42.52
Rajnandgaon	1	7.69	12.13	0.62	0.34	0.05	5870	0.98
Sub Total	7	53.83	1745.75	89.43	301.73	42.03	563376	93.95
Mahasamund	2	15.38	63.28	3.24	344.37	47.96	15377	2.56
Kawardha	1	7.69	15.6	0.8	15.28	2.13	6960	1.16
Sub Total	3	23.07	78.88	4.04	359.65	50.09	22337	3.72
Raigarh	1	7.69	46.59	2.39	0	0		0
Surguja	1	7.69	18.7	0.96	6.23	0.87	2820	0.47
Sub Total	2	15.38	65.29	3.34	6.23	0.87	2820	0.47
Total A	13	100	1952.11	100	718.1	100	599653	100
Part B - Total Irrigation Potential and Cost of Ongoing Minor Schemes								
Minor	348	96.4	667.28	25.47	469.8	39.55	113882	15.96
Grand Total	361	100	2619.39	100	1187.9	100	713535	100

Source: Water Resources Department, Government of Chhattisgarh

What we do have is a list of a large number of schemes that are either awaiting approval from the forest department or are pending on account of non-submission of benefit cost analysis reports, non-availability of non-forest land for afforestation and non-payment of compensatory amount for afforestation.

Table 10.10: District wise Distribution of Pending Proposals

Name of District	No. of Schemes	Percentage in total	Forest Area (Ha)	Percentage in total Irrigation Potential
Bastar	1	0.99	95.93	1.79
Kanker	3	2.97	112.67	2.11
Sub-total	4	3.96	208.60	3.90
Bilaspur	15	14.85	1265.94	23.66
Dhamtari	4	3.96	406.48	7.60
Durg	8	7.92	76.19	1.42
Korba	1	0.99	4.87	0.09
Raipur	26	25.74	1714.92	32.05
Rajnandgaon	20	19.80	858.13	16.04
Sub-total	74	73.27	4326.53	80.85
Mahasamund	1	0.99	42.67	0.80
Kawardha	2	1.98	53.59	1.00
Sub-total	3	2.97	96.26	1.80
Korea	4	3.96	112.44	2.10
Surguja	11	10.89	329.88	6.16
Jashpur	1	0.99	5.62	0.10
Raigarh	4	3.96	271.67	5.08
Sub-total	20	19.80	719.59	13.45
Grand Total	101	100.00	5350.98	100.00

Most of these schemes, both, in terms of numbers and potential, are concentrated in the plains and valley. Even in the Chhattisgarh plains, the two underdeveloped and rain-shadow areas of Mahasamund and Kawardha are neglected.

Therefore, we can make the following conclusions regarding irrigation in Chhattisgarh:

1. Contrary to the Government's own Draft, minor irrigation that is the most cost-effective and employment-intensive avenue for installing irrigation potential has been relegated to the background
2. Investment for the expansion of irrigation potential is concentrated in major and medium schemes
3. These schemes are largely in the plains and valleys
4. Most proposed schemes in the pipeline or under dispute with the Department of Environment and Forests are similarly concentrated

10.2 Watershed Development

Let us now look at areas that have a low irrigation potential through conventional canal or groundwater irrigation. In these areas small-scale, run-off agriculture and micro rainwater harvesting through soil moisture conservation and watershed development are required on a priority basis. We recall here the typology of our identified blocks (Table 10.11).

Table 10.11: Typologies at a Glance

Typology	Number of Blocks	Inter-spell	Forest cover	Topography	Soil	Soil Drainage
1	36	Low	High to moderate	Ridges, dissected, and rugged	Skeletal loamy to loamy	Excessive
2	24	High	Low to sparse	River valleys, plains and level land; rolling valleys	Loamy to clayey loamy	Well-drained soils
3	19	High	Moderate	Ridges, dissected, and rugged	Skeletal loamy	Excessively
4	9	High	High to moderate	Ridges, dissected, and rugged	Clayey loamy to loamy	Poor to moderate
5	25	Low	Low to sparse	River valleys, plains and level land; rolling valleys	Clayey loamy to clayey	Fairly well to poorly
6	21	High	Moderate to low	Undulating, rolling valleys to plains	Loamy clay to loamy to skeletal	Poorly to excessively
7	13	High	Moderate to low	Dissected, undulating to rolling valleys	Skeletal loamy	Excessive

Note: Interspell Gap subsumes total rainfall since it looks at the deviation from the minimal requirement over the paddy growing period.

From our list of blocks identified as most drought prone and vulnerable, those falling in typology 1, 3, 4 and 7 are in urgent need of drought proofing through watershed development (Table 10.11). At the rate of Rs 6000 per hectare, we recommend that work in these 55 most vulnerable blocks commence immediately. After three years, it can be expanded to other areas.

Table 10.12: Priority Blocks Requiring Micro Watershed Treatment (Typology 1, 3, 4, 7)			
Name of District	No. of Blocks	Expense on Watershed works in Rs. Crore per year for 3 years at Rs 6000 per hectare	Person days of employment at 75 % labour component at a wage rate of Rs 52.50 each year for three years
Bastar	4 (1 DPAP)	22.47	4280000.00
Bilaspur	2 (2 DPAP)	5.89	1122380.95
Dantewara	7 (5 DPAP)	46.84	8922380.95
Dhamtari	1	7.05	1342857.14
Durg	1 (1 DPAP)	5.91	1126190.48
Jashpur	2	28.28	5386666.67
Kanker	3	23.02	4384285.71
Kawardha	2 (2DPAP)	16.37	3117619.05
Korba	2 (2 DPAP)	3.19	607142.86
Korea	4	23.68	4509523.81
Mahasamund	3	30.40	5790476.19
Raigarh	2	14.46	2754285.71
Raipur	4	26.15	4980476.19
Rajnandgaon	3 (2 DPAP)	24.11	4592380.95
Surguja	15	96.52	18384761.90
Total	55	374.34	71301429

We propose this in addition to the expansion of irrigation potential. Besides enhancing productivity and food security for cultivators, the annual Rs 374 crores, which is another 5.2 per cent of the year's expenditure for 2002-2003, will also generate **over 700 lakh person days of employment** per year at a conservative labour component of 75 per cent. Therefore, a total 11 per cent of the annual total plan and non-plan expenditure at the 2002-2003 level of around Rs 6858 crores must be reserved for irrigation (preferably minor) and watershed development. This will guarantee 5.56 lakh workers and employment guarantee for 180 days per year, covering 8.5 per cent of total workers. This does not imply persistently higher budget deficits, because this would over time generate more output, higher productivity and, therefore, higher state revenues. Furthermore, if this is financed to a significant extent by the food stock reserves held by the FCI, which is in the public sector, the fiscal deficit is in any case due to an accounting convention and procedural rather than real. Even if foodstocks do not constitute the entire demand creation through employment generation, the demand for mass consumption goods can only help industry in the current industrial gloom. Finally, given the comfortable foreign exchange reserves, there need be no fears regarding inflation.

10.3 Employment Guarantee For Agricultural Labour

Table 10. 13: Priority Blocks Requiring Urgent Employment Generation (Typology 2,5, 6)

District Name	No. of Blocks	Expenditure per year in Rs Crore on Minimal Livelihood Support for Workers Dependent on Agricultural labour for 2 months per year at minimum wages
Bastar	2 (1 DPAP)	2.52
Bilaspur	2	8.09
Dantewara	1 (DPAP)	0.93
Durg	3 (1 DPAP)	20.82
Kawardha	1 (DPAP)	4.25
Korba	3 (3 DPAP)	12.10
Korea	1	1.19
Mahasamund	1	6.86
Raigarh	1	3.59
Raipur	2	5.92
Rajnandgaon	6 (2 DPAP)	21.79
Total	24	88.06

Landless or very marginal agricultural labourers in the relatively plains areas are in urgent need of supplementary income, and we concluded from our field work that there are at least two months of severe underemployment and depletion of family foodstocks in the lean season each year. Both, food supplies and work are essential to reduce distress at this time. These periods of malnutrition increase the drought vulnerability of people and result in chronic malnourishment. Eventually, employment guarantee of this kind must cover every worker in need of it, but marginal farmers and the landless are two good categories to begin with. Therefore, in the blocks identified as drought prone and drought vulnerable, we recommend an additional outlay on employment generation, which can mobilize surplus labour to create assets of all kinds. This investment of Rs 88.06 crores will generate employment of 168 lakh person days. This is another 1.28 per cent of the annual state expenditure.

To sum up, the following two are our recommendations directly relevant to the water policy and the water resources sector.

1. Expansion in irrigation potential, preferably through labour intensive minor and micro irrigation in underdeveloped areas first. The financial commitment for this and for the increasing operation and maintenance costs must gradually rise from the present 5 per cent of total expenditure at current levels in real terms to 7 per cent at the end of the decade.

2. Location specific drought proofing through watershed development in drought prone and vulnerable areas first, through an employment-intensive approach. This too requires 5 to 6 per cent of the total expenditure for three years, to cover the most vulnerable blocks.
3. In addition, we recommend another 1.28 per cent at current levels for creating jobs and infrastructure for agricultural labourers in the identified areas by providing employment guarantee for at least two months a year per labourer.

We therefore propose that approximately 13-15 per cent of the total expenditure of the state at current levels in real terms be earmarked for these components of drought proofing.

10.4 Where Will This Money Come From?

The government of Chhattisgarh must immediately press for the implementation of the ***Highlevel Committee's Report on Long term Grain Policy*** that procurement by FCI be expanded in the state and surplus foodstocks be released for food for work programmes. The state government must make a plea for a high share on account of it being a new state, a backward and underdeveloped state with a huge tribal population.

In our view, the greatest damage of the influence of the World Bank and Price Waterhouse Coopers has been their emphasis on 'self sufficient' state governments, and exercising fiscal discipline. Some state governments have larger needs than others or fewer avenues for resource mobilization than others. Obviously wasteful expenditure is a bad thing. However, it does not follow that cutting back on public investment is the only option. State governments must access resources of the center according to their development needs. The single biggest cause of fiscal deficit is lower resource mobilization due to a fall in the tax collection. States must keep up the pressure on their own sources as well as on the center for more resources for development, especially in the newly formed backward states like Chhattisgarh. Table 10.13 is very telling and shows recovery from one single house can finance expenditure on the entire irrigation potential of Chhattisgarh.

<i>Table 10.14: Outstanding Default on Loans and Tax by Industrialists</i>	
	Rs. In Crores
Jindal Groups	3300
Essars Group	11000
Amitabh Bachchan	24
Total Bank Loan Default	80000
Total Tax Default	152600

Approximately, Rs 2.5 crores per block is presently available under all rural development schemes and for constructing roads and bridges. We must note that total funds for rural development (to which we have added devolution to panchayats, MLA and PP fund) have declined from Rs 3678 crores in 2000-01 to Rs 310 crores in 2001-02. Apart from the State Planning Board fund, MLA fund and PP scheme, everything else has declined, with a 20 per cent fall in JRY. These funds can and must be used for employment-intensive programmes for building rural infrastructure as per decision of *gram sabhas*. We recommend that NABARD and other such agencies do not impose price and subsidy conditionalities.

We have already argued that private investment of any kind, be it on farm farmer investment or corporate investment, is unlikely without preceding and concomitant state regulation and public investment in complementary infrastructure and credit. Farmers in Chhattisgarh's hinterland are too poor to make the necessary investment. Corporate houses want assured profitability, monopoly prices and cheap credit. From these two opposite reasons the same outcome follows: no private investment without far reaching state support. Public investment is a prerequisite for private investment both for the resource constrained tribal farmer and the profit-driven affluent corporate entity. In these circumstances, it seems pretty futile to bank one's hopes on the chimera of private investment. The state government would do far better to pursue the strategy outlined above.

10.5 Foodstocks For Food Work

The suggestion that the foodstocks be used to finance the employment generation programme and the labour-intensive watershed programmes has great merit in it for several reasons. Such an expansion of employment generation schemes will kill several birds with one stone. First, it will bring down unemployment and poverty; secondly it will get rid of the idle stocks which are currently hanging like a mill-stone round the Food Corporation of India's neck; thirdly, if such employment-generation schemes are properly conceived, than they can add to social overhead capital in rural India and improve the quality of life, or augment productive investment and contribute towards a larger output in the future: since the decade of the nineties has seen a decline in per capita foodgrain output in the country, the first decade since independence to have done so, any addition to productive investment effected in this manner, would be quite crucial. It follows, given all these possibilities, that allowing idle foodgrain stocks to continue is extremely irrational; it represents criminal waste in a poor economy like ours.⁷⁸

Further, there is little addition to the fiscal deficit since the FCI is a Public Sector Enterprise and an increase in the food released for food-for-work programmes implies an equivalent decrease in FCI's credit for stockholding. This should bring comfort to those who are unhappy with the FCI's 'subsidy' as it would reduce the biggest source of food 'subsidy': stockholding. What appears as an increase in the fiscal deficit in this case is no actual increase: it is only a consequence of the fact that FCI transactions do not figure in the budget as a matter of convention (indeed they used to figure in the budget until the early seventies).⁷⁹ Finally, the

⁷⁸ Prabhat Patnaik (2001): The Humbug of Finance, www.macrosan.com, p. 3.

⁷⁹ Ibid, p 3.

foodgrain surplus may not be the temporary phenomenon many claim it to be. It is a reflection of an increasingly demand-constrained peasantry and rural workforce, which lives simultaneously with hunger and distress sales.

Tax-financed public investment for demand expansion through labour-intensive programmes and **food-based employment schemes** supported by the release of foodstocks held within the public sector are two legs of the financial strategy we suggest. Given the comfortable **foreign exchange reserves**; the high levels of **foodstocks in the public sector**; and the high degree of slack in the system as far as **tax-recovery** is concerned, these are feasible and non-inflationary options, besides being the most equitable ones.