

## Chapter - 9

# Financial Requirement

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### 9.1 General

The detailed information about the arsenic menace, in different states in India, is given in Chapter-2: 'Arsenic Menace in India-An Appraisal'. In short, nine districts, covering 111 blocks (3417 villages), spread over 38,861 sq. km. of area, with total population about 50.4 million in West-Bengal; fifteen districts, covering 39 blocks (235 villages), spread over 21271 sq. km. of area, with total population about 24 million in Bihar, three districts, covering 9 blocks (69 villages), spread over 10375 sq. km of area, with population of about 6 million in Uttar Pradesh; one district, covering 3 blocks (68 villages), spread over 725 sq. km. of area, with population of about 0.6 million in Jharkhand; one district, covering 1 block (4 villages), spread over 6396 sq. km. of area, with total population of 1.5 million in Chhattisgarh; three districts, covering 9 blocks, spread over 8822 sq. km. of area, in Assam; and four districts, spread over 2238 sq. km. of area, with total population of about 1.35 million, in Manipur, have been reported under influence of arsenic vulnerability of concentration more than  $50 \mu\text{gL}^{-1}$ . It is also suspected that many more areas, in the North-Eastern states and 17 more districts in Uttar Pradesh, may have arsenic in groundwater. In fine tuning, 4.6 million people, in 3417 villages in West Bengal, 1.7 million people in 235 villages in Bihar, 0.6 million people in 69 villages in Uttar Pradesh, and 0.06 million people in 68 villages in Jharkhand, have been reported under the grim of arsenic contaminated groundwater above  $50 \mu\text{gL}^{-1}$ . In other states, exact count of population is not known. Largely, 7 states, in which large part of West Bengal, stretches in Bihar and Uttar Pradesh, scattered areas in Assam, pockets in Jharkhand, Chhattisgarh and Manipur, are in the list of arsenic contamination in aquifer exceeding concentration  $50 \mu\text{gL}^{-1}$ .

In West Bengal, to combat the arsenic menace and to provide potable groundwater to the people in the arsenic affected area, a number of schemes have been put in place, which could cover about 43% of the arsenic risk people. About 57% of the arsenic risk people are still to be covered with the potable water supply. Nearly, 2252 Arsenic Treatment Units (ATUs), 77 Arsenic Removal Plants (ARPs), and number of hand pumps, without filtration devices, have been installed. Out of which, about 50% of the ATUs and 42% of the ARPs are either yielding groundwater contaminated arsenic beyond  $50 \mu\text{g/L}$  or non-functional. Thus, there seems to be requirement of reviving and strengthening more than 1125 ATUs and 30 ARPs, besides installation of number of new arsenic removal schemes and hand pumps or stand posts to ensure potable water to the people, in the arsenic affected areas.

In other arsenic affected States, as such no arsenic removal Units/Plants have been installed or operationalized, except some initiative for making alternate arrangement to provide potable groundwater supply. In order to ensure supply of safe drinking water to the people in the arsenic affected and vulnerable areas, the following field oriented schemes are proposed to take up. The planning of any scheme for a district should be based on the comprehensive groundwater quality maps and demography of the district.

- (i) One Arsenic Treatment Unit (ATU) for every 250 persons in severely affected villages, where the scope of developing arsenic safe shallow and deeper aquifers is limited; and drinking water from other sources cannot be made available within a distance of 1.6 km,
- (ii) One Arsenic Removal Plant(ARP) for population more than 1000 in severely affected villages or society, where the scope of developing arsenic safe shallow and deeper aquifers is limited; and drinking water source cannot be made available within a distance of 1.6 km,
- (iii) One hand pump for every 250 persons in arsenic vulnerable areas, where drinking water source can be made available within a distance of 1.6 km from arsenic safe shallow aquifer,
- (iv) One tube well for each village, covering population more than 5000 with provision of overhead storage tank and distribution line, having facility of one Stand post for every 250 persons in arsenic vulnerable areas, where drinking water source can be made available from exploration of arsenic safe deeper aquifers,
- (v) Reviving and strengthening of existing 1125 ATUs and 45 ARPs in West Bengal, by new arsenic removal devices, which are showing successful performance.
- (vi) One semi-skilled mate for each ATU and 2 semi-skilled mates for each ARPs.

With these provisions, State-wise allocation of ATUs, ARPs, hand pumps, tube wells and stand posts for 7 arsenic affected States are given below:

State	ATU	ARP	New Hand Pump	New tube wells with provision of Stand Post for supply of water <i>(number in parenthesis indicate Stand post)</i>	Number of Semi-skilled mate
West Bengal	2500 (includes 1125 reviving & strengthening)	100 ( includes 30 reviving & strengthening)	500	50(500)	2700
Bihar	200	-	3000	110 (1100)	200
Uttar Pradesh	150	-	1200	70(700)	150
Jharkhand	35	-	500	15 (150)	35
Assam	-	-	1000	60 (600)	-
Manipur	-	-	300	10(100)	-
Chattisgarh	4	-	100	5(50)	4



The above allocation of additional infrastructural facilities, in the arsenic affected areas, would ensure arsenic safe potable water to about 10.75 lakhs in West Bengal, 10.5 lakhs in Bihar, 4.5 lakhs in Uttar Pradesh, 1.57 lakhs in Jharkhand, 3.50 lakhs in Assam, 1.00 lakh in Manipur, and 0.39 lakh in Chattisgarh, with employment generation of 3089 people and many more tangible benefits.

#### **A. Cost of an ATU**

ATU is hand pump operated. The cost of installation including material of an ATU fitted with a hand pump ranged from Rs. 1,50,000/- to Rs.1, 75,000/- as in the year 2005, depending upon the type of unit. Cost of filter was nearly Rs.12,000/-. For budget estimate. The total cost of an ATU is considered to be Rs. 2, 25,000/- (with cost escalation).

#### **B. Cost of an ARP**

ARP is mechanical pump operated. Cost of installation including material of an ARP was nearly Rs. 6, 00,000/- as in the year 2005. Annual maintenance cost of each ARP varies between Rs.30, 000/- and Rs.35, 000/-. For budget estimate, total cost of an ARP is considered to be Rs. 7, 00,000/- (with cost escalation).

#### **C. Reviving & Strengthening cost of ATU, and ARP**

Reviving and Strengthening cost of each ATU and ARP is considered 50% of their original cost, i.e., cost of each ATU is Rs. 1, 00,000/- & cost of each ARP is Rs. 3, 25,000/-.

#### **D. Cost of a Hand Pump**

Cost of installation of a hand pump, including material, is considered to be Rs.75, 000/-.

#### **E. Cost of Tube well exploration i/c distribution lines with provision of 10 Stand Posts**

Cost of developing of one tube well	: Rs. 1,50,000/-
Cost of distribution lines of 10 kms long for each unit	: Rs. 4,15,000/-
Cost for developing 10 Stand posts	: Rs. 2,50,000/-
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<b>Total cost of one unit</b>	<b>: Rs. 8,15,000/-</b>

#### **F. Semi-skilled Mate**

Wages of semi-skilled mate would be as per the rate prescribes by the Govt. from time to time. For budget estimate, it is considered to be Rs.150/- per day.

## Cost of material for O & M

In the operation of the ATU and ARP, to start with some material such as, bucket, water storing container, etc., would be required. For each ATU and ARP, it is considered to be Rs.500/- and Rs.1000/-, respectively.

## H. Cost of one Training & Mass Awareness Programme.

Two types of training and mass awareness programmes are proposed. The first type would be to train the personnel of implementing agencies, Panchayati Raj Institutions and NGOs; and the second type would comprise the campaign and mass awareness programme for the rural masses by the trained personnel. Training programme of the first category can be of two days, at the respective State, with maximum number of 50 in each batch. Number of this category of training programme can be 5 for West Bengal, 5 for Bihar, 2 for Uttar Pradesh, 3 for Assam, 1 each for Jharkhand, Chhattisgarh and Manipur.

The mass awareness programme, for the rural masses, can be of half a day in each arsenic affected village by the trained personnel. Total number of mass awareness programme can be 100 for West Bengal, 200 for Bihar, 150 for Uttar Pradesh, 50 for Jharkhand; 100 for Assam, 10 for Manipur, and 10 for Chhattisgarh.

(a) Each training programme of first category is estimated to involve an approximate sum of Rs.1,10,000/- with following details:

i.	Training material @Rs.200/each	: Rs. 10,000/-
ii.	Travel @Rs.500/- each	: Rs.25,000/-
iii.	Stay & Hospitality for 2 days @ Rs. 1000/- each	: Rs.50,000/-
iv.	Miscellaneous	: Rs. 15,000/-
v.	Administrative expenses	: Rs.10, 000/-
Total		: Rs.1, 10,000/-

(b) Each mass awareness programme is estimated to involve an approximate sum of Rs.40, 000/-with following details:

i.	Cost of demonstration material	: Rs. 15,000/-
ii.	Transportation	: Rs. 15,000/-
iii.	Refreshment	: Rs. 5,000/-
iv.	Administrative & Miscellaneous	: Rs. 5,000/-
Total		: Rs. 40,000/-

## H. R & D Programmes

R & D activities would be in three aspects: Laboratory based R & Ds; Field based R & Ds, and R & Ds to evolve mechanisms for roll-over.

### 9.2 Distribution of Financial Allocations under Different Schemes

The total budget requirement to achieve goals of different envisaged activities and their proportion under Governmental schemes are given below:

Activities	Amount in lacs of Rupees.					
	Total Amount	Bharat Nirman	ARWSP	PMGY	NREGA	INCGW & INCOH of MoWR
R & D programme	4500	---	1500	500	---	2500
ATU & ARP	7200	----	7200	----	----	----
Hand Pumps	5000	5000	----	----	----	----
Deep tube wells with Stand Posts	2600	800	1800	---	----	----
O & M	300	----	----	----	300	----
Training & Awareness Programme	400	----	----	50	----	350
	<b>20000</b>	<b>5800</b>	<b>10500</b>	<b>550</b>	<b>300</b>	<b>2850</b>

#### 9.2.1 Distribution of Financial allocation between the Central Government and the respective State Governments

Except the R & D, Training and Mass awareness programmes, procedure of promoting tasks under all other schemes shall be based on Centre-State sharing of finances as prescribed under different schemes. For example, the Centre-State share for the 'Bharat Nirman' is 50:50; for the ARWSP, it is 75:25; and for the NREGA for skilled/semi-skilled wages and material cost it is 75:25.

With these provisions, the sharing of finances for the envisaged activities, under different schemes, are estimated and given in Table-9.1



**Table 9.1: Sharing of Financial Responsibilities of Different Tasks between the Central Government and the respective State Governments**

Activities	Amount in lakhs of Rupees								Total
	Central Govt.	West Bengal	Bihar	Uttar Pradesh	Jharkhand	Chhatisgarh	Assam	Manipur	
R & D Programme	4500	---	---	---	----	----	---	---	4500
ATU & ARP	5400	1581	112.5	84.5	19.75	2.25	----	----	7200
Hand Pumps	2500	190	1130	450	190	40	380	120	5000
Deep tube wells with Stand Posts	1750	133.5	287.5	187.5	40.75	13	160	27.75	2600
O & M	225	60	7	5	2	1	---	----	300
Training & Awareness Programme	400	---	---	----	----	---	----	---	400
<b>Total</b>	<b>14775</b>	<b>1964.5</b>	<b>1537</b>	<b>727</b>	<b>252.5</b>	<b>56.25</b>	<b>540</b>	<b>147.75</b>	<b>20000</b>

Of the total estimated financial outlay of **Rs. 200 crore**; the financial responsibility of the Central Government is figured out to be **Rs.147.75 crore**, and the remaining amount of **Rs. 52.25 crore** will be responsibility of different states with distribution of Rs.19.65 crore to West Bengal, Rs.15.37 crore to Bihar, Rs. 7.27 crore to Uttar Pradesh, Rs.2.52 crore to Jharkhand, Rs.0.56 crore to Chattisgarh, Rs. 5.40 crore to Assam, and Rs. 1.48 crore to Manipur. The overall percent share of financial responsibility between the Central Government and State Government stands as 73.87% (Central Govt.) and 26.13% (State Govt.)