CHAPTER-II

PERFORMANCE AUDIT

RURAL DEVELOPMENT DEPARTMENT

2.1 Indira Awaas Yojana

Highlights

The Indira Awaas Yojana (IAY), with the objective of providing pucca houses to shelterless Below Poverty Line (BPL) families, is a Centrally Sponsored Scheme on cost sharing basis in the ratio of 75:25 between the Central and State Governments. A performance audit of the implementation of this scheme for the period 2006-07 to 2010-11 revealed deficiencies like non-preparation of annual plan, non-fixing of monthly targets, short releases of funds, diversion of funds, poor monitoring etc.. Some of the significant findings were as given below:

The permanent IAY waitlists of shelterless families were never prepared as required under the scheme guidelines as a result of which ineligible beneficiaries having pucca houses were provided assistance of ₹ 10.36 lakh. IAY houses were sanctioned to beneficiaries ignoring their ranking in the waitlist.

(Paragraph 2.1.6.2 and 2.1.8.2)

Scheme parameters to ensure accrual of scheme benefit to targeted population, were ignored by District Rural Development Agencies during fixation of blockwise/panchayatwise targets.

(Paragraph 2.1.6.3)

The central share of ₹ 794.14 crore was not released by Central Government due to carry-over of funds in excess of the prescribed norms of guidelines during 2006-11.

(Paragraph 2.1.7.1)

IAY funds of ₹ 325.35 crore were not deposited in separate bank accounts but were deposited in general bank account of block offices in disregard to scheme guidelines.

(Paragraph 2.1.7.2)

The department failed to utilise ₹ 53.34 crore provided by the GOI to acquire land for landless BPL families.

(Paragraph 2.1.8.4)

Delays in sanction of annual targets by the District Panchayat/Zila Parishad/District Rural Development Agencies (DRDAs) regarding construction of IAY houses under Naxal package resulted in additional burden of ₹ 14.34 crore to the State exchequer.

(Paragraph 2.1.8.6)

The monitoring and periodical review of the programme was ineffective and inadequate.

(Paragraph 2.1.11)

2.1.1 Introduction

Housing is a basic requirement for human beings. Realising the importance of housing in society, the Government of India (GOI) launched a Centrally Sponsored Scheme (CSS) called Indira Awaas Yojana (IAY), during 1985-86 to provide '*pucca*' houses to shelterless rural people living below the poverty line (BPL).

Under this programme, financial assistance was to be provided to freed bonded labourers, members of Scheduled Caste (SC)/Scheduled Tribes (STs), minorities and non-SC/STs BPL rural households for construction/ upgradation of dwelling units. The benefits of IAY were also to be given to physically and mentally challenged persons' families, ex-servicemen and retired members of paramilitary forces, persons displaced by developmental projects and nomadic/semi nomadic and denotified tribal families in the order of their appearance, and widows and families of defence services/paramilitary forces personnel killed in action, irrespective of their economic status.

2.1.2 Organizational set-up

The Rural Development Department (RDD) of the State is the nodal department for implementing the programme at the State level. The department is headed by a Principal Secretary, who is assisted by a Special Secretary, two Joint Secretaries, one Joint Development Commissioner, one Deputy Secretary and one Deputy Director at the department headquarters. At the district level, the programme is implemented through the District Magistrates, Deputy Development Commissioners (DDCs) and by Directors of the District Rural Development Agencies (DRDAs). At the block level, the Block Development Officers (BDOs) are responsible for implementing the programme with the assistance of Panchayat Samities (PSs) and Gram Panchayats (GPs).

2.1.3 Audit Objectives

This performance audit intended to assess whether:

- the planning process for the identification and selection of beneficiaries was efficient;
- financial management was efficient and effective;
- the programme implementation was efficient, effective and economical; and
- the monitoring mechanism and internal control system was in place and effective.

2.1.4 Audit criteria

The criteria used in course of the performance audit were as under:-

- the guidelines issued by Government of India (GOI) for implementation of IAY;
- annual targets fixed by GOI;
- Bihar Financial Rules(BFR), 1950;
- Bihar Treasury Code (BTC); and
- relevant Circulars and departmental orders issued by State/GOI from time to time.

2.1.5 Scope of audit and methodology

This Performance audit covered the period 2006-11 and was conducted between June and October 2011. During the audit, the records at the departmental headquarters, eight[1] out of 38 DRDAs and 31[2] out of 162 blocks of these eight selected DRDAs were test checked. The selection of units for test check was done as follows:

Five DRDAs[3] were selected through Statistical sampling method by applying Probability Proportionate to Size with Replacement Method. DRDA Patna was selected since it was the central district of Bihar. Thereafter 23 blocks under these six DRDAs were selected by applying Simple Random Sampling without Replacement Method. The remaining two DRDAs[4] and eight blocks falling within their coverage were selected on the basis of risk perceptions.

In order to explain the objectives of this audit, its methodology, scope, coverage, focus and to elicit the departmental views and concerns, an entry conference was held in June 2011 with the Principal Secretary of the department.

The audit methodology included the updating and consolidation of domain knowledge/information, preparing detailed audit guidelines, checklists and questionnaires. Audit conducted field visits for examination, collection and analysis of relevant information/data. Discussions were held with the concerned departmental officers involved in programme implementation and its monitoring. Audit evidences were collected through replies to audit

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1 *Banka, Darbhanga ,East Champaran, Gaya, Madhubani, Rohtas, Patna and Samastipur*

2 *Baunsi, Katoria, Phullidumar and Rajaun under Banka, Areraj, Chakia,Harsidhi and Kalyanpur under East Champaran , Bahadurpur, Darbhanga Sadar, Manigachi and Tardih under Darbhanga, Belaganj, Gaya Sadar, Guraru and Khijarsarai under Gaya, Babubarhi, Jainagar, Ladania and Pandaul under Madhubani, Dehri, Karahgar, Nasriganj and Rajpur under Rohtas, Bihta, Dhanarua, Dulhin Bazar and Khusrupur under Patna and Mohanpur, Pusa and Shahpur Patori under Samastipur*

3 *Banka, East Champaran, Gaya, Rohtas and Samastipur*

4 *Darbhanga and Madhubani*

questionnaires, audit memos, copies of documents and through personal interaction with responsible departmental officials. Thereafter, on completion of field visit, an exit conference was held on 25 November 2011 with Principal Secretary, RDD, wherein the audit findings were discussed in detail. The reasons and justification furnished by the department were kept in view while drafting the performance review.

Audit Findings

The audit findings corresponding to audit objectives are discussed below:

2.1.6 Planning

The planning for implementation of IAY included preparation of annual plan and fixing targets for construction of IAY houses with timeframes for completion. It also included preparation of permanent IAY waitlist for shelterless on the basis of seniority in BPL list. In the test checked DRDA, the following deficiencies were noticed:

2.1.6.1 Non-preparation of the Annual Plan

As per Clause 4.2 b (viii) of the IAY guidelines, an Annual Plan was required to be approved by the Zila Parishad or the governing body of the DRDA. This requirement was also reiterated by Government directive (May 2009) which required preparation of the Annual Plan by each district and blocks. Such plans were required to include annual blockwise/ panchayatwise targets for construction of IAY houses, targets for covering beneficiaries of SC/STs, minorities and non-SC/STs. These yearly targets (physical as well as financial) were required to be broken into monthly targets to ensure cent *per cent* achievements of yearly targets. Further, timeframes for completion of incomplete houses, schedule of supervision, physical verification and inspection of houses allotted in previous years etc. were also required to be planned and included in Annual Plan.

Annual plan was not prepared in any test-checked DRDAs.

Audit scrutiny revealed that the Annual Plan was not prepared by any of the test-checked DRDAs. Instead only annual financial and physical targets for each panchayat were fixed with no timeframes for completion of incomplete houses of previous years. No monthly targets were fixed for achievement of annual targets. Even the schedule of physical verification or for supervision and inspection of houses were not finalised. Consequently the IAY programme was implemented in an *ad hoc* manner resulting in delays in sanctioning, construction and completion of IAY houses within the stipulated time.

The Government stated (November 2011) that the annual plan had been prescribed for every district and DDCs were not allowed to divert from it. Further it was stated that time limit for construction of houses and schedule of inspection had already been prescribed.

The reply was not satisfactory as the annual plan was not prepared by any test-checked DRDAs in accordance with the guidelines.

2.1.6.2 Faulty waitlist of Indira Awaas Yojana

Clause 2.1 of IAY guidelines required the Gram Panchayats (GP) to prepare permanent IAY wait list on the basis of their seniority in the BPL lists after ensuring that the beneficiaries selected were shelterless. Thereafter, a separate list of SC/ST families was required to be prepared from the IAY waitlist, to ensure adequate allotment of houses to SC/ST families. The permanent IAY waitlists of shelterless families were required to be approved by the concerned Gram Sabha (GS).

Accordingly, the Government instructed (May and June 2008) DDCs and BDOs to prepare IAY waitlists of shelterless families for each panchayat separately for SC/STs and non-SC/STs which were to be effective for five years. The respective BDOs were also required to ensure that the BPL families included in these lists had not been benefited earlier and were not having *pucca* houses.

Permanent IAY waitlists of shelterless BPL families were not prepared.

Audit scrutiny revealed that records/ information relating to shelterless families were not available at any level i.e. at the block, district or State levels. The permanent IAY waitlists of shelterless families were never prepared or approved as required under the scheme guidelines. Instead, the BPL lists were used as permanent IAY waitlists, without verifying whether any family had a house or otherwise. These waitlists were not got approved by any of the GSs in the test-checked districts. Consequently, the reliability of these lists and compliance to IAY priority groups and genuineness of beneficiaries were doubtful.

Ineligible beneficiaries having pucca houses were provided ₹ 10.36 lakh under this scheme.

This was substantiated by the fact that in 14 Panchayats of 12[5] test checked blocks, the names of 804 families having *pucca* houses were included in the IAY waitlists. Of this, 41 beneficiaries were paid ₹ 10.36 lakh during 2006-2011.

The above instance indicated that no efforts were made by the concerned BDOs to verify the names and details of persons included in the IAY waitlists. Thus, the payment of ₹ 10.36 lakh to these persons was irregular.

In reply, the Government stated (November 2011) that IAY list had been prepared on the basis of the BPL list which was duly approved by the Gram Sabha. Further, BPL survey started in 2002 and shelter status was subject to change due to various reasons from change in economic status of the beneficiary to natural disasters, death and migration etc.

The reply was not tenable as the shelterless families only were to be considered for availing the benefits under IAY.

2.1.6.3 Improper fixation of targets for blocks/ panchayats

As per the IAY guidelines (Clause 4.1), targets for blocks and village panchayats were to be decided by giving 75 *per cent* weightage to areas with

[5] *Babubarhi, Baunsi, Bihta, Dehri, Dhanarua, Gaya sadar, Kalyanpur, Karahgar, Katoria, Khijarsarai, Nasriganj and Rajaun.*

housing shortage and 25 *per cent* weightage to the rural SC/ ST population within the respective Blocks/Panchayats. Accordingly funds were to be transferred from DRDAs to the blocks for programme implementation.

Scheme parameters were ignored during fixation of blockwise/ panchayatwise targets.

Audit scrutiny revealed that the above requirements were not followed by DRDAs. Since no data regarding housing shortage was available at any level, the respective DRDAs allotted funds to blocks/panchayats solely on the basis of the rural population, in contravention of the scheme parameters. Thus, the accrual of benefits to the targeted SC/ST population in rural areas was also doubtful.

The Government stated (November 2011) that targets for each districts were fixed by GOI on the basis of housing shortage and poverty ratio. The districts allotted targets on basis of SC/ST population because the housing stock data available from the census was of 2001 and District officials were left with no choice but to use the information without any updating.

The reply was not acceptable as none of the test checked DRDAs gave proper weightages as per the scheme parameters (clause 4.1 of IAY guidelines).

2.1.7 Financial Management

IAY is a centrally sponsored scheme, funded on cost sharing basis in the ratio of 75:25 with the State Government. Funds were released directly to DRDAs in two installments. The first installment amounting to 50 *per cent* of the total allocation for a particular district was released in the beginning of the financial year, the conditions for the second installment among other required the opening balance of the district should not exceed 10 *per cent* of the funds available during the previous year. The scheme funds comprised of three components i.e. Central share, State share and other receipts (i.e. interest accruals and unspent balances). The funds were required to be kept by the respective BDOs in the bank account exclusively opened for IAY.

Against the total available funds of ₹ 12333.86 crore[6], the department spent ₹ 11609.04 crore (94 *per cent)* during 2006-11. The department received ₹ 8567.78 crore from the GOI as central share against the total share of ₹ 9361.92 crore during 2006-11. The balance of central share of ₹ 794.14 crore was not released by Central Government due to carry-over of funds in excess of the prescribed norms of guidelines. IAY funds of ₹ 325.35 crore were kept in bank accounts along with funds of other schemes in 18 test-checked blocks resulted in non-ascertainment of interest. IAY funds amounting to ₹ 10.66 crore and ₹ 13.35 crore were diverted during these years for organising seminars and revision of BPL lists respectively.

The details of funds allocated, released and expenditure incurred there against at the State level and in the selected DRDAs is given in **Table 1** below respectively:

[6] *Opening balance : ₹ 741.14 crore, total release : ₹ 11507.81 crore and other receipts : ₹ 84.91 crore*

Table No. 1

Allocation, release and expenditure of IAY funds at the State level

(₹ in crore)

Year	Opening Balance	Allocation of Funds			Funds released			Other Receipts	Total available funds (TAF)	Expen-diture	Unspent balances Total (*per cent* of TAF in bracket)
		Central	State matching share	Total	Central	State	Total				
1	2	3	4	5	6	7	8	9	10 (2+8+9)	11	12 (10-11)
2006-07	741.14	789.73	263.24	1052.97	774.81	248.11+ 156.16*	1179.08	10.26	1930.48	1249.99	680.49 (35)
2007-08	680.49	1063.44	354.48	1417.92	1055.76	347.70	1403.46	0.00	2083.95	1524.40	559.55 (27)
2008-09	559.55	2065.20	688.40	2753.60	1767.00+ 701.07**	632.83	3100.90	29.68	3690.13	2223.43	1466.70 (40)
2009-10	1466.70	2882.25	960.75	3843.00	2008.55	775.88	2784.43	30.64	4281.77	3257.67	1024.10 (24)
2010-11	1024.10	2561.30	853.77	3415.07	2260.59	779.35	3039.94	14.33	4078.37	3353.55	724.82 (18)
Total		**9361.92**	**3120.64**	**12482.56**	**8567.78**	**2940.03**	**11507.81**	**84.91**		**11609.04**	

(Source: Data provided by the Rural Development Department)

**₹ 156.16 crore was released against matching share of earlier years.*

*** Additional releases (other than against normal allocation) of ₹ 701.07 crore made by GOI during the year.*

Audit scrutiny revealed the following deficiencies in respect of financial management:

2.1.7.1 Disallowance of claims

As per Clause 4.2 of the IAY guideline, Central assistance was released every year to DRDAs in two installments. While the first installment equal to 50 *per cent* of the total allocation for a particular district was to be released in the beginning of the financial year, the second instalment was to be released subject to adjustment of unutilised balance (if above 10 *per* cent) from previous instalments. In case, the balance exceeds this limit, the central share in excess of 10 *per cent* was to be deducted proportionately at the time of release of the second instalment.

Due to excess carry-over of funds, ₹ 794.14 crore was short released by the GOI.

It is evident from **Table No.1** that during 2006-11, there were huge unspent balances which ranged between 18 and 40 *per cent* of the total available funds during 2006-11. Thus, due to carry over of funds in excess of prescribed limit, the GOI did not released balance amount of ₹ 794.14 crore during 2006-11.

The Government stated (November 2011) that late release (at the fag end of year) was one of the reasons for the funds remaining unutilised.

2.1.7.2 Improper maintenance of bank accounts

The Government circular (May 2008) envisaged that the funds were required to be kept by the respective BDOs in the bank account exclusively opened for IAY. Further, the interest accrued on these deposits was to be treated as part of

the IAY resources. Audit scrutiny revealed the following points regarding improper operation of accounts:

- **Non-maintenance of separate bank accounts**

Audit scrutiny revealed that in 18 blocks[7], IAY funds of ₹ 325.35 crore were kept in bank accounts along with funds of other schemes. This resulted in non-accrual of interest to the IAY resources.

The Principal Secretary, RDD stated (November 2011) that though the IAY guidelines did not specifically stipulate that the funds should be kept in separate bank account by the blocks, but the recommendation of the audit was worth consideration.

The reply was not acceptable as the Government had already issued circular in May 2008 discussing the need for keeping separate bank account for IAY funds by the respective BDOs.

- **Differences in closing balances**

During scrutiny of records in BDO Manigachhi (Darbhanga), it was noticed that the closing balance of the cash book (upgradation[8]) as on 31 March 2011 was shown as ₹ three lakh whereas the balance in the bank accounts was only ₹ 86 thousand on that date, resulting in shortage of ₹ 2.14 lakh in the bank accounts. As details of the closing balances in the cash books were not reconciled, the reasons for such differences were not verifiable during audit.

The Government assured (November 2011) that the discrepancy would be reconciled.

2.1.7.3 Diversion of funds

As per GOI sanctions, the IAY funds were to be utilised for construction of new houses or for upgradation of *kutchha* houses into *pucca* houses.

Rupees 24.01 crore were diverted to other schemes activities.

Test check at the departmental headquarters revealed that though ₹ 347.70 crore and ₹ 632.83 crore were released for IAY in the years 2007-08 and 2008-09 respectively, scheme funds amounting to ₹ 10.66 crore and ₹ 13.35 crore were diverted during these years for organising seminars and revision of BPL lists respectively.

The Government stated (November 2011) that funds were not diverted but were incurred with the concurrence of Finance Department as the BPL listing was an essential part of IAY selection process.

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7 *Areraj: ₹ 774.21 lakh, Bahadurpur ₹ 2909.73 lakh, Baunsi :₹ 1001.75 lakh, Chakia: ₹ 1251.77 lakh, Darbhanga Sadar: ₹ 3597.43 lakh , Dehri: ₹ 675.75 lakh, Gaya Sadar: ₹ 1960.35 lakh, Guraru: ₹ 1382.55 lakh, Harsidhi: ₹ 2248.21 lakh, Jainagar: ₹ 2461.13 lakh, Kalyanpur: ₹ 2748.62 lakh, Karahgar: ₹ 1179.44 lakh, Khijarsarai: ₹ 2291.86 lakh, Mohanpur: ₹ 726.57 lakh, Nasriganj: ₹ 774.66 lakh, Pandaul: ₹ 4706.63 lakh, Phullidumar: ₹ 618.60 lakh, and Tardih: ₹ 1225.67 lakh.*

8 *Upgradation- cash book of funds meant for upgradation of kutcha houses into pucca house*

The reply in itself was an admission of the fact that the earmarked funds for construction of IAY houses were used for other purposes in contravention of scheme guidelines.

2.1.7.4 Non-reimbursement of expenditure

As per Clause 4.4.1 of IAY guidelines, in order to facilitate timely relief to victims of natural calamities and in other emergent situations like fire, riots, etc. District Magistrates were authorised to incur expenditure and extend assistance to victims for immediate reconstruction of their damaged houses under IAY from their own available resources or from the district IAY allocation. The Central share of the expenditure so incurred by the DRDAs was to be reimbursed by GOI. The DRDAs were required to submit proposals for such reimbursement along with their UCs.

Audit scrutiny revealed that in eight test-checked districts, expenditure of ₹ 8.08[9] crore was made on timely relief to victims of natural calamities. Out of this expenditure, ₹ 5.38 crore was yet to be reimbursed due to non-submission of proposals to GOI for such reimbursement along with their UCs till the date of audit (August 2011). However, proposals for reimbursement of ₹ 2.70 crore were sent to GOI, of which only ₹ 0.49 lakh was reimbursed as of August 2011.

The Government stated (November 2011) that the concerned districts would expedite the process for reimbursement of the expenditure.

2.1.8 Implementation of the scheme

As per Clause 1.6 of the IAY guidelines read with Government directive (October 2006), IAY was to be implemented through the respective Zila Parishad/DRDAs and houses under this scheme were to be constructed by the beneficiaries. For construction of each dwelling unit, assistance was to be provided to the beneficiaries by the concerned BDOs.

The GOI fixed target of 3651856 houses to be constructed under IAY during 2006-11. Of which, 3340885 (91 *per cent)* houses were sanctioned and 2533176 (76 *per cent)* houses were constructed during this period. The shortfall in sanction and achievement was due to delayed sanction of IAY houses to beneficiaries. Further, it was also observed that the assistance was given to beneficiaries by ignoring their ranking in the waitlist. The panchayat-wise selections of beneficiaries were not made by the blocks as per the annual targets fixed by the concerned DRDAs. The allotment of land to rural landless BPL households for construction of houses was not made. The department released lump sum payments without linking with the physical progress as required under the IAY guidelines. The delay in sanctioning of 10620 houses under Naxal packages resulted in an additional burden of ₹ 14.34 crore to the State exchequer. IAY houses were sanctioned to multiple beneficiaries against single BPL number and in Belaganj block (Gaya), the second installment of

[9] *Banka : ₹ 106.35 lakh, Darbhanga : ₹ 55.27 lakh, East Champaran : ₹ 152.34 lakh, Gaya : ₹ 72.10 lakh, Madhubani : ₹ 97.30 lakh, Patna : ₹ 17.85 lakh, Rohtas: ₹ 22.60 lakh and Samastipur : ₹ 284.25 lakh*

₹ 11000 each was released to nine beneficiaries on two occasions resulting in double payment of ₹ 99 thousand. The performance audit, however, revealed following deficiencies in respect of programme implementation.

2.1.8.1 Achievements of targets

As per Clause 2.1 of the IAY guidelines, the target for construction of IAY houses for each district was fixed by GOI. Accordingly, the DRDAs were to decide the number of houses to be constructed/upgraded panchayat wise during a particular financial year. The position of yearwise targets of construction of houses, assistance extended and houses completed during 2006-11 is given in **Table 3** below.

Table No.3
Physical status of IAY houses in the State as well as in the test-checked DRDAs

Year	Target		Number of beneficiaries Selected		Number of houses to be completed (Including the incomplete house of previous year)		Completed		Incomplete	
	State	In the test-checked DRDAs	State	In the test-checked DRDAs	State	In the test-checked DRDAs	State	In the test-checked DRDAs	State	In the test-checked DRDAs
Incomplete house as on 1 April 2006									**311818**	**123112**
2006-07	408350	137610	181428	88675	493246	211787	349704	71616	143542	140171
2007-08	580011	149765	614390	118465	757932	258636	436189	85463	321743	173173
2008-09	806590	226279	640581	157101	962324	330274	490486	118089	471838	212185
2009-10	1098001	365871	923589	243686	1395427	455871	678447	177963	716980	277908
2010-11	758904	235689	980897	275873	1697877	553781	578350	153550	1119527	400231
Total	**3651856**	**1115214**	**3340885 (91)**	**883800 (79)**			**2533176 (76)**	**606681 (69)**		

(Source: Information provided by the department and by the test-checked DRDAs)
** The figures in bracket indicate the per cent evaluation.*

During 2006-11, 91 *per cent* of the targeted houses were sanctioned while 76 *per cent* of the sanctioned houses were shown as completed in the State.

During 2006-11, while 91 *per cent* and 79 *per cent* of the targeted houses were sanctioned for construction by the beneficiaries in the State and test-checked districts respectively, only 76 *per cent* and 69 *per cent* of sanctioned houses were shown as completed in the State as well as in the test-checked districts respectively as on 31 March 2011. Thus, less achievement in respect of sanction of houses against the target and completion of houses against the sanction was mainly due to delay in sanction of IAY houses and shortage of manpower.

Test check of records in the selected blocks revealed that there was no documentary evidence to support the data of completed houses. The block officials stated that the houses were assumed as completed once the second/last installments were released to the beneficiaries. Further, no documentary evidence was on record to show any physical verification done by any competent authority to ascertain the actual completion of houses for which the funds were released. Thus, the misuse/mis-utilisation of money provided for construction/upgradation of houses cannot be ruled out.

The Government stated (November 2011) that the physical verification of IAY houses to check completion status with the help of geo tagged, time stamped photographs from its own resources was under process.

The reply is not acceptable as the IAY guidelines stipulates that a display board indicating GOI housing *logo* , year of construction etc. was to be affixed on completion of each IAY houses. But, instead, the houses were assumed to be completed subsequent to the release of second installment to the beneficiaries. Completion status of IAY houses must be recorded in scheme register maintained in blocks.

2.1.8.2 Assistance to beneficiaries by ignoring their ranking in the waitlist

Clause 2.1 of the IAY guidelines stipulated that assistance should be given to beneficiaries in order of their ranking in the IAY waitlists. Further as per GOI letter (May 2006) the poorest shelterless persons were to be given top priority and the priority order was to follow the ascending order of marks[10] awarded in the IAY list i.e. person with the lowest marks was to be treated as the most eligible beneficiary.

Houses were sanctioned to beneficiaries by ignoring their ranking in the waitlist.

Audit scrutiny of the test-checked blocks revealed violation of the guidelines as the assistance was provided in an *ad hoc* manner to the beneficiaries. Unit assistance was provided to beneficiaries having higher marks without considering beneficiaries with lower marks in all the test-checked blocks during 2006-11. Non adherence to the IAY guidelines by BDOs exposed the scheme implementation to the danger of manipulations and undue favours while extending assistance to the beneficiaries. Thus, the reliability and transparency of the system followed for identification of beneficiaries at the block level was susceptible to malpractices.

The Government appreciated the audit efforts and stated (November 2011) that the department had zero deviations tolerance on this issue and assured that the matter would be examined after analysing the logical reasons for such skips.

2.1.8.3 Irregular selection of IAY beneficiaries

Clause 2.1 of the IAY guidelines envisaged that the targets for each panchayat were to be fixed at the DRDA on the basis of the funds allotted and targets fixed by GOI for the State.

Panchayat-wise selection of beneficiaries as per the guidelines was not ensured.

Audit scrutiny revealed that during 2006-11, in nine blocks[11] under six[12] test-checked DRDAs, panchayat-wise selections of beneficiaries were not

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[10] *The rural families having marks between 0 and 13 (out of maximum 52 marks based on 13 parameters such as area of land, type of houses, number of dependents, food security, toilets, consumer goods, literacy, job status, medium of livelihood, educational status of child, status of loan, reason for migration and assistance required) are being treated as BPL families in the Bihar.*

[11] *Bihta, Chakia, Dulhin Bazar, Gaya Sadar, Harsidhi, Kalyanpur, Khijersarai, Ladania,and Manigachhi.*

[12] *Darbhanga, East Champaran, Gaya, Madhubani, Patna and Rohtas*

made by the blocks as per the annual targets fixed by the concerned DRDAs. In fact, no beneficiary was selected in 37 panchayats in the review period, whereas in 13 panchayats, excess number of beneficiaries ranging between 138 and 539 *per cent* of the annual targets were selected. Thus, panchayat wise selection of beneficiaries as per the guidelines was not ensured. Hence, the selection was inequitable and intended beneficiaries were deprived of their due benefits in those panchayats.

The Government stated (November 2011) that due to some exigencies, some deserving beneficiaries might have not been considered in some panchayats or excess number of beneficiaries may have been provided funds under IAY, which required verification.

2.1.8.4 Non- acquisition of land

The GOI had provided (August 2009) scheme for allotment of land to rural landless BPL households for construction of houses under the IAY. This scheme was to be implemented as part of IAY and the cost of the land was to be shared by Government of India and State Government on 50:50. Accordingly, in March 2010, GOI provided ₹ 53.34 crore to the State for acquiring land for the construction of houses for rural landless BPL households accordingly the Government was required to provide the suitable land to the eligible BPL families.

Rupees 53.34 crore provided for acquiring land for landless BPL families for construction of IAY houses could not be utilised.

Audit scrutiny revealed that the implementation of this scheme could not take off as the department did not even have the basic data regarding the number of landless BPL families in the State. The Government neither released its matching share nor issued any guidelines for utilising the funds. Thus, none of the DDCs of the test-checked districts utilised the funds till the date of audit (August 2011). Consequently, the benefit to the eligible landless BPL family were denied.

The Government stated (November 2011) that the process for acquiring the land for landless BPL families was already in place through the Anchal office.

The reply was not acceptable as the funds for acquisition of land were not utilised by any of the test-checked DRDAs till the date of audit. As a result, the intended benefit was not provided to the deserving families.

2.1.8.5 Payment released in lump sum

Clause 4.10 of the IAY guidelines required that payments to the beneficiaries were to be made on staggered basis by linking them with the physical progress of the work. Payment of the entire amount in lump sum to the beneficiaries was not permitted.

During 2006-10, the payments to the beneficiaries were not linked with the physical progress/ verification report of work.

Audit scrutiny revealed that in violation of these guidelines, the payments to the beneficiaries during 2006-10 were delinked with the progress of the work, ignoring the requirement of physical verification and the controls which ensured utilisation for its desired purpose. This was evident from the fact that the Government instructed (October 2006) the release of lump sum payments

of ₹ 24000 against the total beneficiary eligibility of ₹ 25000 without linking it to the physical progress as required under the guidelines. Further, the Government instructed (May 2008) the release of the balance amount to the beneficiary within two months of the release of the lump sum advance, without receiving any physical verification report from Government employee/ Panchayat Sevak assuming that the work was completed up to the lintel level in those two months.

However, during 2010-11, the Government felt the need to follow the guidelines and directed (June 2010) to release the second installment of assistance only after the concerned BDOs ensured construction up to the lintel level by conducting physical verification. Even this directive was not followed by the BDOs and funds continued to be released without ensuring physical verification. Such relaxation of inspection was fraught with the risk of misutilisation by the beneficiaries.

The Government stated (November 2011) that the condition of physical verification was waived earlier on an experiment basis only to control the exploitation of poor people. Now the physical verification had been made mandatory for release of second installment.

2.1.8.6 Additional burden due to delayed sanction

As per Clause 2.1 of IAY guidelines, the District Panchayat/Zila Parishad/District Rural Development Agencies (DRDAs) was to decide the number of houses to be constructed/upgraded panchayat-wise, during a particular financial year on the basis of allocations made and targets fixed.

Delayed sanctioning of IAY houses resulted in additional burden of ₹ 14.34 crore.

In DRDA, Rohtas, it was seen that against the target of 19698 houses to be constructed as part of "Naxal Package[13]", only 9078 houses were sanctioned (2009-10) for construction at the rate of ₹ 35000. Thereafter, the remaining 10,620 houses were sanctioned during 2010-11 at the enhanced rate of ₹ 48500. This delay in sanctioning of 10,620 houses resulted in an additional burden of ₹ 14.34 crore to the State exchequer.

The Government during exit conference (November 2011) accepted the audit findings.

2.1.8.7 Funds released to multiple beneficiaries against single BPL number

The department's order (December 2008), required BDOs to ensure before sanctioning houses under IAY, that no other member of the family had previously availed of the benefit under IAY.

Unit assistance was provided to more than one beneficiary against the single BPL number resulting in irregular benefit of ₹ 17.80 lakh to 67 persons.

Audit scrutiny revealed that during 2006-11, in nine Blocks[14], unit assistance was provided to two to five beneficiaries against a single BPL number. Thus, against 50 BPL numbers, 117 persons were sanctioned ₹ 28.12 lakh resulting in irregular benefit of ₹ 17.80 lakh to 67 persons. ***(Appendix-2.1)***

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13 *To curb naxalism, GOI launched (2008-09) a special package for constructing IAY houses in six districts namely Arwal, Aurangabad, Gaya, Jehanabad , Jamui and Rohtas*

14 *Areraj, Bihta Chakia, Gaya Sadar, Gururu, Harsidhi, Katoria, Phulidumar and Rajpur*

The Government while accepting (November 2011) the fact of double payments in 27 cases stated that in other 23 cases, payment were made as other members of the particular BPL family turning adult and forming separate family units.

The reasons attributed regarding formation of separate family units was not acceptable as for member turning adult and forming separate family unit should have a new family identification number in the BPL list.

2.1.8.8 Double payments

Release of second instalments to a single beneficiary on two occasions resulted in double payment of ₹ 0.99 lakh.

In Belaganj block (Gaya), the second instalment of ₹ 11000 each was released to nine beneficiaries on two occasions i.e. in January 2010 and again in February 2010, resulting in double payment of ₹ 99 thousand. ***(Appendix-2.2).***

The Government accepted (November 2011) the lapse and stated funds had been recovered and action would be taken against those responsible.

2.1.8.9 Irregular transfer of IAY funds to Gram Panchayats

As per Government order (October 2006), the IAY funds were required to be transferred directly into the accounts of the beneficiaries by the concerned BDOs. Audit scrutiny, however, revealed that in violation of the above directive during 2006-07, assistance of ₹ 14.24 crore was provided to GPs by the 25 blocks in East Champaran district. Similarly, in the Babubarhi block (Madhubani) funds of ₹ 97.81 lakh were provided (2006-07) to *Mukhiyas* of 20 GPs. Out of the above amounts, no details of utilization of ₹ 7.66 crore (East Champaran) and ₹ 79.56 lakh (Babubarhi) were made available till the date of audit (July 2011).

In reply, DDC, East Champaran stated that the payment was made as per orders of the then District Magistrate.

Thus, it was evident from the reply that funds were irregularly released to GPs and Mukhiyas and the intended benefit could not be achieved as the funds to the tune of ₹ 8.45 crore remained unutilised.

2.1.8.10 Unit assistance under kala-azar packages

In order to extend the facility of IAY to *kala-azar* affected villages, GOI launched two special packages in 2006-07 and 2008-09. In the first package, GOI sanctioned ₹ 24.30 crore and selected 214 highly endemic *kala-azar* affected villages in seven[15] districts for construction of 12,840 houses for the *Musahar* community (60 IAY houses in each selected *kala-azar* affected village). In the second package, GOI sanctioned ₹ 191.99 crore and decided (February 2009) to construct 73,140 IAY houses for BPL families in 1219

[15] *East champaran, Gopalganj, Madhepura, Muzaffarpur, Saharsa, Saran and Vaishali.*

villages in 15[16] districts. The Government was required to submit a proposal alongwith utilisation certificate, audited accounts in full, bank reconciliation statement, block-wise expenditure statement and physical achievement countersigned by Chartered Accountant for release of second installment. Scrutiny of records relating to these packages revealed the following discrepancies:

- **Non-release of second installments to the beneficiaries**

Audit observed that in two[17] test-checked DRDAs, the second installments of funds were not released by GOI as the concerned DRDAs did not submit the utilisation certificates in time. It was also observed that in four[18] *kala-azar* affected blocks of these DRDAs, the second installments were not released to any beneficiary. Due to this, the houses of 1302 beneficiaries remained incomplete even after incurring expenditure of ₹ 2.85 crore[19].

The Government stated (November 2011) that proposal for second installment was sent to MoRD by DDC Samastipur long ago.

The reply was not acceptable as the Utilisation Certificate/Audited Accounts/replies to the queries called from these districts by GOI (November 2010) were yet to be submitted.

- **Irregular sanction of houses to beneficiaries from non-earmarked villages**

Selection of beneficiaries from non-earmarked villages resulted in irregular payments of ₹ 1.33 crore.

As per GOI instructions, selection of beneficiaries was to be made from the list of *Kala-azar* affected villages, specifically provided by the department.

Audit scrutiny revealed that in two blocks,[20] 443 beneficiaries were selected from nine villages which were not in the list of villages appended with the sanction letter. This resulted in irregular payments of ₹ 1.33 crore to the ineligible beneficiaries of non-earmarked villages. Thus, 443 beneficiaries of two blocks (Areraj and Chakia) of non-earmarked villages were irregularly provided ₹ 1.33 crore.

The Government accepted (November 2011) the audit findings and assured action against the erring officials.

2.1.8.11 Non-preparation of basic records at the block level

As per Clause 5.9 of IAY guidelines, the IAY implementing agencies were required to prepare a complete inventory containing details of houses

16 *Araria, Begusarai, East Champaran, Darbhanga, Gopalganj, Katihar, Khagaria, Madhepura, Muzaffarpur, Purnia, Samastipur, Saharsa, Saran, Sitamarhi and Vaishali*

17 *East Champaran and Samastipur*

18 *Chakia, Harsidhi, Mohanpur and Sahpur Patori*

19 *Chakia (350 beneficiaries; ₹ 84.00 lakh), Harsidhi (525 beneficiaries; ₹ 126.00 lakh), Mohanpur (166 beneficiaries; ₹ 29.05 lakh) and Sahpur Patori (261 beneficiaries; ₹ 45.67 lakh)*

20 *Areraj and Chakia*

constructed as well as those in progress, dates of starting and completion, names of villages in which these were located, names, addresses, occupations and categories of beneficiaries etc. This inventory was crucial document for identifying and selection of beneficiaries to avoid duplication.

Further, as per Government directive (May 2008) to DM/DDC/BDOs, a list of beneficiaries showing their names, age, permanent addresses, castes, BPL number and serial number in the waiting list, photographs and bank account details, along with the name of father/husband, boundaries of construction sites (chauhaddi) etc. was required to be prepared for every panchayat by the BDOs.

Basic records maintained by the BDO in test checked blocks did not contain details such as inventory, list of beneficiaries etc.

Scrutiny of records in the test-checked districts revealed (June-August & October 2011) that the records i.e. scheme registers etc. maintained by BDOs indicated only the name of beneficiaries, name of father/husband, yojana number and details of payments.

In the absence of a comprehensive detail information regarding identification of the beneficiaries, it was not possible to prepare any list of houses constructed or of shelterless families for this scheme.

In reply, the Government agreed (November 2011) that there was need for proper maintenance of records of IAY and assured compliance in future.

2.1.9 Poor convergence (Chulhas, sanitary latrines, drinking water, electrification etc.)

As per Clause 3.2 and 5.11 of the IAY guidelines, all efforts were required to be made by DRDAs to ensure that every IAY house was provided with a sanitary latrine, smokeless chulhas and drinking water facility, which were to be dovetailed with other government schemes such as the Total Sanitation Campaign Programme, National Rural Water Supply Programme and provision of free electricity under 'Rajiv Gandhi Gramin Vidyutikaran Yojna'.

Audit scrutiny of Monthly Progress Reports (MPRs) of the test-checked DRDAs for the period 2006-11 revealed that the availability of smokeless chulhas, sanitary latrines and electric connections in the constructed IAY houses were four *per cent*, five *per cent* and one *per cent* respectively due to lack of co-ordination among concerned departments who were responsible for implementation of the above mentioned schemes.

During the exit conference two DRDAs viz East Champaran and Gaya had produced evidences of convergence.

2.1.10 Non-display of IAY board and logo

As per Clause 5.10 of the IAY guidelines, on completion of the dwelling units, the DRDAs concerned were to ensure that the GOI rural housing logo, year of construction, name of beneficiaries, etc. was fixed at the IAY houses. The expenditure on this account was to be met from the interest accrued from the

funds available under this scheme. Scrutiny revealed that expenditure of ₹ 6.79 lakh was incurred in only five blocks[21] out of selected 31 blocks.

The Government stated (November 2011) that logos were installed in many IAY houses. Some of these could also be seen on Rural Development Department's web site.

The reply was not in consonance with facts as no amount was spent in 26 out of 31 test checked blocks on installation of logos in IAY houses.

2.1.11 Monitoring and internal control system

As per Para 3.5 of the guidelines of Vigilance and Monitoring Committee (VMC) for rural development programmes, the monitoring of IAY was the responsibility of the State and district level VMC. The VMCs were required to play a crucial role in monitoring the implementation of rural development programmes. In accordance with the guidelines, the meetings of State and district level VMCs were to be convened quarterly.

Further as per Clause 6.1 of IAY guidelines, officers dealing with the IAY at the State headquarters were required to visit districts regularly to ascertain whether the programme was being implemented satisfactorily and whether construction of houses was in accordance with the prescribed procedure. Similarly, officers at the district and block levels were required to monitor all aspects of the IAY through visits to work sites. A schedule of inspection which prescribed a minimum number of field visits for each supervisory level functionary from the State level to the block level was required to be drawn up and strictly adhered to.

The Government was to prescribe the periodical reports / returns through which it would monitor the performance of IAY in the districts. As per Government directive (May 2009) 100 *per cent* IAY houses were to be inspected at the block level.

The monitoring and periodical review of the programme was ineffective and inadequate in both State and district levels.

As per VMC guidelines, 20 meetings (four meetings in a year) were to be held during 2006-11 at the State level as well as at all the district level. However, only two such meetings were held at the State level. In the test-checked districts, the meetings convened ranged between two to 15 as against the required 20 meetings during 2006-11. It was also noticed that reports regarding follow up action on the observations made in the meetings were not provided by the implementing agencies to the VMC.

As the above inspections were not carried out properly, the department prescribed (October 2010) a monthly schedule of inspections for BDO/ SDO/ DDC/DM to ensure completion of the IAY houses. Accordingly, inspection reports were also to be submitted by these officials. Thereafter, a comprehensive report, based on these inspection reports, was to be sent by the District Magistrate to the departmental headquarters. Audit scrutiny in the test-

[21] *Areraj;* ₹ *35000, Babubarhi:* ₹ *11370 , Bihta : 107520, Katoria:* ₹ *384000 and Pandaul* : ₹ *141063*

checked districts revealed that such inspections were neither carried out nor any reports thereof were sent to any of the departmental authorities.

The Government stated (November 2011) that though the meetings of VMC were not convened quarterly, it would be wrong to conclude that monitoring of IAY was ineffective. The officers at RDD and district level had been regularly visiting and inspected the IAY works along with other schemes. The follow up action were also being reported in the meetings of VMCs. Thus the letter issued for monitoring of IAY was to strengthen the monitoring systems and should not be misconstrued as acceptance of no inspection or supervision.

2.1.11.1 Unrealistic reports/ returns

At the State level, physical and financial achievements were compiled on the basis of the progress reports sent by DRDAs/blocks. During the test check of records, it was noticed that the reports and returns were not based on actual facts as the IAY houses were reported to be completed after the payment of the last instalments to the beneficiaries. Besides, it was also noticed that the annual expenditure reported in the Monthly Progress Reports did not match with the actual expenditure incurred as per the cash book for that year.

In reply, the Government stated (November 2011) that in absence of any clear-cut articulation in the guidelines regarding completion of a house, there might be difference of opinions among the officers regarding the same. Hence it would be wrong to state that this compilation was not authenticated by inspections or physical verification of the work sites.

2.1.12 Conclusion

The performance audit of IAY revealed that the annual plans and monthly targets were not prepared. The selection process of eligible beneficiaries was not correct as the IAY waitlists of shelterless BPL families were not prepared. The financial management was ineffective because of less release of Central share, diversion of scheme funds and non-submission of reimbursement claim to GOI. The implementation of IAY programme suffered due to deficiencies like sanction of assistance to beneficiaries by ignoring their ranking in the waitlist, irregular selections of beneficiaries made by the blocks without any reference to the annual targets fixed by the concerned DRDAs, non-allotment of land to rural landless BPL households for construction of houses, release of lump sum payments without linking it to the physical progress, delay in sanctioning houses under Naxal packages resulted in an additional burden to the State exchequer double payment to single beneficiary apart from non-release of the second installment of assistance under Kala-azar package by the GOI due to non-submission of UCs. Due to poor monitoring system, non-conducting of physical verification of IAY houses and unrealistic reports and returns, the actual accrual of benefits of the programme to the targeted beneficiaries was not ensured.

2.1.13 Recommendation

The Government may consider:

- to ensure preparation of annual plans, duly supported with monthly plan for its achievements, at each district and Block levels;
- to prepare IAY waitlist by selecting the shelterless families from the BPL list and approved by the Gram Sabha;
- to ensure effective financial monitoring mechanism is put in place to ensure optimum use of funds;
- to ensure sanction of IAY houses in scheduled financial year according to the ranking of beneficiaries in waitlist, and linking of all the payments with the physical progress; and
- to ensure monitoring of the implementation of the programme closely at various levels and evaluated from time to time for corrective measures.

PUBLIC HEALTH ENGINEERING DEPARTMENT

2.2 Mitigation programme for arsenic, fluoride and iron pollutants

Highlights

Under Accelerated Rural Water Supply Programme of the Government of India, sub-mission projects were undertaken by the Government for providing safe drinking water to the rural habitations facing water quality problems like presence of excess fluoride, arsenic, iron contaminants etc. In order to overcome the problem of groundwater pollution and to prevent and ameliorate the same, various programmes and schemes were started in the State. The implementation of the mitigation schemes in the State suffered from several deficiencies such as lack of planning, unsatisfactory financial management, failure to provide adequate safe drinking water in quality affected habitations, absence of operation and maintenance policy, meager achievement in testing of groundwater sources and ineffective monitoring systems during 2006-11. Some of the significant findings were as given below:

Non-preparation of the Annual Action Plan during 2006-09 resulted in slow progress in implementation of mitigation schemes inspite of availability of funds.

(Paragraph 2.2.7.1)

The mitigation schemes were sanctioned in non-priority habitations without considering the habitations with highest contamination. Co-ordination between the Central and State agencies for the planning was deficient and no meetings of the Water Quality Review Committee was held.

(Paragraph 2.2.7.2 & 2.2.7.3)

The financial management by the department was unsatisfactory as 25 *per cent* of the schemes funds were surrendered apart from retention of funds (₹ 13 crore) in Civil Deposit.

(Paragraph 2.2.8)

Of the 24420 habitations affected with arsenic, fluoride and iron contamination in the State, only 1375 habitations were covered under mitigation schemes by the Department during 2006-11.

(Paragraph 2.2.9)

The sanction of technically non-feasible sanitary wells to cover arsenic affected habitations resulted in non-completion of 585 sanitary wells in the test-checked divisions and 262 habitations being deprived of safe drinking water.

(Paragraph 2.2.9.2)

Arsenic and iron removal attachment units were installed at a cost of ₹ 5.14 crore without conducting pre-test of tube-well water in the test-checked divisions.

(Paragraph 2.2.9.4 & 2.2.9.8)

Non-maintenance of the assets created after the completion of operation and maintenance period of schemes by the agencies affected the water quality.

(Paragraph 2.2.9.10)

The Information, Education and Communication activities were not conducted efficiently resulting in non-optimisation of anticipated benefits from this component.

(Paragraph 2.2.10.1)

Rupees 5.20 crore expended on training of grass root level workers and purchase of Field Testing Kits remained unfruitful because of non-submission of test report by gram panchayats.

(Paragraph 2.2.10.2)

Due to non-periodical monitoring of progress of various pollution amelioration schemes, the deficiencies/shortcomings could not be addressed to.

(Paragraph 2.2.11)

2.2.1 Introduction

Pollution in ground water occurs when pollutants like waste products or other substance enter beneath the earth's space and change the chemical or biological characteristics of the water. Some of the prominent pollutants of ground water found in Bihar are Arsenic, Fluoride and Iron etc. In order to overcome the water quality problems, GOI included (August 2000) 'sub-mission projects' under Accelerated Rural Water Supply Programme (ARWSP) in which mitigation programmes for groundwater contaminants were undertaken by the State for providing safe drinking water to the rural habitations facing water quality problems like fluorosis, arsenic, excess iron etc.

In Bihar, according to the information provided by the Public Health Engineering Department, 13[22], 11[23] and nine[24] districts were affected with arsenic, fluoride and iron contamination respectively. The Government sanctioned 13 arsenic mitigation schemes, nine fluoride mitigation schemes and four iron mitigation schemes during 2006-11. Out of this, only five schemes (arsenic: two and fluoride: three) were completed as of March 2011.

2.2.2 Organisational set-up

Public Health Engineering Department (PHED) is the nodal department for implementation of programmes related to mitigation of groundwater pollution in the State. The department is headed by a Principal Secretary who is assisted by an Engineer-in-Chief-cum-Special Secretary at Government level. At the field level, eight Chief Engineers (CE), 33 Superintending Engineers (SE) and 91 Executive Engineers (EE) (Civil: 79 and Mechanical: 12) are responsible for execution of rural water supply and sanitation programmes including water quality mitigation programmes of the department.

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22 *Begusarai, Bhagalpur, Bhojpur, Buxar, Darbhanga, Khagaria, Katihar, Lakhisarai, Munger, Patna, Samastipur, Saran and Vaishali*

23 *Aurangabad, Banka, Bhagalpur, Gaya, Jamui, Kaimur, Munger, Nalanda, Nawada, Rohtas and Sheikhpura*

24 *Araria, Begusarai, Katihar, Khagaria, Kishanganj, Madhepura, Purnea, Saharsa and Supaul*

The Bihar State Water and Sanitation Mission (BSWSM), constituted (September 2004) under chairmanship of the Chief Secretary, is responsible for providing overall policy guidance and to ensure co-ordination with various departments related to water supply. Secretary, PHED, is the Convenor of BSWSM. At the district level, the District Water and Sanitation Committee (DWSC), headed by the District Magistrate/Deputy Development Commissioner (DDC) and Executive Engineer of PH Divisions as Member Secretary, is responsible for the implementation of the programme.

2.2.3 Scope of audit

The scope of Performance Audit was limited to examining the implementation of pollution abatement measures in respect of three groundwater pollutants viz. arsenic, fluoride and iron. For this, the records maintained by the department relating to mitigation measures taken up for those three pollutants during 2006-11 were examined.

2.2.4 Audit objectives

The objectives of this performance audit were to assess whether:

- the planning process for the assessment and mitigation of groundwater quality was efficient and effective;
- the financial management was efficient and effective;
- the implementation of programmes for mitigation of groundwater pollution was efficient, effective and economical; and
- monitoring mechanism and evaluation system was in place and effective.

2.2.5 Audit methodology

For this performance audit, four[25] out of 13 arsenic affected districts, three[26] out of 11 fluoride affected districts and three[27] out of nine iron affected districts were selected through Statistical method by using Probability Proportional to Size with Replacement (PPSWR) method. The scrutiny of records at the Secretariat level and 11[28] Public Health (PH) Divisions of the selected 10 districts were carried out to assess the performance related to mitigation of groundwater pollution. The performance audit was conducted between June and August 2011.

In order to explain the objectives of this audit, its methodology, scope, coverage, focus and to elicit the departmental views and concerns, an entry conference was held in May 2011 with the Principal Secretary of the department.

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25 *Arsenic : Bhagalpur, Buxar, Khagaria and Samastipur*

26 *Fluoride : Banka, Jamui and Nawada*

27 *Iron : Purnea, Saharsa and Supaul*

28 *Banka, Bhagalpur(East), Bhagalpur (West), Buxar , Jamui , Khagaria, Nawada, Purnea, Samastipur, Saharsa and Supaul*

The audit methodology included updating and consolidation of domain knowledge/information, preparing detailed audit guidelines, checklists and questionnaires. Audit conducted field visits for examination, collection and analysis of relevant information/data. Discussions were held with the concerned departmental officers involved in programme implementation and its monitoring. Audit evidence was also collected through replies to audit questionnaires, audit memos, copies of documents and through personal interaction with responsible departmental officials. Thereafter, on completion of field visits, an exit conference was held (22 November 2011) with CE, (Urban), PHED, wherein the audit findings were discussed in detail. The reasons and justifications furnished by the department during the exit conference were kept in view while drafting the performance review.

2.2.6 Audit criteria

The criteria adopted to arrive at the audit conclusions were:

- Environment (Protection) Act, 1986;
- National Water Policy, 2002;
- Guidelines of Acelerated Rural Water Supply Programme (ARWSP) and National Rural Drinking Water Programme (NRDWP); and
- Orders and circulars issued by GOI and State Government.

Audit findings

The deficiencies noticed during audit are discussed below:

2.2.7 Planning

The planning to implement mitigation schemes for arsenic, fluoride and iron contamination included (i) preparation of annual action plan to set target for coverage of affected habitations, (ii) identify extent of contamination found in groundwater in affected habitations and to sanction schemes for the habitations with highest chemical contaminations and (iii) analyse and interpret water quality data to identify problem areas through co-ordination between State and Central agencies. The department, however, failed to prepare annual action plan during 2006-09, resultantly the targets for coverage of affected habitations were not fixed during this period. Though, the department identified extent of contamination in affected habitations but failed to utilise the test results while identifying the priority habitations resulting in implementation of mitigation schemes even in non-priority habitations. Co-ordination between the State and Central agencies was wanting that resulted in non-conducting of meeting of WQRC. Irregularities found in planning are discussed in succeeding paragraphs:

2.2.7.1 Non-preparation of annual action plan

Clause 5.2 (c) of ARWSP guidelines required the department to prepare and submit to the GOI, a yearly action plan at the commencement of the each year indicating details such as the names, targets, total number of habitations etc. for coverage of water quality affected habitations under mitigation programme.

Non-preparation of the Annual Action Plan resulted in slow progress in implementation of schemes.

Audit scrutiny revealed that the annual action plans were not prepared by the department during 2006-09 resultantly the targets for coverage of the affected habitations were not fixed which could be seen from the slow progress in implementation of mitigation schemes and accumulation of funds during the period. However, the department stated that the annual action plan was being prepared from 2009-10 onwards.

The CE (Urban), PHED in exit conference stated (November 2011) that the target for coverage was fixed as per the priority in respect of contamination level and availability of funds upto 2008-09.

The reply was not acceptable because department could utilised only 47 *per cent* of total funds released during 2006-09.

2.2.7.2 Coverage of non-priority habitations

Clause 5.2 (b) of the ARWSP guidelines (August 2000) envisaged sending of the names of habitations affected with quality problems to the Central Government indicating the extent of excess arsenic, fluoride and iron content in groundwater. The Government was also required to provide an undertaking that priority in water mitigation schemes would be given to habitations having the highest chemical contamination.

In order to identify these habitations and the extent of their contamination, the department entrusted the work of testing of 2,70,318 functional departmental groundwater sources to an agency during 2007-09. The agency conducted the tests and received ₹ 7.02 crore from the Department. The test reports revealed that 4929, 24023 and 56699 sources were found contaminated with excessive arsenic, fluoride and iron contents respectively ***(Appendix-2.3)***.

The Department sanctioned mitigation schemes without considering contamination level of water in affected habitations.

Audit scrutiny of implementation of these schemes revealed that the department did not utilise the test results while identifying the priority habitations resulting in mitigation measures being taken even in non-priority habitations. Audit further, observed that 20 and five districts having higher range of iron and fluoride contaminations were not covered while seven districts of iron and 11 districts of fluoride having lesser range of contamination were covered in violation of the ARWSP guidelines ***(Appendix-2.4)***.

The CE (Urban), PHED, in exit conference, stated (November 2011) that instructions were issued to all PH Divisions for fixing the priority for coverage of habitations having highest contamination. The reply in itself is an admission of the irregularity.

Thus, the sanctioning of mitigation schemes without considering the priority resulted in habitations at higher risk being left uncovered and habitations at lower risk covered.

2.2.7.3 Non-functional institutions to address groundwater pollution

In accordance with the Environment (Protection) Act, 1986, the Environment & Forest Department constituted (April 2003) the State Water Quality Review Committee (WQRC) under the chairmanship of Commissioner-cum-Secretary, Water Resources Department and Chief Engineer, Central Water Commission as Member Secretary. Principal Secretary, PHED and Regional Director, Central Ground Water Board (CGWB) were the members of this committee.

The main activities of WQRC were among others to review the water quality monitoring network in the respective region, analyse and interpret water quality data to identify problem areas and develop action plans for improving quality on a sustainable basis apart from identify hot spots[29] for surveillance monitoring and promotion of research and development activities.

Discrepancy in the number of water quality affected districts was due to lack of co-ordination amongst Central and State agencies.

No meeting was held by WQRC during 2006-11 due to lack of co-ordination amongst the Central and State agencies. This led to discrepancy in the data maintained by the CGWB (15 arsenic, nine fluoride and 19 iron affected districts) and the PHED (13 arsenic, 11 fluoride and nine iron affected districts) in the State. Thus, lack of unanimity in respect of number of water quality affected districts, some[30] arsenic, fluoride and iron affected districts were deprived the benefits of pollution mitigation schemes like supply of potable drinking water etc.

In exit conference (November 2011), the CE (Urban) PHED while accepting the audit findings assured needful action in future.

2.2.8 Financial Management

Funds for sub-mission projects were released separately by GOI during 2006-08 and thereafter funds were released only under ARWSP/NRDWP. Out of ARWSP/NRDWP funds provided, 20[31] *per cent* was to be utilised on implementation of sub-mission/NRDWP (Water Quality) mitigation schemes. According to guidelines, the funding pattern for this sub-mission projects was in the ratio of 75:25 between the Central and State Government till 2008-09. Thereafter, the funds were to be shared on 50:50 basis between the Centre and State under National Rural Drinking Water Programme (NRDWP).

The department received ₹ 445.67 crore during 2006-11 for implementation of sub-mission/water quality projects, of which ₹ 396.51 crore (89 *per cent*) were utilised during this period. The utilisation of funds available during 2007-09

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29 *A place of significant activity or danger*

30 *Arsenic : Purnea and Kishanganj; Fluoride : Buxar and Supaul ; Iron : Aurangabad, Bhojpur, Buxar, Gopalganj, Lakhisarai, Muzaffarpur, Nawada, Rohtas, Samastipur, Siwan, East Champaran and West Champaran*

31 *Coverage-50 per cent, Sustainability-20 per cent, Operation and Maintenance- 10 per cent and Water Quality- 20 per cent*

was only nine and 11 *per cent*. The position of funds released and expenditure incurred thereof during 2006-11 by the GOI and State Government for sub-mission/water quality projects was as under:

Table No. 1

Funds released and expenditure incurred

(₹ in crore)

Year	Opening balance of GOI funds	Funds released by		Total funds available	Funds released to divisions by the Department			Total Expen-diture	Surrender amount of State funds [5-(9+11)]	Closing balance of GOI funds [5-(9+10)]
		GOI	State		GOI share	State share	Total			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2006-07	0.00[32]	22.46	13.11	35.57	16.60	13.11	29.71	23.23 (65)	6.00 (46)	6.34
2007-08	6.34	159.95	20.61	186.90	8.99	20.61	29.60	20.60 (11)	9.00 (44)	157.30
2008-09	157.30	0.00	5.63	162.93	59.15	5.63	64.78	15.16 (9)	3.24 (58)	144.53
2009-10	144.53	26.55	48.29	219.37	171.08	48.29	219.37	157.69 (72)	12.41 (26)	49.27
2010-11	49.27	94.01	55.06	198.34	143.28	55.06	198.34	179.83 (91)	5.60 (10)	12.91
Total		**302.97**	**142.70**					**396.51 (89)**	**36.25 (25)**	

(Source: Data furnished by PHED)

(Figures in brackets represent percentage)

Analysis of the **Table no.1** and records of the department disclosed the following:

The financial management of the Department was unsatisfactory as 25 *per cent* of available funds were surrendered during 2006-11.

- The expenditure incurred against the funds available during the year 2006-11 ranged between nine and 91 *per cent* indicating tardy implementation of scheme especially during the period 2007-09 as was evident from the fact that only five out of 14 schemes were completed for this period.
- Against the total release of State share of ₹ 142.70 crore, ₹ 36.25 crore (25 *per cent)* were surrendered due to release of funds to the divisions at the fag end of financial year during 2006-11.
- In 2006-07, the department submitted false Utilisation Certificates (UCs) of ₹ 13 crore while keeping the amount in the Civil Deposit. This inflated the expenditure by ₹ 13 crore during that year.

The department could utilise 89 *per cent* of funds released during 2006-11. Surrender of 25 *per cent* of funds of state share released coupled with retention of funds in Civil Deposit as well as its incorrect depiction as expenditure in UCs indicated unsatisfactory financial management by the department.

The CE (Urban), PHED in exit conference (November 2011) while accepting the surrender of funds due to release of funds at the fag end of financial year,

[32] *Separate funds for submission programme were released in 2006-08 only. The closing balance of ARWSP was kept in ARWSP (Normal) funds for which separate UCs was issued to GOI. Hence, OB shown in 2006-07 was nil.*

stated that the implementation of these schemes could not take of due to change in system of contract (turnkey) which took extra time to complete the schemes. Further, the amount kept in the Civil Deposit was with the permission of Finance Department.

This reply was not acceptable because the change in system of contract had also a schedule completion period which was not being followed. Further, drawal of funds in anticipation and depositing in Civil Deposit was against the financial rules of the Government of Bihar.

2.2.9 Implementation of schemes

In October 1999, the State Level Scheme Clearance Committee (SLSCC) was constituted under chairmanship of Principal Secretary, PHED. The SLSCC was responsible for clearing schemes under sub-mission programme.

In Bihar, 24420[33] habitations were identified as affected with arsenic, fluoride and iron contamination. The department undertook 26 schemes costing ₹ 1270.33 crore to cover 13639 habitations[34] for providing safe drinking water during 2006-11 but could cover only 1375 habitations[35] after incurring an expenditure of ₹ 396.51 crore during 2006-11 ***(Appendix-2.5)***.

Out of 26 schemes undertaken by the department during 2006-11, 14 schemes[36] were to be completed as of March 2011. Of which, the department could complete only five[37] schemes. The reasons for non-completion of seven schemes of arsenic mitigation were mainly due to sanction of sanitary wells without considering the feasibility of schemes in the affected areas and non-acquisition of land for multi village piped water schemes. One scheme each for fluoride and iron mitigation remained incomplete due to delay in finalisation of tender and department's failure in getting the work executed by the contractor within the stipulated period. Irregularities found in execution of these schemes are discussed in succeeding paragraphs.

Mitigation schemes for arsenic contamination

Natural arsenic pollution occurs in groundwater from arseniferous belts. The symptoms of chronic arsenic poisoning include various types of lesions, muscular weakness, paralysis of lower limbs etc. Presence of arsenic contamination in water can cause skin, kidney and lung cancer on prolonged exposure. As per Indian Standard (BIS-10500), the maximum permissible limit of arsenic was 0.05 mg/l (50 parts per billion). Audit observed that 1590 habitations as per PHED data were affected with arsenic contamination in 13 districts.

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33 *Arsenic : 1590 habitations, Fluoride : 4157 habitations and Iron : 18673 habitations*

34 *Arsenic : 1514 habitations, Fluoride : 1829 habitations and Iron : 10296 habitations*

35 *Arsenic : 424 habitations, Fluoride : 528 habitations and Iron : 423 habitations*

36 *Arsenic : nine schemes, Fluoride : four schemes and Iron : one scheme*

37 *Arsenic : 2, Fluoride : 3 and Iron : Nil*

2.2.9.1 Poor coverage of arsenic affected habitations

The department adopted both short and long term mitigation schemes during 2006-11. In the short term measures, the department started three schemes viz. sanitary wells[38], deep tubewells[39], and arsenic removal filters[40] whereas for long term measures, it started treatment plants[41] and piped water supply schemes[42]. The department sanctioned 13 schemes costing ₹ 804.48 crore during 2006-11 to provide potable/safe water in 1514 arsenic affected habitations and 633 schools. Of which, the department could cover 424 habitations and 218 schools after incurring expenditure of ₹ 313.64 crore as of March 2011 ***(Appendix-2.5)***.

Against 1590 arsenic affected habitations, 1166 habitations could not be covered and were still deprived of safe drinking water.

Audit scrutiny revealed that the department sanctioned schemes to cover only 1514 against 1590 arsenic affected habitations and could cover only 424 habitations depriving 1166 habitations of safe drinking water facility as of March 2011. The schemes to cover remaining habitations could not be completed due to sanction of sanitary wells without considering the feasibility of schemes in the affected areas, the multi village piped water schemes remained incomplete due to non-acquisition of land and delayed sanction of schemes for the affected habitations.

The CE (Urban), PHED in exit conference stated (November 2011) that schemes were incomplete due to delay in site selection, acquisition of land, selection of treatment technology, import of media etc. apart from the scheme being a new concept.

The reply was not acceptable because implementation of quality schemes were not new concept and sub-mission projects for water quality problem was started in August 2000.

2.2.9.2 Unfruitful expenditure on construction of sanitary wells

The presence of air and aerated water in wells oxidises the soils around dug wells and infiltration of water into these wells through this oxidised soil significantly reduces the concentration of arsenic in the well water.

As a short term mitigation measure, the department sanctioned (2006-07) 1571[43] sanitary wells to cover 719 habitations (two sanitary wells per habitation) and 133 schools at an estimated cost of ₹ 18.79[44] crore with completion period upto 2008-09. Of this, only 516[45] (33 *per cent*) sanitary wells were completed after incurring expenditure of ₹ 10.39 crore[46] as of March 2011.

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38 *Water of open dug well is free from arsenic contamination.*
39 *Water in deep aquifer is free from arsenic contamination.*
40 *Filter attached with hand pumps for removal of arsenic contamination.*
41 *The arsenic treatment plant is based on adsorption technology by constructing deep tube well and purification of water through filter attached with the plant.*
42 *The safe drinking water facility by using arsenic free water by tapping Ganga water.*
43 *1438 for habitations and 133 for schools.*
44 *Habitations : ₹ 16.97 crore and schools : ₹ 1.82 crore.*
45 *Habitations : 460 and Schools : 56.*
46 *₹ 9.75 crore for habitations and ₹ 0.64 crore for schools*

In the test-checked divisions[47], though 848[48] sanitary wells were to be constructed to cover 377 habitations and 94 schools at an estimated cost of ₹ 11.34[49] crore, only 263[50] sanitary wells (June-July 2011) covering 115 habitations and 34 schools were constructed at a cost of ₹ 2.50 crore[51]. Audit scrutiny in the test-checked divisions revealed that no Detailed Project Reports (DPR) were prepared. Instead, model estimates were treated as DPRs and the schemes were sanctioned without assessing their technical feasibility. It was also observed that efforts for construction of remaining 585 sanitary wells were not done because wells were being filled up with sand in gangetic zone and construction of sanitary wells in these areas became difficult. Further, 160[52] out of 263 sanitary wells constructed in test-checked divisions costing ₹ 1.62 crore were non-functional due to non-installation of hand pumps.

Sanitary wells in arsenic affected habitation were constructed without ensuring the technical feasibility of the scheme.

Thus, the sanctioning of construction of sanitary wells without ensuring the technical feasibility of the schemes resulted in non-completion of 585 sanitary wells and 262 habitations being deprived of safe drinking water as of March 2011. In addition, non-installation of hand pumps rendered 160 sanitary wells non-functional resulted in unfruitful expenditure of ₹ 1.62 crore.

The CE (Urban), PHED in exit conference (November 2011) also stated that in absence of suitable technology to treat arsenic, contamination sanitary wells were constructed as temporary measures but due to alluvial soil, construction of wells to the required depth became difficult.

2.2.9.3 Work awarded without ensuring availability of land

Para 7.5 of Cabinet resolution 948 (July 1986) envisaged acquisition of land for any work before putting the work to tender.

In order to supply safe drinking water to 130 arsenic affected villages under Simri and Buxar blocks of Buxar district, the Department sanctioned (March 2008) multi village piped water supply scheme for ₹ 112.57 crore. Based on tender, EE, PH Division, Buxar executed agreement (June 2009) with M/s IVRCL Infrastructure & Project Ltd., Hyderabad at a negotiated price of ₹ 100.50 crore for completion by November 2011.

Work of multi village piped water supply scheme was awarded without ensuring availability of land.

Audit scrutiny revealed that the work was awarded and commenced without acquiring the land. The agency laid pipes, fittings and other items and was paid ₹ 76.78 crore (March 2011). Though ₹ 1.44 crore was paid to Land Acquisition Officer (LAO), Buxar (January 2010) for land acquisition but the LAO did not make available land for this scheme. The possibility of completion of this work within the stipulated date appears to be bleak. The safety and security of material and works already completed for ₹ 76.78 crore

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47 *Bhagalpur, Buxar, Khagaria and Samastipur*

48 *Habitations : 754 and School : 94*

49 *Habitations : ₹ 10.05 crore and schools : ₹ 1.29 crore*

50 *Habitations : 229 (Buxar : 124, Bhagalpur : 17, Khagaria : 47, Samastipur : 41); School : 34 (Buxar : 13, Bhagalpur : Nil, Khagaria : 8, Samastipur : 13)*

51 *Bhagalpur : ₹ 0.25 crore, Buxar : ₹ 1.52 crore, Khagaria : ₹ 0.24 crore and Samastipur : ₹ 0.49 crore*

52 *Buxar : 137 nos. and Khagaria : 23 nos.*

was also a matter of concern. Furhter, non-acquisition of land might also result in price escalation/ damage claim by the contractor. The above facts revealed that the Department exhibited undue haste in entering into this contract without ensuring availability of land and the affected habitations continued to be deprived of safe drinking water.

The CE (Urban), PHED in exit conference (November 2011) stated that work would be put to tender after land acquisition in future.

2.2.9.4 Installation of arsenic removal attachment unit without conducting pre-test of tube well water

In the minutes of SLSCC (November 2009), a provision was made for installation of arsenic removal attachment units as alternate/immediate relief in arsenic affected schools. Priority for installation of the attachment units was to be fixed on the basis of level of water contamination in schools.

Based on tenders, EE, PH Division, Buxar executed a contract (April 2010) with M/s Anir Engineers Inc., Kolkata for the supply, installation and maintenance of 500 Arsenic removal hand pump attachment units in the arsenic affected rural schools. The agreement value of this contract was ₹ 2.66 crore and the work was to be completed by March 2011.

The agency installed (August 2011) only 162 units against the target of 500 arsenic removal attachment units at a cost of ₹ 1.46 crore.

The details of installation of arsenic removal hand pump attachment unit in the test-checked divisions were as under:

Table no. 3
Target and achievements regarding Arsenic removal hand pump attachment units in schools

Sl. No.	District	Physical target	Achievement		Pre-test report of site issued	Expenditure incurred (₹ in lakh)
			Supply	Installation		
1.	Bhagalpur	42	12	0	Done	0.05
2.	Buxar	38	38	30	Done	16.15
3.	Khagaria	38	38	0	Not done	16.15
4.	Samastipur	38	38	38	Not done	7.95
	Total	**156**	**126**	**68**		**40.30**

Installation of arsenic removal attachment unit without conducting pre-test of tube well water resulted in unfruitful expenditure of ₹ 34.19 lakh.

Out of the 126 units supplied (September 2011), only 68 units (44 *per cent*) were installed (September 2011) and payment of ₹ 40.30 lakh was released. It was observed that PH Division, Buxar installed 19 units costing ₹ 10.09 lakh at such schools where arsenic contamination levels were within the permissible limit. Further, in two test-checked districts[53] though units were installed/sites given without conducting the required pre-test of tube-well water to determine priority in respect of contamination in groundwater sources of schools yet the payment of ₹ 24.10 lakh was released by the divisions in violation of the SLSCC provision. Further, installation of only 68 units in the

[53] *Khagaria and Samastipur*

schools indicates department's failure in getting the work executed by the contractor within the stipulated period resulting in children of the schools being deprived of the safe drinking water.

Thus, selection of schools without conducting pre-test of raw water and installation of the treatment units at schools without actual assessment of requirement or where the arsenic contamination levels were within the permissible limit, resulted in unfruitful expenditure of ₹ 34.19 lakh.

The CE (Urban), PHED in exit conference (November 2011) stated that concerned PH divisions would be asked for not following instructions regarding conduction of pre-test of raw water before installation of attachment units.

Scheme for Fluoride treatment

Fluoride occurs naturally in groundwater where the soil is rich in fluoride-containing minerals. Long term consumption of water containing fluoride above the permissible level can give rise to dental fluorosis, skeletal and non-skeletal fluorosis and cause damage to soft tissues, organs and systems in the body. As per Indian Standard (BIS-10500), the maximum acceptable limit of fluoride was 1 mg/l (ppm) and permissible limit in the absence of alternate sources was 1.5 ppm. In Bihar, there were 11 districts affected with fluoride contamination having 4157 habitations.

2.2.9.5 Poor coverage of fluoride affected habitations

Against 4157 fluoride affected habitations, 3629 habitations were still deprived of safe drinking water.

The department started three types of fluoride contamination mitigation schemes viz. fluoride removal attachment units[54], solar based fluoride treatment plant[55] and piped water supply scheme[56] during 2006-11. The Department sanctioned nine schemes[57] costing ₹ 225.81 crore to provide fluoride free drinking water to 1829 habitations and 1000 schools during 2006-11 and covered 528 habitations and 101 schools after incurring expenditure of ₹ 41.80 crore as of March 2011 ***(Appendix-2.5.)***.

Audit scrutiny revealed that the department initiated schemes to cover only 1829 against 4157 fluoride affected habitations and could cover only 528 habitations and 101 schools, resultantly 3629 habitations and 899 schools were deprived of safe drinking water as of March 2011. Further, it was also observed that reason for less coverage of affected habitations was mainly due to delay in finalisation of tender, department's failure in getting the work executed by the contractor within the stipulated period and delayed sanction of schemes for the affected habitations.

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54 *Filter attached with hand pumps for removal of fluoride contamination.*

55 *The fluoride treatment plant is based on adsorption technology by constructing deep tube well and purification of water through filter attached with the plant.*

56 *The safe drinking water facility by using fluoride free water by tapping Ganga water.*

57 *Solar based fluoride treatment plant: 4 nos., fluoride removal attachment units:3 nos. and piped water supply scheme:2 nos.*

2.2.9.6 Unfruitful expenditure on Fluoride Removal Attachment Units

In January 2008, SLSCC approved the award of work for supply and commissioning of 1000 fluoride/arsenic[58] removal attachment units at a cost of ₹ 4.22 crore. The agreement was executed (June 2009) with M/s Anir Engineers Inc., Kolkatta. Though the work was to be completed within six months (December 2009), installation of 875 fluoride removal attachment units were completed only in March 2011 after incurring an expenditure of ₹ 3.69 crore.

Audit observed that agency supplied 75 fluoride removal attachment units in PH Division, Banka and received payment of ₹ 27 lakh. Of which, only 43 were installed as of March 2011. However, inspite of the installation of these units, the concentration of fluoride in raw water and in treated water of 32 units remained same resulting in unfruitful expenditure of ₹ 11.52 lakh. This puts question mark on the quality of the units installed for mitigation of fluoride contamination in raw water.

Iron contamination mitigation measures

Presence of excess iron in water makes it unfit for drinking purposes though it does not have any adverse effect on health. Such water stains clothes and utensils during washing and consumes excess fuel and time during cooking. As per Bureau of Indian Standard (BIS-10500) for drinking water, the maximum acceptable limit of iron was 0.3 mg/l and the permissible limit in the absence of alternate sources was 1 mg/l. As per PHED data, 18673 habitations were affected with iron contamination in nine districts. The Department started two types of mitigation schemes for iron contamination viz. hand pumps with iron removal plant[59] and solar based iron treatment plant[60] as discussed in following paras:

2.2.9.7 Poor coverage of iron affected habitations

Against 18673 iron affected habitations, 18250 habitations were still deprived of safe drinking water.

During the period 2006-11, four schemes[61] were sanctioned by the Department for ₹ 240.04 crore to provide iron free drinking water in 10296 iron affected habitations. Despite incurring an expenditure of ₹ 41.07 crore, only 423 habitations were provided iron free drinking water till March 2011 ***(Appendix-2.5)***.

Audit scrutiny revealed that the department initiated schemes to cover only 10296 against 18673 iron affected habitations and could cover only 423 habitations. As a result 18250 habitations were deprived of safe drinking water as of March 2011. Further, it was also observed that reason for less coverage of affected habitations was mainly due to department's failure in getting the

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58 *Arsenic-125 nos. and fluoride-875 nos.*

59 *Filter attached with hand pumps for removal of iron contamination.*

60 *Solar based iron treatment plant based on technology to operate pump through solar system and water was to be purified by filter.*

61 *Hand pumps with Iron Removal Plant: 3 nos. and solar based iron treatment plant: 1 no.*

work executed by the contractor within the stipulated period and delayed sanction of schemes for the affected habitations.

2.2.9.8 Iron removal plant installed without required test

IRPs were installed without conducting pre-test of the groundwater sources.

To provide iron free drinking water in the affected districts having excessive iron content (5 to 8 ppm), installation of 4703[62] hand pumps with Iron Removal Plants (IRPs) were sanctioned in February and July 2006. Based on tender (February 2009), the work regarding supply and installation of IRPs was awarded (June 2009) to M/s Anir Engineers Inc., Kolkata by the Engineer-in-chief and agreement executed (July 2009) by EE, PH Division, Madhepura for 4703 IRPs costing ₹ 11.03 crore for completion by June 2010.

According to work order, EEs were directed to identify the affected habitations in their respective districts and fix the priority according to the highest contamination level. The hand pumps water quality report was to be obtained before installation of units.

In the test-checked districts, installation of 2049 IRPs costing ₹ 6.51 crore were sanctioned as detailed in **Table no. 4**:

Table no. 4
Target and achievement of IRPs in the test-checked districts

(₹ in crore)

Sl. No.	Name of districts	Estimated cost	Target	Achievement		Expen-diture	Pre-test report of raw water
				Supply/ Date of supply	Installation		
1	Purnia	3.66	1151	1151/ October 2010	85	2.74	Not done
2	Saharsa	1.36	428	428/ January 2010	42	1.09	Not done
3	Supaul	1.49	470	452/ March 2010	5	0.97	Not done
	Total	**6.51**	**2049**	**2031(99)**	**132 (6)**	**4.80**	

(Figure in brackets represents percentage)

Against 2049 IRPs to be installed, 2031 IRPs (99 *per cent)* were supplied (September 2011) and payment of ₹ 4.80 crore was released to the agency. Of these, only 132 IRPs (six *per cent)* were installed. Department's failure in getting the work executed by the contractor within the stipulated period can be seen from the fact that 1917 units had remained uninstalled as of November 2011. Audit scrutiny revealed that the divisions did not conduct pre-test of the groundwater sources before the installation of units.

EEs of the concerned PH Divisions agreed with the audit that pre-test of raw water was not conducted by the division and stated that units remained uninstalled as agencies did not turn up even after repeated request.

Thus, in absence of pre-test, the expenditure of ₹ 4.80 crore incurred on installation of iron removal plants could not be vouched for.

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[62] *Araria : 536, Begusarai : 245; Katihar : 538; Khagaria : 240; Kishanganj : 626; Madhepura : 469; Purnea : 1151; Saharsa : 428; Supaul : 470*

2.2.9.9 Jalmani programme

As per work order issued to concern EEs of PH Divisions, EEs were directed to identify the schools with contaminated source of water in their district and fix the priority according to the highest contamination level. The hand pumps water quality reports were to be obtained before installation of units.

Jalmani programme was a 100 *per cent* centrally sponsored programme launched by GOI in 2008-09 with the objective of providing safe drinking water to school children by installing water purification systems and attachment units. The GOI released ₹ 7.66 crore during 2008-09 for installing purification systems and attachment units in 3000 schools. The treatment units were not to be installed at an unaffected source.

Accordingly, the Government in January 2010, sanctioned five schemes[63] for treatment of arsenic, fluoride and iron contamination and incurred an expenditure of ₹ 4.06 crore upto March 2011 on installation of IRP units/fluoride removal attachment units in 1599 schools *(53 per cent)*.

Audit scrutiny revealed that in the six[64] test-checked districts fluoride and iron removal attachment units were installed in only 399 schools against the target of 480[65] schools during 2010-11 at a cost of ₹ one crore. Further, audit in arsenic affected districts[66], observed that the department had not initiated any mitigation scheme under Jalmani programme. **Table no. 5** below indicates the targets and achievements under the Jalmani programme in the test-checked districts:

Table No. 5
Targets, achievements and expenditure in Jalmani programme

(₹ in lakh)

IRPs/fluoride removal attachment units were either installed without conducting pre-test of water sources or in places where contamination level was within permissible limit.

Name of scheme	Name of district	Physical target of attachment unit	Date of commencement of scheme	Due date of completion of scheme	Achieve-ment	Expen-diture
Fluoride removal attachment unit	Banka	50	April 2010	March 2011	50	13.42
	Jamui	50			50	13.42
	Nawada	45			45	12.08
Iron removal attachment unit	Purnia	115	April 2010	March 2011	115	22.19
	Saharsa	110			71	19.60
	Supaul	110			68	19.60
Total		**480**			**399**	**100.31**

Further, scrutiny of pre-test reports of raw water before installation of fluoride removal attachment units revealed that the concentration of fluoride in 14 schools were within the permissible limit in Jamui and Nawada districts. Thus, expenditure of ₹ 5.37 lakh[67] on installation of fluoride removal attachment

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63 *Fluoride: removal attachment unit: 500 schools, Arsenic :500 schools (RO/UV-100 and removal attachment unit: 400) and Iron : 2000 schools (1000 attachment unit and 1000 terafilters)*

64 *Fluoride : Banka, Jamui and Nawada; Iron : Purnia, Saharsa and Supaul*

65 *Fluoride removal attachment unit: 145 and iron removal attachment unit : 335*

66 *Bhagalpur, Buxar, Khagaria and Samastipur*

67 *14 x ₹ 38349 = ₹ 536886*

units was unfruitful. In all the iron affected districts, pre-test of raw water before installation of iron removal attachment unit was not conducted though ₹ 61.39 lakh was expended on these units. Consequently, the efficacy of ₹ 66.76 lakh expended on these units was doubtful and also against the provision of work order. Further, delayed implementation of schemes by the department even after the release of funds by GOI and covering merely 53 *per cent* schools deprived the school children of these districts of safe drinking water.

The CE (Urban), PHED in exit conference (November 2011) stated that after confirming facts about non-conduction of pre-test of raw water, it would be intimated to audit.

2.2.9.10 Non- maintenance of water quality projects

In the absence of operation and maintenance policy, even the treated water was found contaminated.

Clause 9.4 of NRDWP guidelines envisaged incentives for States to decentralise and hand over water supply systems for management, operation and maintenance to Gram Panchayats (GP).

Audit scrutiny in the test-checked PH Divisions revealed that the water supply systems created under the schemes were not handed over to the GPs. Further, subsequent to the completion of the maintenance period (August 2010) of the two mitigation schemes, the arsenic content of treated water in Bhagalpur district (Srirampur and Gosaidaspur village of Nathnagar block) was found (August 2010) at 100 ppb in Srirampur and 150 ppb in Gosaidaspur against the permissible limit of 50 ppb. Thus, quality of water was badly affected due to non-maintenance of the assets created after the completion of operation and maintenance period of schemes by the agencies.

The CE (Urban), PHED in exit conference (November 2011) stated that operation and maintenance policy was being prepared by the department.

Thus, in absence of any operation and maintenance policy for the completed schemes, arsenic contaminated water continued to be consumed by the habitations.

2.2.10 Support Activities

Under the National Rural Drinking Water Quality Monitoring and Surveillance (NRDWQM&S) programme, 100 *per cent* funds were provided by GOI for Information, Education and Communication (IEC) activities, Human Resources Development (HRD) activities and for strengthening of district level laboratories, procurement of Field Testing Kits etc.

The IEC activities were to be conducted in a manner to create awareness about consumption of safe drinking water among masses. However, the department failed to conduct basic activities like audio-visual publicity, wall writing and hoarding at block headquarters. It was also observed that the expenditure on inter-personal communication (door-to-door contact) activities was only 14 *per cent.*

Audit scrutiny of the support activities revealed the following:

2.2.10.1 Information, Education and Communication activities

The objective of IEC activities were to create willingness among the beneficiaries to pay for the construction of sanitation and water supply systems, create awareness about proper storage, handling and consumption of safe drinking water and to protect drinking water from pollution. IEC strategy included inter-personal communication, audio-visual publicity, hoardings and wall writing, slogan, picture frames, group meetings, street play, participatory rural appraisal and exhibitions.

Audit scrutiny of the records revealed that out of the available funds of ₹ 5.40 crore (2006-11) under this component, ₹ 4.31 crore (80 *per cent*) was reportedly shown as expenditure by the department. This included amount of ₹ 1.97 crore released to different DWSCs for commissioning of hoardings and wall writing (January 2011) and were booked as expenditure. These amounts were lying unused in the respective PH Divisions as of March 2011.

The department undertook 10[68] types of IEC activities during 2006-11, but failed to conduct any audio-visual publicity, wall writing and hoarding at block headquarters. It was also observed that the expenditure on inter-personal communication (door-to-door contact) activities was only 14 *per cent.* Hence, the IEC activities were not conducted efficiently resulting in non-optimisation of anticipated benefits from this component.

The CE (Urban), PHED, in exit conference (November 2011), stated that output based IEC activities would be conducted for appropriate outcome.

2.2.10.2 Unfruitful expenditure on Human Resource Development activities

The expenditure of ₹ 5.20 crore on training of grass root level workers and purchase of FTKs was rendered unfruitful due to non-conducting of chemical test of water sources.

In accordance with the NRDWQM&S programme, the BSWSM prepared training module for village level worker emphasising the importance of safe drinking water. Against the total available funds of ₹ 3.15 crore (2006-11), the department spent ₹ 3.13 crore on training of 32942 personnel (77 *per cent)* against the target of 42507 at the district, block and GP levels during 2008-09. The balance amount was lying unused with the department (March 2011).

The training module required the trained personnel to conduct chemical test at least twice a year (pre-monsoon and post-monsoon) for every groundwater sources. For this purpose Field Testing Kit (FTK) costing ₹ 2.07 crore (March 2009) were purchased.

Scrutiny of records of the ten test-checked districts disclosed that out of the 2777 FTKs received, 2578 FTKs were distributed to GPs (March 2011).

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[68] *(i) Camp of five days duration for creating general awareness in the community about the importance of safe water (ii) Mass campaign, public contacts, campaign in schools and interpersonal communication/ demonstration (iii) Sanitary survey of all the sources (iv) Printed materials (v) Advertisement in newspaper (vi) Hoarding at district headquarters (vii) Hoarding at block headquarters (viii) Video film of 30 seconds each (ix) Charges for airing on TV channels and (x) Message through radio before and after regional news.*

Though 4,57,564 samples[69] were to be tested by the GPs, only 6,258 (one *per cent*) test reports were submitted by GPs ***(Appendix-2.6).*** Hence, the benefits of spending ₹ 5.20 crore on training of grass root level workers and purchase of FTKs remained unfruitful.

The CE (Urban), PHED in exit conference (November 2011) stated that the grass root level workers showed east interest in the testing of water quality without any incentive.

2.2.10.3 Water quality testing by district laboratory

According to NRDWP guidelines, chemical and physical parameters tests of all groundwater sources were to be carried out once a year. For this purpose, one laboratory each at the district and at subdivision level was required to be established. Audit observed that there were only 38 PH laboratories at district level but none at sub-division level, though ₹ 4.74 crore were provided for establishment of these laboratories during 2010-11.

Audit scrutiny further revealed that the Department did not follow the norms for the testing of water sources as per NRDWP guidelines. Instead, it fixed a monthly target of 100 tests of water samples for each laboratory. The performance of divisional laboratories in the test-checked districts during 2006-11 relating to testing of water samples is shown in **Table No. 6**:

Table No. 6

Shortfall in water testing

District	No. of tests required to be done as per department	No. of water samples tested in five years	Percentage of shortfall
Buxar	6000	3290	45
Banka	6000	0	100
Samastipur	6000	2419	60
Khagaria	6000	3270	45
Jamui	6000	2527	58
Bhagalpur	6000	1642	73
Saharsa	6000	1838	69
Supaul	6000	3205	47
Purnia	6000	1813	70
Nawada	6000	2441	59
Total	**60000**	**22445**	

(Source: Data furnished by PHED and PH Divisions)

The Department fixed the target of testing of groundwater sources without any reference to the NRDWP guidelines. Even the target so fixed was also not achieved.

Against target of 60,000 tests fixed by the department without any reference to the scheme guidelines, only 22,445 (37 *per* cent) tests were conducted during 2006-11. The percentage of shortfall in the 10 test-checked districts ranged between 45 and 100 *per cent.*

The CE (Urban), PHED in exit conference (November 2011) stated that shortfall in water testing was mainly due to lack of manpower and infrastructure and the 100 *per cent* shortfall in Banka district was due to the non-establishment of laboratory till May 2011.

[69] *Total number of ground water sources in the test-checked divisions : 228782 x 2 = 457564 water samples to be tested*

2.2.11 Monitoring and Inspection of the facilities set up

Pollution amelioration schemes were not monitored periodically and deficiencies/ shortcomings remained unaddressed.

According to NRDWP guidelines, monitoring through field inspections by officers at the State and the district levels were essential for the effective implementation of the programme. District Water and Sanitation Committee (DWSC) were required to constitute teams of experts in the concerned districts to review the implementation of the schemes in different blocks at least once in a quarter. Similarly, the State Water and Sanitation Mission (SWSM) were required to conduct reviews of the programme in the district once in six months.

Audit scrutiny revealed that neither such review nor any inspection was conducted at the district or block levels as per records available in the test-checked divisions/Headquarters. Consequently, the progress of various pollution amelioration schemes were not monitored periodically and deficiencies/shortcomings could not be addressed to. The EEs failed to comply with the PHED instructions of getting the water samples drawn from the treatment plant/unit, tested by chemists in the district laboratory every 15 days and to ensure entry of testing result in the log book. Thus monitoring and inspection of the facilities set up was almost absent.

The CE (Urban), PHED in exit conference (November 2011) stated that monitoring cell at headquarter level and reform support unit for monitoring was under proposal.

2.2.12 Conclusion

The Department did not prepare any Annual Action Plans upto 2008-09, as a result of which the progress in implementation of mitigation schemes during this period was slow inspite of availability of funds. The Department in violation of ARWSP guidelines selected the habitations under mitigation schemes without any reference to sources with highest contamination levels. Non-conducting of meetings by the Water Quality Review Committee indicated lack of co-ordination between the Central and State agencies which ultimately affected the selection process. The financial management by the department was unsatisfactory due to under utilisation of available funds, due to release of funds at the fag end of financial year and retention of funds in Civil Deposit. The Department could cover only six *per cent* of arsenic, fluoride and iron affected habitations during this period. Instances of construction of sanitary wells without ensuring their technical feasibility, awarding of work without ensuring availability of land, installation of arsenic, fluoride and iron removal attachment units without conducting pre-test of raw water were also observed. In the absence of an operation and maintenance policy, the contamination level of water even after mitigation schemes was higher than the permissible limits. The monitoring and inspection of the facilities set up was absent. In spite of incurring an expenditure of ₹ 396.51 crore during 2006-11, the implementation of various groundwater pollution mitigation schemes failed to have its desired impact.

2.2.13 Recommendations

The Government may consider to:

- prepare an Annual Action Plan and also sanction mitigation scheme as per priority of contamination level.
- make financial management realistic against the target of coverage of habitations and ensure efficient utilisation of available funds.
- insist upon pre-test of raw water to establish the extent of contamination before sanctioning any mitigation schemes.
- formulate a long term operation and maintenance plan at the departmental level so that the assets created at a cost are maintained and deliver their intended benefits.
- consider regular assessment of the impact of implemented Schemes so that shortcomings are identified and addressed to.