CHAPTER II

Performance Reviews relating to Government Companies

2.1 Implementation of Accelerated Irrigation Benefit Programme by Karnataka Neeravari Nigam Limited and Krishna Bhagya Jala Nigam Limited.

Executive Summary

This performance review examined the effectiveness in completion of four out of six irrigation projects proposed by the State (between 1996-97 and 2007-08) under Accelerated Irrigation Benefit Programme (AIBP) launched by Government of India (GOI) with a view to accelerate irrigation potential within a short period of four agricultural seasons.

The six projects included two projects (UKP Stage I - Phase III and UKP - Stage II) executed by Krishna Bhagya Jala Nigam Limited (KBJNL) and four projects (Malaprabha, Ghataprabha, Ganodirinala and Varahi) executed by Karnataka Neeravari Nigam Limited (KNNL). The four projects test checked by Audit were UKP Stage-I-Phase III, UKP Stage II, Ghataprabha and Varahi for their implementation during the period 2003-09.

Under AIBP, the funds were released in the form of Central Loan Assistance (CLA) towards works expenditure in the ratio of 2:1 between Centre and State since 1999-2000. With effect from April 2004, 30 per cent of CLA received was convertible to Grant on timely completion of project under terms of Memorandum of Understanding between Central and State Governments.

Non-achievement of objective

The works posed under AIBP estimated at a cost of Rs. 3,135.63 crore had a cost over run of Rs. 2,011.90 crore (March 2009) based on (March 2008) estimates of Rs. 5,147.53 crore. Further, as against 3,47,120 Ha. potential proposed for creation under UKP stage I Phase III and Stage II and 1,57,120 Ha. under Ghataprabha Stage III, 3,27,297 Ha. and 1,47,401 Ha. was created up to March 2009 respectively, after a time over run of eight years. Even the dry potential created has not been converted to wet potential to the extent of 13 per cent, thereby the ultimate objective of bringing benefit to farmers remained partly unfulfilled.

Slow progress of works

During the review period 2003-09, in none of the years the budgeted works could be completed. The actual expenditure incurred on the budgeted works ranged from 36.51 per cent to 72.65 per cent (UKP Stage-I- Phase III), 50.86 per cent to 82.73 per cent (UKP Stage-II) and 45.01 per cent to 69.41 per cent (Ghatprabha-Stage-III).

The delay was attributable to problems of land acquisition, change in scope of works, extra financial implications during execution, insufficient monitoring, etc.

Non completion of canals / distributaries, non synchronization of works coupled with delay in awarding works has also led to delay in potential creation of 0.40 lakh Ha. between 2004-09 in test checked projects.

Loss of grant

The State received Rs. 599.25 crore (March 2005 to April 2008) as grant under Memorandum of Understanding for timely completion of project in respect of UKP stage I Phase III and Stage II. As the State failed to comply with the agreed target date of completion of the projects as stipulated in the MOU entered between GOI and GOK, the grant was liable to be treated as loan bringing an additional burden on the State exchequer.

Conclusion and recommendations

The delay in implementation of projects could have been avoided with better planning and monitoring. The review contains five recommendations to improve the performance.

Introduction

The Government of Karnataka (GOK) took up a number of irrigation / multipurpose projects prior to 1990s and works were executed by the Water Resources Department. To overcome constraints in funding irrigation projects out of State funds it formed Krishna Bhagya Jala Nigam Limited (KBJNL) and Karnataka Neeravari Nigam Limited (KNNL) during 1994-95 and 1998-99 under Companies Act, 1956 respectively so as to enable them to raise funds from external sources (*eg.,* by floating irrigation bonds, loans from financial institutions *etc.,*) and execute the projects. KBJNL was formed for execution of Upper Krishna Project (UKP) and KNNL was formed for execution of other projects under 'Krishna Basin'.

During the year 1996-97, the Government of India (GOI) launched Accelerated Irrigation Benefit Programme (AIBP). The objective of AIBP was to accelerate the completion of ongoing selected major and medium irrigation projects, which were in an advanced stage of completion or which could be completed within short period of four agricultural seasons. The GOK proposed nine projects[12] under AIBP assistance for which the GOI provided assistance in the form of Central Loan Assistance (CLA). Of these, two projects (UKP Stage I-phase III and UKP Stage II) were executed by KBJNL, four projects (Malaprabha, Ghataprabha, Ganodirinala and Varahi) were executed by KNNL and the remaining projects (Karanja, Hirehalla and Maskinala) were executed by the Water Resources Department of GOK.

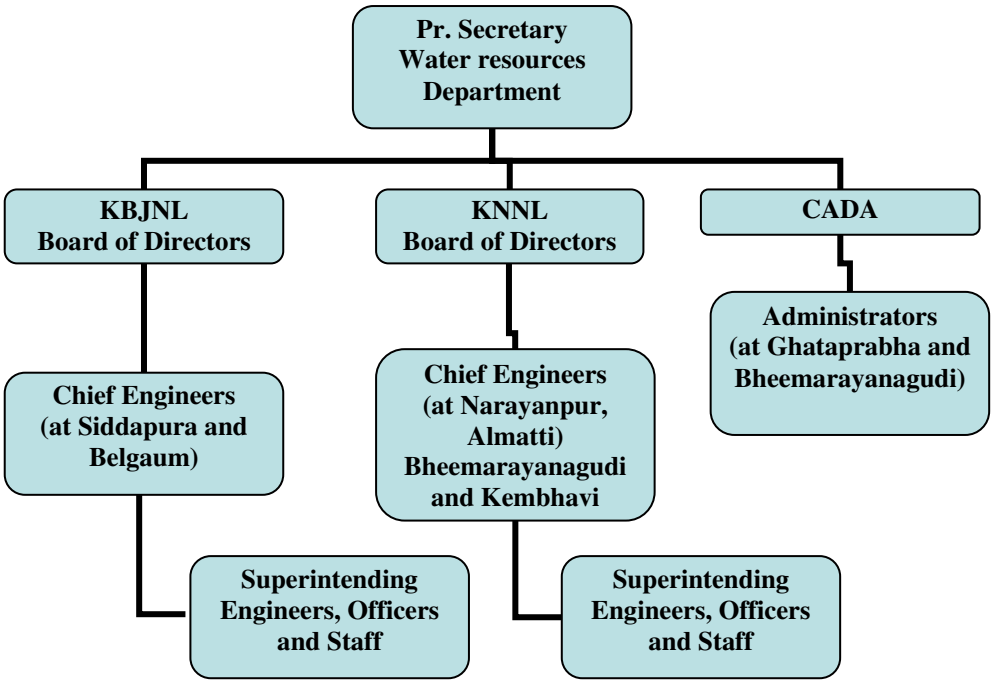
The Companies (KBJNL and KNNL) are involved in the creation of canals, distributaries and laterals and the irrigation potential so created is termed as dry potential.

At the commencement of the Fifth Five Year Plan (1974-80), in pursuance of the policy of Government of India, the Command Area Development Authority (CADA) was launched in the State for integrated and comprehensive development of the Command Areas of major and medium irrigation projects. The GOK had constituted (1970) CADA with the objective to reduce the gap between irrigation potential created (dry potential) and utilized to increase production per unit of water and land and to reduce the loss of irrigation water in the conveyance system to improve its efficiency at farm level to ensure equitable distribution of water. The CADA is responsible for creation of field irrigation channels (FICs) to take water to the fields (wet potential) after creation of dry potential. In respect of AIBP assisted projects, two CADAs (*i.e.,* UKP at Bheemarayanagudi and Ghataprabha project at Belgaum) were involved in the creation of wet potential.

[12] **UKP Stage-I-Phase III, UKP Stage II, Malaprabha, Ghataprabha Stage III, Gandorinala, Varahi, Maskinala, Karanja and Hirehalla. Varahi was proposed in 2007-08 on completion of Maskinala project.**

Organisational set up

2.1.2 The Principal Secretary to the Government of Karnataka is in charge of the Water Resources Department in the State. The KBJNL and KNNL are managed by the Board of Directors headed by the respective Chairman. The Managing Director (MD) is the Chief Executive of the Company. In respect of CADA, the respective Administrators at Bheemarayanagudi and Ghataprabha reported to the GOK. The Organisational chart is as follows:



At specific directions of Government, a Monitoring and Evaluation Cell headed by Superintending Engineer was formed at Bangalore to co-coordinate and monitor the AIBP projects.

Scope of Audit

2.1.3 The implementation of the AIBP programme to the end of March 2003 was reviewed in respect of seven[13] projects and included in the Union Report of the Comptroller and Auditor General of India for year ended 31 March 2003. Further, performance review on implementation of Lift Irrigation Schemes under the said projects has been included in the Audit Report (Commercial), Government of Karnataka, of the Comptroller and Auditor General of India for the year ending 31 March 2007.

The present Performance, Audit covers the implementation of the AIBP programme in respect of four projects[14] (out of total six projects implemented by KBJNL and KNNL) during the period April 2003 to March 2009. The total estimated cost of six projects proposed under AIBP initially was Rs. 3,571.23 crore which has risen to estimated Rs. 5,583.13 crore as of

[13] **UKP Stage-I-Phase-III, UKP Stage-II, Malaprabha, Ghataprabha Stage III, Gandorinala, Maskinala and Hirehalla.**

[14] **UKP Stage-I-Phase III, UKP-Stage-II, Ghataprabha Stage III and Varahi.**

March 2009 (**Annexure- 9**). The expenditure incurred during 2003-09 on six projects was Rs. 2,551.41 crore. Of this the expenditure incurred on four projects selected for review was Rs. 1,754.07 crore. The scope of the present review is based on scrutiny of records related to the role of the Company (*i.e.,* up to creation of dry potential) by utilizing AIBP funds in selected components of the four test checked projects.

Overview of the sampled projects

Upper Krishna project (Stage I and Stage II)

2.1.4 The Krishna Water Disputes Tribunal adjudicated on the sharing of Krishna water between the states of Maharashtra, Karnataka and Andhra Pradesh based on 75 *per cent* dependability. The water allocation for three states was Maharashtra (560 tmc[15]), Karnataka (700 tmc) and Andhra Pradesh (800 tmc). Including regeneration, the total water available to Karnataka for utilisation was about 734 tmc. Out of this, Upper Krishna Project (UKP) was allotted 173 tmc.

The UKP consists of construction of two dams across the river Krishna and a network of canals. The main storage is at Almatti Dam, downstream of the confluence of Ghataprabha and Krishna rivers. A lower dam, Narayanpur Dam, serves as a diversion dam. The Project is planned to be implemented in different stages and phases. Stage-I of the project plans to utilise 119 tmc of water to irrigate 4.25 lakh hectares (Ha.) of lands on the left bank of the river. In Stage-II, 54 tmc of water is planned to be utilised to irrigate 1.97 lakh Ha. of lands partly by flow irrigation on right bank and partly by lift irrigation to higher levels on the left and right bank. The Components of Stage I and Stage II alongwith envisaged potential are given below:

Stage I components	**Potential creation (Ha.)**
Narayanpur Dam and allied works and Almatti Dam in full height with crest level at level 509.016 metres for construction of dam of Stage-II requirement.	
Construction of Narayanpur Left Bank Canal (NLBC)	47,223
Construction of Shahpur Branch Canal (SBC)	1,22,120
Construction of Mudbal Branch Canal (MBC)	51,000
Construction of Indi Branch Canal (IBC)	1,31,260
Construction of Jewargi Branch Canal (JBC)	57,100
Construction of Almatti Left Bank Canal (initial 67.64 kms)	16,200
Total	**4,24,903**
Stage II components	
Almatti Right Bank Canal	16,100
Rampur Lift Irrigation Scheme (under Narayanpur Reservoir)	20,235
Narayanpur Right Bank Canal up to Km. 95	84,000
Indi Lift Irrigation Scheme	41,900
Mulwad Lift Irrigation Scheme	30,850
Almatti Left Bank Canal extension (Km. 67.64 to 93)	4,035
Total	**1,97,120**

[15] **thousand million cubic feet.**

The AIBP funding was for following components of Stage I and Stage II (in Ha.)

Components	**Potential creation (Ha.)**
Indi Branch Canal from Km. 64 to 172 with distribution system	70,539
Jewargi Branch Canal Km. 0 to 67 with distribution system	57,100
Almatti Left Bank Canal (Km. 0 to 77.64)	16,200
Almatti Right Bank Canal (Km. 0 to 67)	16,100
Rampur Lift Irrigation Scheme Km. 0 to 37 and its distributaries	20,235
Narayanpur Right Bank Canal up to Km. 0 to 95 and its distributaries	84,000
Indi Lift Irrigation Scheme (Km. 0 to 97.30) and its distributaries	41,900
Mulwad Lift Irrigation Scheme (Km. 0 to 106) and its distributaries	30,850
Almatti Left Bank Canal extension (Km. 67.64 to 93)	4,035
Rehabilitation and Re-settlement works of Almatti Dam above level 509.016 metres.	
Total	**3,40,959**

Against the above potential to be created under AIBP, 1,56,759 Ha. was created up to March 2003 leaving a balance of 1,84,200 Ha.

Ghataprabha project

2.1.5 The Project comprises a reservoir across the river Ghataprabha, in Hukkeri taluk to provide irrigation to 3.11 lakh Ha. in Belgaum and Bagalkot districts. The Project comprised of dam from 49.68 metre to 53.34 metre, Ghataprabha Left Bank Canal (GLBC), distributaries under GLBC, Ghataprabha Right Bank Canal (GRBC), distributaries under GRBC, Chikkodi Branch Canal (CBC) and distributaries under CBC. Ghataprabha Left bank canal has been completed to its full length of 109 kms and water let out for irrigation.

Ghataprabha Stage III projected creation of 1,57,120 Ha. by lining GLBC-from Km. 51 to 109, construction of Ghataprabha Right Bank Canal (GRBC) - from Km. 47 to 202 and its distributaries and Chikkodi Branch Canal (CBC) - from Km. 36 to 88 and its distributaries. As 38,098 Ha. of irrigation potential was created prior to AIBP (March 1997) and 1,19,022 Ha. was posed under AIBP, of which, 45,120 Ha. was created (March 2003) leaving a balance of 73,902 Ha. to be created.

Varahi Project

2.1.6 Varahi river is a major west flowing river in west coast. Mani dam was built across this river for power generation and the tail race[16] discharge was about 1,100 cubic foot *per* second (cusecs). It was proposed to make use of this water by constructing a diversion weir as major irrigation project and provide irrigation to 0.16 lakh Ha. in Udupi district. The components of the Varahi irrigation project are construction of diversion wier across the river, common canal system (18.72 kms), Varahi Left Bank Canal (Km. 21 to 33) and distributaries, Varahi Right Bank Canal (Km. 18.72 to 42.80) and distributaries.

[16] **path through which water is pumped out of the hydro power plant after power generation.**

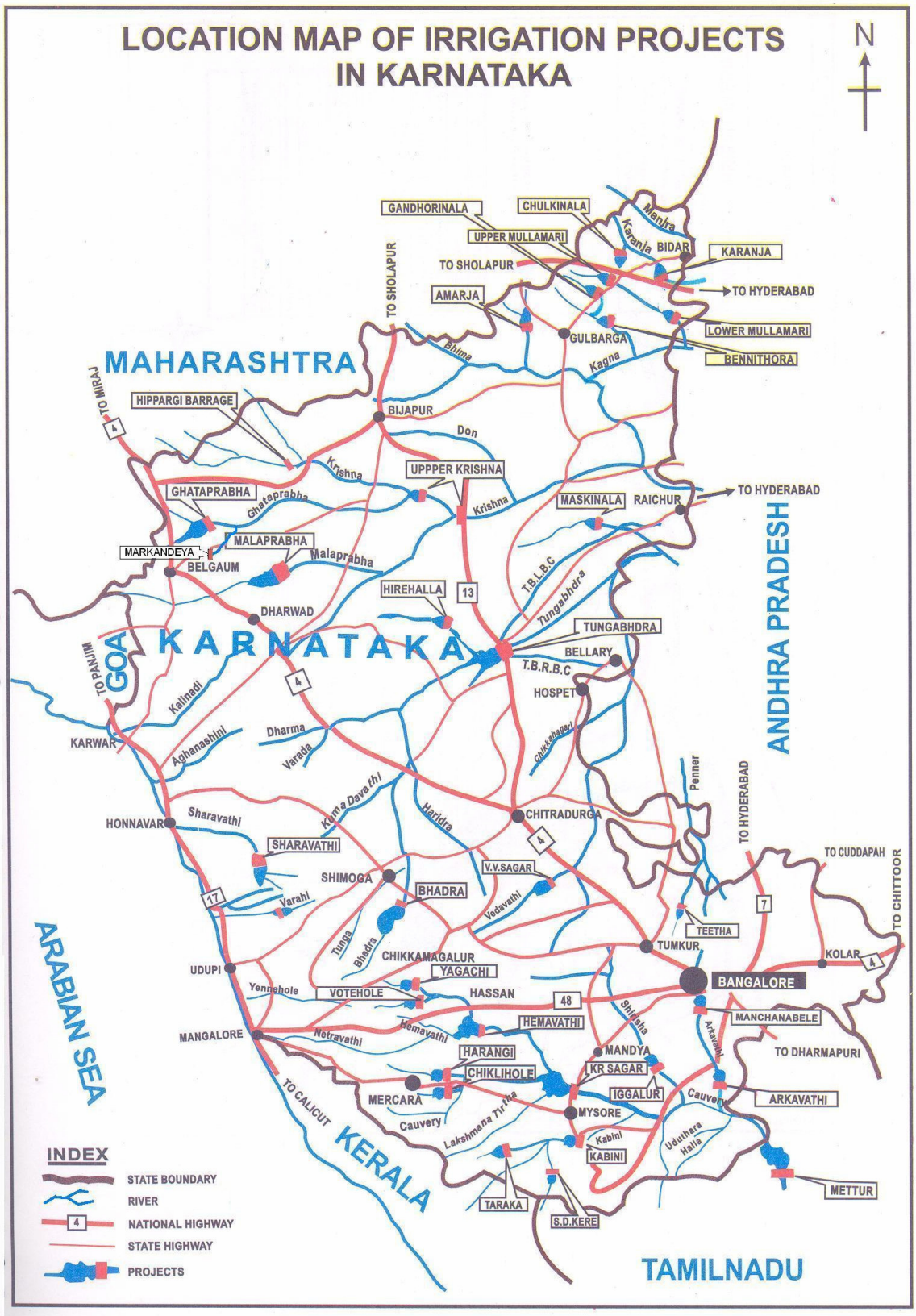
Components selected for test check in Audit

The components selected in the four projects are as follows:

Criteria	Total projects under the criteria	Selected projects	Selected components of projects[17]
Projects which were selected, approved and executed during 1996-2003 but were completed or are under implementation during 2003-08 (audit period)	➢ UKP-Stage I-Phase III ➢ UKP-Stage II ➢ Ghataprabha-Stage III ➢ Gandorinala ➢ Malaprabha	➢ UKP-Stage I-Phase III ➢ UKP-Stage II ➢ Ghataprabha-Stage III Of the five projects, the above three were selected based on materiality (expenditure incurred)	**UKP Stage-I Phase III and UKP Stage II** ➢ Indi Branch Canal from Km. 64 to 172 with distribution system ➢ Jewargi Branch Canal Km. 0 to 67 with distribution system ➢ Narayanpur Right Bank Canal up to Km. 0 to 95 and its distributaries ➢ Rehabilitation and Re-settlement works of Almatti Dam above level of 509.016 metres **Ghataprabha Stage III** ➢ Lining works for Ghataprabha Left Bank Canal (GLBC)-Km. 51 to 109. ➢ Ghataprabha Right Bank Canal (GRBC) from Km. 47 to 202 and its distributaries
Projects selected, approved and executed during 2003-09	➢ Varahi	➢ Varahi	➢ Construction of diversion wier across the river ➢ Common canal system (18.72 kilometres)

This performance review includes statistics from CADA records on wet potential to bring out the overall effectiveness of the scheme. The location map of irrigation projects in the State alongwith projects selected for test check is given below:

[17] **The selected components were test checked in Krishnapur, Chikvankuni, Bhimarayanagudi, Chigralli, Almel, Zalki, Koujalgi, Bilagi, Jamkhandi and Gaddankeri Divisions.**


LOCATION MAP OF IRRIGATION PROJECTS IN KARNATAKA
N
MAHARASHTRA
KARNATAKA
GOA
ANDHRA PRADESH
TAMILNADU
KERALA
ARABIAN SEA
GANDHORINALA
CHULKINALA
UPPER MULLAMARI
BIDAR
KARANJA
TO SHOLAPUR
AMARJA
GULBARGA
LOWER MULLAMARI
BENNITHORA
TO HYDERABAD
HIPPARGI BARRAGE
BIJAPUR
UPPPER KRISHNA
GHATAPRABHA
MASKINALA
RAICHUR
MARKANDEYA
MALAPRABHA
BELGAUM
HIREHALLA
DHARWAD
TUNGABHDRA
BELLARY
T.B.R.B.C
HOSPET
KARWAR
CHITRADURGA
HONNAVAR
SHARAVATHI
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V.V.SAGAR
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MANGALORE
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KR SAGAR
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IGGALUR
ARKAVATHI
MERCARA
MYSORE
KABINI
METTUR
TARAKA
S.D.KERE
TO CALICUT
TO DHARMAPURI
INDEX
STATE BOUNDARY
RIVER
NATIONAL HIGHWAY
STATE HIGHWAY
PROJECTS

Audit Objectives

2.1.7 The main audit objectives were to ascertain whether :

- projects were taken up after obtaining approvals and executed in an economic, efficient and effective manner;
- adequate funds were released on time and utilized properly;
- rehabilitation and resettlement were executed as per Detailed Project Reports (DPR);
- programme achieved its objectives of creating targeted irrigation potential and was utilized fully; and
- monitoring mechanism was adequate and effective

Audit Criteria

2.1.8 The Audit criteria considered for assessing the performance outcome with reference to objectives were as follows:

- AIBP guidelines;
- Detailed Project Reports of selected projects;
- Circulars / instructions issued by Ministry of Water Resources (MoWR) and CWC;
- The Karnataka Public Works Department Code;
- The Karnataka Transparency in Public Procurement (KTPP) Act;
- Annual Work Plan / Annual Proforma submitted to CWC; and
- Reports of Monitoring Cell at Project level / State level.

Audit Methodology

2.1.9 The following methodology was adopted for attaining the audit objectives with reference to the audit criteria:

- Detailed Project Report of the concerned projects, review of circulars and guidelines issued by MoWR, Proforma submitted to CWC, Reports detailing physical and financial achievements by CWC,
- Board minutes and proceedings of Technical sub-Committee (TSC) and reports of CADA, review of correspondence with State Government, CWC, MoWR and other departments.
- Issue of audit enquiries and interaction with the Management.

Audit Findings

2.1.10 Audit explained the audit objectives to the Corporation during an 'entry conference' held on 2nd February 2009. Subsequently, audit findings were reported to the Managements and the Government on 13th August 2009 and

discussed in an 'exit conference' held on 24nd September 2009, which was attended by Pr. Secretary, Water Resources Department, Government of Karnataka and Managing Director of the respective Companies. The views expressed by the Government and Management in the exit conference have been considered while finalising this review. The replies furnished (July 2009) by the Management of KBJNL, have also been taken into consideration while finalising the review. The audit findings are discussed below.

Financing Pattern

2.1.11 The financing pattern of the assistance under AIBP as modified from time to time has been discussed below:

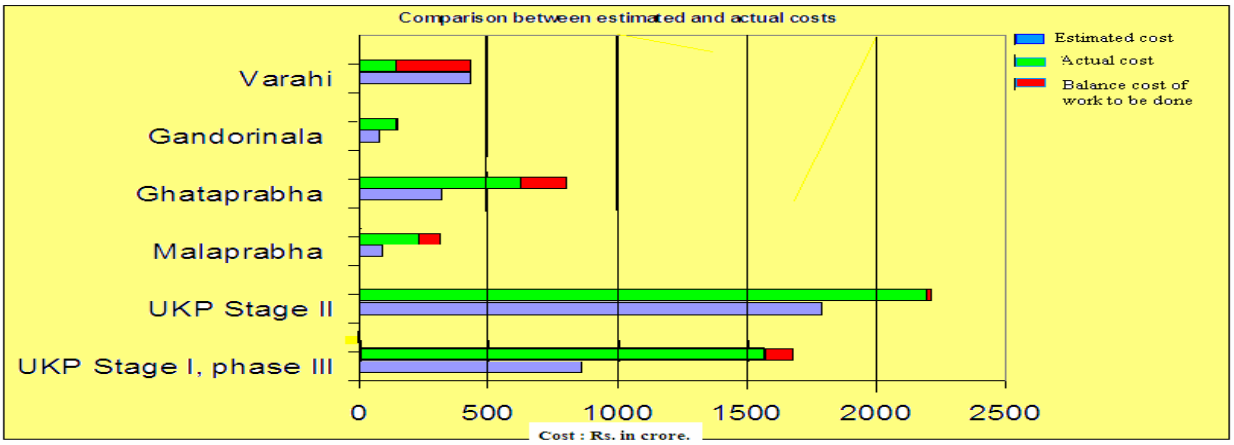
Year	Assistance
1997-99	All the States have to confirm budget provision equal to twice the Central Loan Assistance (CLA) asked for. The CLA in the form of loan at the rate of interest prescribed by the Ministry of Finance from time to time.
1999-2004	Central Loan Assistance was two thirds of the works budgeted and the balance was to be arranged by the State Government. (*i.e.,* ratio of Centre : State was 2:1).
2004-05	Apart from the above condition, with effect from 1 April 2004, Central assistance was under a Memorandum of Understanding (MoU) for timely completion wherein the Central share was modified as 70 *per cent* loan and 30 *per cent* grant.
2005-06 onwards	Apart from above, with effect from 1 April 2005, projects which are falling under drought prone areas as identified by Planning Commission were eligible for funding at 90 *per cent* grant and 10 *per cent* loan of the CLA and in the case of others 25 *per cent* of the project cost was given as central grant and the balance 75 *per cent* was to be borne by the State. All the projects (except Varahi) were proposed under drought prone area category with effect from April 2005.

The mode of disbursement of CLA was on annual basis in two instalments, the second being with reference to the progress of expenditure in relation to first CLA released. The difference of actual expenditure and central assistance received was borne by the State Government from its plan funds.

As per the procedure of MoWR, the proposals for funds under AIBP for each year are submitted under Form 'C' by the project implementing agency (*i.e.,* companies) through GOK which give details of financial / physical progress achieved with reference to the components of the said project receiving CLA under AIBP along with targets proposed for the year. The targets proposed for the year are those works included in Annual Work Programme approved by the Company.

Status of projects

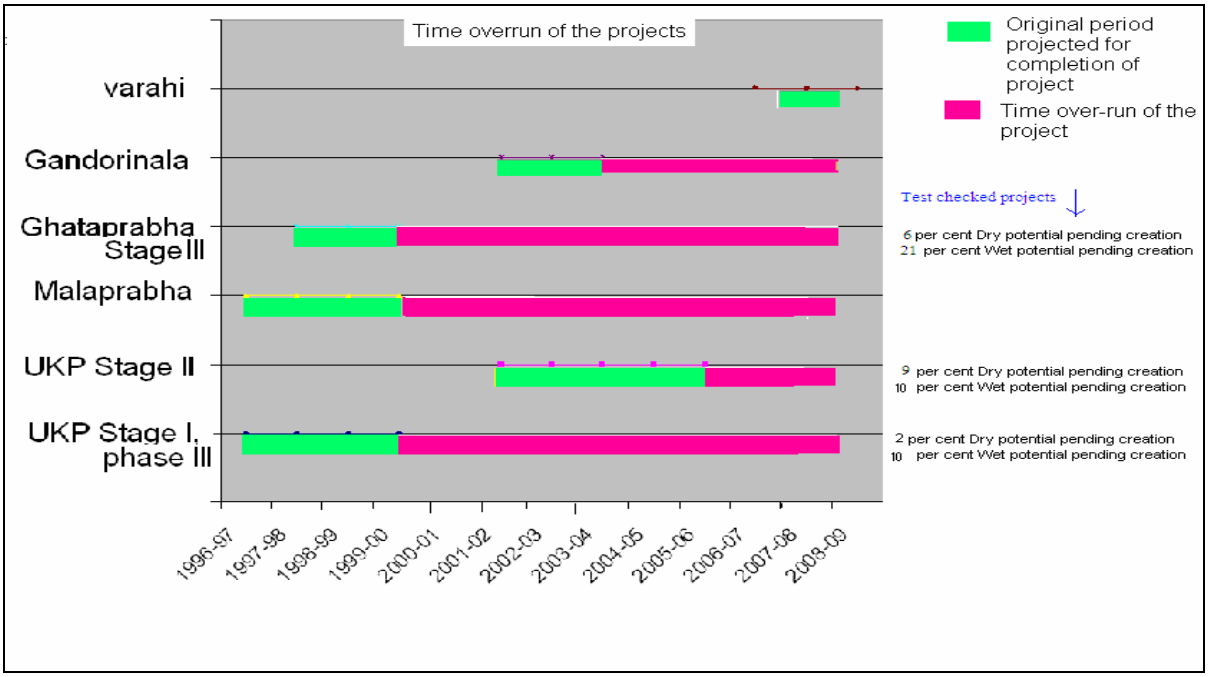
2.1.12 The financial progress of the projects financed under AIBP are given below (refer **Annexure 9**)



Note : Varahi project taken up in 2007-08 is Scheduled to be completed by 2010-2011.

It can be observed from the chart that all the projects (except Varahi) have exceeded the original estimated cost projected under AIBP. The projected amount required for completion of these projects under AIBP at the beginning of the programme was Rs. 3,135.63 crore[18]. The projects are now estimated (March 2008) to be completed at a targeted cost of Rs. 5,147.53 crore. Consequently, there is a minimum cost overrun of Rs. 2,011.90 crore in implementing these projects.

2.1.13 The chart below gives the projected period of completion when the projects were proposed under AIBP *vis-à-vis* actual progress.



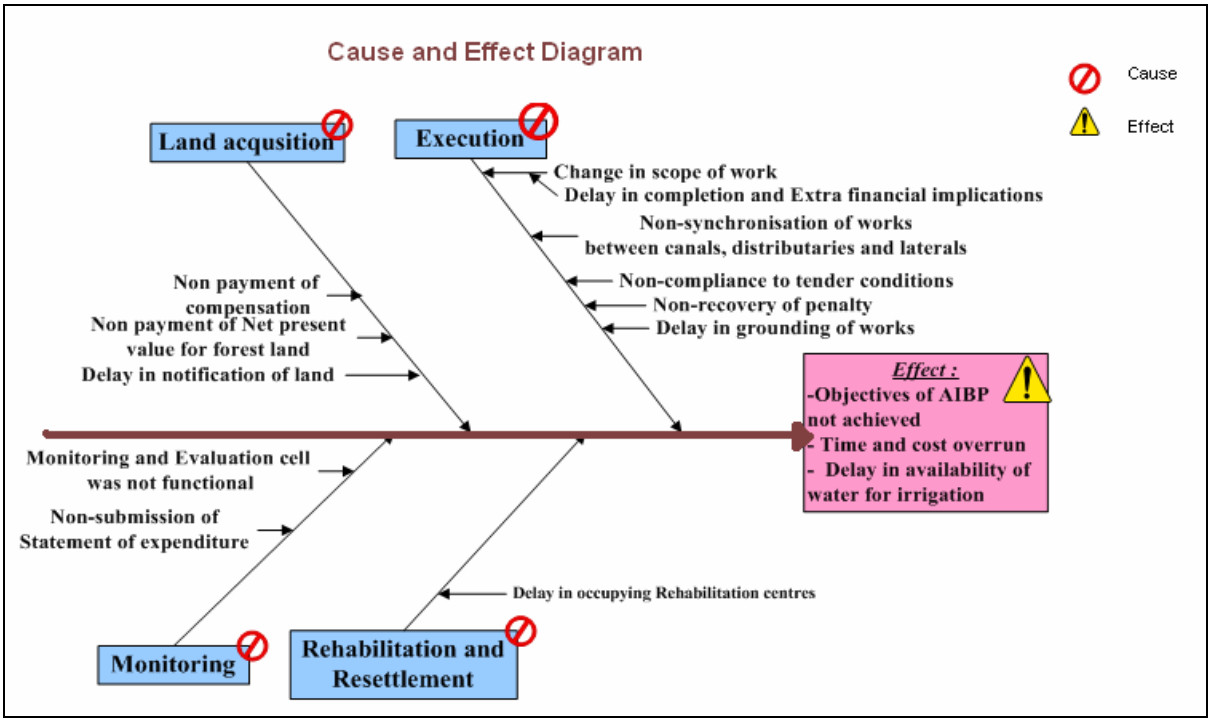
[18] **excludes Varahi irrigation project as this was proposed in 2007-08 and due for completion only in 2010-11.**

There was cost and time overrun in all the projects.

It can be seen from the above that none of the projects was completed as scheduled and the projects were still in progress under various stages as of March 2009. The time over run ranged from three years to eight years and would further go up. The details of project wise potential created during the last five years are given in paragraph 2.1.18 *infra*.

The details of financial outlay at the beginning of the programme for each project, CLA released, expenditure incurred alongwith time and cost overrun during the years 2003-04 to 2008-09 are indicated in **Annexure 9**. From the above two charts and **Annexure 9**, it is evident that there was time and cost overrun.

Audit analysed the reasons for the same which revealed that availability of funds was not a constraint in implementation of projects. The main causes for the time and cost overrun and their effect on AIBP are illustrated in the cause-effect diagram given below:



The Audit observations relating to each of the causes that led to the non-achievement / delayed achievement of the objectives (effect) under AIBP are given in succeeding paragraphs:

Financial Management

Delay in transfer of funds to the implementing agency

2.1.14 As per the procedure of flow of funds under AIBP, the central loan assistance released with State share should be transferred to the project implementing agencies within 15 days by the State Government. It was

observed that the delays in release of funds ranged from one month to nine months in respect of KBJNL and five to eight months for KNNL.

Reduction in CLA due to non-execution of budgeted works

2.1.15 The CLA under AIBP scheme is a portion of the works budgeted for the year by the State and the balance has to be arranged by the State Government from its own resources. The proposal for CLA under AIBP for each year is vetted by CWC and any shortfall in previous year is adjusted against the sanctioned amount for the current year. The details of budget, the CLA component in the budget and the actual expenditure incurred for test checked projects is given below:

(Rs. in crore)

Year	UKP Stage I-Phase III			UKP Stage II			Ghataprabha-Stage III		
	Budget		Actual Expen-diture	Budget		Actual Expen-diture	Budget		Actual Expen-diture
	Total	CLA component in Budget		Total	CLA component in Budget		Total	CLA component in Budget	
2003-04	174.90	0.00	94.19	305.51	163.48	236.48	93.20	13.01	55.45
2004-05	220.20	115.86	92.18	367.40	240.71	268.17	110.00	62.09	64.68
2005-06	107.07	0.00	61.13	358.99	197.76	272.29	133.23	65.00	92.47
2006-07	94.05	76.18	46.19	283.55	183.47	234.59	171.71	30.81	77.29
2007-08	137.24	71.23	50.10	234.97	102.07	119.51	135.09	72.61	66.23
2008-09	191.83	91.92	139.36	108.24	8.01	176.72	97.76	52.04	44.56

Note: Varahi is not included as the project is taken up during 2007-08 only.

It can be observed that:

In none of the years during 2003-09, the budgeted works were completed.

- the expenditure incurred on the projects varied widely. The actual expenditure to budgeted works ranged from 36.51 *per cent* to 72.65 *per cent* (UKP Stage-I Phase III), 50.86 *per cent* to 82.73 *per cent*[19] (UKP Stage-II) and 45.01 *per cent* to 69.41 *per cent* (Ghatprabha-Stage-III), thereby the targeted creation of irrigation potential was not achieved (refer table in paragraph 2.1.18).
- in none of the years during the period 2003-09, the budgeted works were completed fully. The failure of the company to execute the works within the programmed year resulted in reduced release of CLA in subsequent years.

This showed that the progress of work was not commensurate with the fund flow of CLA. As at March 2008 the actual expenditure[20] on works was not commensurate with the CLA sanctioned and released during 2007-08 resulting in unspent balance under UKP-Stage I-Phase III Rs. 78.34 crore, under UKP Stage-II - Rs. 59.20 crore and Ghataprabha Stage III - Rs. 14.44 crore.

[19] **excludes achievement of 163.27 *per cent* for 2008-09 as the expenditure includes compensation paid (Rs. 133.96 crore) for land and structures as per Lok Adalat awards.**

[20] **utilisation certificates for 2008-09 not furnished till date (September 2009).**

The Management of KBJNL attributed (July 2009) this to release of funds by the Central Government at fag end of the year. Hence, these amounts were carried forward to next financial year. Regarding shortfall in release of CLA, due to non-completion of budgeted works, the Government stated (September 2009) that the amounts would be released on receipt of Utilisation Certificate. The fact remained that if the budgeted works were not completed in the year in which they were proposed, the quantum CLA is treated as unspent to the extent of shortfall in works and adjusted in the subsequent year. Audit also noted that funding was not a constraint in taking up the works. The reasons for the delay, however, were attributable to problems of land acquisition, change in scope, extra financial implications during execution, insufficient monitoring *etc.,* which could have been tackled better if planned in advance.

Loss of grant component due to non-completion of projects in time

As a result of failure of the Company to adhere to commitment in MOU, the grant of Rs. 599.25 crore received during the period 2004-05 to 2008-09 by the State is liable to be converted to loan resulting in additional burden on the State.

2.1.16 As per the AIBP guidelines applicable with effect from April 2004, under a Memorandum of Understanding (MOU) between GOI and GOK, the central share of loan would be converted into 30 *per cent* grant and 70 *per cent* loan on timely completion of project. These guidelines were further modified and from 1 April 2005, the projects which were falling under drought prone areas were eligible for funding at 90 *per cent* grant on timely completion of project as per MOU. If State Government fails to comply with the agreed target date for completion, the grant component released will be treated as loan and recovered as per usual terms of recovery of Central Assistance. The implementing agency (KBJNL) proposed CLA for the years 2004-05 and onwards under the said provision through an MOU. The details of grant received are tabulated below:

Statement showing the grant received under AIBP in respect of UKP during 2004-2009

Year	Government order reference date	Amount (Rs. in crore)	
		Stage I, Phase III	Stage II
2004-05	31-03-05	17.38	36.18
2005-06	12-09-05	17.38	36.03
	05-12-05		34.53
	29-03-06		24.80
2006-07	23-03-07	28.12	67.72
	31-03-07	4.54	10.94
2007-08	09-04-07	43.52	104.81
2008-09	29-03-08	28.49	40.83
	10-04-08	42.74	61.24
Sub total		**182.17**	**417.08**
Total of Stage I and Stage II		**599.25**	

The projects had not been completed as per the MOU and CWC in their Status Report focused the issues (February 2007) that the project authorities may speed up all the works so that the project is finished within the stipulated date of completion, *i.e.,* March 2008 positively, otherwise, the grant component would be treated as loan and recovered as per the usual terms of recovery of Central loan.

Audit observed that the GOK received (March 2005 to April 2008) grant of Rs. 599.25 crore under AIBP but none of the projects were completed as per MOU. As a result of the failure of the Company to adhere to the commitment in MOU, the grant received were liable to be treated as loan which would result in additional burden to the State.

The Management accepted (July 2009) the delay in completion of UKP projects and attributed that it was due to execution of additional structures, variation in estimated quantities, slow work progress due to dispute, adoption of new Schedule of Rate necessitating preparation and approval of fresh estimates, *etc.* The reply substantiated the Audit observation that the reasons were internal to the executing agency and with appropriate planning and implementation, delay could have been avoided. Projects were initially proposed to be completed within three-four years span and the reply does not justify the delay of three to eight years from scheduled date of completion. During the exit conference (September 2009) the Management stated that as extension was given, the grant component would be retained. Audit noted that approval for extension of work was for assistance under the project and it did not automatically translate to retaining the grant component.

Non-submission of Statement of Expenditure

2.1.17 The AIBP scheme envisaged submission of audited statements of expenditure (SOE) within nine months of close of financial year. Audit scrutiny revealed that such audited statements had not been obtained for any of the projects assisted under AIBP. It was further observed that seven[21] divisions (out of ten test checked) had not maintained the register of works as required under form PWA-12 (details of work wise expenditure), for the period 2003-08. In the absence of such a record, the Statement of Expenditure (SOE) incurred under AIBP could not be vouched.

The Management of KBJNL stated (July 2009) that CWC is accepting the certified annual accounts, while Management of KNNL stated (September 2009) that this was dispensed with as the annual accounts (of the Company) were certified by Statutory and Government Auditors. Audit noted that the procedure was not as stipulated under AIBP guidelines.

Achievement of dry potential

2.1.18 The milestones / deliverables of each project proposed under AIBP as discussed in para 2.1.4 *supra*, UKP Stage-I was 1,50,000 Ha., UKP Stage-II, 1,97,120 Ha. and Ghatprabha Stage-III 1,19,022 Ha. As against these physical targets set and achieved during the period 2003-04 to 2008-09 of these projects are given below:

[21] **Krishnapur, Chikuavankuni, Bhimrayangudi, Chigralli, Almel, Zalki and Koujalgi.**

(figures in Ha.)

UKP-Stage-I, PhaseIII				UKP Stage-II			Ghataprabha Stage III		
Year	**Progr-ammed**	**Achieved**	***Per cent* of achiev-ement**	**Progra-mmed**	**Achiev-ement**	***Per cent* of achieve-ment**	**Progra-mmed**	**Achie-ved**	***Per cent* of achieve-ment**
2003-04	23,814	19,517	81.96	33,051	15,835	47.91	25,256	24,579	97.32
2004-05	23,640	8,122	34.36	50,343	29,749	59.09	20,000	6,301	31.51
2005-06	15,622	4,221	27.02	68,090	17,860	26.23	21,104	3,258	15.44
2006-07	12,319	3,265	26.50	56,275	58,816	104.52	35,000	31,620	90.34
2007-08	9,385	103	1.10	21,995	11,222	51.02	5,837	3,135	53.71
2008-09	1,595	488	30.59	3,322	1340	40.33	2,271	-	-
Total	**86,375**	**35,716**	**41.35**	**2,33,076**	**1,34,822**	**57.84**	**1,09,468**	**68,893**	**62.93**

Physical progress was below 50 *per cent* in most of the years and was mainly attributable to change in scope, estimates and non-sychronisation of works.

It could be observed from the above table that the progress was below 50 *per cent* in most of the years. Audit observed that this was mainly due to change in scope of work, change in estimate, non-synchronisation of works and delay in grounding (taking up) of works thereby affecting the works leading to extra cost and time overrun of all the projects which were avoidable. The Project wise lapses observed in audit are discussed below.

Upper Krishna Project

Delay in completion of work and its non-synchronisation with other works

2.1.19 The work of construction of Distributory (Dy.) No.18 of Jewargi Branch Canal (JBC) from Km. 0 to 13 including structures was awarded (August 2000) for Rs. 6.13 crore at 5.50 *per cent* below the estimated cost, with a completion period of nine months (May 2001). While the work was in progress the Chief Engineer advised (May 2002) additional works[22] which was not estimated in the original scope of work. The total cost including the additional works were estimated at Rs. 9.69 crore. The proposal was submitted (March 2004) to the Technical subcommittee of the Company after two years. While considering the proposal of additional works the TSC observed that the contractor could not give progress due to his poor financial position and the TSC decided (April 2004) to rescind the contract without risk and cost to the contractor, by which time the majority (Rs. 5.11 crore of original scope) of work was completed but at a slow rate.

The balance items of work along with additional works were awarded at Rs. 5.28 crore (December 2004) at 17.41 *per cent* above the amount put to tender of Rs. 4.50 crore (revised estimated cost: Rs. 4.96 crore) to be completed by September 2005. The work, however, was completed (March 2007) after a delay of 18 months from the scheduled date. Though, the work of the original contract was rescinded as the progress was not good, the second contractor also completed the work after a delay of 18 months in spite of the additional cost /

[22] **reinforced concrete cement, box culverts, cross regulator-*cum*- escape along with Cart Track Carriage (CTC).**

tender premium, thus defeating the purpose of re-tendering. No penalty for the delay was imposed on second contractor also.

It was further observed that due to non-completion of above works, an amount of Rs. 14.61 crore spent already (May 2001 to Sept. 2003) on its laterals and the works amounting to Rs. 2.79 crore spent (May 2003 up to March 2007) on completion of Dy. 18 (Km. 13 to 19.20) were idling for three to four years due to non-completion of work as stated above which resulted in mismatch. The potential of 13,294 Ha. created under these areas (laterals and Dy. 18) could not be utilised till March 2007.

The Management stated (July 2009) that time was required for examination of proposals of extra financial implications at all levels and hence the delay was inevitable. Audit noticed that even those decisions which were within the control of Management were delayed due to bad planning and monitoring. In the exit conference (September 2009), the Management accepted the audit observation and stated that it was a contract management problem.

Delay in creation of additional potential due to improper tender process

2.1.20 The Company tendered 30 works relating to JBC during January 2006. As irregularities were noticed in the award of work, the Government, based on investigation recommended (November 2006) that 13 out of 30 works were to be rescinded and re-tendered.

Audit observed that the Company unilaterally rescinded (November 2006) the contracts without following the procedure stipulated under Clause 15 of the tender document which stipulated that notices were to be issued to contractor in writing before suspending the work. The contractors approached (December 2006) High Court of Karnataka against unilateral termination of contract. The Court directed (February 2008) the management to take action in accordance with law. The Management rescinded (November 2008) the contract and reawarded (February / March 2009) the work by inviting fresh tenders. As a result the work was delayed and envisaged potential of 1,402 Ha. was yet to be created (September 2009).

The Management stated (July 2009) that departmental enquiry was initiated against the officials.

Non-completion of distributary resulted in idling of assets and non-creation of irrigation potential

2.1.21 The planning relating to Laterals and sub-laterals (minors and sub-minors) were to be finalised and executed concurrently so that the benefits accrue within the schedule time. It was observed that there were cases wherein canal work had been completed but sub-minors / laterals were not completed in time. The table below details the idling of assets (Rs. 8.65 crore) created out of AIBP funds which delayed the creation of dry irrigation potential of 2,760 Ha.

Name of the canal	Date of comp-letion of canal	Name of lateral / sub-lateral	Present status of minor	Value of idling asset (Rs. in lakh)	Non creation of dry potential (in Ha)	Reasons attributable for non-completion of sub-minor / lateral
Dy - 16 of JBC Km. 6.03	January 2007	Km. 1 to 3.75 (including aqueduct) Lateral 1 and the sub-lateral	Work awarded in August 2003 to be completed in August 2006/May 2007 is still in progress (September 2009)	84.11	660	Delay in approval of design.
Dy. 15 of NRBC Km. 18.18	October 2006	Branch Distributory -3	Work awarded in November 2005 to be completed in August 2006 is still in progress (September 2009)	196.31	1154	Encountered Hard rock excavation
Dy. 15 of NRBC Km. 80.27	October 2006	Branch Distributory-5	Work awarded in August 2006 to be completed in May 2007 is still in progress (September 2009)	584.38	946	Non tackling of embankment portion
Total				**864.80**	**2,760**	

In respect of Dy. 16 of JBC, the work from Km. 1 to 3.75 and aqueduct were to be completed by August 2006 / May 2007. As the design was to be finalised, the work was still in progress (September 2009). Failure to complete the work resulted in idling of assets created in the earlier reach (Km. 0 to 1) and subsequent reaches (Lateral-1 and sub-lateral).

Similarly, in respect of Dy. 15 of Narayanapur Right Bank Canal (NRBC), though the main canal was completed, the Branch Distributory 3 and 5 to be completed by August 2006 and May 2007 respectively were not completed till date (September 2009).

The Management stated (July 2009) that frequent obstructions by people dwelling nearby, change in scope of work, necessity of additional structures and excavation of hard rock with controlled blasting delayed execution of work. Audit noted that the issues encountered by the Company did not justify the two to three years delay in execution. In the exit conference (September 2009), the Management accepted that the works were not synchronised and hence the mis-match.

Ghataprabha – Stage III

Slow progress in the lining of Ghataprabha Left Bank Canal (GLBC)

2.1.22 Tenders were called for execution of works of lining to GLBC main canal from Km. 51 to 109 and its distributaries during January 2006 and agreements / work orders issued during 2006-08 by two divisions[23] of KNNL. The works were entrusted under packages with each package having works of 5 to 6 kms stretch. The period for completion of work was three to four months. The total contract amount was Rs. 93.56 crore against which the financial

[23] **Bilagi, Jamkhandi division.**

progress achieved as at March 2009 was Rs. 39.33 crore indicating only 42 *per cent* progress in work. Specific reasons for delay in completing the works within the stipulated period were not on record. Audit observed that:

- under Bilagi Division, tenders in respect of lining of GLBC main canal (packages I to VII) and branch canals (packages VIII to XXVIII) were called, but there was delay in finalizing the agreements / work orders ranging from 8 to 24 months from the date of issue of tender.

- two works under Bilagi Division - Package I and II were inspected by the Chief Engineer (CE) (August 2007) who found that the strata met with was soft rock and not feasible for Un-coursed rubble masonry backfill with cement concrete (CC) lining. Audit observed no action was taken for 20 months after which the TSC rescinded (February 2009) the contract without risk and cost. The resultant cost escalation was Rs. 4.05 crore.

- the work of Km. 7 to 10 of Jamakhandi Branch Canal awarded (April 2006) for Rs. 1.05 crore with a stipulation to complete the work by May 2007 was extended up to July 2007, the financial progress achieved (July 2007) was Rs. 88.66 lakh. The reasons attributed for shortfall by the contractor was presence of hard rock in certain stretch which required controlled blasting, division rejected the claim as there were no villages in the surrounding areas. The TSC while approving rescinding of contract without risk and cost observed (May 2009) that the Chief Engineer / Executive Engineer had not addressed the problems encountered at the site for smooth execution of work and that they had proposed closure of contracts without proper examination of the cases. The balance work of Rs. 16.56 lakh was estimated at Rs. 34 lakh and the increase was mainly due to delay in taking action to address the problems at site.

- the works of lining Kunchanur Dy. and Maigur Dy. under Jamkhandi division and lining of GLBC main canal (package IV) under Bilagi division was awarded (November / December 2006) at Rs. 10.49 crore to be completed by June 2007. The progress on these works was Rs. 1.18 crore (11.25 *per cent*) as at March 2008. The TSC decided (May 2009) to rescind two works under Jamkhandi division. The revised estimates were yet to be prepared (September 2009) resulting in delay adding to cost escalation.

- as per clause 2(d) of the contract, in case of shortfall in progress, the contractor was liable to pay penalty at 1 *per cent* of the estimated cost of balance work assessed, for every day that the due quantity of work remained incomplete limited to 7.5 *per cent* of the estimated cost put to tender. It was observed in 36 test checked cases (Jamkhandi : 17 cases and Bilagi: 19 cases), the penalty levied was inconsistent in 15 cases. While in some cases penalty was not levied, in others it varied up to Rs. 100 per day of delay irrespective of progress of work. The penalty leviable in Jamdhandi and Bilagi under the tender clause worked out to Rs. 24.64 lakh and Rs. 1.93 crore against which only Rs. 0.40 lakh and

Rs. 2.61 lakh were levied resulting in short levy of Rs. 2.14 crore. The token penalty levied was not as per contractual terms.

Non-creation of potential due to delay in construction of canal

2.1.23 The works under the Km. 141 to 148 under Ghataprabha Right Bank Canal (GRBC) were awarded (2001-02) under four packages at a total cost of Rs. 5.35 crore with a stipulation to complete the works in one year. The contractor could not execute the works as the farmers objected to construction without payment of land compensation. The contracts were rescinded during (February 2004) without risk and cost. The financial progress achieved at the time of rescinding was Rs. 1.94 crore. Subsequently, works were awarded (November 2004 to March 2005) for Rs. 9.19 crore with stipulation to complete them within six months. Further, after award of works, additional works and variation of quantities due to change in strata (Km. 144 to 147) resulted in increase in cost by Rs. 1.57 crore. Though the works were to be completed within six months (May 2005 to September 2005) from the date of award of contract, these works were still in progress (September 2009).

Audit observed that Management was aware that land compensation was not settled when the works in the stretch of Km. 141 to 148 were awarded. Without arriving at any settlement, the works were awarded for the second time also.

Thus, inadequate planning led to cost escalation. Further, as subsequent reaches (Km. 148 to 170) were completed between May and December 2006 and May and June 2008, the potential of these reaches (17,500 Ha.) could not be utilised for more than two years.

Non creation of potential due to obstructions in construction of distributaries

2.1.24 Out of a total length of 197.40 kms of construction of Distributaries, 166.24 kms had been completed as of March 2009 leaving a balance of 31.16 kms. Test check of records at Gaddanakeri division revealed that 5,305 Ha. of potential was not created due to obstructions in land as detailed below:

Distributary	Potential not created (Ha.)	Remarks
Km. 2 and 3 of Karkalmatti Distributory	1,381	Works were awarded in April 2006 and to be completed by October 2006. Work rescinded in February 2009 after incurring Rs. 0.25 crore (out of Rs. 0.58 crore awarded) due to requirement of additional land not contemplated at the time of survey to which farmers objected as land compensation was not settled.
Km 1 to 6 of Mallapur Distributory	1,653	Work was awarded between December 2004 and February 2005 and to be completed by April and June 2005 (four months). While the work of Km. 1 was completed with a delay of three years, the works in the other reaches (Km. 2 to 6) for Rs. 1.37 crore remained incomplete even after lapse of four years mainly due to agitation by farmers.

Distributary	Potential not created (Ha.)	Remarks
Km. 2 to 10 of Kamtagi Distributory	2,271	Works at Km. 1 and Km. 11 to 14 Kamtagi Distributory were completed during 2006-08 at a total cost of Rs. 1.04 crore. Works were awarded between August 2005 and July 2008 to be completed by December 2005 and October 2008. It was observed that the notification for acquisition of required land at Km. 7 and minors at Km. 1, 2 and 3 were issued (May 2006, June 2007 and September 2007) after award of contract (August / September 2005) and work stopped due to non-settlement of land compensation.

Varahi Irrigation Project

Insufficient water flow

2.1.25 Based on the potential of Varahi River, a hydro electric station was established (August 1989 and November 1990) by Karnataka Power Corporation Limited[24] (KPCL) with two units of 115 MW which would give a continuous discharge of 31.15 cubic metres per second (cumecs) from the tail race of the power station. To utilise the same, the Government proposed Varahi irrigation project downstream of power house to irrigate a command area of 15,701 Ha.

In view of the power needs of the state, KPCL commissioned (January 2009) two more units of 115 MW and made the power station a peaking station[25]. The tail race discharge anticipated was limited to a maximum of seven hours a day. Audit observed that as the plant was intended to operate as peaking station, the discharge would not be continuous and would be limited to seven hours with the result that water would flow in the natural course of the river and not into the intended irrigation project through a wier (dam). Added to the above, the Energy Department of State Government granted (October 2005) permission to install 12 MW mini hydel power project at the left bank of Varahi Diversion weir to Shymili Mini Hydel Power Projects subject to condition that the intake structure / penstock level should not be lower than Irrigation Sluice which was at reservoir level (RL) 33.15 metres. The penstock, however, has been embedded at RL 23.72 metres which would also have an adverse bearing on the flow of water for the irrigation project.

In the exit conference (September 2009), the Government stated that the project was designed based on the data available and clearance obtained accordingly.

Undue benefit to the contractor in the construction of Varahi diversion weir

2.1.26 The estimate for the work of construction of Diversion Weir under Varahi irrigation project was awarded (January 2005) at Rs. 13.47 crore which was 40.22 *per cent* below the cost of work put to tender, with stipulation to complete in 24 months (Jan 2007). The work was not completed within the

[24] a State Government Company engaged in generation of power.

[25] Peaking station refers to supplying power during peak demand (*i.e.,* water meant to be released continuously would be discharged in a short interval to all the four units to cater to the power requirement).

stipulated period due to increase in depth of foundation, increase in stilling basin depth, change in seismic zone, increase in quantity of execution in hard rock with controlled blasting and entrustment of additional works subsequent to the award of contract which resulted in increase in total cost of the project to Rs. 72.33 crore.

Audit scrutiny revealed:

- the Technical Advisory Committee (TAC) inspected (October 2000) the site and observed that depth drilled was only eight metres at critical locations, which was insufficient to project the correct picture of the strata below and recommended drilling of more bore holes for foundation strata analysis. The directions of TAC, however, were not complied.
- the environmental impact assessment studies (March 1997) stated that the project area was free from wild life, archaeological monuments and places of worship. The Company, however, based on request of the forest department permitted controlled blasting (adopted if there are inhabitations, power lines *etc.,* in the vicinity), which increased the cost by Rs. 14.12 crore.
- works costing Rs. 8.75 crore were entrusted (December 2006) to the contractor as 'additional works' without following the system of open tenders as required under the Karnataka Transparency in Public Procurement Act 1999 (KTPP).
- the contractor approached for revision of rates for quantities to be executed beyond the tender period (May 2007). The Board approved (August 2007) revised rates for works executed beyond April 2007 (original contract period) at Schedule of Rates 2007-08 *plus* 8 *per cent* resulting in extra financial implication of Rs. 35.60 crore. Audit observed that the recommendation of the Board was not as per Clause 13 of the general terms and conditions of the agreement (PWG 65) which stipulated that for increase in quantities the tender discount / premium was to be applied and in this instant case, a tender discount of 40.22 *per cent* was not applied. This resulted in undue benefit of Rs. 20.53 crore[26] to the contractor.

In the exit conference (September 2009), the Management stated that Board had awarded the works without calling for tenders based on Technical Committee's decision. Audit noted that not inviting tenders was a violation of KTPP Act.

Idle investment on construction of salt water exclusion dam

2.1.27 The environment impact assessment study of Varahi Irrigation Project observed that after construction of weir, reduced discharge of water might allow entry of sea water up-stream to a certain extent. As intrusion of salt water would affect soil and ground water, an estimate for Rs. 7 crore was included to construct a vented dam by placing wooden planks and filling it with sand to avoid intrusion of salt water upstream. The scope was changed to

[26] on three items for which data was available out of seventeen items.

include automated gates, cut-off wall and also to increase width of the road which was approved (April 2007) by the Government for Rs. 14.50 crore. The Government entrusted (April 2007) the work to Karnataka State Construction Corporation[27]. The Company (KNNL) further modified the design to erect vertical crest gates and afflux bunds increasing the cost to Rs. 35.62 crore and at prevailing (February 2008) Schedule of Rates the cost was Rs. 50 crore. Audit observed that water flow would deplete in the natural course of the stream only on completion of the entire project (2010-11) and as such actual cost incurred till March 2009 - Rs. 45.98 crore, would remain idle till that date. Failure to prioritise works resulted in idle investment whose envisaged role might begin beyond 2011.

Change in Standard terms of contract

2.1.28 The clause 4.7(e) of General terms and conditions of the tender (form PWG 65) stipulates that no extra payment would be made to the contractor for variation in cement content during execution if there was any change in design mix. Audit observed that the Company while awarding the contract to Karnataka State Construction Corporation modified the said clause to the effect that difference in payment would be added / deducted to the contractor for variation in cement content during execution. The change in standard terms to the benefit of contractor resulted in extra liability of Rs. 0.44 crore.

Land acquisition

Overview

2.1.29 The irrigation projects require land for laying canals / distributaries, submergence and rehabilitation and resettlement. The land required for these needs are identified and proposed by the division to the special land acquisition officer (SLAO) who acquires the land as per Land Acquisition Act 1894. The SLAO makes an award to be paid by the Company to the land owner. If aggrieved, the land owners seek redressal from the Court. The deficiency in the land acquisition is discussed below:

2.1.30 As per provision of Land Acquisition Act, 1894, the KBJNL acquired (up to March 2008) 1,75,162 acres of land submerged in back waters of Almatti and Narayanapur Dam, 58,092 acres for construction of canals, 13,812 acres for establishment of rehabilitation centers and 4,521 acres for construction of ayacuts / link roads and paid a total compensation of Rs. 1,648.70 crore. The above includes Rs. 110.42 crore for acquisition of 17,519 acres of land for canals and Rs. 217.94 crore for land submerged paid out of AIBP funds during 2003-08. In addition, the compensation for land / structure paid during 2003-08 as enhanced compensation decreed by the courts was Rs. 89.82 crore and Rs. 169.80 crore based on settlement by Lok Adalat[28] (paid between November 2008 and January 2009).

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[27] a State Government Company.

[28] Lok Adalat (people's courts), established by the Government settles disputes through conciliation and compromise between the parties.

Non-mutation of land

2.1.31 Out of 2,53,541 acres of land acquired till date (March 2009) towards submergence in back waters of Almatti Dam, Narayanapur Dam and for construction of various canals / distributaries, rehabilitation centres and 4,315.08 acres of land acquired for rehabilitation / resettlement of Bagalkot town, the Company have filed applications for mutation[29] in respect of 1,06,098 acres in the respective sub-registrar offices and mutation formalities were in progress (September 2009).

Interest on delayed payment of Lok Adalat awards

2.1.32 As per Section 28 of the Act, the SLAO has to pay interest at 15 *per cent* on any delayed payment of enhanced compensation decreed by the courts. It was observed that the Lok Adalat had awarded (May / June 2007) payment of enhanced compensation, which were paid (November / December 2008) after a delay of 18 months in checking and processing the compensation. The delay in payment of enhanced compensation resulted in additional liability of Rs. 21.43 crore towards interest which was to be discharged by the Company. The Company has requested for funds from the Government which were still awaited (August 2009).

The Management stated (September 2009) that a committee was formed to take a decision on the pending cases and the compensation amount was paid within one month of receipt of funds. The fact remained that there was delay of 18 months from the date of Lok Adalat awards, in arriving at a decision for payment of compensation, resulting in additional liability of Rs. 21.43 crore.

Non-payment of net present value for forest land

2.1.33 GOI accorded (March 2004) approval for diversion of 129.60 Ha. of forest land for construction of Varahi Irrigation Project. As per the agreement (January 2005) KNNL was required to pay the Net Present Value (NPV) as fixed (January 2004) by Government to the Forest department. Due to delay in receipt of clarification from GOI the Forest Department did not raise the demand. A demand for payment of NPV amounting to Rs. 11.92 crore (including interest of Rs. 7.91 crore) was, however, raised in November 2008 which was to be paid by the Company (September 2009).

Violation of Forest (Conservation) Act

2.1.34 The alignment for Ghataprabha Right Bank Canal (GRBC) from Km. 150 to 180 was surveyed (2001-02) and approved by Chief Engineer, Belgaum and tender called for during 2002-03. The alignment of the canal was in forest land under different reaches. Two proposals for diversion of forestland aggregating to 131.32 Ha. were submitted in February 2003 and November 2003 to Deputy Conservator of Forest, Bagalkot. The District Forest Officer, Bagalkot issued (November 2004) summons to the Executive Engineer, Gaddanakeri Division for illegal construction of GRBC. The Government conducted (November 2004) a meeting of irrigation, forest and

[29] **Mutation refers to acquiring the titles to the change in ownership of land.**

revenue officers and identified equivalent area of non forest land for compensatory afforestation. The Company furnished (November 2004) an undertaking to bear the cost of raising, maintenance of compensatory afforestation as well as cost for protection and regeneration of safety zone in the non forest area. A consolidated forest land acquisition proposal for 175.35 Ha. was submitted (March 2005) to Ministry of Environment and Forest, GOI, which was pending finalisation (September 2009).

Audit observed that Forest (Conservation) Act 1980, restricted use of forest land for non-forest purpose and Forest Advisory Committee was empowered to grant approval for use of forest land for non-forest purpose which should have a comprehensive scheme for compensatory afforestation. No such proposal was submitted before November 2004 by the Company. Out of 175.35 Ha. of forestland, 117.62 Ha. was excavated by the Division in violation of the Act. The Company neither justified the need for excavation of forest land nor the revenue land procured for compensatory afforestation through GOK till date (September 2009), though a demand for Rs. 1.73 crore being the 50 *per cent* cost of the revenue land was raised against the Company by District Commissioner, Bagalkot as early as in April 2005.

Further, the works on Chichkandi Distributory (Km. 12 to 15) under GRBC, awarded during 2004-07 at a cost of Rs. 2.45 crore, had to be rescinded in May 2006 as the illegal excavation were objected to by the Forest Department resulting in non-creation of irrigation potential of 1,465 Ha.

Rehabilitation and Resettlement

2.1.35 The Rehabilitation and Resettlement (R&R) policy of the Government provided for compensation for loss of land / property and also established the rights for resettlement and rehabilitation in addition to compensation for loss of land / structures determined as per provisions of the Land Acquisition Act, 1894, for submergence of villages in the back waters of Almatti Dam and Narayanapur Dam. The R&R policy provided protection of rights, welfare and culture of the affected families, reduced distress to the maximum, compensated for dislocation by ensuring a fair share to the affected people in the newly acquired / built rehabilitation centers and general prosperity of the area. Further, the R&R policy provided for payment of ex-gratia at various rates for purchase of land either irrigable or un-irrigated per family who had lost all or part of their land and for an appropriate income generation to the Project displaced families (PDF).

Under AIBP funding during 2003-08, an amount of Rs. 276.68 crore was paid (ex-gratia: Rs. 15.79 crore, infrastructure: Rs. 56.15 crore, rehabilitation and resettlement of Bagalkot Town including structures: Rs. 204.74 crore). Apart from this, an amount of Rs. 209.16 crore was spent (2003-08) under AIBP funds by Bagalkot Town Development Authority (BTDA)[30] for creation of infrastructure in the new township (Navnagar). A total number of 17,203 housing plots were formed in the township of which 13,269 plots were allotted

[30] **a body set up by the Government for the purposes of development of rehabilitation and resettlement of old Bagalkot town.**

to Project Displaced Families (PDFs) free of cost. Besides, house construction grants of Rs. 1.50 crore were distributed to 740 PDFs who were Below Poverty Line. A test check of records showed deficiencies in implementation of R&R for the project as discussed below:

Idle investment on land and development works

There was low occupancy in Rehabilitation Centres.

2.1.36 For rehabilitation of villages submerged in the back waters of Almatti Dam and Narayanapur Dam, KBJNL established 136 rehabilitation centers (RC) spread over an area of 13,834 acres of land acquired for the purpose. Of the above, 31 RCs spread over an area of 3,267 acres were established during 2003-08 for rehabilitating 23,300 Project Displaced Families (PDF). The occupancy status in the newly established RC was as below:

Division	No. of RCs	Area in acres	Cost of acquisition (Rs. in lakh)	Date of completion of work	Total no. of PDFs	No. of PDFs who occupied RCs	Occup-ation in *per cent*
Almatti	7	462.03	246.01	Nov. 2004 to Mar. 2008	4,425	1,771	40
Jamakhandi	14	1,784.02	894.15	Feb. 2004 to Feb. 2008	12,568	1,108	9
Bagalkot	10	1,021.37	651.48	Jul. 2003 to Dec. 2008	6,307	2,233	35
Total	**31**	**3,267.42**	**1,791.64**		**23,300**	**5,112**	

Audit observed that:

- six RCs costing Rs. 6.04 crore in Jamkhandi division for rehabilitating 4,695 PDFs remain unoccupied till date (March 2009).
- twenty five RCs established at a cost of Rs. 19.92 crore to rehabilitate 18,605 PDFs were underutilized as only 5,112 PDFs had resettled resulting in average occupancy of only 27 *per cent*.
- no development expenditure has been incurred in respect of six RCs under Almatti and Jamkhandi divisions. In 25 RCs, the Bagalkot Town Development Authority (BTDA) had spent only 70 *per cent* (Rs. 8.02 crore) (March 2008) against an estimated development cost of Rs. 11.30 crore.

The Management stated (September 2009) in exit conference that villagers could not be compelled to occupy the houses in the rehabilitated area. Audit noted that the low occupation was mainly due to RCs being located away from fields of displaced families and lack of employment opportunities.

Potential creation

Non-creation of field irrigation channels (FICs) resulted in non-achievement of objectives of AIBP

Non- creation of FICs affected availability of water to farmers.

2.1.37 Under the AIBP Scheme, the scope of work of the implementing agency ends with creation of outlet potential (dry potential) at distributary and lateral level. The CADA executed FICs to take water to the fields of the farmers. The funds were released to CADA by the Government through the Company. Audit observed that even though dry potential was created there was back log in creation of FICs. The table below details the FICs created

against the ultimate irrigation potential under AIBP Programme as at the end of March 2009.

(Area in Ha.)

Name of the project	Ultimate Irrigation potential under AIBP	Dry Potential created	Perc-entage of comp-letion	Field irrigation channels completed	Balance field irrigation channels to be created	Percentage pending completion
UKP Stage I-Phase III	1,50,000[∝]	1,47,785	98.52	1,33,617	14,168	9.59
UKP Stage II	1,97,120	1,79,512	91.07	1,61,345	18,167	10.12
Ghataprabha Stage III	1,57,120	1,47,401	93.81	1,17,031	30,370	20.60
Total	**5,04,240**	**4,74,698**	**94.14**	**4,11,993**	**62,705**	**13.21**

From the above it could be seen that though dry potential had been created, wet potential has not been created to the extent of 13 *per cent* affecting the objective of AIBP of providing water for irrigational purposes.

The Management stated (July 2009) that allocation of funds had to be done from its overall budgetary allocation. In the exit conference, the Management stated (September 2009) that dry potential was created. Audit noted that unless adequate budgetary support was provided to CADA for creation of wet potential, the ultimate objective of AIBP of providing water to the farmers would not be realised.

Reduction in potential creation due to non reclamation of water logged area

2.1.38 The prolonged water logging due to non availability of proper drainage system in the command area turned the soil saline and alkaline. As per DPR of UKP, water logging in an area of 1,862 Ha. and salinity of soil in an area of 356 Ha. were anticipated. The table below indicates the total command area affected in the project based on study by CADA:

Figures in Ha.

Name of the project	Saline	Alkaline	Water logged	Total
UKP	17,218	30,767	11,614	59,599
Ghataprabha	8,562	585	19,580	28,727
Total	**25,780**	**31,352**	**31,194**	**88,326**

Note : The figures given in table are for the projects as a whole (exclusive data on AIBP areas are not available / maintained).

The irrigable land reduced by 88,326 Ha. (both the projects as a whole) instead of the anticipated reduction of 2,218 Ha. due to non-reclamation of water logged area. Compared to the total potential envisaged under UKP (6.22 lakh Ha.) and Ghataprabha (3.11 lakh Ha.), the affected area not fit for cultivation represented 9 *per cent*.

[∝] **includes additional potential (6,161 Ha) proposed under Jewergi Branch canal and other canals.**

Monitoring

Monitoring mechanism in the State

Monitoring was inadequate.

2.1.39 A Monitoring and Evaluation Cell, headed by Superintending Engineer (SE), was created specifically to monitor AIBP projects. The cell had to review the physical and financial progress of all the AIBP projects of the state to evaluate and monitor their progress. The cell neither evaluated nor conducted any meetings to address the bottlenecks in execution of AIBP projects.

Though regular monthly monitoring review (MMR) meetings are held by the Chief Engineer at the zonal level and by the Pr.Secretary, Water Resources Department at the Government level to review and monitor the projects of the state as a whole, the bottlenecks faced in execution of AIBP projects were not redressed timely. The failure to monitor each project under AIBP assistance has resulted in delay in execution leading to cost and time overrun as brought out supra.

The Management stated (July 2009) that the Monitoring and Evaluation Cell regularly reviewed the AIBP projects of the entire state. Audit observed that the representative of Cell participated in the MMR meetings. However, in the MMR meetings the discussions were about all the projects and specific problems and bottlenecks of AIBP projects were not exclusively discussed. As the Cell was responsible for monitoring projects under AIBP, participating in the regular MMR meetings did not contribute to effective monitoring exclusively for AIBP.

Acknowledgement

Audit acknowledges the co-operation and assistance extended by the staff and the Management of the Companies at various stages of conducting the performance review.

Conclusion

- **The desired creation of potential of AIBP could not be derived in effective manner mainly on account of issues of land acquisition, change in scope and non-awarding of works resulting in increase in the cost of project.**

- **As the projects could not be completed within the committed period, the central assistance of Rs. 599.25 crore received in the form of grant is liable to be treated as loan.**

- **Though a dry potential of 44 *per cent* of target had been created as of March 2003, the companies could achieve 94 *per cent* till September 2009 *i.e.,* only 50 *per cent* was created in last six years. Wet potential to the extent of 13 *per cent* had not been created, thereby affecting the ultimate objective of AIBP.**

- **The monitoring system was inadequate and not commensurate with the task.**

Though the State projected projects for implementation since 1996-97, through AIBP programme, the intended objective of accelerating the irrigation benefit in four agricultural seasons are still to be achieved even after a delay of three to eight years and cost overrun of Rs. 2,012 crore.

Recommendations

- **The Company should plan and co-ordinate land acquisition appropriately so as to avoid delays in awarding of work and cost over run.**
- **Works should be estimated more cautiously so as to minimize the delays on account of change in scope of design.**
- **The Companies should ensure timely progress of work as committed to avoid loss of grant from the Central Government.**
- **The Government should ensure that CADA creates the Field Irrigation Channels in time so that benefits reach the farmers.**
- **Monitoring system needed to be strengthened to effectively redress the bottlenecks for timely completion of projects.**

2.2 Karnataka Soaps and Detergents Limited

System development of Supply Chain Management software

Executive Summary

The Karnataka Soaps and Detergents Limited was incorporated in 1980 by integrating the activities of the erstwhile Government Soap Factory in Bangalore and the sandal oil units at Shimoga and Mysore. The company manufactures toilet soaps, detergents, sandal oil, agarbathies and talcum powder.

Finances and Performance

The turnover of the company for the year 2007-08 was Rs. 146 crore and it earned a pre-tax profit of around Rs. 12 crore during the year. The company has six sales offices across the country.

IT initiatives

The Company decided (July 2008) to implement enterprise-wide computerisation covering all functional areas. It embarked (February 2009) for implementation of a customised software application for Supply Chain Management (SCM) covering purchases, inventory and sales / distribution at a cost of Rs. 10.85 lakh.

Absence of policy, strategy and planning

The Company has not formulated any IT policy or drawn up any IT strategy for preparation of long term and short term plans for computerisation. As a result, it could not realign and link its business / organisational strategy with the IT strategy for achievement of its business objectives / goals. The Company commenced implementation of SCM software without comprehensive planning and conducting a feasibility study to review the technology / hardware options. It did not adopt any formal system development life cycle methodology. Also, the project initiation and user requirement documents were not available.

Project Management

In the absence of an agreement, the system design documents, process control specification documents and test documents were not provided by the vendor. There was no provision for incorporating a performance monitoring and an embedded audit module in the SCM software. Though the entire work was to be completed by June 2009, not even design of a single module has been completed and installed in server of the State Data Centre.

Staffing

The company did not have an IT Head / Department. The Company has not taken any initiatives for defining the various positions required for IT functions and policies with regard to recruitment. As a result, competent personnel were not available to take over and run the SCM software.

Conclusion and recommendations

The Company does not have an IT policy, strategy and long-term plan. The progress of implementation of SCM software was slow. As the project is under implementation, required documents, specification, manuals etc., needs to be obtained from the vendor. Necessary physical and environmental controls need to be reviewed with reference to requirements. The Company should draw up and document IT policy and appoint a senior functionary to plan, monitor and implement its IT activities.

Introduction

2.2.1 The Karnataka Soaps and Detergents Limited was incorporated in 1980 by integrating the activities of the erstwhile Government Soap Factory in Bangalore and the sandal oil units at Shimoga and Mysore. The company manufactures toilet soaps, detergents, sandal oil, agarbathies and talcum powder. The turnover of the company for the year 2007-08 was Rs. 146 crore and it earned a pre-tax profit of around Rs 12 crore during the year. The company has six sales offices across the country. The affairs of the company are managed by a Board of Directors appointed by the State Government and the day to day activities are carried out by the Managing Director. In the absence of an IT Head / Department in the company, the IT initiatives were executed by the Deputy General Manager (Projects).

I T Initiatives

2.2.2 In July 2008, the company decided to implement enterprise-wide computerisation (ERP system) covering all functional areas for improved sales forecasting, production planning, reduction of inventory and improved delivery performance for which an allocation of Rs. 25 lakh was approved by the Board. As part of this project, it embarked (February 2009) on implementation of a customized software application for Supply Chain Management (SCM) covering purchases, inventory and sales / distribution at a cost of Rs 10.85 lakh in the first phase. The SCM software was envisaged to take care of all activities related to sourcing and procurement of raw material, inventory management and distribution of finished goods to the market. The project is in the final stages of completion. ERP system to cover other functions like production, HRD, finance *etc.,* was proposed to be implemented under the next phase of the project.

The company decided to implement Supply Chain Management software in February 2009.

Scope of Audit

2.2.3 The audit review covered the system development of the SCM software package under implementation along with a general review of the IT policy and strategy of the company. The audit review was conducted during May-June 2009. Audit attempted a parallel / concurrent review of the SCM project as the design stages were being executed. The entry and exit conferences were held in June 2009.

Audit Objectives

2.2.4 The development of Supply Chain Management software was reviewed with the following objectives to check and ensure whether:

- the company has formulated an IT policy by identifying its vision, goals and objectives and formulated the strategy and plan for achievement thereof.

- the company has realigned its organisational / business strategy with the IT strategy for realisation of its business objectives.
- the IT initiatives implemented / planned supported the business needs of the company and whether adequate controls were put in place to ensure data security, accuracy, and reliability.
- the various stages such as feasibility study, system design & development, implementation were carried out in a planned and systematic manner.
- the IT resources were used efficiently and effectively for optimum benefit and procedures were in place to safeguard IT assets.

Supply Chain Management (SCM)

2.2.5 Supply Chain Management (SCM) encompasses the planning and management of all activities along the supply chain, *i.e.,* like sourcing, procurement and movement of raw materials from the point of origin to movement of finished goods to the point of consumption. It also includes coordination and collaboration with suppliers, intermediaries, third party service providers and customers. SCM integrates supply and demand management within and across companies.

SCM Software refers to a range of software tools or modules used in executing supply chain transactions, managing supplier relationships and controlling associated business processes. The software often includes forecasting tools used to balance the supply and demand by improving business processes and using algorithms and consumption analysis to plan future needs. It may also include integration technology that allows organizations to trade electronically with supply chain partners.

Audit Findings

2.2.6 The general issues relating to planning and implementation of IT initiatives along with deficiencies noticed in system development of SCM application and project management are given in the succeeding paragraphs.

IT Policy and strategy

In the absence of a clear business strategy, the IT strategy to achieve business goals could not be formulated.

2.2.7 Though the company has implemented various IT initiatives since 1994, it has not formulated any IT policy for laying down its short and long term plans for computerisation. It has not drawn up any IT strategy and road map for IT initiatives, which may result in *ad-hoc* implementation of projects with risk of failure. The Company has not made any attempt to link its organisational / business strategy with the IT strategy before embarking on the new initiative which was part of enterprise-wide computerisation. In the absence of clear business strategy or goals, it was not possible to shape the IT strategy required to achieve the business goals or to prepare a road map for computerisation.

There was no Steering Committee or a standing committee of a permanent nature since 1994 to continuously evaluate / review the IT needs and to take timely decisions with regard to its IT needs. The company also did not have a functional IT Head / Manager to advice the top management and to oversee the functioning of the existing systems / implementation of new IT initiatives. The company has not taken any initiatives to formulate and document policies, procedures and external controls which are sufficient to ensure data integrity, security, accuracy and reliability and for utilisation of its IT assets to derive optimum benefit.

The Management stated (August 2009) that the company has not formulated any IT policy as the company had not planned for full computerisation of all activities, but also stated that computerisation was planned to be implemented in a phased manner.

The reply indicated that the IT initiatives taken up so far were implemented in an *ad-hoc* manner without formulating any policy and strategy, which was essential for orderly implementation of computerisation.

System development of Supply Chain Management (SCM) application

The SCM Project

2.2.8 In July 2008, a proposal for implementation of a project called "Implementation of networking systems in various branches, C & FA's Godowns and RDS points" was placed before the Board of Directors of the company. The Board approved implementation of a web based networking system for sales and distribution at a total cost of Rs. 25 lakh in a phased manner. The proposal did not contain specific details of computerization like the various technological / hardware options available and how the expected benefits were going to be realized through computerization. The Managing Director later approved implementation of sales, procurement and inventory modules and the project was christened SCM Project for the purpose of implementation.

The SCM software has three modules, sales, procurement and inventory.

Subsequently, the scope of work was prepared for implementation of SCM software with the above three modules, *viz.,* sales, procurement and inventory. It was decided to use the server in the State Data Centre of the State Government and to develop the software in Web enabled architecture. Competitive tenders were invited in November 2008, for development of SCM software under the two part system of technical and financial bids and CMR Design Automation (P) Limited, New Delhi (CMR) was selected based on their lowest tender. The work was awarded to them on 30 January 2009 at a total cost of Rs. 10.85 lakh and the entire work was to be completed by the end of November 2009. A core technical group comprising DGM (Projects) as Project Coordinator, and representatives from IT User groups in sales, purchase and stores was constituted to oversee the implementation in February 2009.

The date of completion of the work was rescheduled in March 2009. Though the entire work was to be completed by 30 June 2009, not a single module has been installed in the server of the State Data Centre as laid down in the work order.

System development methodology

The company did not adopt any formal system development life cycle methodology for implementing SCM project.

2.2.9 The Company did not adopt any System Development Life Cycle (SDLC) Methodology for implementing the SCM project by splitting the project into various stages like project initiation, feasibility, system design, implementation, installation and post installation for systematic and effective implementation. An SDLC methodology follows a structured approach which would permit ordered evaluation of the problem to be solved, an ordered design and development process and an ordered implementation of the solution. A structured approach with proper documentation would also enable proper monitoring of the project development by offering a number of points during the project where progress against pre-defined deliverables can be reviewed and corrective action taken.

Project Initiation stage

2.2.10 Though a business case or a need for a solution existed for the project, no formal Project Initiation Document was prepared after conducting a preliminary review of the existing system to conceptualize a solution to be implemented by computerisation. In the absence of detailed project initiation documents it could not be ensured that the business case or the justification for the project was analysed with reference to staff / training needs, present and future business needs *etc.* The Company did not constitute any steering committee for planning and executing computerisation. The core technical committee was constituted (February 2009) after the entire process relating to scrutiny of tenders, defining the scope of work and awarding the work was completed in January 2009.

Feasibility stage

No feasibility study was conducted to evaluate the various technology options and for assessing user requirements.

2.2.11 A feasibility study is required for determining the most appropriate solution to an identified problem in terms of organisational capability, economic justification and technical suitability. In this stage, the user requirements are established and documented for forming the basis for the proposed solution. It is in this stage that the various alternatives and their justification are examined before conceptualizing the solution. However, the company did not conduct and document any feasibility study for the implementation of the SCM project, which had the following consequences.

- in the absence of a proper feasibility study, it was not clear how the company evaluated its requirements and selected the technology options objectively. The evaluation based on which the decision was taken to implement SCM, in preference to increasing the level of computerization in areas like finance where data availability was high and the relative benefits of implementing other alternatives were also not documented.

- though it was reported that the other modules like finance *etc*., would be developed and installed in later phases, no document was available / prepared for the development of these modules without which the computerization would be incomplete. This indicated deficiency in planning which would come in the way of orderly implementation of later stages in case of change in personnel / top management.

- the SCM could not have been conceived without planning for the network and connectivity between various departments / users. It was not clear whether any plan was drawn up and approved for implementation of networking and communication software in synchronization with the software development.

- documents showing the detailed user requirements, internal control requirements *etc.,* were not prepared and as such the company could not ensure that all the user requirements were incorporated in the design stage. These were communicated to the developer orally through discussions / meetings.

- the capacity of the organization to manage the related technologies, skills required by the staff to handle the applications *etc.,* could not be ascertained. As such competent personnel would not be available to take over the system when it is completed.

Preparation of System Requirement Specifications (SRS)

2.2.12 CMR made a detailed study related to the project planning and analysis phase and submitted a detailed System Requirement Specifications (SRS) in February 2009. The SRS was tentatively approved by the Project Coordinator and signed off in March 2009. The SRS prepared by CMR envisaged development of 3 modules, *viz.,* 'e-distimate' for sales / distribution, 'e-procurement' for purchase of raw materials and 'e-inventory' for stores and consumables. The 'e-destimate' module was to take care of all activities from production delivery note (PDN stage) right up to warehousing and ultimate sale (Invoicing stage) and the 'e-procurement' from preparation of bill of materials (BOM stage) to placing of purchase order (PO stage), while the 'e-inventory' module was to deal with all stages of planning and procurement of stores.

System Design and detailed design stage

2.2.13 System design process is the translation of users' needs or goals into software products and is an important stage in system development. It comprises several stages like specifying user requirements, general design, detailed design, systems development, development testing, acceptance and so on. It is in this phase of the project that the conceptual solutions, determined through feasibility study would be translated into workable solutions ready for further detailed design improvement and ultimate implementation. This would be achieved through the following:

System design documents were not made available by the vendor for approval and the same could not be insisted due to absence of any agreement.

- preparation of detailed system outline, formats, flowcharts *etc.,* and defining of input and output formats.
- incorporation of all internal controls and operating procedures
- definition of all functional specifications.

Implementing the above procedure would ensure that the general design of the system expands on the finding of the preliminary study and user requirements to produce a functional description of manual and EDP processes and provides an overall system design that could be adopted for final implementation after necessary improvement.

The system design stage was not implemented properly as evidenced from the following:

- the company did not adopt any system development methodology covering the design issues relating to input, processing, output, internal controls, security, change management controls *etc.,* for implementation of the design stage.
- the system specifications prepared by CMR (Vendor) were not handed over to the company for approval by users and acceptance by the Core Committee created for implementation of the project. As a result, the completeness, accuracy, security *etc*., of the software was left to be ensured by the Vendor.
- after finalization of the preliminary design specifications, the final detailed design specifications were also not subjected to any management scrutiny by the Core Committee.
- in the absence of a software development agreement, it will not be possible to obtain the system development documents from the vendor. It was also not clear whether the detailed test plans created by the vendor were obtained and reviewed to ensure that all the user requirements have been tested.
- though the company did not have an IT Department or IT specialists, the documents relating to system design, process control specifications and test documents could have been obtained from the vendor by entering into an agreement for getting them scrutinized by third party experts / IS Auditors.

Though the entire work was to be completed by June 2009, the project was still under design stage and the design development has not been completed for implementation. In the absence of system design documents, process control specification documents and test documents, audit could not verify whether the system will operate efficiently and effectively after implementation.

The Management stated (August 2009) that tenders were invited after discussions with various software vendors and a core committee was

constituted with members from various departments to study the user requirements. It was also stated that the various modules were proposed to be implemented in phases and the company would obtain all the required manuals, data structures, source code and other relevant documents from the vendor before making final payment.

However, the fact remained that the SCM project was implemented without conducting a feasibility study, preparation of project initiation documents and detailed design documents. Further, it was also clear that a structured system development methodology was not followed and no agreement was executed before commencement of the project.

Project Management - SCM

Contract / agreement for software development

No agreement or contract was executed with vendor for software development.

2.2.14 The vendor for implementation of SCM software was selected duly following the tendering procedure. A scope of work was prepared detailing the technology, system requirements, features required, transactions / work-flow, reports to be generated, hardware, training, time frame *etc.,* and the scope of work was made as part of the tender documents along with general conditions and information to bidders.

However, the company did not execute a separate formal contract / agreement with CMR for software development and the tender documents also did not incorporate any such conditions that the successful bidder should enter into an agreement. An analysis of the scope of work and general conditions which were part of the tender revealed that the following issues which were peculiar to software development contracts could not be assured in the absence of a formal software development agreement:

- assurance / warranty from the vendor that the product will perform as specified in the scope / SRS / terms and conditions and whether the vendor will continue to support the software for a reasonable period of time after the warranty period.
- the parameters for measuring the performance of the product / specifications.
- assurance / warranty that the product will meet the requirements in the company's operating environment.
- the indication as to the level of performance for the product and applications.
- the details of remedies available to the company in case the product fails to achieve the performance levels.
- provision for making available operating manuals for the system analysts and programmers to understand the application.

- the conditions as to the documentation required for tracking down and correcting problems in future.

- the period of maintenance warranty and the aspect relating to the right of the company to have the maintenance performed by a party other than the vendor.

- the conditions regarding the up-gradation of the application software in accordance with the operating system up-gradation.

- the procedure for making requests for change in software, conditions thereto and cost of enhancing the software in future.

- penalties in case the contractor fails to meet the contractual requirements in terms of technical performance requirements, provision for termination of contract, terms / conditions for termination and jurisdictions for legal proceedings.

- provisions as to whether the software could be moved from the present hardware to any other (next most logical) hardware in case of need and terms and conditions thereof.

The Company has paid an amount of Rs. 1.95 lakh, being 20 *per cent* of contact value to the vendor without executing any agreement. As there have been schedule slippages in the project, it will be difficult to handle disputes which may arise in case a proper / legally enforceable agreement is not entered into at the earliest.

The Management stated (August 2009) that the company has entered into a service level agreement on 29 June 2009 mentioning the details of deliverables under the project.

Project execution and progress

2.2.15 According to the work order issued to CMR, the procurement and inventory module was to be implemented first and completed before 31 March 2009, followed by the installation of Sales and Distribution Module at one sales office (Bangalore branch) by 15 April 2009. The entire work on the project was to be completed by 30 November 2009. As regards the payments to be made, it was stated that 30 *per cent* of the order value would be released on implementation of all the modules in the Bangalore sales Office and 50 *per cent* was to be paid on completion of the entire work. The balance 20 *per cent* was payable only after the performance guarantee period of one year from the date of completion of the project (30 November 2010).

The terms in the amended work order regarding dates for completion of each stage were overlapping.

The work order dated 30 January was accepted by CMR and they started the work on the project from February 2009. After starting the work CMR wrote to the company on 10 February 2009 and requested for implementation of the sales module first followed by purchase and inventory module and for some changes in the payment schedule.

In response to the above request of CMR, the company issued an amendment to the Work Order on 25 March 2009 stating that the work order has been amended only in terms of payment and other terms and conditions remained unchanged. It was also stated that the basic forms and tables of the sales module software are ready for installation at SDC and CMR has completed imparting of training to sales personnel and created the database relating to the sales and distribution activities.

Audit scrutiny revealed that:

- though it was stated in the amendment to the work order (25 March 2009) that only the payment terms had been changed, the amendment had, in effect, changed the order of implementation. The amendment also changed the date of completion from November 2009 to June 2009. The reason for these changes was not on record. The progress made so far indicated that the original time limit was more realistic.

Though the entire work on the project was to be completed by 30 June, even a single module has not been developed and installed in the SDC Server.

- dates indicated for completion of each item of work in the amended work order were ambiguous and lacked clarity and definiteness. The date for completion for stage 3 was indicated as 30 April 2009 while the completion date for stage 4 which was to happen later was indicated as 1 April 2009. Likewise, the date of completion indicated for stage 5 was 30 April 2009 while the completion date indicated for the next stage (Stage 6) was 10 April 2009. Even if two activities could be run concurrently, the percentage for making payments should have been combined while indicating the dates.

- it was reported that the basic formats and design tables of the sales module software are ready for installation and would be installed soon in the SDC server. It was not clear as to how this could be achieved after partial completion of the module and without completing the system study of all the modules and testing the software.

- the first stage could be deemed to have been completed only after installation of the software at SDC. As such, it cannot be said that CMR has completed the first stage of the project as per the amended work order. However, CMR has completed the second stage of imparting training for which they were eligible to receive 10 *per cent* payment.

Though the entire work of SCM project was to be completed by 30 June 2009, CMR has not been able to complete the detailed systems design stage even in respect of Sales module. Only partial implementation of the sales and distribution module up to depot level has been achieved along with system study of the other two modules, which was not in conformity with the amended time schedule. However, an amount of Rs. 1.95 lakh representing about 20 *per cent* of the contract value less service tax was paid to CMR on 9 June 2009.

The Management stated (August 2009) that the delay in execution of sales module was due to the time taken for collection and reconciliation of data from

various depots and further payments would be made based on the progress of implementation.

The reply confirmed the delay in execution and poor project planning and execution. Further, it was clear that the payment already made was not in proportion to the progress achieved as only 15 *per cent* was payable after installation of e-distribution software, which has not been executed so far.

Performance Monitoring

2.2.16 An examination of the detailed SRS prepared for implementation of SCM Project revealed that there was no provision for incorporating a 'Performance / Activity Monitoring Module' and an Audit Module. The implementation of SCM software with the ultimate objective of enterprise-wide computerisation makes it imperative that the top management implement processes and procedures to ensure that performance of IT systems are continuously monitored. To ensure that exceptions are reported and appropriate actions are taken to maximize system availability, quality and level of performance, the following systems and procedures have to be established.

There was no module for performance monitoring or any provision for an embedded audit module in the software.

- Reporting System is created and periodical reporting is made to the management about the health / functioning and performance of the EDP centre.
- logs of hardware are maintained for recording their usage, downtime *etc.,* and the same are analyzed periodically for appropriate action.
- the nature of reports, periodicity, level to which reported, levels at which they are considered, the procedure for taking action *etc*., are laid out.
- business continuity, back-up and data / disaster recovery plans are implemented and constantly reviewed.
- Service Level Agreements are entered into with third-party service providers and their performances are continuously evaluated.
- third party evaluation and independent security and internal control certification are obtained periodically.

In the absence of a performance monitoring system, problems relating to software utilisation, enhancement, change management, controls, infrastructure, connectivity, maintenance and staffing will go unreported or even if reported would be left unattended by the top management.

The Management stated (August 2009) that action will be taken to implement the suggestion given by audit.

General

Organization and staffing

2.2.17 Though the company has embarked on the implementation of SCM software, it does not have a separate IT Department. Having decided to implement SCM, the company would become increasingly dependent on information technology to carry out its business operations in the future. As a consequence, it becomes imperative to put in place a proper IT organization to manage the associated risks to data security, integrity, confidentiality and compliance with regulatory requirements in an efficient and effective manner. Continuous evaluation of staffing requirements also assumes great importance to ensure that the IT function has sufficient number of competent staff at all times to support the organisational needs.

There was no IT department in the company. No action has been taken to recruit IT personnel to take over and run the SCM software after implementation.

- the Company has not taken any initiatives for defining the various positions required for IT functions, job descriptions, skills, authority, responsibility, performance indicators for various positions and policies with regard to recruitment *etc.,* which was essential to ensure that sufficient number of competent personnel is available to support the IT function especially after the SCM is implemented and for further enhancement to ERP.
- policies for recruitment, training, compensation, motivation and performance evaluation *etc.,* have not been established. The job descriptions of IT staff required, qualifications and skill-sets required have not been laid down even after taking the decision to implement SCM.
- policies and procedures for controlling the activities of consultants, vendors and outsourcing partners have not been established so as to assure the protection of the interests of the organization and its IT assets.
- adequate supervisory practices to ensure that the roles and responsibilities are established along with a scheme for segregation of duties should be implemented. A formal organisational structure should be created for formalizing data and system ownership and custodianship so as to make decisions about classification and access rights to data / systems.

As IT is poised to become a service department to all other departments, the IT function should be placed suitably in the overall organisational structure. The EDP set-up should ideally have a Manager (EDP) who will be responsible for planning, supervision and liaison with other departments in addition to the overall operation of the IT set-up.

The Management stated (August 2009) that action will be taken for recruitment and training of staff and for defining their roles and responsibilities.

There was no proper internal network to optimize the use of existing IT resources or to support the SCM software by enhancing data availability.

Absence of internal network management

2.2.18 The company has invested Rs. 36.79 lakh towards hardware consisting of 75 PCs and related peripherals without proper networking facilities. With the proposed introduction of SCM, creation of an internal networking of other areas not covered under SCM will assume importance for data availability and portability. Effective management of resources and proper networking will supplement SCM by providing the information base and procedural support and help early stabilization and expansion.

Environmental controls

2.2.19 Environmental controls like installation of fire sensors, air-conditioning and systems for protecting the equipments from electrical faults due to lightning storms, earthquakes, and other extreme weather conditions resulting in total failure (blackout), severely reduced voltage, sags, spikes and surges, electromagnetic interference (EMI) of computer and supporting systems which are vital to protect the data as well as hardware have not been implemented. Emergency procedures have not been formulated and documented.

The Management stated (August 2009) that action has been taken to implement LAN connectivity in the administrative block. It was also stated that action will be taken to provide necessary equipments and to document and display emergency procedures.

The matter was reported to Government (July 2009); their replies are awaited (September 2009).

Acknowledgement

Audit acknowledges the co-operation and assistance extended by the staff and the Management of the Company at various stages of conducting the review.

Conclusion

The company did not formulate an IT policy or draw up a road map for computerisation. The SCM project was conceived without linking the overall business strategy and IT strategy. There was lack of documentation at all stages of system development of SCM software and the project was initiated without feasibility study. No formal agreement was entered into with the software developer and the provisions in the amended work order lacked clarity. Though the SCM project was to be completed by end of June 2009, even the first module has not been fully developed and installed. There was no IT department in the company to take over, run and maintain the SCM application.

Recommendations

- **The Company should draw up and document an IT policy and strategy to implement the IT initiatives in a planned manner. Action should be**

taken to appoint a senior functionary to take over the IT applications and for planning and implementing the future initiatives.

- **Action may be taken to implement finance, production and HRD modules envisaged under ERP by drawing up an overall plan for computerisation so as to bring about integration of various activities.**

- **As IT is poised to become a service department to all other departments, the IT function should be placed suitably in the overall organisational structure. The EDP set-up should ideally be placed under a Manager (EDP) who will be responsible for planning, supervision and liaison with other departments in addition to the overall operation of the IT set-up.**

- **As the project is still under implementation, design documents, process control specifications, manuals *etc.*, may be obtained from the developer of the software. Possibility of incorporating a performance evaluation and embedded audit module may be explored.**

- **Internal networking may be implemented for optimum utilisation of IT resources and for increasing the data availability and portability. Physical and environmental controls may be reviewed with reference to requirements.**