

Prioritised Project-Monitoring System (PPMS)

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ABSTRACT

The Government of Andhra Pradesh has taken up the massive irrigation mission 'Jala Yagnam' and is committed to creating required irrigation infrastructure facilities in the backward, draught-prone and upland areas to improve agricultural productivity as well as the overall economy of the rural areas in the state. It is programmed to provide additional irrigation potential of about 75 lakh acres, in 2 to 5 years at an estimated cost of Rs 46,000 crores. The project works are divided into a number of packages, and works are awarded to eligible and competent contracting agencies. The works are grounded and are in brisk progress.

In order to achieve the defined goals of such a gigantic task of constructing a large number of irrigation projects in a given time frame, effective monitoring and control of the construction, finance management and allied fields, for programmed completion with quality assurance and timely involvement of allied departments, like forest, land acquisition, etc., are required. The prevailing method of monitoring in the form of routine file system, following the hierarchy of the department, takes a considerable amount of time, and timely intervention of administrators to solve the bottlenecks in the field operations is not possible. Hence, innovative and effective online-project-monitoring systems are very essential.

The task of developing an online web-based application for monitoring these irrigation projects has been taken up by the Center for Good Governance (CGG). A series of discussions were held with the administrators, heads of departments and other experts in the field regarding the design and development of suitable online programmes. PPMS is an online web-based programme hosted on the CGG server, and is available at <http://ppms.cgg.gov.in/>. The irrigation engineering department fixed the responsibility of providing the information online to the PPMS on nodal officers located at each circle office and also on the contracting agency.

Project-wise and package-wise review and monitoring of the progress of all aspects such as physical, financial, land acquisition, rehabilitation and resettlement, and stage of clearances for each fortnight, month and year, and cumulative performance, are accommodated. It also facilitates online commu-

nication of bottleneck situations to higher officers and timely reaction of the concerned to overcome bottlenecks. Reports are available both in tabular and graphical forms such as pie charts, bar charts and line graphs. This system can be accessed by the chief minister's office, minister for irrigation, principal secretary and other secretaries of the irrigation department, chief engineers and nodal officers from the government side. Also, contractors have restricted access to the system.

With the advent of PPMS, administrators and chief engineers are able to quickly assess the ground realities and address the needs in no time. A few screen shots are presented here. Efforts are also on for updating data through SMS from the mobile phone of a nodal officer and the agency involved in construction.

Objectives

PPMS has been developed to monitor implementation of irrigation projects and to create irrigation potential of 75 lakh acres under Jala Yagnam. The other objectives are:

- To provide a platform where the executing agencies/field officers can
 - a) Submit the programme and progress of various aspects of projects like physical, financial, land acquisition and rehabilitation and re-settlement
 - b) Highlight the achievements
 - c) Pose bottlenecks in construction to the administrators
- To provide a single platform for the administrators to
 - i) Monitor project-, package-, agency-, secretary-, region- and state-wise progress.
 - ii) Issue guidelines for overcoming the bottlenecks posed by the field officers/contracting agencies
 - iii) Issue instructions to the field officers/executing agencies.

The main motto is 'delay in execution of projects should never be due to lack of timely information with the concerned official'.

Information Planning and Analysis

The conventional mode of communicating progress, bottlenecks and issues related to the construction of irrigation projects is time-consuming, and leads to delayed decisions by authorities. Information collected from various sources has to be processed every time for preparing the reports. To standardise the process of monitoring the progress of irrigation projects, packages (contracts) of work are categorised under the following major components:

- Investigation: survey, hydraulic particulars, designs and drawings

- Dam and appurtenant works: earthwork, concreting, masonry and mechanical works
- Lift irrigation systems (LIS) head works: intake channel, pump house structures, pumps and allied equipment, pressure main and electrical works
- Canals: earthwork, lining and structures
- Distributaries: earthwork, lining and structures
- Miscellaneous works: Works not covered in the aforementioned components

Inputs to the PPMS are planned to cover all the above six components. The information related to the progress of packages (contracts) has to be furnished by the contracting agency and the same will be authenticated by the concerned nodal officers. Higher officials have access to the consolidated information in the required formats/graphs for taking necessary decisions. Project-level information has to be furnished by the identified nodal officers.

Strategic Planning and Implementation

The Government of Andhra Pradesh has assigned the task of developing the web application for online monitoring of these irrigation projects to the Center for Good Governance as CGG has the relevant domain knowledge and technical expertise in implementing such projects. A series of discussions were held with the administrators, heads of departments, field officers and representatives of contracting agencies for design of a suitable web application.

The development of the project-monitoring system was done using an object-oriented approach. In this methodology, software can be developed in self-contained modules or objects that can be easily replaced, modified and reused. PPMS is developed based on three-tier architecture with Oracle as the back end, J2EE as the middle/web tier and Java and HTML as front end. Struts framework, which facilitates Model View Control Architecture, is adopted. Tomcat server was used to deploy the application. The methodology adopted greatly reduces maintenance costs. The resulting application developed is PPMS (<http://ppms.cgg.gov.in>).

Change Management

- All the stakeholders have been involved right from the design stage.
- Features required by all the stakeholders were provided in the software.
- All the stakeholders were given hands-on training on the application.

Critical Success Factors


- The Chief Minister Office insisted on reviewing the progress through this portal only
- Involvement of domain experts from the SPIU-Irrigation unit and the chief information officers (CIO)s from the irrigation department in the total life cycle of the project
- Active help desk facility provided by CGG

Performance and Results

Reports

The PPMS tool compiles all the package-wise data and generates user-defined reports for review and monitoring at appropriate levels. The following are the various reports.

Line Diagrams: Schematic view of packages awarded and balance works/packages:



Project Monitoring System

Tue, 17 Jan 2006

Last Logintime: Tue, 17 Jan 2006 04:46:08 PM

Home | Info, Entry | Reports | Expenditure | Change Password | Logout

Select Project : Sample Project

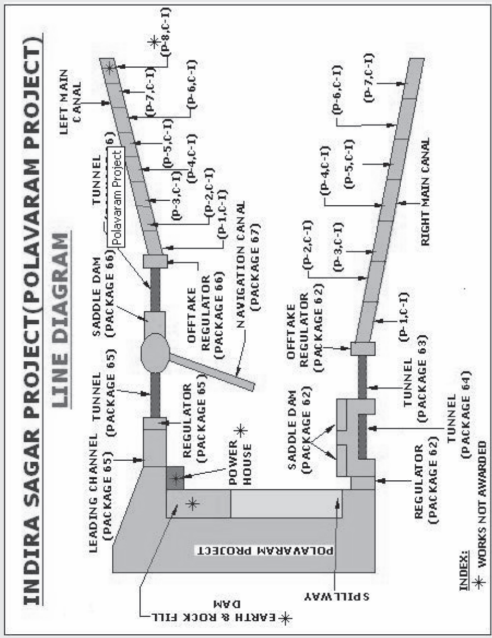
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Line Diagram - Sample Project




INDIRA SAGAR PROJECT(POLAVARAM PROJECT)

LINE DIAGRAM

The diagram illustrates the layout of the Indira Sagar Project (Polavaram Project). It features a central SADDLE DAM (PACKAGE 62) with a SADDLE DAM REGULATOR (PACKAGE 62) and an OFFTAKE (PACKAGE 62). To the left, there is a LEADING CHANNEL (PACKAGE 65) with a REGULATOR (PACKAGE 65) and a POWER HOUSE. A TUNNEL (PACKAGE 65) connects the leading channel to the saddle dam. To the right, there is a RIGHT MAIN CANAL with a TUNNEL (PACKAGE 63) and a REGULATOR (PACKAGE 62). A TUNNEL (PACKAGE 64) is also shown. The project includes a LEFT MAIN CANAL, a NAVIGATION CANAL (PACKAGE 67), and a SPILLWAY DAM. Various packages are labeled with codes like (P-3,C-1), (P-5,C-1), (P-7,C-1), (P-8,C-1), (P-4,C-1), (P-2,C-1), (P-1,C-1), (P-6,C-1), (P-5,C-1), (P-4,C-1), (P-3,C-1), (P-2,C-1), (P-1,C-1), (P-6,C-1), (P-7,C-1), and (P-8,C-1). A legend indicates that a star symbol (*) denotes WORKS NOT AWARDED.

Local Intranet

Project Profiles: Salient features of the projects, technical data, districts and mandals covered under the project command:



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Select Project : Polavaram(Indira Sagar) Project

Project Profile - Polavaram(Indira Sagar) Project

1	River / Basin	Godavari
2	Sub Basin	
3	Longitude	81° - 46'
4	Latitude	17° - 13'
5	District	WEST GODAVARI
6	Location	Near Ramahaipeeta(V), Polavaram (M)
7	Catchment Area (Sq. Km)	306643
8	Annual Rainfall (mm)	1022.95
9	Designed Flood Discharge (cusecs)	3600000
10	Maximum Observed Flood Discharge (cusecs)	3081000
11	No. of Villages under submerision	276
12	Population to be rehabilitated	117034
13	Total Ayacut (Acres)	718425
14	Water Utilisation (TMC)	301.65
15	Power Generation (MW)	960
16	Drinking Water Supply (TMC)	23.44
17	Cost of the project (Cr.)	8194
18	Probable Date of Completion	
19	Districts Benefitted (in Acres)	
	Mandals Covered	KADUM RANAGARAM KORUKONDA MANDAPETA SITANAGARAM GOKAVARAM ANAPARTHI BICCAVOLI RAJAHMUNDRY RURAL PEDDAPURAM SAMALKOTA KRISHNAPURAM GOLLARPOLU JAGGAMPETA KIRLAPADU SANKHARARAM PITHAPURAM RANGAMPETA GANDEPALLI TUNI TRONDANGI MUPYD. BAPILAPADU LAGIRIPALLI LINGULUR

Local intranet


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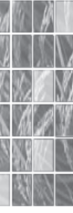

Package wise

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Packages Information: Shows all the packages in the project, contracting agencies, contract value and agreement date etc.:



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- Mon, 16 Jan 2006
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Select Project : Bhima(Rajiv).Lift Irrigation Scheme

List of Packages - Bhima(Rajiv) Lift Irrigation Scheme

Category	Package No	Amount (Rs. in Crores)	EMD/BID Security (Rs. in Crores)	Agreement Number	Date of Agreement	Joint Venture	
C - II	13	58.97	1.47	35/RLP/2004-05	03/03/2005	Yes	
	14	68.94	1.72	31/RLP	24/02/2005	Yes	
	15	51.27	1.28	36/RLP	05/03/2005	Yes	
	16	70.80	1.77	34/RLP	02/03/2005	Yes	
	17	41.54	1.04	38/RLP	17/03/2005	Yes	
	18	42.10	1.05	40/RLP	14/03/2005	Yes	
	19	36.90	0.92	28/RLP	19/02/2005	Yes	
	20	36.98	0.92	39/RLP	07/03/2005	Yes	
	21	60.39	1.51	32/RLP	25/02/2005	No	
	22	26.73	0.67	33/RLP	25/02/2005	No	
	Open	36/37/2004-05	383.35	5.00	37/RLSP/2004-05	07/03/2005	No
		36/41/2004-05	391.55	5.00	41/2004-2005	14/03/2005	Yes
		36/8/2005-06	149.40	3.73	08/RLSP/2005-06	05/10/2005	Yes

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Progress Report (Cumulative): Shows the cumulative progress of the project /package in the form of a pie chart on the status of investigation, physical, financial, land acquisition and rehabilitation and resettlement:



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Select Project: Bhima(Rajiv) Lift-Irrigation Scheme

Cumulative Progress - Bhima(Rajiv) Lift Irrigation Scheme

Completed Balance

Investigation

49.94%

50.06%

Chart/Director (unregistered)

Physical

92.99%

7.01%

Chart/Director (unregistered)

Financial

94.79%

5.21%

Chart/Director (unregistered)

Land Acquisition

84.25%

15.75%

Chart/Director (unregistered)

R & R

100.00%

0.00%

Chart/Director (unregistered)

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Last Updated On:

PACKAGE ID	PHYSICAL	FINANCIAL	L A	R & R
CZ-13	16-12-2005	16-12-2005	16-12-2005	16-12-2005
CZ-14	16-12-2005	16-12-2005	16-12-2005	16-12-2005
CZ-15	16-12-2005	16-12-2005	16-12-2005	16-12-2005
CZ-16	16-12-2005	16-12-2005	16-12-2005	16-12-2005
CZ-17	16-12-2005	16-12-2005	16-12-2005	16-12-2005
CZ-18	16-12-2005	16-12-2005	16-12-2005	16-12-2005
CZ-19	16-12-2005	16-12-2005	16-12-2005	16-12-2005
CZ-20	16-12-2005	16-12-2005	16-12-2005	16-12-2005
CZ-21	16-12-2005	16-12-2005	16-12-2005	16-12-2005
CZ-22	16-12-2005	16-12-2005	16-12-2005	16-12-2005
DC-36/41/2004-05	16-12-2005	16-12-2005	16-12-2005	16-12-2005
DC-36/8/2005-06	16-12-2005	16-12-2005	16-12-2005	16-12-2005
DC-36/37/2004-05	16-12-2005	16-12-2005	16-12-2005	16-12-2005

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Progress Report (Current Year): The current year program, updated month-wise and progress achieved of the project/package in the form of vertical bar diagrams on the status of investigation, physical, financial, land acquisition and rehabilitation and resettlement:



Project Monitoring System

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Select Project : **Bhima(Rajiv) Lift Irrigation Scheme**

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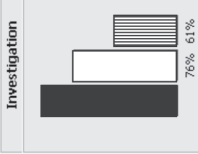
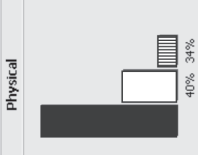
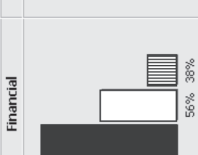
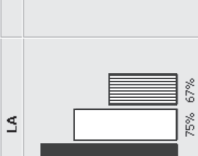
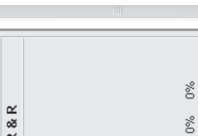
Yearwise Progress - Bhima(Rajiv) Lift Irrigation Scheme

Review Year - 2005-2006

Select Year : 2005-2006

Program for 2005-2006
 Program up to end of Jan 2006
 Progress up to end of Jan 2006

Mon, 16 Jan 2006

Investigation	Physical	Financial	LA	R & R
 <p>76% 61%</p>	 <p>40% 34%</p>	 <p>55% 38%</p>	 <p>75% 67%</p>	 <p>0% 0%</p>

Expenditure Program for 2005-2006 : 35202.0 Lakhs
 Expenditure Program up to end of Jan 2006 : 19658.0 Lakhs
 Expenditure Progress up to end of Jan 2006 : 7394.3203 Lakhs

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Select Project : Bhima(Rajiv) Lift Irrigation Scheme

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Project Monitoring System

LOGOUT

Today: 24 / 06 / 2006

Last Login: Sat, 24 Jun 2006 10:13:26 AM

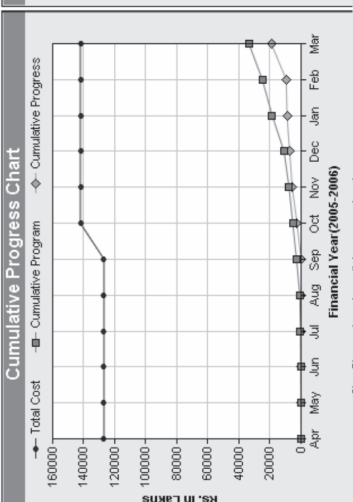
Projectwise Expenditure

Project Name :

Year:

Home | Info, Entry | Reports | Expenditure | Help |

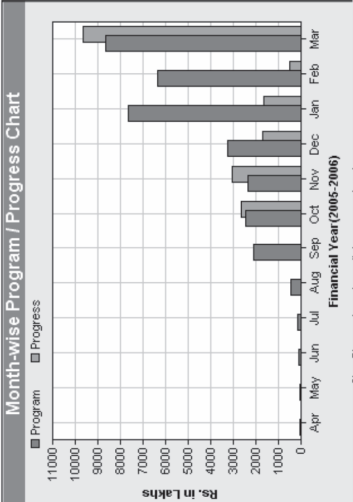
Cumulative Progress Chart



Financial Year(2005-2006)

ChartDirector (unregistered) from www.advssofteng.com

Month-wise Program / Progress Chart



Financial Year(2005-2006)

ChartDirector (unregistered) from www.advssofteng.com

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Done

Internet

100%

Details of staff deployed in execution and quality control, by the department and contracting agency.

Profile of the contractor: Show the details of contracting agency.

Project highlights: Shows the important events in the construction of the project / package.

Red flags: The bottlenecks in the execution of the works under a package or for the total projects are available to the competent authority to initiate and solve the problem so raised.

Comments and instructions: The reviewing officers and Administrators can communicate instructions and orders, clarifying the technical aspects on the works in each package or project for taking immediate action.

Impact

The huge investment of about Rs 46,000 crores in irrigation projects aimed at developing an irrigation potential of 75 lakh acres, is directly reviewed and monitored online by the authorities. There are huge savings in the form of money and time spent to report the information to authorities. Earlier information sent manually by one office did not reach the other office, but after the introduction of PPMS, information submitted online to PPMS is accessible to every competent authority. Movement of vehicles and nodal officers to the capital city is no more required after the introduction of PPMS. This brought the culture of timely reporting in the department. PPMS enabled:

- Field engineers to economise both financial and human resources.
- Field engineers to report the progress of work from anywhere.
- Field engineers to report the bottlenecks from anywhere at one go, and reduced duplication of work.
- Contracting agencies to submit reports of bottlenecks to the department.
- Administrators, chief engineers and ministers can review progress, monitor the field situation and enforce corrective measures.

Sustainability

Nodal officers from different circle offices in the department have been trained in the use of the PPMS package. At present it is being hosted on the server environment of CGG and will continue to be hosted there for the next 3 years. Four young officers from the department are deputed to work in CGG, and are involved in the development and maintenance of the package. After 3 years the entire software will be made available on department-owned servers and the officers who are trained will be available in the department to monitor and maintain the package. Nodal officers who

trained the field level will use the package, and are expected to transmit the technology to their successors in the department. As there is huge savings in terms of human movement to head offices, fax and postal expenditure and telephone bills with the usage of PPMS, the department is already favourably inclined to it. Pressure put on the field staff from top management for its continued usage will definitely make this project sustainable in the future.

Cost-Effectiveness

PPMS package was developed by CGG with the encouragement and support from the department of irrigation. The department has already started acquiring computers and servers to facilitate many such e-governance packages. Hosting the software on the department server and placing the departmental officers back in the department will not incur costs other than internet charges. With the introduction of broadband technology, even internet charges are becoming cheaper day by day.

Future Road Map

It is proposed to use geographical information systems (GIS) technology to provide details of canal networks and irrigation potential in a graphical form to the end users and also to revenue departments. Efforts are underway to integrate the communication tool 'INSTAXX' developed by CGG for accepting the information and instant messaging service to send auto-alerts to the stakeholders through SMS/Fax/e-mail modes.

Conclusion

While the challenges faced by governments are colossal, new technologies provide tremendous opportunities for enhancing the capability of governments to handle data, take better informed decisions and provide transparent, cost-effective and accountable solutions to implement the projects as per schedule.