SULEKHA

a web based tool for monitoring of plan projects of local bodies and state level reporting.

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Abstract

The decision of the Kerala State Government to devolve 35-40% of the Ninth five year plan outlay, for projects and programmes to be implemented by local self governments, posed severe challenges to systems for plan monitoring and for reporting of plan information in the state, The Information Kerala Mission (IKM), entrusted with the task of computerising local bodies in the state developed a web based tool 'Sulekha' to handle the issues in plan project monitoring, data acquisition and consolidation. The application has been tried out in five select locations. The paper examines in detail the salient features of the application and the issues arising out of its field level implementation.

1.0   Introduction

Following the decision of the government to devolve a sizeable chunk of the states plan outlay to the local bodies the government initiated a mass movement, popularly known as People's campaign for decentralised planning to empower local self governments, and to prepare plans in a transparent and participatory manner. [Isaac, et. al (2000)]. The annual plans of local bodies involved preparation of project documents which were themselves visualised as participative local interventions to solve issues of public interest. These project documents were generated through structured interactions of the panchayat functionaries, functionaries in line departments, local development activists and beneficiaries. The documents were highly local specific and standardisation of objectives, achievements and targets was extremely difficult since this would infringe upon the creativity of local problem solving.

The project preparation was initiated through an intense training programme of the functionaries concerned. A variety of institutional and cultural changes were attempted in the project formulation and implementation [1]. The vibrant environment of intense campaign activity, aimed at facilitating problem identification and problem solving, learning and un-learning, and system reengineering resulted in a state of flux where every thing was so dynamic.[2] To devise a reporting system in such metamorphic and mutating environment was demanding and this was precisely the challenge of the Sulekha design. [Unnikrishnan, P.V.]

A system for plan monitoring for local bodies should facilitate

(1)   A mechanism for data acquisition and local reporting which could facilitate strengthening the project management process locally.

1.   Participation of beneficiaries right from formulation to implementation.

2.   Building up a new development culture with an emphasis on sustainability and integrated resource management on the hand and reversing the class, caste and gender bias on the other.

3.   Integrating the projects across development sectors at the local body level and ensuring backward and forward linkages through vertical integration across the various tiers.

4.   Integration of state level and central level schemes implemented by local bodies with the plan projects.

5.   Drawing the support and ensuring the involvement of local level institutions, and manpower transferred to the local bodies like agricultural officers, veterinary care centres, primary health centres etc in formulation, implementation and monitoring of projects.

6.   Mobilisation of local labour as well as resources both in cash and kind in developmental projects.

7.   Integration of own funds of the local bodies in plan projects and mobilising institutional finance.

8.   Building up skills at the local level for strategic planning on a long term, medium term, and short term basis and to prioritise interventions based on available resources.

9.   Building up transparent and participatory systems for formulation of projects, for vetting improving and implementing them and for monitoring as the implementation, and to devise strategies for institutionalising the new systems.

10. The major changes in plan process guidelines during the period 1999-2001 as reflected in Government orders and circulars issued by the planning department, local administration department and finance department shall be as follows.

Sl.No.	Category of guidelines	Year 1	Year 2	Year 3	Year 4	Total
1	Formulation	7	17	5	3	32
2	Apprisal and Approval	3	5	2	1	11
3	Implementation	1	15	5	1	36
4	Evaluation	8	15	6	0	29
5	Monitoring	4	10	2	1	17
	Total	3	62	20	6	125

(2)   A mechanism for aggregation of the local body data at the various tiers which could facilitate vertical integration of local body plans.

(3)   A mechanism for integrating the reporting system with the system of performance audit and plan evaluation studies, in order to provide checks and balances, and to evolve guidelines for plan expenditure, and also to facilitate changes in the macro policy framework, for taking advantage of the initiatives for economic development and social justice, at the local level.

A network architecture suitable for this approach was designed. (See figure 1). The option of linking the institutions transferred to the local bodies, which are also the implementing offices of the peoples' plan themselves, and linking the Grama panchayats over dial up to blocks shall be taken up only in the phase 2. During phase 3 the state information network synthesises with the state information Infrastructure.

Looking into the broad requirements of application software development for the local bodies, arrived at based on a detailed system study taken by IKM, which also incorporates recommendations of the committee on decentralisation of powers, a technology choice was also arrived at. The salient features of the technology choice[3] shall be as shown in Table 1.

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[3] The technology choice was revised following release of new versions of operating system relational database product and Web server.

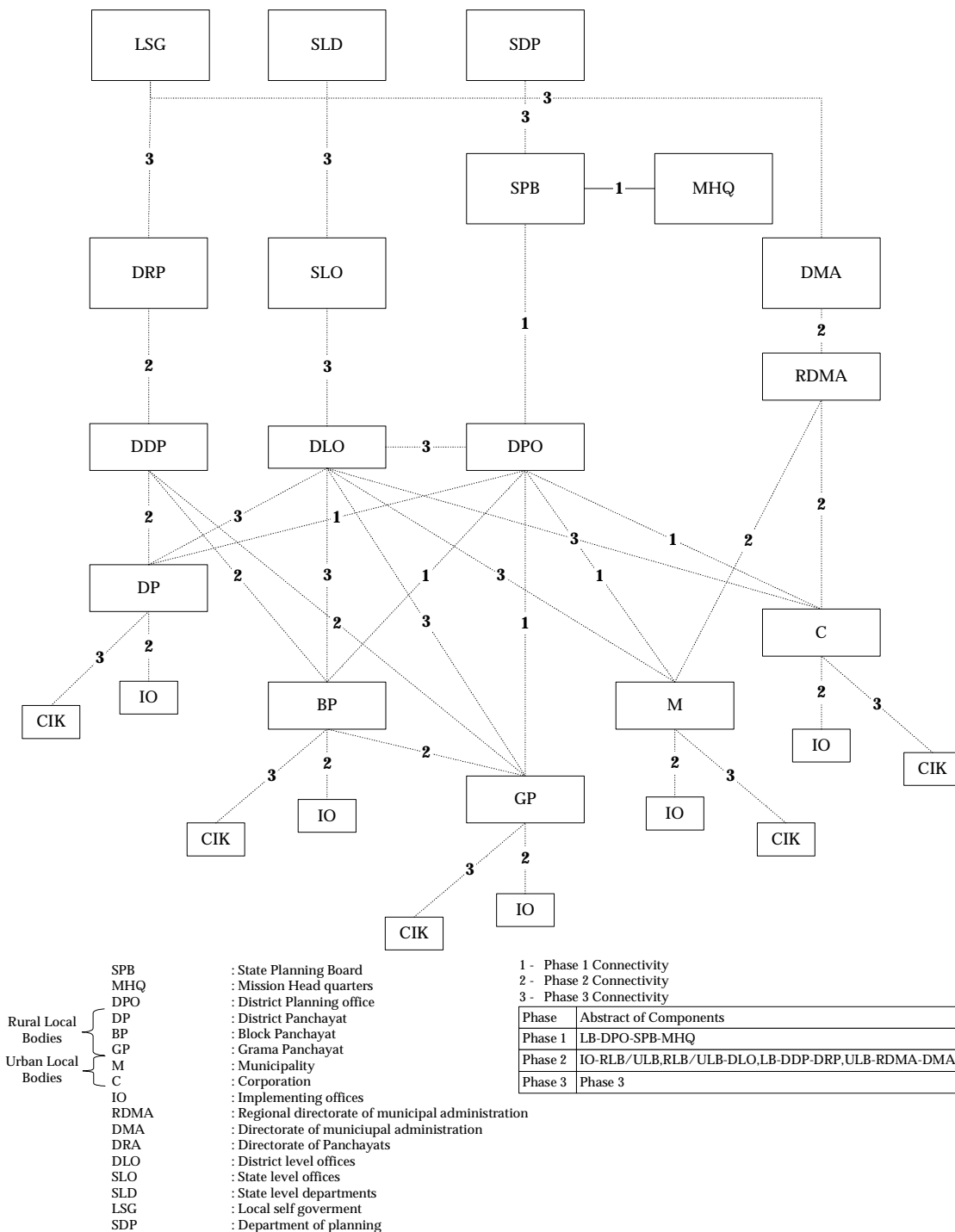**Fig 1. Network Connections in IKM an evolutionary perspective.**

LSG   SLD   SDP

SPB   —1—   MHQ

DRP   SLO   DMA

RDMA

DDP   DLO   —3—   DPO

DP

C

IO   M

CIK   BP   IO   CIK

IO   GP   IO

CIK   CIK

IO

CIK

SPB : State Planning Board
MHQ : Mission Head quarters
DPO : District Planning office
Rural Local Bodies { DP : District Panchayat
BP : Block Panchayat
GP : Grama Panchayat
Urban Local Bodies { M : Municipality
C : Corporation
IO : Implementing offices
RDMA : Regional directorate of municipal administration
DMA : Directorate of municiupal administration
DRA : Directorate of Panchayats
DLO : District level offices
SLO : State level offices
SLD : State level departments
LSG : Local self goverment
SDP : Department of planning

1 - Phase 1 Connectivity
2 - Phase 2 Connectivity
3 - Phase 3 Connectivity

Phase	Abstract of Components
Phase 1	LB-DPO-SPB-MHQ
Phase 2	IO-RLB／ULB,RLB／ULB-DLO,LB-DDP-DRP,ULB-RDMA-DMA
Phase 3	Phase 3

Table 1. Technology choice for IKM

1.	Hardware (Client and Server)	Intels' Pentium based system
2.	Operating System Client Server	Microsoft's Window NT Work Station 4.0 Microsoft's Windows NT Server 4.0/ *Windows 2000 Server*
3.	Development Tool	Microsoft's Visual Basic 6.0 and ASP for Web applications.
4.	Database Server	Microsoft SQL Server 7.0/*SQL Server 2000*
5.	Web server	Microsoft's Internet Information Server 4.0/*Internet Information Server 5.0*

The design of Sulekha shall fit in with the network architecture and technology choice as outlined above.

The project management reporting tool ideally, should have seamlessly integrated with day to day accounting and overall financial management, right from the beginning, for reasons of better financial control. This should be so primarily because in all local bodies, the plan resources accounts for more than 40% of the total budget and further since accounting of the projects in the new local body context would have necessitated umpteen project cash books and ledgers. [Government of Kerala (2000)] However, it was decided to defer the integration of the plan reporting system with the local body accounting and financial management system to the next phase

since the revised budget manual and the revised accounts manual for local bodies could not be finalised immediately.

2.0 Methods and Materials

Sulekha captures extensive project information which has been classified and categorised for the purpose of validation and standardisation for meaningful consolidation. The coverage of project attributes is shown in Annexure 1.

Sulekha consists of three application modules

1) Sulekha (local body)

2) Sulekha (District Planning Office)

3) Sulekha (State Planning Board)

The features are shown in table 2.

Table 2. Main features of Sulekha

Sl. No.	Type	Main features			
		Data Aquisition	**Data Validation**	**Report generation**	**Data transmission**
1.	Sulekha (local body)	LB data entry, verification and approval	Standardisation based on masters and simple numerical and logical checks	Local level reports and process audit reports, reports on local economy	LB to DPO reporting and down loading of masters from DPO
2.	Sulekha (District Planning	NIL	NIL	Consolidated district level reports with	Supervision and control of transmission.

				drill down, archive of model projects etc.	Uploading data to the state and downloading masters from the state.
3.	State Planning Board	Master table entries and updation		Consolidated state level reports with drill down	Linkages to DPO for upward data transmission and report transmission of masters

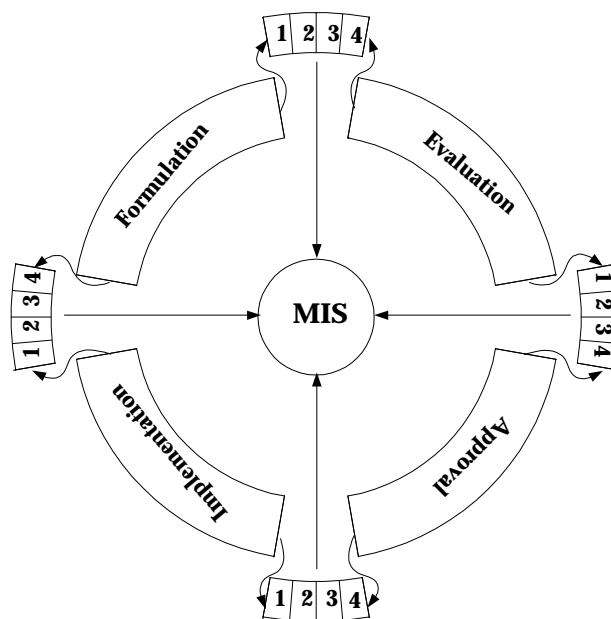Since the plan formulation and implementation guidelines were continuously evolving, it was extremely difficult to design a system for data

Fig 2. Stages in the life cycle of PMS Module

acquisition, validation, consolidation and reporting. It was therefore decided to design the application based on the most stringent data requirements based on a simulated ideal process framework with provision for auditing process discrepancies and reporting them. The conceptual module of PMS takes the form of figure 1. As could be seen from the figure the four stages in the lifecycle of a project are plan formulation, evaluation, appraisal and implementation. The monitoring systems shall acquire information recorded in a project status registry as shown in the figure. The elements of the project registry and the state transition of the registry is shown in table 3.

Table 3. Elements of project registry and state transition of the registry

Registry Cell	Registry Components	State Transition levels
1.	Physical targets	Projected at formulation finalised at formulation
2.	Time Schedule	
3.	Organisational Beneficiaries Institutional linkages Products, Processes and technology	Projected at evaluation finalised at evaluation Projected at approval finalised at approval

4.	Resources - Allocated Financial Human Resources - Mobilised - Financial - Human resources	Finalised at implementation finalised at implementation

Communication between the various Sulekha modules, as outlined in Table 3 is achieved using the data transmission services of MS SQL 7.0. The application has been optimised to reduce common location overheads by using incremental transfer without compromising data integrity and synchronisation. The application uses a four-tier architecture based on active server pages technology – the presentation tier, the middle tiers and the data base tier (See figure 3). The presentation tier consists of the browser and report viewer AciveX component which handles user interaction and client side validations. The linkage of the presentation tier with the web server uses the ASP 5 object model with five intrinsic. The client side validation is taken care of by client side scripting in Visual Basic and Visual Java. Remote scripting is used for interactive downloading of masters relating to micro sector classification of projects.
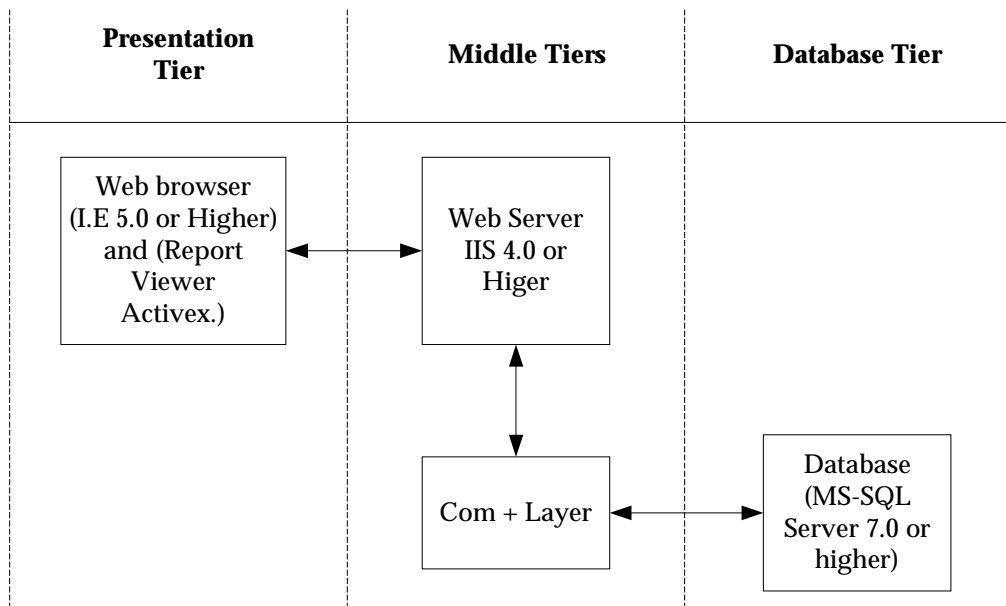
Presentation Tier	Middle Tiers	Database Tier

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[Web browser (I.E 5.0 or Higher) and (Report Viewer Activex.)] <--> [Web Server IIS 4.0 or Higer]
                                                                          ↕
                                                    [Com + Layer] <--> [Database (MS-SQL Server 7.0 or higher)]
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Fig 3. Architecture of Sulekha

To evolve a physical target scheme for the entire gamut of projects is very tedious. But leaving it adhoc would make aggregation of implementation performance impossible. A scheme of 736 physical targets with additional attribute information suitable for a second level classification of targets was evolved. Listing of such an extensive library of targets cannot facilitate their use. The only possibility to ensure their use is to categorise the targets into groups which could be remembered and applied conveniently based on the context. Two models one for productive sector projects and for infrastructure and service sector projects was formulated as shown below. Using the models all the physical targets and their attributes for a productive sector project could be classified into four classes viz

1) Inputs

2) Outputs

3) Credit and market linkages

4) Mechanisms and institutions for quality control

For infrastructure and service sector projects the targets and attributes could be classified as

1)   Evaluation mechanism related

2)   Infrastructure improvement related

3)   Delivery of services related

4)   Institutional linkages for improvement of quality of service
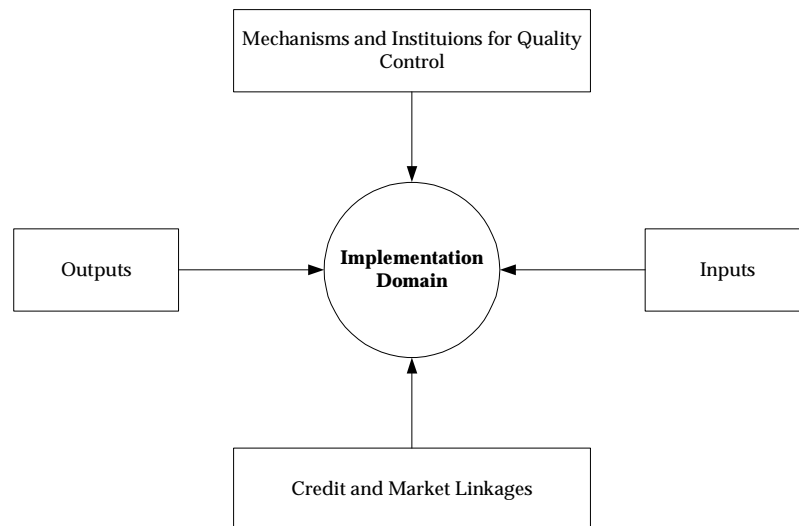
5)   Please see figures 3 and 4.
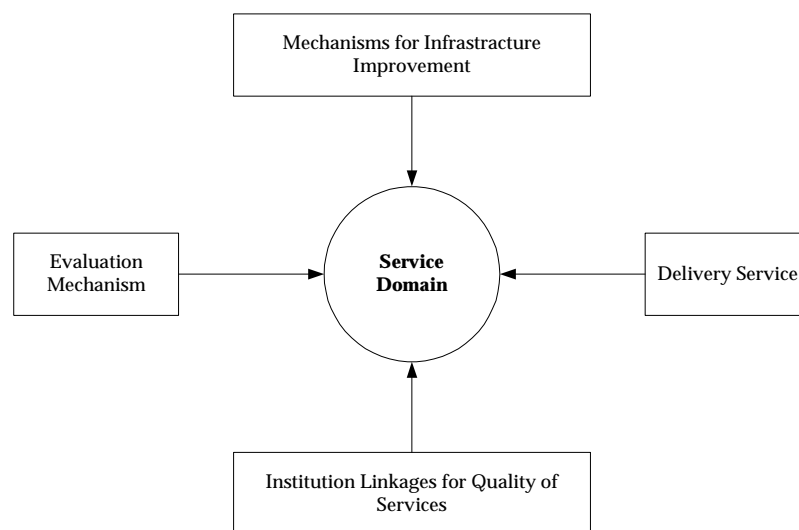

Fig 4. Model for Physical targets in Productive Sector

Fig 5. Model for Physical targets in Service and Infrastructure Sectors

The methodology of software development of Sulekha, followed the human

centred participatory software development strategy evolved for IKM (Unnikrishnan.P.V., (2001)]. A number of persons involved in the peoples' plan campaign at the political, bureaucratic and activist level interacted in formulating the concepts. Prototypes of the reporting tool where developed to faciliate further interaction. The life cycle of the product with major changes has been shown in table 5.

Table 5. Life Cycle of Sulekha

PMS 1.0	▪ Standalone version for LB based on GN forms prepared by the SPB (1997-98)
PMS 2.0	▪ Network version covering all type of LB's Extensive masters ▪ Provision for monthly tracker of achievements
PMS 3.0	▪ Separate LB, DPO and SPB modules Extensive Scheme for physical targets linked with micro sectors
PMS 4.0	▪ Multiple implementing officers ▪ Mechanism of annual account closing introduced. ▪ Reporting of achievements and targets implementing office wise ▪ Scheme to track allocations to implementing officers
SULEKHA	▪ Full fledged Indian language version

	in 3 languages
	▪ Integration with implementing offices with a facility for generating periodic departmental level reports
	▪ Provision for maintaining a database on local economy
	▪ System for auditing and reporting of process discrepancies
	▪ Archive of model projects at the District level

The interactions at the conceptual level and in vetting the prototype where no doubt valid, but very few of the people who participated had good understanding of the variations in project documentation practice across the state and quality of data being documented. Very little data was available at the State Level, and whatever data available was collected through specially designed data collection prepared by the planning commission. After making evaluation of the data made available by local bodies through these forms. IKM designed an improved proforma which was used for data collection from the various implementing offices and panchayts in Trivandrum District. It was based on these inputs that the Sulekha attribute definition covered in the scheme of masters as shown in Annexure 1 was arrived at.

3.0 Results and Discussion

The Sulekha application was subsequently implemented in five grama panchayats of Trivandrum District viz. Ambbori, Kattakada, Madavoor, Vellanad and Vilavoorkal. The implementation brought out strengths of the design strategy resorted to by Information Kerala Mission. Significant improvement in coverage of

data could be achieved reflecting the effectiveness of the design. See table 6 below. The data collected and entered using the application, also showed higher levels of consistency.

Table 6. Improvement achieved through the application.

S.No	Type of attribute	% Improvement
1	Plan formulation	30%
2	Plan appraisal	85%
3	Plan approval	90%
4	Plan implementation	50%

4.0 Conclusion

The design of 'Sulekha' throws light into design strategies that could be used in systems with high level of transience. Integration of the accounting package 'Sankhya' the decision support system 'Sakarma' and the workflow system 'Soochika' with 'Sulekha' would go a long way in strengthening the system of project management further.

5.0 References

1. Government of Kerala (1999), "The Final Report of the Committee on Decentralisation of Powers", Chaired by Dr. Sutyabrato Sen, submitted to the Government of Kerala on 23 December 1997.

2. Government of Kerala (2000), "The report of the State Finance Commission", chaired by Dr. Prabhat Patnaik submitted to the government of Kerala in June, 2001.

3. Isaac, Thomas and Franke, Richard (2000), "Local democracy and development", peoples campaign for decentralised planning in Kerala, Left Word, New Delhi.

4. Unnikrishnan P.V., (1999), "Strengthening plan monitoring systems (Malayalam)", volume 3, Issue 12-13, Marxist Samavadam, April-September, 1999

5. Unnikrishnan.P.V. (2001), "Information Kerala Mission: Unfolding of a silent revolution", Information Kerala Mission, Trivandrum

Annexure 1. Coverage of project attributes

Type of the Attribute	Name of the Attribute	Mandatorily Required or Not	Whether Quantified against Masters or Not	Mode of Entry
Approval	Amount approved by BLEC	Yes	No	DET
	Date of approval by LB,DPC,BLEC			
	Date of Approval of renewal of Project by LB, DPC, BLEC			
	Date of temporary Approval			
	Disputed Project		Yes	SCB
	Reference Number of approval by LB, DPC, BLEC		No	DET
	Reference Number of approval of renewal of Project by BLEC			
	Reference Number of approval of renewal of Project by DPC			
	Reference Number of approval of renewal of Project by LB			
	Reference Number of Temporary approval			
	Requirement of Detailed Project report			SCB
Financial Estimate	Beneficiary Contribution (Current Year), (Previous Year)	No		DET
	Beneficiary Contribution- Direct (Current Year), (Previous Year)			
	CSS Share (Current Year), (Previous Year)			
	Grant in Aid (Current Year),(Previous Year)			
	Loan from Cooperatives (Current Year), (Previous Year)			
	Loan from financial institutions (Current Year), (Previous Year)			
	Others (Current Year), (Previous Year)			
	Own Fund (Current Year), (Previous Year)			

Group	Field			
	SSS Share (Current Year), (Previous Year)			
	Total Project Estimate (Current Year),(Previous Year)	Yes		
General	Centrally Sponsored Scheme	No	Yes	CS
	Micro Sector	Yes		CS
	Micro Sector Code			AG
	Project Category	Yes		CS
	Project Name		No	DET
	Project Serial Number			DET
	Project Serial Number (Last Year)	No		
	Project Type	Yes	Yes	CS
	Sector			CS
	Sector Type			CS
	State Sponsored Scheme	No		CS
	Sub Sector	Yes		CS
	Women Development Project			SCB
Implementation	Approved Implementing Agency	No		CS
	Date of commencement of the Project	Yes	No	DET
	Date of completion of Project			DET
	Implementing Officer		Yes	CS
	Mode of Implementation		Yes	CS
	Other Implementing Agency	No		
	Project discarded	Yes	No	SCB
	Scheduled End Month & Year			DET
	Scheduled Start Month & Year			DET
Physical Targets	Physical Target and attribute	Yes	Yes	AG
	Physical Target Description		No	DET
	Physical Target Quantity Targeted		No	DET
	Physical target Unit		Yes	AG

DET –Data Entry in Text Box

SCB – Selection in Check Box

AG - Auto Generated

CS – Selection in Combo Box