



GEF-UNDP-WB assisted
Sustainable Urban Transport Project (SUTP)
INDIA

SUTP 3rd Annual Event
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GEF-SUTP



Project Scope

CCS / Data Centre

- ✓ Video Wall
- ✓ Application / Database Servers
- ✓ Network Firewall / Routers / Switches

Applications

- ITS
 - ETA
 - MIS Reports
- GIS
- EMS

Power

- ✓ DG Set – 82.5 KVA
- ✓ UPS – 20 KVA x 2

Training

- ✓ Crew Training
- ✓ Officials Training

ITS

PIS Display Boards

- ✓ Shelters - 2" 2 Line – 59
- ✓ Shelters – 2" 4 Line - 63
- ✓ Platforms – 4" 4 Line – 45
- ✓ Terminals – 10 Line – 20
- ✓ Terminals – 16 Line – 6

Commuter Related

- Commuter Portal
- SMS
- IVRS

In-Bus Equipments

- ✓ VMUs - 500
- ✓ In-Bus Displays – 500
- ✓ Voice Announcement System

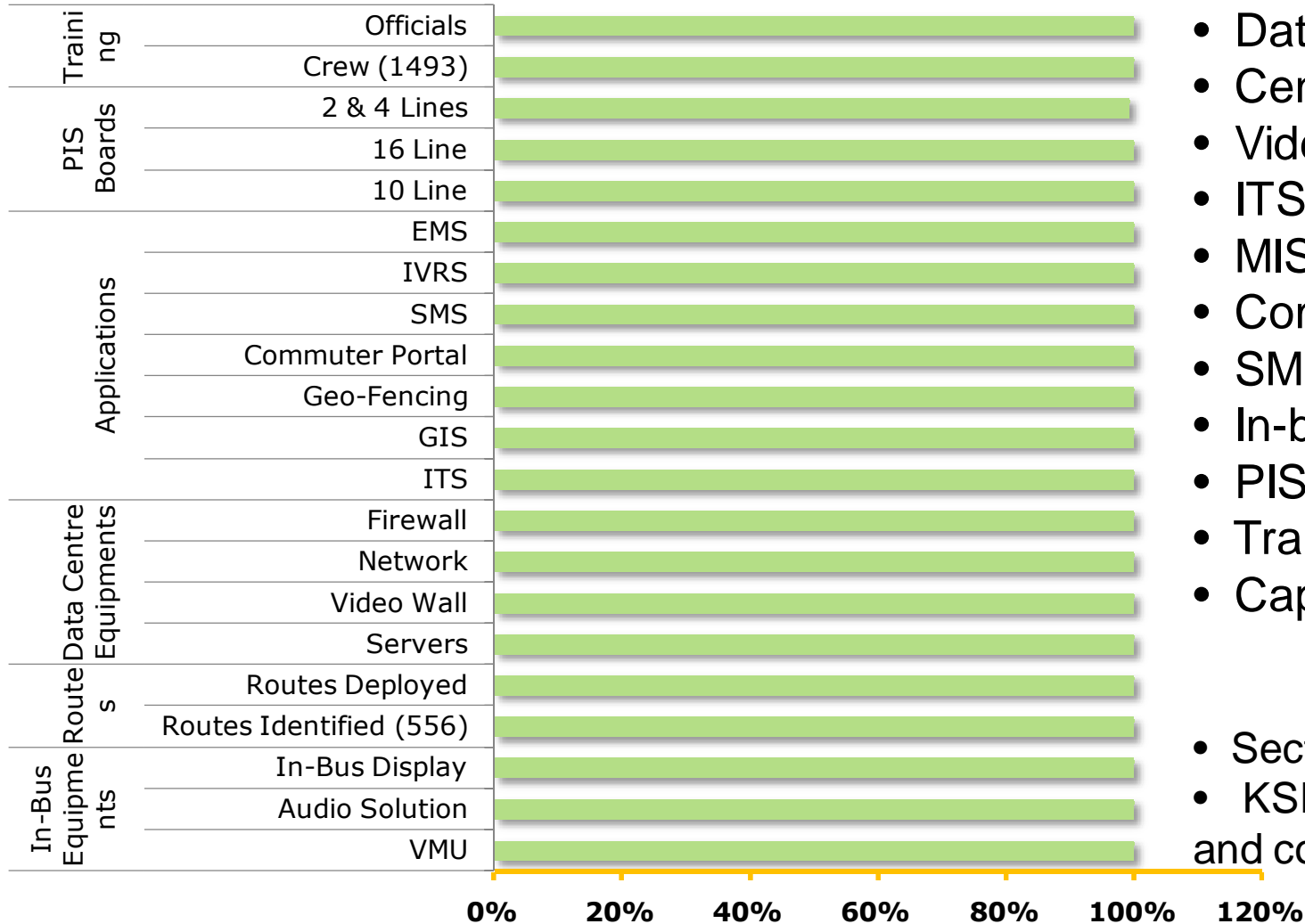
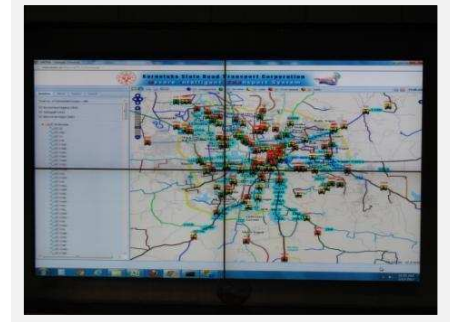
Components

- AVL
- Real time PIS (ETA/ ETD)
- In-bus Display
- AVA
- CCS
- MIS reports
- EMS
- Training
- SMS & IVRS
- Fleet Mgmt
- Commuter portal

Scope

- 500 buses
- 167 display boards at bus stops
- 2400+ bus stops
- 6 Terminals

Progress in 3 Years



Works Completed

- Data Centre
- Central Control Station
- Video wall
- ITS Integrated Application
- MIS Reports
- Commuter Website
- SMS/IVRS Facility
- In-bus equipments
- PIS display systems
- Training
- Capacity Building

Current Status

- Sector-wise Operations started
- KSRTC dispatchers monitoring and controlling the operations

Financial Progress



Sl.No	Activity	Expenditure Rs. In Million	Expenditure \$ In Million
1	Centralized traffic control centre	36.03	0.75
2	GPS Mounted Unit	13.11	0.27
3	Display System	15.34	0.32
4	Bus Depot Infrastructure	0.11	0.00
5	Project Preliminary & Project Operative Cost	2.16	0.04
6	Training	1.08	0.02
7	PMC Charges	9.18	0.19
8	TA for ITS application in Transit operations	-	-
9	Consultancy Charges for DPR, RFP & Tender E	1.82	0.04
10	Monitoring and Evaluation	12.36	0.26
11	Diesel Ethonal Infrastructure	31.01	0.65
	Grand Total	122.20	2.55

- Total Fund released up to 31-3-13 -> Rs. 146.07 Million
- Estimated Disbursement -> 2013-14 -> Rs. 85.60 Million
- 2014-15 & 2015-16 -> Rs. 41.02 Million

Fund Requirement



(in Rs. Million)

Sl	Particulars	Amount
1	Extra Cost to be incurred due to increase in Contractual Agreement entered in respect of Consultancy activity of the Project	31.35
2	Funds required for Public Outreach Campaign	80.00
3	Funds required for Human Resource Development activities	20.00
	Total Fund Requirement	131.35

Reasons for delay in progress

- Implementation of project for the first time & lack of subject matter expertise
- Procurement through manual Process and as per World Bank Guidelines
- Procurement of Solution Integrator before Project Management Consultants
- Documentation – power calculations, SRS, Factory Acceptance Tests etc.
- Establishment of Central Control Station and Commissioning
- Field issues regarding installation – power supply availability, different types of buses, co-ordination with different agencies
- Continuous improvements to project beyond RFP requirements
- Traffic Operations integrated with ITS – Route Validation, Crew awareness, Schedule adherence, Operational Discipline etc.
- Stabilisation of ITS equipments



Implementation Challenges



- No historical information / lessons learned available as Mysore ITS is the first project in the country with this magnitude and complexities involved
- Business Processes
 - More time taken to understand and adopt the technologies involved, and map it against existing business processes
 - Adhering to daily schedules and related changes and reflect in the system
- Communication challenges - multi-level monitoring, co-ordination and correspondences across various stakeholders, organizations & commuter society
- Time gap between DPR preparation, RFP Preparation and Awarding Contract leading to many changes in business requirements and technology
- Delay in finalizing scope/ requirements due to late engagement of PMC (project management consulting) and M&E (monitoring & evaluation) agencies
- Lack of single test facility to test all types of LED boards as per expected requirements
- Impractical to standardize in-bus equipments installation procedures – different bus designs, non-standard cabling needs, issues of batteries, VMU and relay placement

Implementation Challenges

Bus Reg No.	Status	Bus Type	Depot Name	Schedule No.	Route Name	Stop No.	Location	Last Update Time
100 KASBP-0024	ONRD	BMPT	2201	223-U	1	At YHS Palyan	22.28.15	
100 KASBP-0061	ONRD	BMPT	2202	128-U	1	1.81 kms from Akashanahalli	22.28.15	
101 KASBP-0100	ONRD	BTB	2204	228-U	8	4.28 kms from Akashanahalli	22.28.15	
102 KASBP-0700	ONRD	BMPT	1101-D	119-D	11	1.31 kms from Akashanahalli	22.28.15	
103 KASBP-0101	ONRD	BMPT	1201	130-U	7	1.81 kms from Akashanahalli	22.28.15	
104 KASBP-0400	ONRD	BTB	2801-D	179-U	8	2.81 kms from Devala Chik	22.28.15	
105 KASBP-0500	ONRD	BMPT	1201	130-U	13	At YHS Palyan	22.28.15	
106 KASBP-0100	ONRD	BTB	2202	223-U	11	At YHS Palyan	22.28.15	
107 KASBP-0500	ONRD	BMPT	1101	119-D	18	1.81 kms from 10th Phase Talyan	22.28.15	
108 KASBP-0501	ONRD	BMPT	1101	119-U	1	1.81 kms from Akashanahalli	22.28.15	
109 KASBP-0502	ONRD	BMPT	1101	119-U	18	1.81 kms from Akashanahalli	22.28.15	
100 KASBP-0504	ONRD	BMPT	1000	100-D	21	4.18 kms from KORTC SHAN	22.28.15	

- Manage English and Kannada (local language) font in the given display board real-estate
- Availability of local language font to meet all the requirement specifications
- Availability of power supply at all bus-shelters
- Non-standard bus shelters in Mysore city
- Security of ITS equipment deployed in public places
- Challenging to integrate existing in-bus display boards with ITS equipments
- Excessive vibrations in rural routes than anticipated are affecting in-bus equipment performance
- Availability of 100% GPRS signal throughout the Mysore city roads
- Scope change control process not adequately defined
- Lack of flexibility in the contract to deal with field realities and changes
- Learn World Bank procurement practices and align with existing procedures – goods & services, consultancy services
- Residual ambiguity in RFP - Missing / inadequate clarity on GIS scope, back-up power requirement

Monitoring & Evaluation- Baseline

- **User surveys**
 - ❖ KSRTC commuters
 - ❖ Non – KSRTC commuters
 - ❖ KSRTC Management and Staff
- **Modal Split Survey**
 - ❖ Conducted during August - September, 2012
 - ❖ 9 Major corridors
 - ❖ 24-hour Traffic Volume Counts
 - ❖ Occupancy Survey
- Benchmark report submitted in September 2012



Temporal Surveys conducted during April-May 2013 along the same corridors of baseline surveys.

Monitoring & Evaluation-Highlights

Measures of Performance Indicator	Baseline	Temporal Survey
On-Board Announcement System Satisfaction	0%	90%
In-Bus Display Satisfaction	0%	89%
Overall User Satisfaction with ITS Program	0%	89%
Technology Application Satisfaction	0%	93%
Accuracy of ITS information	0%	47%
Usefulness of ITS Information at Bus Stops	0%	48%
Use of Bus Arrival Information at Bus Stops	0%	23%
Average number of people waiting at Bus Stops	13	13

Monitoring & Evaluation

Measures of Performance Indicator	Baseline	Temporal Survey
Average wait time at bus stop	20 minutes	16 minutes
Average travel time	30 minutes	30 minutes
User cost (wait time + travel time)	50 minutes	46 minutes
Operating cost per km	Rs. 15.62	Rs 17.25
Operating cost per passenger	Rs. 6.84	Rs. 5.85
Modal Split (KSRTC modal share)	39.8% (488,431)	During Nov 2013
Annual Ridership (total passengers)	79,252,127	97,625,819
Total revenue	888,740,000	943,978,000
Revenue per km	Rs. 11.21	Rs. 6.67

Lessons Learnt

- STU to take up thorough needs analysis before deciding on RFP requirements
- Capacity building of State Transport Undertakings
- Timely deployment of Project Management Consultants
- Streamlining of Operations requirements
- Clarity in RFP in terms of functional and technical requirements
- Solution Provider to take up thorough field study before submission of tender proposals
- Solution Provider should have key professionals with expertise
- Extensive project documentation with attention to all details

Lessons Learnt

- Installations consume much time. Need expert workmanship
- Emphasis on proven solution
- Emphasis on branding
- Need for effective promotions & communications program on the project to disseminate the project information and get higher usage of the system
- Involvement of city administration
- Winning confidence of crew before rolling out of project
- Involvement of all stakeholders for successful rollout
- MIS Reports to be customised for effective usage



Thank You

