HUDCO Awards for Best Practices to Improve the Living Environment

Housing and Urban Development Corporation Limited
New Delhi-110003
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Forward

Being a Techno-Financing institution in the field of Housing and Urban Development, HUDCO is contributing significantly in meeting the rising demand for basic infrastructure and affordable housing in the country. Our cities are facing many challenges today, the main challenge being inclusive and sustainable growth. There have been many efforts in different parts of the country to meet this challenge. The Innovative ideas have been thought of locally and implemented successfully. However, they have not been recognised or documented systematically.

Such best practices are emerging and need recognition, publicity, appreciation and replication. HUDCO has started identifying and encouraging such best practices by giving awards annually in different spheres of habited development. HUDCO has also started documenting these best practices for other’s reference.

Entries had been invited from Government Organizations, Parastatal Agencies, Multilateral Agencies, Local Bodies/Authorities, Non-Governmental Organizations (NGOs); Community Based Organizations (CBOs); Private/Corporate Sector; Research & Academic Institutions or Public/Private Foundations. The entries were in various categories namely, Urban Governance, Housing, Urban Poverty & Infrastructure, Urban Transport, Sanitation, Environment Management, Energy Conservation & Green Building, Urban Design & Regional Planning, Inner City Revitalization and Conservation and Disaster Preparedness, Mitigation & Rehabilitation. A Committee comprising of eminent professionals with diverse background was constituted to select the winning entries. The Committee decided the winners through rigorous and evaluation matrix. The criteria of evaluation is based on planning implementation/process applied, innovativeness/application of technology, stakeholders' participation, impact, sustainability and replicability. The Committee recommended nine Awards out of 53 entries received this year.

As in the past, this year also HUDCO Best Practices Awards for the year 2012-13 were presented to nine winning entries on the HUDCO Annual Day held on 25th April 2013.

These award winning Best Practices are included in this publication for wider dissemination and replication/adorption in various housing and infrastructure projects throughout the country. This publication contains a summary of all the winning best practices highlighting their salient features and few other entries which are also worth mentioning.

I hope that this splendid efforts of HSMI-HUDCO in bringing out this publication will be received well and Best Practices featured in this publication will encourage many other organisations, in bringing about improvements in the approach, delivery and management of various projects in our country. I also hope that these practices will be replicated by many more implementing agencies of various Central and State Government Schemes.

VP Baligar, IAS
Chairman and Managing Director, HUDCO
ABOUT THE AWARD WINNING ENTRIES

This year entries for HUDCO Best Practices Award were invited in the following categories:

1. Urban Governance;
2. Housing, Urban Poverty and Infrastructure;
3. Urban Transport;
5. Sanitation;
6. Urban Design and Regional Planning, Inner City Revitalisation and Conservation;
7. Disaster Preparedness, Mitigation and Rehabilitation

53 No. of entries were received for HUDCO Best Practices Award “To Improve the Living Environment 2012-13”. A Committee comprising of eminent professionals recommended following 9 entries for HUDCO Best Practice Award 2012-13 which were awarded on 25th April 2013 on the occasion of HUDCO’s Annual Day ceremony. They are listed below in no order of preference:

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<tr>
<th>Agency/ Stake holder</th>
<th>Name of Entry with category</th>
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<tr>
<td>Kudumbashree, Kerala State Poverty Eradication Mission</td>
<td>Management Information System for Planning and Implementation of Rajiv AwasYojana in the State of Kerala (Management &amp; Information System) under the category of Urban Governance.</td>
</tr>
<tr>
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<td>Upgradation of Employable Skills - UMEED (Vocational Training) under the category of Social Housing, Urban Poverty &amp; Infrastructure</td>
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<td>State UPA Cell, SJSRY, Chandigarh</td>
<td>(i) Learning on Wheels, (ii) Eco-friendly Handbags manufactured by HIV+ Poor Women SHGs &amp; (iii) Women as change Agent in Building Leadership and bringing changes in their communities under the category of Housing, Urban Poverty and Infrastructure.</td>
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<td>Ahmednagar Municipal Corporation, Maharashtra</td>
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<td>Principal Chief Conservator of Forests (HAG+), Department of Forest &amp; Wildlife Preservation, Punjab</td>
<td>Design, Construction and O&amp;M arrangements of the Forest Complex, SAS Nagar (Mohali) (Green Building) under the category of Environment Management, Energy Conservation and Green Building</td>
</tr>
<tr>
<td>Warangal Municipal Corporation, Andhra Pradesh</td>
<td>Clean Cities Championship Campaign (Solid Waste Management) under the category of Sanitation</td>
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<tr>
<td>Directorate of Urban Administration &amp; Development, Government of Madhya Pradesh</td>
<td>City Development Plans - e-Inclusive Planning &amp; Implementation in MP (Regional Planning) under the category of Urban Design and Regional Planning, Inner City Revitalisation and Conservation</td>
</tr>
</tbody>
</table>

I congratulate all the award winning agencies and other stakeholders who actively participated and won the HUDCO Best Practice Award 2012-13 and I hope that by way of this compendium their efforts will be replicated to encourage such best practices in other parts of the country.

N.L. MANJOKA

Director (Corporate Planning), HUDCO
Acknowledgements

Human Settlement Management Institute (HSMI) would like to acknowledge all the organisations and agencies, which responded to our request for submission of entries for consideration and award of the Best Practices. Their efforts to participate by way of submitting the entries in the required format have helped us to organise this activity in a sustained manner and we deeply appreciate and acknowledge their efforts. Regional Offices of HUDCO have been instrumental in pursuing with different agencies and encouraging them to take part in this activity. We would like to acknowledge the efforts of Regional Chiefs and the teams of officers and staff at Regional Offices.

We acknowledge the guidance and support given to HSMI team by CMD, HUDCO and deeply cherish his enthusiasm and encouragement given to us in carrying out this activity at various stages.

The Expert Committee of eminent professionals under the Chairmanship of Prof. Chetan Vaidya, Director, School of Planning and Architecture, New Delhi and member of the HSMI Governing Council have devoted their valuable time to systematically evaluate the entries received and we would like to express our sincere gratitude for their guidance and patience. HSMI Team Coordinator ShriSurendra Kumar Garg, Deputy General Manager(Projects)/Fellow and Mrs. Shobha Kumar, Assistant General Manager (Projects)/Associate Fellow with the help of other faculty members of HSMI have made significant efforts to organise the entries received and take follow up at all stages to ensure that this activity is properly organised and also in the publication of this document. Secretarial support extended by Shri Jeewan Lal, Assistant General Manager is also highly appreciated.

AN Krishnamurthy
Executive Director (Training) HSMI
Award Winning Entries
The Best Practice Award was given this year to Kudumbashree for their efforts made on preparing and using MIS for planning and implementation of Rajiv Awas Yojana in the state of Kerala. This management information system was conceived, designed, developed and implemented by the MIS specialists. The application and database is hosted on the State’s data center. This has resulted in zero additional financial expenditure to the Mission or the program.

Summary

Rajiv Awas Yojana envisages a “Slum free city”. It has been conceived by the Central Government, which has entrusted each state a mission and chose local governments to plan and implement the necessary steps to achieve the end objective. Any meaningful planning will need collection of the socio-economic data of the target groups and tools for effective analysis. Time bound execution will need advanced tools to plan, measure, track and analyze progress of the various activities needed to arrive at the end goal.

The version of MIS made available by the central government need upgradation and additions. Even the functions provided needed customizations that are unique to a state and region. Hence it became imperative that Kerala design and develop a Management Information System that leveraged the latest technologies while meeting the requirements of the state.

The MIS developed for Kerala has two significant parts:

- The RAY Progress Monitoring module.
- Socio-Economic Survey module.

The process begins by defining the administrative wards in each of the chosen cities and enumerating the clusters which need to be considered under RAY. This is followed by a verification process, and the detailed socio-economic survey of those clusters meeting the parameters specified in the guidelines. After quality checking the data is available for analysis based on the various parameters that were collected.

While the socio-economic survey and related activities are in progress, the RAY team can update the progress of various activities associated with it. The management team – the Hon Minister, Department Principal Secretary, Secretary, Executive Director at SLNA, and program-officer, can look at the progress using charts – pie, line and bar, and provide necessary guidelines and instructions for the smooth, efficient and effective implementation of Rajiv Awas Yojana.

Situation before the initiative began

As part of the process, one of the information to be collated is the Socio-Economic Status of the beneficiary pool. The version of the MIS made available to the states needed upgradation and additions, and was not amenable to the unique needs of the state of Kerala. Furthermore, the performance of the application needed improvement so that entry could be completed in a predictable and timely manner. In addition, the MIS lacked addressing of the process of implementation of Rajiv Awas Yojana and management of the progress of the programme.

ESTABLISHMENT OF PRIORITIES

The broad scope of the MIS was derived through in-house
consultations and deliberations. The outputs were translated to functional blocks. Each block was then subjected to detailed discussions, surveying, prototyping and verification using stakeholder samples. The implementation of the modules was driven based on ground realities and software development principles. The priorities were reviewed and redrawn periodically.

FORMULATION OF OBJECTIVES AND STRATEGIES

The limitations observed in original version of the MIS, coupled with inputs from stakeholder samples formed the basis of defining the end objectives of the MIS – a development platform that can be easily mastered; a database design that supports high speed data capture and fast reporting; a functionality based modular design that is attuned to easy customization and a simple intuitive user interface that will result in minimum start-up time for a novice user. The development strategy was driven by the progress of RAY activities by various teams on the ground and the development team had to follow the Scrum process.

MOBILISATION OF RESOURCES

Kudumbashree Mission is well supported by a team of highly qualified and skilled IT professionals. The RAY Technical Cells are provisioned with MIS Specialists as well. Both these resource pools worked collaboratively to design, develop, test and deploy the MIS.

PROCESS

The MIS made available by Government of India for use in RAY needed upgradation and additions. The first step in the process was enumeration of all the shortcomings of the available system. Both functional and performance tests were carried out to assess the depth and diversity of the issues that existed. This was followed-up with development of potential solutions. The choices that were considered included remediating the most critical of the defects, creating a cloned or derived version of the software and independent development. Weighing in all the aspects and after multiple rounds of discussion it was decided to do in-house development and deployment of the MIS.

Once the decision was made, the next step was that the entire RAY team revisited the questionnaire. As customizing the survey to factor in the unique situation of Kerala was one of the objectives, it was felt necessary that other gaps in the questionnaire be addressed as well. The final set of questions and the possible responses were
finalized through consultative discussions with various stakeholder groups.

As the survey was nearing completion, the technical team got mobilized. In discussion with the Kudumbashree’s MIS team and the state data center, the technology landscape was finalized. Prototyping and proof of concepts were carried out to ensure that the chosen approach would enable easy development, deployment and maintenance of the MIS.

Scrum development process was followed for building the various functionalities. The RAY team would hold frequent periodic meeting to draw functional outlines. As the development and unit test progressed, the output was reviewed and changes suggested for strengthening the module. Changes were deliberated at length for assessing potential benefits, pros and cons evaluated and decision of incorporating suggestions would be arrived at. Modules once passed the unit testing would be released for functional testing by RAY team members.

RESULTS ACHIEVED

THE CURRENTLY OPERATIONAL MANAGEMENT INFORMATION SYSTEM PROVIDES USER ACCESS AT MULTIPLE LEVELS – SUPER USER, STATE-LEVEL USER, CITY LEVEL USER. AT EACH LEVEL, ACCESS IS FURTHER GROUPED INTO VIEW-ONLY AND UPDATEABLE. THE MIS SUPPORTS VERY DETAILED ACTIVITY TRACKING AT CLUSTER LEVEL. IT SUPPORTS TIMELINE REPORTS AND ACTIVITY REPORTS. THREE DIFFERENT SURVEY FORMATS – NBO, KUDUMBASHREE AND NBO+KUDUMBASHREE ARE SUPPORTED, WITH PROVISION FOR QUALITY CHECKING AND THRESHOLD BASED ACCEPTANCE CRITERIA. THE MIS HAS PROVISION TO “LOCK” DATA ONCE QUALITY CHECKING IS DONE AND THIS PREVENTS UNAUTHORIZED TAMPERING.
The application supports cluster profiling at 2 levels. A basic level of profiling is done at initial stage of the process to see if the cluster qualifies as per the government norms to be included in RAY. At this stage, the application has facility to interface with Google Maps to bring real-time maps and satellite images of the proposed cluster. At the detailed profiling, the application records over 70 data points about the cluster that are not available through the household level socio-economic survey. This is not captured through survey, but is directly uploaded by the concerned Corporation.

From a systems side, the entire MIS runs on just 12 tables. The entire source code needs less than 2.0 MB of storage space. The application leverages both front-end validation and Ajax to minimize data-entry errors. It has been tested to operate equally well with the 3 most popular browsers – Internet Explorer, Mozilla Firefox and Google Chrome.

The performance of the application is also very good. The Kudumbashree format, with over 70 data points at household level and 40 data points per individual, can be completed in less than 3 minutes per format for a family of 4. Many reports can be generated online, including single and two-variable analysis of the socio-economic survey data.

**SUSTAINABILITY**

THE MIS IS THE CENTRAL REPOSITORY OF THE “POVERTY” INDICATORS IN MAJOR CLUSTERS IN THE CITIES. THE SOCIO-ECONOMIC PARAMETERS ARE STORED IN DATABASE. THE MIS IS THE REPOSITORY OF SUPPORTING ARTIFACTS CONSISTING OF MAPS, BENEFICIARY LIST, CLUSTER LEVEL ACTIVITY REPORTS AND THE LIKE. THESE WILL PROVIDE BOTH ACTIVE AND HISTORIC INTERVENTIONS THAT HAVE HAPPENED AND MEASURE THEIR EFFECTIVENESS.

The Management Information System of RAY has been developed and implemented till the socio-economic data is transferred to experts for the preparation of Slum Free City Plan. Once the plan is prepared, reviewed and approved by the concerned agencies, the program will move to an integration with GIS (Geographical Information System). Further down, the plan is converted to implementable DPRs (Detailed Project Reports). The RAY guidelines recommend a beneficiary contribution commensurate with the socio-economic status of the beneficiary.

The MIS can be expanded to capture the individualized expenditure for the individual’s unit’s redevelopment. Based on the data captured in the socio-economic survey coupled with the government norms for beneficiary contribution, the MIS can then compute the individual amounts.

The activity reporting module can be expanded by simply adding more activities with defined sequence to other existing activities.

The well-defined layered user access makes the module amenable for public access whereby they can monitor the progress of the program.

**LESSONS LEARNED**

The development and implementation of the Management Information System was an opportunity for all-round learning. On the requirement gathering phase, it reiterated the importance of stakeholder consultation, both at conceptual level and using prototypes. Many of the implied expectations that were not forthcoming in the conceptual level discussions emerged only when prototypes were presented. The scrum mode of development further helped in evolving and firming up the end shape of the Management Information System.

“Usability”, appropriateness of field sequencing and logical grouping of form fields are some of the other
important aspects that emerged during the prototyping. The multiple rounds of testing, esp. using forms that had come from the field were used for testing the application both during development and before roll-out. This helped in early detection of defects. The added advantage of adopting this approach was addressing of unique and specialized scenarios that exist in the real-world that had not been identified during the requirement gathering phase.

The activity monitoring tool helps the management to track the activities happening in the city and provide necessary support and advice.

The MIS has been developed using open source software and standards. The database components have been developed on non-proprietary code. These make the code platform (server) independent and database independent.
UPGRADATION OF EMPLOYABLE SKILLS – UMEED (VOCATIONAL TRAINING) UNDER THE CATEGORY OF HOUSING, URBAN POVERTY & INFRASTRUCTURE

The award “Best Practice” was given to Ahmedabad Municipal Corporation (AMC) in recognition of its vocational training programme for upgradation of employable skills namely ‘umeed’ under the category of “Housing, Urban Poverty and Infrastructure”.

SUMMARY

Purpose of the UMEED is to create opportunities for alternate livelihood options for the vulnerable and lower income groups of the society for improvement in their economic standards and to enhance skills such that the livelihood interventions become self sustained over a period of time.

27 centers for Umeed Training Programmes have been started by AMC since Feb-2007 with the help of four local NGOs. AMC has more than 19,000 trained students in UMEED Program who are working happily in the field and their dream of economical and social upliftment is achieved. Program implementation has resulted in creating awareness among the groups for adopting better living conditions and they are gradually becoming part of the mainstream of the society.

SCENARIO BEFORE THE INNOVATION WAS IMPLEMENTED

Indian economy achieved an impressive growth in this decade particularly in the last five years. Due to booming economy, lots of foreign and domestic investment has come up and therefore, very good job opportunities are coming up. Rural people due to lack of opportunities in the rural areas are migrating to the urban areas to seek better livelihood opportunities. However, capable bright students of the economically underprivileged background families were not able to enter the Corporate world because of lack of skills and it was impossible for this group of people to get on job sort of training. As at the entry level, it was tough to find organizations that would hire and provide training to them. In fact, skills were asked at the initial level and this was missing link for building up their career.

In 2005, Ahmedabad Municipal Corporation (AMC) partnered with SAATH and American India Foundation (AIF) to pilot an innovative employability-training program called “UDAAN” aimed at underprivileged youth of age 18 to 35 years. UDAAN successfully trained and placed over 900 youth in service sector domains like customer relations and sales, hotel management, bed side patient attendant, and others.

After the successful pilot of UDAAN, the Government of Gujarat asked SAATH to replicate the program across all major towns of Gujarat. In Feb-2007, the program was renamed UMEED and began with one training center at Behrampura slum area in Ahmedabad AMC.

OBJECTIVE

“UMEED aims to provide youth from economically weak backgrounds an opportunity to assimilate into the competitive job market. The objective of the programme is to create opportunities for alternate livelihood options for the vulnerable and lower income groups of the society for improvement in their economic standards and to enhance skills such that the livelihood interventions become self sustained over a period of time.

MOBILIZATION OF RESOURCES

The three-month training program costs Rs. 4,500 per student. Beneficiaries pay Rs. 500, Govt. of Gujarat
contribute Rs. 3500 and NGO contribute Rs. 500 towards the cost of programme. Building, Infrastructure, Furniture and maintenance work is provided by AMC.

**PROCESS OF THE "UMEED "**

UMEED has 2 criteria for selection of beneficiaries:

- The age of the student should be in the range of 18-35 years.
- The minimum qualification of the student should be at least 7th class.

AMC has started 27 centers for Umeed Training Programmes since Feb-2007 with the help of a local NGO. SEWA was nodal agency from Feb-2007 to August-2010 for implementing Umeed programme. For effective implementation and more coverage of the Umeed, AMC has decentralized it by selecting additional five NGOs from September-2010 and Urban Community Development Department of AMC is doing complete monitoring of the programme.

**The step by step process of the UMEED is as under :**

**Market Scan:** The process of setting up an UMEED centre begins with a market scan. This gives an idea of the areas’ employability potential, based on local economy, culture and natural resources, labour market and industrial profile. Courses for the local UMEED centres are determined accordingly.

**Curriculum Development:** After detailed ‘Focus Group discussions’ and interactions with industry professionals, the training courses to be implemented are arrived at. Experts from the respective fields help in the development of the relevant curriculum, which includes life skill modules.

**Road Shows:** These are held to mobilize and identify candidates for the courses. To ensure that the programme reaches the truly deserving, the mobilization is done with the assistance of local partners/ communities and self-help groups.

**Selection and Administration:** The candidates are administered an ‘interest inventory’, which is designed to assess which category (realistic/ investigative/ artistic/ social/ enterprising/ conventional) they fit into, so that their special interests are honed to maximum advantage through appropriate courses. After the ‘interest inventory’
check, the candidates are counseled by their facilitators and put through an induction programme to align them with the UMEED process.

**Class Room Training and Evaluation:**
Valuable life skills are integrated into curriculum through an interactive teaching process. There is also technical training imparted to candidates which includes on-the-job training, assignments, projects and field visits. The performance of the students is regularly evaluated. At present training is being imparted in courses like Customer, Relation & Sales (CRS), IT Enabled Services (ITES), Business Process Outsourcing (BPO), Hospitality, Multi skill, Bed Side Patient Assistant (BSPA), Logistics and Automobile. As the market demands, training programs get updated.

**Placements:** Entry-level jobs are made available to the students in various industrial/service sectors. Those with entrepreneurial aptitude are also assisted in setting up micro-enterprises of their own.

**Post Placement Support:** UMEED assesses the effectiveness of its programmes by monitoring its alumni’s progress at their workplaces. Their help is also taken in planning new programmes and identifying new beneficiaries.

**BENEFITS AND IMPACT**

The following table shows the latest position (November 2012) of the success of this program.

<table>
<thead>
<tr>
<th>Particulars</th>
<th>No. of Students of UMEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total No. of enrolled</td>
<td>28288</td>
</tr>
<tr>
<td>Training Completed</td>
<td>24454</td>
</tr>
<tr>
<td>Drop outs/Never attended</td>
<td>3,834</td>
</tr>
<tr>
<td>Yet to be placed</td>
<td>4606</td>
</tr>
<tr>
<td><strong>Students Placed</strong></td>
<td><strong>19848</strong></td>
</tr>
</tbody>
</table>
• Now, more than 19,000 trained students of UMEED Program are working happily in the field and their dream of Economical and Social Upliftment is achieved.

• The programme has given the beneficiaries the confidence to face the world at large and have confidence on themselves.

• The Beneficiaries have gained knowledge of basic computer and few state-of-the-art software’s necessary to be learnt in today’s technologically advancing world.

• The beneficiaries can better represent their ideas now and convince the public at large (the customers at their work place) through better presentation of ideas and opinions

• The beneficiaries have become dependent on themselves after seeking a decent job and are able to contribute to their household income.

• Successful stories have built up confidence in the students and lower income strata and capacity building is done successfully.

• Program implementation has resulted in creating awareness among the groups for adopting better living conditions and they are gradually becoming part of the mainstream of the society.

• The corporate industries are also happy as they are getting employees as per their demands. As proper market surveys are made, the demand of the market is also catered.

• Beneficiaries have improved their communication and computer skills by being a part of training under UMEED.

• The beneficiaries have acquired basic knowledge of spoken English and ability to have basic conversation in English effectively

• UMEED has gifted the beneficiaries a better and improved personality, immense self-confidence and belief on their ability to achieve their ambitions in life.

**KEY CHALLENGES AND LESSONS LEARNT**

Urban economy is growing exponentially with advent of new technologies. Thus, market forces require continuous upgradation of skills in the urban manpower. Human Resource Development thus becomes an essential element. To achieve this, demand based approach in imparting skills to the urban youth becomes inevitable. UMEED has highlighted this perspective. To make UMEED sustainable and for continuous quality improvement in its objectives, it has been realized that a special cell should be created to keep watch over the current trends in the industry. This can be realized through inviting representatives of various industries throwing light on the future requirements. These inputs of industries will be transferred to the UMEED centers by the Special Cell on the basis of hub and spoke model.

Best efforts are needed to be multiplied. By this way, the results achieved by them becomes more effective. Expansion of network of UMEED centers is the need of our. It has also been realized that more the distance one has to travel, more the drop out ratio at UMEED center.
There is a need to make certain important changes in the programme to make it more effective in future. Increase the reach of the programme to the illiterate poor is the main challenge. The programme imparts training to the urban poor youth who are at least 18 years of age and are at least 7th pass. However the major issue lies ahead to impart training to the poor, who, are illiterate and never got a chance to go to school or formal education.
LEARNING ON WHEELS BY STATE UPA CELL SJSRY /CYP SECTOR 12, MUNICIPAL CORPORATION, CHANDIGARH, UNDER THE CATEGORY OF HOUSING, URBAN POVERTY AND INFRASTRUCTURE

Summary

Swarna Jayanti Shahari Rozgar Yojana (SJSRY), a scheme of Ministry of Housing and Urban Poverty Alleviation for alleviating urban poverty proved to be a boon for the economic backward Community in the city. In the revised SJSRY guidelines 2009, with the introduction of Skill Training for Employment Promotion Amongst Urban Poor (STEP-UP) Component, a new dimension has been given towards poverty alleviation to Employment Linked Skill Training Programmes. In the past, SJSRY has mixed experience in implementing STEP-UP Component and in achieving the outcomes. On one side like Computer Fundamentals with MS-office, Networking, Accounting with Tally and Soft Skill Training, Certificate course on Computer Hardware, Certificate course on Computer Software, Certificate course in Financial Accounting, Tally & Communication Skills, Professional Driving, Security Guard, Business Process Outsourcing were conducted with the assistance of accredited and certified training institutions.

Placements were provided to the beneficiaries but due to certain limitations, the higher side of placements could not be achieved. Our Cell has analysed and observed the response and the behaviour of BPL beneficiaries towards participation in the Skill Training Programme is minimal as it cost to them in attending the training programme for six months. Then our Cell thought of devising a partnership model using Mobile Training concepts with the help of Commonwealth Youth Programme for the under-privileged community. CYPTEC on wheels has been empanelled under SJSRY for providing ICT awareness and IT courses to the urban poor living at the outer skirts of
the cities in slums and rehabs. The methodology training of CYPTEC on wheels is based on the principle of Reaching the Unreached and Bridging the Digital Divide. Till date, 152 BPL beneficiaries in 6 batches were provided training; which has of course changed the mindset and lives of young urban poor. It has actually worked in reducing the digital divide.

**SITUATION BEFORE THE INITIATIVE BEGAN**

Most of the Vocational/ Skill Trainings for urban poor were organized by NGOs in the slums/ rehabilitated colonies without quality and updated training infrastructure. The quality of training including instructions, training environment and infrastructure was not conducive. Beneficiaries were not ready to come out of their pockets for learning skills in mainstreamed society. It was observed that running a Computer Training Programme among the slum dwellers will be yielding positive results in the form of ICT awareness.

**ESTABLISHMENT OF PRIORITIES**

Stakeholders including CDS functionaries, Municipal Councillors and Experts Skill Training were invited to discuss for developing a partnership in organizing skill training in Computer Fundamentals at their doorsteps. Training at doorstep means a lot for the feminine community as their conservative family members avoid sending them outside their colonies for training due to unsafe environment.

**FORMULATION OF OBJECTIVES AND STRATEGIES**

State UPA Cell SJSRY approached Commonwealth Youth Programme Asia Centre for getting their extended support of CYPTEC ON Wheels in implementing skill training programme for urban poor under STEP UP component of SJSRY in slums and rehabs. The main objective of this best practice is to narrowing down the Digital Divide between the privileged and the under-privileged urban poor who are living in vulnerable condition.

1. Ensuring their productive participation in national development
2. Encouraging urban youth to take part in ICT education.
3. Encouraging towards employment linked training.

This partnership in intended in setting up an example for development conscious individuals and organizations to contribute towards integrating ICT education in urban development efforts.

**MOBILITATION OF RESOURCES**

State UPA Cell SJSRY conducted a resource mapping exercise and shared the project with linked stakeholders and shared responsibilities were planned:

1. Provision of space at Community Centre or schools by SJSRY
2. Financial assistance for this training under STEP UP component of SJSRY.
3. Identification of BPL beneficiaries by Community Development Societies
4. Power supply by community
5. Monitoring of beneficiaries during training programme by CDS.
PROCESS

CYPTEC on Wheels was given place in Empanelment list under STEP-UP component of SJSRY on the basis of invitation. A formal work order in the trade of Personality Development + Certificate in Computing through Mobile Van was given to CYP for organizing training to the BPL families for a duration of six months in which instructor’s salary, hardware tool kit, books, electricity charges, space, printing of certificates and valedictory was provided by State UPA Cell, SJSRY for a batch of 25 beneficiaries. About 6 training programmes were organized in the different colonies like Palsora, Sector 26, Sector 25, Kajheri, Dadumajra and Mauli Jagran. The training programme was inclusive of Personality Development and Grooming. Many problems have been faced in implementing the initiative but Community Development Societies of concerned area assisted a lot in making the programme successful.

RESULTS ACHIEVED

An international organization has agreed to partner and start a pilot project in the area of skill training for the urban poor youth. The other important achievement can be cited as follows:

1. Successful in creating a space among slum dwellers and drop outs
2. Approx. 152 poor youth has been given training
3. Not only ICT training was given but also personality development and personal grooming was also included in curriculum.

SUSTAINABILITY

Gradually this initiative has become a focal point of ICT based learning among slum youth. It has long term sustainable impact in the sense that it will link each corner of learning in the day to day life with information technology viz. online reservation, payment, banking etc. The trained beneficiaries will extend their learning not only to their family but also to their own community.

LESSONS LEARNED

Conventional mode of conducting Skill/ Vocational Training Programmes for urban poor has to be switched over to latest and current techno trends in skill training programmes. The concept of mobile training has given a new outlook and dimension to Skill Training to urban poor by way of reaching the unreached at their door step. This partnership has opened gateways for adopting mobile training as a new mode for other trainings area too.

The same model can be replicated in terrains like mountains, hills, far flung areas, deserts tribal area where creation of training infrastructure is a major challenge by government or any private corporate house.

This project has created an impact on economic weaker sections, vulnerable groups who never thought of having access to ICT programmes. These beneficiaries are familiar with latest techno trends.
ECO-FRIENDLY HANDBAGS MANUFACTURED BY HIV+ POOR WOMEN SHGs BY STATE UPA CELL, SJSRY, MUNICIPAL CORPORATION, CHANDIGARH UNDER THE CATEGORY OF HOUSING, URBAN POVERTY AND INFRASTRUCTURE

Award was given to State Urban Poverty Alleviation Cell, Swarn Jayanti Shahari Rozgar Yojana, Chandigarh under the category of Housing, Urban Poverty and Infrastructure for its vocational training programme “Learning on Wheels”, “improvement of income generation and access to credit for HIV+ Poor women self-help groups through setting up of eco-friendly handbags manufacturing micro units and for strengthening public private community partnerships though encouraging women in leadership roles for bringing positive changes within their communities”.

Summary

Urban Women Self Help Programme (UWSP) component under Swarna Jayanti Shahari Rozgar Yojana (SJSRY), a scheme of Ministry of Housing and Urban Poverty Alleviation for alleviating urban poverty has given an opportunity to HIV+ poor women to come up to a common understanding to work together for their livelihood generation. Before this, none of the schemes has given any opportunity to HIV+ community to initiate any economic activity for livelihood generation. It has been felt that many of the HIV+ are being discarded by their family after acquiring infection. The HIV+ person are provided with free diagnosis and treatment but care & support is a missing link. Supreme Court has directed to consider HIV+ as BPL but attention was not given. Following the SC directives on treating HIV+ as BPL irrespective of their economic status; State UPA Cell SJSRY advice CNP+ to work in close liaison with Food & Supply Department and State AIDS Control Society at World Poverty Week celebration in 2008 for issuance of BPL cards for HIV+. Soon after the inclusion and issuance of BPL/AAY cards to HIV+ at Chandigarh; SJSRY has started accepting the application for subsidy linked micro-credit. First time in the SJSRY history, any HIV+ person was given an individual loan. Several awareness programmes were organized on HIV/AIDS awareness for ULB staff, NGOs, Banks and CDS with a objective to develop understanding and familiarity with HIV+. For the first time any HIV + Women SHG was identified, formed and sponsored for sanctioning to any bank. Only Canara Bank has sanctioned it and promoted. Most of the banks have un-officially discouraged the SHGs of HIV+ women. With initial hurdles, the SHGs started functioning with the assistance of CNP+. The SHGs started two units of manufacturing of eco-friendly bags comprising of 10 HIV+ women.
ESTABLISHMENT OF PRIORITIES

A consultation was organized during celebration of poverty week and visit to Red Ribbon Express regarding the process to include HIV+ among urban poor. With the advocacy of CNP+ to Food & Supply Department, 80 PLHIVs were issued AAY Card. Following SC directives on HIV+ persons, SJSRY cell decided to extend benefit to PLHIV community too by considering them in all the component of SJSRY. A mainstreaming consultation was organized with assistance of State AIDS Control Society Chandigarh for the ULB staff so that understanding on HIV/AIDS can be developed among CDS and ULB staff who generally handles them.

FORMULATION OF OBJECTIVES AND STRATEGIES

Under USEP and UWSP component of SJSRY; identification drive was conducted with the assistance of CNP+, CDS and Community Organizers for the promotion subsidy linked micro credit and Self Help Groups (Loans & Subsidy). It was shared by CNP+ that majority of PLHIVs are discarded by their loved ones. These are not having any regular financial sources to cater themselves. Thus, our joint thrust was on promoting SHGs and individual micro credit. Following were the main objectives and strategies in taking these schemes to urban poor PLHIVs:-

1. Identification of poor HIV+ women
2. Faith building among PLHIVs
3. Capacity Building of the PLHIV community
4. Development of Project Proposal by any expert agency
5. Linking PLHIVs with Financial Institutions
6. Network Building and Social marketing

MOBILISATION OF RESOURCES

For this unique project to succeed, resource mobilisation was very much required. Resources were mobilized from every corner to make this project viable. Lack of training, project management and marketing was a major issue for this community. But finally bank agreed to motivate this group and sanctioned both the group one after another.

PROCESS

To start with PLHIVs in the existing programme two-three phase wise field based consultation were organized by President, CNP+. Community Organizers briefed the community about two components i.e. UWSP and USEP
where they can get individual and group benefits. Finally 10 PLHIV women were shortlisted by Community Organizer and CNP+ together. Two SHGs were formed by involving identified HIV+ women. Manufacturing and printing of eco-friendly bags was decided as a group activity for their livelihood generation. The project was developed by Regional Centre for Entrepreneurship Development (RCED) Chandigarh as CNP+ was lacking in formulating any proposal. Canara Bank, Micro Finance Branch Chandigarh has agreed to finance the project of SHGs.

The names of both the SHGs are kept on the name of Hindu goddess viz. Maa Shakti Mahila Mandal Self Help Group and Bhagwati Mahila Mandal Self Help Group. The details of the projects are given in the following table:-

<table>
<thead>
<tr>
<th>Name of SHG</th>
<th>Project Cost</th>
<th>Loan Amount</th>
<th>Subsidy Amount</th>
<th>Margin Money</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maa Shakti Mandal self Help group</td>
<td>5.00</td>
<td>3.00</td>
<td>175000</td>
<td>25000</td>
</tr>
<tr>
<td>(Unit of Manufacturing Eco friendly Bags)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bhagwati Mahila Group (Unit of printing bags)</td>
<td>5.25</td>
<td>3.15</td>
<td>183750</td>
<td>26250</td>
</tr>
</tbody>
</table>

**RESULTS ACHIEVED**

After a long intervention of our community organizers, livelihood experts and CNP+; both the units were successfully set up individually one after another in the FY 11-12. Machines were purchased from Delhi. Training of SHGs was conducted by the suppliers and NGOs. First order of supply was given by Canara Bank itself. Monthly reports confirmed that initial stages are very struggling for them to move ahead but support in the form of mobilization and encouragement is continuously being provided by both the agencies.

**Sustainability**

This initiative is one of its kind in North India and first initiative under SJSRY for HIV+. President CNP+ confirmed that this initiative is first in the entire country under SJSRY
and by any bank for group enterprise. The chances of sustainability are very much possible as most of the state governments are putting ban on use of plastic bags. In this scenario, such eco-friendly bags will be in great demand. In Chandigarh, plastic hand bags are completely banned. This has given chances to both SHGs for their successful marketing and consumption of bags.

LESSONS LEARNED

The same model can be replicated in any part of the country under UWSP component of SJSRY. It can also be replicated under other schemes of government. The imperative lesson from this initiative is to “bestow respect and banking poor HIV+ with human dignity”.
WOMEN AS CHANGE AGENT IN BUILDING LEADERSHIP AND BRINGING CHANGE IN THEIR COMMUNITY BY STATE UPA CELL, SJSRY, MUNICIPAL CORPORATION, CHANDIGARH UNDER THE CATEGORY OF HOUSING, URBAN POVERTY AND INFRASTRUCTURE

SUMMARY

Women as Change Agent in Building Leadership and bringing change in their Community is the sole axiom of this participative community development model. This initiative hovers around poor women who were a part of socio-economic discrimination by their family and community. It has given an opportunity to poor women to express their inner self outlook towards community development processes. The axis of socio-economic development is around women; therefore, women are kept as focal point of urban community development initiative. Many poor women are out of race in accessing basic services and benefits out of government welfare schemes due to lack of awareness, information and knowledge. Illiteracy, gender discrimination and domestic violence are the main reason behind their backwardness. CDS proved to be beneficial initiative as it has given poor women a voice, a role and a platform to share her growth & development path. It has not only assisted individually but also in group and a step ahead in community organization. A full arrangement has been engraved so that these can work efficiently in the community and become Catalyst of Change.

SITUATION BEFORE THE INITIATIVE BEGAN

Before this initiative; there was no existence of any formal community structures. To implement and run any government scheme for the underprivileged; a well arranged, structured array was needed to move into the slums pockets. It is believed that lack of expert staff in social development, livelihood and community development at ULB level has made beneficial schemes far behind the reach of underprivileged. Much needed beneficiaries were left behind due to lack of mechanism for identification of beneficiaries and non compliance of eligibilities criteria in certain proofs viz. BPL survey and yellow cards etc.

ESTABLISHMENT OF PRIORITIES

Community Development Society is an organisational pattern which is able to keep vertical as well as horizontal relationship between urban poor and Govt machinery at all levels from urban area to country. UCDN component in revised SJSRY guidelines has given wider avenues in the area of community development by way of democratic community structures. Priorities were listed in accordance with the ground level consultations between community and community organizers viz. capacity building, women empowerment, leadership development, social auditing, convergence and linkages etc.
The core objectives of these networks are –

1. Paving women leadership among urban poor
2. Community empowerment and capacity building of urban poor
3. Financial Inclusion of urban poor
4. Participatory community development of urban poor
5. Linking livelihood generation for the urban poor

A framework has been designed for its proper functioning. The major activities of this network of CDSs are:

- Facilitating and promoting voluntarism and organizing community structures/groups;
- Guiding and assisting the community in assessing its needs, organizing community structures, developing a community vision, and formulating community development action plans;
- Coordinating the conduct of Slum, Households and Livelihoods surveys and maintaining database on the urban poor and their needs;
- Working with the Community to implement and monitor SJSRY and related programmes or activities;
- Assessing skill needs of the urban poor and facilitating skill development training and post-training handholding;
- Facilitating community empowerment through community level training, information, sharing, exchange of experiences, community skills enhancement programmes, etc.
- Identifying suitable beneficiaries for self-employment ventures, preparing applications for securing bank credit after approval of the names of beneficiaries by the CDS, and taking subsequent follow up with the ULBs/ Banks/ Administration until final disposal of the applications.
- Regularly following up with the financed beneficiaries to monitor the progress of their self-employment ventures as also the timely repayment of loans, etc.

**MOBILISATION OF RESOURCES**

Resources were mapped, pooled and converged to strengthen the initiative from various schemes of other departments viz. Social Welfare department, Health department, State AIDS Control Society, RNTCP, Regional Resource Centre–MAMTA and Commonwealth Youth Programme etc. The resources were utilized mainly in building capacity, empowerment, developing community leadership etc. Few CDS were sent on study tours to other states for learning and developing understanding of immediate social environment.

**PROCESS**

Initially, a mapping exercise was done on the city map; sites were mapped on the basis of size of slum and rehabilitation sites. Survey was conducted by Community Organizers in selected sites; Neighbourhood Groups were identified. NHC were formed and thereafter CDS was formed on the basis of elections or consensus. CDS
formed were put forth to Deputy Commissioner/Registrar office for registration after primary police verification. More than 13 major sites were covered with a wide coverage of approx. 10,000 families.

Funds are released separately under UCDN Component, for the strengthening of the Community structures, which is utilized for meeting the expenditures on holding of conferences/ workshops/ training programmes and other stakeholders, meetings of the CDS, expenditure on misc. daily activities of the CDS and any other activity/ innovative projects leading to community empowerment as well as benefit to the local urban poor community. Till date 13 Community Development Societies have been registered under the Societies Registration Act, 1860. Each CDS has 11 members in its governing body. These members help in identification of beneficiaries for Skill/ Semi Skilled/ Vocational trainings, filling up of loan applications, formation of Self Help Groups, Capacity Building Programmes, Health care programmes, HSFI trainings, assist banks in recovery of loans, and monthly / quarterly meetings of CDS etc.

RESULTS ACHIEVED

Implementation of Urban Community Development Network component of SJSRY has given a wide horizon to the urban poor women in developing a leadership model
SUSTAINABILITY

There is no question arises of sustainability, ones the momentum has begun, community development process will not stop but in due course of time it will pick up acceleration as when community starts realizing the outcomes of their long efforts. This initiative not only has transformed lives of direct beneficiaries but extended its benefit to their dependents too. In future, few of these CDS functionaries may take part in municipal elections and become the municipal councillors.

LESSONS LEARNED

The imperative lesson from this initiative is “Building Community Network is an only key to penetrate urban poor community in bringing their leadership development and socio-economic upliftment”. We have learned from southern states in training workshops and tried working on building and strengthening community development network. Gradually, over the past 4.8 years; the sown seed of community development grew into a fully grown tree with a network of branches. It could be a learning lesson for other northern states like Punjab, Haryana, Himachal Pradesh & J&K.
Ahmednagar City Transport Service under category of Urban Transport

Award was given to Ahmednagar Municipal Corporation, Maharashtra under the Category of Urban Transport for its initiatives in “City Transport Services”.

Summary

As per provisional reports of Census India, population of Ahmednagar in 2011 is 350,905. Its urban / metropolitan population is 379,867. The city has a cluster of small scale industries and some large scale industries such as L & T, Crompton Greaves, Cummins Generator Technologies Limited etc.

Prior to implementation of Ahmednagar Municipal Transport Project, Maharashtra State Road Transport Corporation (MSRTC) was operating city bus services in Ahmednagar. However, due to sustained losses, MSRTC closed down the city bus operation in the year 2004. Subsequently in January 2007 Ahmednagar Municipal Corporation (AMC) appointed “Ahmednagar Pravasi & Maalvaahatuk Sanstha” as the operator who started city bus operations in the city with a fleet of 15 buses. This, however, too had to be closed down in September 2007 due to poor financial performance. As a result Intermediate Public Transport like Auto-rickshaws, Private vehicles etc. came on the roads of the city, creating congestion, air and noise pollution etc. Traffic situation became worse and it led to major and fatal accidents.

Thereafter the Ahmednagar Municipal Corporation for the benefit of citizens residing in the city limit and adjacent areas, on the principle of Build, Operate & Own (BOO), the Municipal Corporation appointed “Prasanna Purple Mobility Solutions Pvt. Ltd.” (PPMSPL) Pune, as the Agent, who commissioned city bus services in Ahmednagar w.e.f. 24th Feb, 2011. The object of PPMSPL is to provide, the best possible public transport service at affordable rates to the citizens of Ahmednagar. This public transport undertaking has been named as “Ahmednagar Municipal Transport” (AMT). The tenure of contract between AMC and PPMSPL is of 10 years. Royalty of Rs. 1001/- per bus per year is being charged by AMC.

Fleet Size: - The fleet of AMT consists of 23 Ashok Leyland buses out of which 6 are Semi-Low floored (SLF) and 17 buses are STAG buses.

Depot Workshop & Office: –The PPMSPL has taken on rent a readymade service center with parking area at Om-Garden, located on Nagar-Pune Highway, approx. 1.6 kms away from the main operating point called CBS (Imperial Chowk) for 2 yrs. The buses are parked, repaired, maintained & cleaned at this service centre.

Travel Characteristics of Ahmednagar City Bus Service

In city of Ahmednagar, all the city buses of AMT are operated from a single point called Imperial Chowk, where 2 pickup shades of size 10ft x 3 have been
provided by the AMC.

The buses are operated from 6.00 AM to 21.30 PM. Nearly 1000 trips are operated per day. Presently, the number of buses used for the operation is 23 on 4 routes and for more routes are proposed for convenience of the passengers.

**Passengers carried:**

The total number of Passengers carried is around 5,00,000 per month. (About 16500 passengers per day). The number of passengers per bus per day is around 758.

**City Bus Fare System**

The minimum fare charged is Rs. 6 for adults and Rs 3 for children for city services.

The stage distance is 2 kms. The increase in fare is fixed for the stages and it is not charged based on per kilometer.

**Revenue**

The revenue turnover shows a mixed pattern depending upon various influencing factors.

The average revenue per day per bus is around Rs 5473.

**Maintenance**

Repair and maintenance has been successfully kept low by regular preventive maintenance schedules and creating awareness among the crew about good driving habits

**Earning per kilometer (EKPM):**

The EPKM has shown variations due to seasonal effects of passenger traffic and also due to experiments being carried out on route scheduling and introduction of monthly passes scheme.

In order to achieve the objective of providing the best
possible Public Transport Service at affordable rates to the citizens, following activities are undertaken:

a) Route Planning of Ahmednagar City, fixation of Stages and fares
b) Approval of appropriate Authorities – RTO etc.
c) Assessment of requirement of fleet.
d) Procurement of buses.
e) Appointment & Training of Staff.

**Benefits to the Citizens**

a) Increased frequency of buses.
b) Clean, reliable & safe buses.
c) Fast and swift travel at affordable rates.
d) Issue of Concessional Smart Card (RFID Card) to students.
e) Issue of Monthly/Quarterly/Annual RFID Passes for daily commuters.
f) Employment opportunity to citizens.
g) Concession in fare to blind &handicap.
h) Implementation of smart card for daily commuters which Gives them special price and convenience benefit

**Benefits to the Government**

a) Timely Payment of Govt. taxes
b) Passenger Tax @ 3.5% on the revenue of ticket sale.
c) Nutrition Surcharge @ 15 paisa per ticket.

**Benefits to the Corporation (AMC)**

- Royalty @ Rs. 1001 per Bus per year.
- Fulfillment of duty towards citizens to provide efficient city transport at affordable rate.
- Process of Euro 2 passed bus on road can help to manage green environment
- A car consumes nearly 6 times more energy than an
average bus, while two wheelers consume about 2.5 times and three-wheelers 4.7 times more energy in terms of per passenger km thus mass patronization of city bus service eventually leads to a significant reduction in air pollution.

- Electronic display boards are a convenient source of communication to passenger which helps in controlling noise pollution.

**Technology Adopted:-**

**GLOBAL POSITIONING SYSTEM (GPS)**

In order to determine & even to record the precise location, speed & time of the city buses plying on different routes of the city, GPS vehicle tracking units have been fitted in all the city buses. The recorded location data can be stored with the tracking unit or may be transmitted to the Corporate Office, Pune or internet connected computer in the City Bus Office, Ahmednagar. As this system offers idle time reporting, stop locations & duration, speed evaluation, total mileage, animated track play back, etc. of a vehicle, GPS tracking has been found very useful for monitoring our buses & equipment effectively.

**Following reports are generated:**

- Daily Travel Report: It includes information pertaining to Date, Start Time, Vehicle No., Vehicle Status, Speed, Mileage, Stops Observed, Max/Avg. Speed, Total Time Over-Speed, Employee Details
- Vehicle Idle Report: It reflects the idle time of vehicle during the day.
- GPS Mileage Report: This report generates information about daily & cumulative mileage of a vehicle
- GPS Complete Tracking Report
- Historical Reporting
- Hours Worked Report: It is the summary of the actual hours worked for each vehicle & can be used as an electronic time sheet.

**Benefits**

1. Reduce rising fleet expenses
2. Rises fleet efficiency
3. Reduce excess use of Fuel
4. Reduce Bus operating Costs
5. Reduce time spent at unauthorized locations
6. Provide automatic wireless download of historical data

**ELECTRONIC TICKETING SYSTEM (ETM)**

Considering the multiple advantages of ETM over the conventional method of issuing tickets manually, ETMs are being used for giving tickets to passengers. ETM has connectivity to computer and data can be down loaded & analyzed for managerial decisions & effective passenger transport planning.

**Conclusion**

The bus service for Ahmednagar has provided a much more convenient, cheaper and safer mode of travel to the people of the city and they are satisfied with the quality, timings and schedules. The fuel spent on travel in the city has significantly reduced because of this service. The biggest beneficiaries of the bus service are students, who
need a cheap, reliable and timely mode of transport. The Company is taking various measures to bring a larger population and area of the city under its service, through continuous route surveys and interaction with the people to know their requirements.

In conclusion, one can confidently say that, the bus service at Ahemadnagar is operating at a high level of operating efficiency with vehicle utilization at 95%, a bus to staff ratio of 5.74 and well manageable maintenance cost/ km.
INTEGRATING THE INFORMAL SECTOR IN MUNICIPAL WASTE MANAGEMENT UNDER THE CATEGORY OF “SANITATION”

The Best Practice Award was given this year to Pune Municipal Corporation (PMC) Maharashtra under the category of “Sanitation” for it efforts in Integrating the Informal Sector in Municipal Waste Management.

SWaCH (an informal sector) is authorized by the PMC to provide door to door waste collection and other allied waste management services. The scope of SWaCH includes collection, resource recovery, trade and waste processing. SWaCH seeks to provide decent livelihoods in the recycling industry. It is a dignified and sustainable decentralized, waste management model in the country.

In 2008, the PMC signed a five-year MoU with SWaCH to decentralize door-to-door collection services for households, shops, offices and small commercial establishments. The members of the cooperative often work in pairs and are in charge of door-to-door waste collection for 250-350 households. Waste pickers receive segregated waste (separated between wet or organic waste and dry wastes such as plastics, glass, paper, etc.) from house-holds /property. They further segregate the recyclables to be sold in the re-cycle market; non-recyclable waste is dropped at feeder points. Equipment is provided by the PMC and the waste pickers also collect user fee from residents of Pune in lieu of payment from the Municipality.

SWaCH also provides other waste management allied services such as composting of wet waste in spaces provided by the societies themselves. It is cost-effective model as it saves money otherwise spent on handling and transportation of waste. The model is energy efficient and environmentally benefitting, as SWaCH waste pickers re-cycle the waste and reduce the quantity of waste sent to landfills. This reduces carbon and other green house gasses responsible for global warming. SWaCH collects more than 600 tons of MSW per day and about 130 tons of waste is sent for composting everyday and 150 tons is recycled.

This model helps PMC to use the available work force and also authorizes/legitimizes the role of informal sector, enhancing earnings and quality of life and work of members of SWaCH.

SITUATION BEFORE THE INITIATIVE BEGAN

Municipal Solid Waste Management and Handling rules 2000’ by Supreme Court made door to door collection of waste, a mandatory service for PMC. At the time however, thousands of informal sector waste pickers were scavenging from containers, dumps and the landfill to retrieve recyclable waste. They sold this to make a living.

FORMULATION OF OBJECTIVES AND STRATEGIES

The objective was to integrate the informal sector in door to door collection and to upgrade their livelihood. This decentralized method of waste management has been shown to be effective in source reduction of waste. Waste
collection drives & programmes were conducted all over the city and widely publicized in the local News papers. A website, newsletter, media coverage, innovative music programs, all become effective and necessary tools to continue to highlight the benefits of the model.

MOBILISATION OF RESOURCES

The PMC as per the MOU signed with SWaCH is liable to pay the following amounts each year to cover the administrative expenses of the initiative.

Schedule of Payment from PMC:

<table>
<thead>
<tr>
<th>Year</th>
<th>Total amount</th>
<th>INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total amount</td>
<td>17,000,000.00</td>
</tr>
<tr>
<td>2</td>
<td>Total amount</td>
<td>16,400,000.00</td>
</tr>
<tr>
<td>3</td>
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</tr>
<tr>
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<td>Total amount</td>
<td>16,400,000.00</td>
</tr>
<tr>
<td>Total</td>
<td>Total amount</td>
<td>82,600,000.00</td>
</tr>
</tbody>
</table>

There are approx. 100 staff members of the cooperative whose salaries are covered by the installments given by the PMC to the cooperative. In addition to this, several engineering colleges, schools, local corporates have been engaged with the initiative to assist in better designs of equipment, training of staff and waste pickers, and with small donations. SWaCH is also part of the national and global alliance of waste pickers that have been supported by WIEGO (women in informal economy globalizing and organizing) to disseminate the learnings of the model as well as learn from experiences around the world.

PROCESS

Stage I: Establishment of model and signing of MoU

Stakeholders: PMC, KKPKP and SNDT Women’s University

Role/Activities: PMC help in visioning and facilitation of the model, pursuing model in the General body of PMC, KKPKP – facilitation of the model, consensus development between and amongst the member as well as potential members; Managing and administering the collaborative pilot experiment in 2006 – of door to door collection of waste via waste pickers; with support from SNDT University.

Stage II: Establishment of SWaCH cooperative

Stakeholders: PMC and KKPKP

Role/Activities: PMC facilitation of administrative and legal procedures, KKPKP agreement on the guiding principles of the cooperative.

State III : Operational phase

Stakeholders: PMC & SWaCH

Role/Activities: PMC facilitation and monitoring, SWaCH Service delivery, dealing operational matters, training and capacity building of the staff and members, continuous expansion, reaching out citizens.

Stage IV: Expansion of the service

Stakeholders: PMC & SWaCH

Role/activities: PMC suggestion on expansion, SWaCH facing the field level practicalities on potential of expansion.

Pune has the largest user fee based waste collection model in the country (Over 3,80,000 households). SWaCH is presently working in 74 out of 76 prabhags across all the 14 administrative wards of the city. The Zero Waste Project is also under implementation in 15 prabhags.
RESULTS ACHIEVED

- SWaCH is presently working in 74 prabhags across all the 15 administrative wards of the city. The Zero Waste Project is also under implementation in 15 prabhags.
- Pune has the largest user fee based waste collection model in the country (Over 3,80,000 households).
- Pune has the lowest per household per month outgoings for door to door collection. It costs the PMC only Rs 3/month/household in administrative expenses as compared to an avg. of Rs 25 incurred by other cities in India that have adopted professional waste management systems.
- Pune has the most ‘updated’ waste pickers who have learnt to drive tempos, run compost pits, biogas plants and scrap shops.
- Pune has the highest number of decentralised organic waste management plants in the city - both biogas and compost. 130 tons is effectively diverted to the processing plants and 150-175 tons is recycled each day.

The contract with SWaCH has saved PMC more than Rs. 12 crores per annum in waste handling costs. The waste pickers, with the help of additional recyclable waste buyers, reduce the amount of non-biodegradable waste sent to landfills by more than 20 percent. Through these diversions waste pickers help to reduce carbon dioxide emissions from transport as well as methane gas emissions released under decomposing organic waste in landfills. The total number of households and commercial properties covered under door-to-door collection also increased from 140,255 to 3,80,000 – and increase of The user-fee system provided them with a more reliable monthly income.

SUSTAINABILITY

The model is sustainable in long run as it helps build capacity of informal sector workers to cater to the service delivery of collection, handling and resource recovery, trade and processing of municipal solid waste. Third party inspection by involving corporate can help to develop professionalism among the waste pickers. Motivational training and Capacity building of waste pickers will develop professionalism and effective customer redressal mechanism. Other livelihood options like composting and better job opportunities will make the model sustainable.

Following activities are implemented to make this model sustainable:

1. Waste collection drives and programmes were conducted and widely publicised in the local News papers.
2. Consultative meetings with the party leaders and elected representatives were facilitated by PMC and KKP KP.
3. Priority areas for container free wards were identified with set time-line.
4. Organizing V- Collect drives - collection of unwanted household material in a large scale that cannot be thrown in the daily garbage
5. Establishment and implementation of the zero waste project in Katraj Kothi.
LESONS LEARNED

PMC SWaCH PPP is the Path breaking model which could manifest from thought to reality. Successful implementation of the model is possible with joint efforts of the PMC administration, political will and the positive response from citizens and citizens group.

The model is sustainable in long run as it helps build capacity of informal sector workers to cater to the service delivery of collection, handling and resource recovery, trade and processing of municipal solid waste. The present DTDC coverage of SWaCH and the positive response of the citizens to the services provided by the SWaCH including allied services such as composting.

This can effectively upgrade the lives of waste pickers and also help local municipality as waste generators are willing to pay for services of the waste pickers. Waste generators can be mobilized to segregate waste at source and make decentralized waste management possible. Decentralized waste management by the urban poor can be cost effective to the municipality.

Replciability

The initiative has been replicated in the following places:

1. SWaCH has signed MoU with Pimpri Chinchwad Municipal Corporation (PCMC) on the similar lines of the door to door service.

2. The Zero Waste Project executed in Katraj Kothi has been replicated to 20 prabhags in Pune.

3. Ahmedabad Municipal Corporation is interested in replicating the model.

4. Nepal and other Asian countries have come to Pune to see the initiative and parts of it will be implemented in those countries.
USE OF PASSIVE TECHNOLOGIES FOR ENERGY CONSERVATION (ENERGY CONSERVATION AND GREEN BUILDING) UNDER THE CATEGORY OF ENVIRONMENT MANAGEMENT, ENERGY CONSERVATION AND GREEN BUILDING

A joint Award was given to both Chhattisgarh State Renewable Energy Development Agency (CREDA) and Chhattisgarh Housing Board under the Category of “Environmental Management, Energy Conservation and Green Building”. The award goes to the agencies for promoting use of passive technologies for energy conservation.

Summary

The building is conceived of total no of 3 floors to accommodate the total requirement. Separate entries / exits are created at North - West side of the site. Parking facility is created for 25 nos. of 4-wheelers & about 50 nos. of 2-wheelers. Front & corner landscape is kept in design including security sheds near the gate. Provisions for dedicated bore well, transformer, etc. are located inside the plot. The building has drive ways around it & one pass through drive way in the middle. The pass through drive way forms itself to a porch dividing the structure into two parts. This drive way is primarily used for visitors & staff of the office. The left wing of this porch accommodates court room, conference hall, lobby, toilets, maintenance room, stairs, lifts, staff recreation & other allied services. The right wing consists of library, records room and office space. Another entry at North - East face of building is created with a porch & separate staircase for members & directors of CSERC. The ground floor area is 659 sqm.

The 1st floor of the building is planned to accommodate CSERC Chairman’s chamber attached with one mini conference room, members & other directors’ chambers, office space for staff, toilets, lobby and pantry.

The 2nd floor accommodates Chhattisgarh State Renewable Energy Development Agency (CREDA) head office. It accommodates Director’s room with mini-toilet, officers’ rooms, staff workstations, CEO’s room with mini conference room, visitors’ room and rooms for other staff.

The areas of 1st floor & 2nd floor are 687 sqm & 726.5 sqm respectively.
NET ENERGY PLUS BUILDING

The floor area of CSERC office building is 2072.5 sqmt. It consists of 80 kW Solar Photovoltaic (SPV) Power Plant situated on the ground floor. The power consumption of the building from August 2011 to July 2012 was noted which is enclosed as Annexure - I. As observed, the power generated from SPV plant during the period is 86308 kWh where as power import from Chhattisgarh State Electricity Board grid is 53416 kWh. Hence, export of surplus power is 32892 kWh against actual figure 33897 kWh.

Hence, net Energy Performance Index (EPI) is (-) 15.87 kWh/sqmt/annum.

However, the gross EPI is 50.85 kWh/sqmt/annum with gross consumption of 105826 kWh where more than 70% of gross carpet area is conditioned / cooled.

Annexure-1

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<th>Month</th>
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<th>CESB Consumption in Building (kWh)</th>
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Design Overview

Needless to mention, Chhattisgarh State enjoys maximum no. of SUNNYDAYS annually. Keeping this in the view, the orientation & volume of the building was conceived by formulating VOC analysis. As the orientation of building was critically analyzed, it stood across the direction of approach axis vis-a-vis South-West & West umbrella of building which was judiciously created to protect the structure from horizontal solar beams. Besides, the umbrella holds the PV dome on top to shade the roof. Ferro cement baffles are also given in the critical areas of façade to hinder unwanted conductive & transmitted heat gain. Air conditioned & non air conditioned spaces which eventually turned in to evaporative cooled areas are distributed effectively so as to rationalize the heat gains for energy efficiency. Evaporative ductable cooling facility for cooling non-AC spaces, walls and roof insulation has been provided in the design. Internal sensitive fibers are carefully shaded to reduce heat gains.

The office space is designed to be day lit with effective use of day light. Openings of appropriate size & position are given to rationalize day light & transmissive heat gain. Care has been taken to switch off artificial lights in day
office hours as in the State; sky conditions remain clear for about 200+ days. In day time, over cast sky condition & post evening working hour’s artificial illumination are required. Based on above, maximum internal illumination load comes about 3.00 kW against total maximum connected load of 100 kW.

The building design reduces cumulative energy expenditure to the tune of about 45% with respect to any general office building in summer & about 15% in winter & strategically designed confirming relevant principles of Solar passive technology.

The most critical part of the design had begun from the approach- axis compulsion- from South West direction where the building is approached. Under very situation, the owner was not in a position to accept solid walls even if he was perused to provide the same to avoid direct solar heat gain. The site was also relatively very small to provide another mask wall to shade the original wall and glazing. Finally, a solar umbrella was provided with inclined vertical members at 79° from ground. The horizontal members tied with each vertically inclined member provide shade to original wall. Involutes and circular shaped CC walls provide shading to all walls and glazing having air conditioned court rooms and Chairman’s conference rooms. The orientation of the building is made North-South for larger energy efficiency.

The second challenge was to use the brick from waste-200 mm thick fly ash bricks. This type of block carries very high “U” value which is never recommended for any energy efficient constructions. This situation prompted the use of cavity and insulated walls. 3 layer of walls each of thickness 200mm and 100mm having ventilated air gap in one section and 50mm thick high density thermo-

cool blocks in other section were provided to reduce the U-factor to an astonishing value of Building Index up to 50-60.

The third challenge was the economics. Since it is a Government project, it faced the difficulty of economically scale down the expenditure. Therefore, single glazing instead of double glazed windows, which normally have low U value, was followed and it lead to reduce of glazing area to redefine the day light factor. At the end, desired U factor and W (Heat Flow Rate) for air conditioned spaces was gained. The most important part of this design is that, all walls and glazing of all usage areas are shaded.

**Air Conditioning**

All air conditioned rooms are provided with Split type ACs. All non-conditioned spaces are provided with evaporative cooling system. Total air-conditioned carpet area covered is 670.29 sqmt and for cooling areas, it is 284.98 sqmt.

**No of AC units:** 2TR - 12 nos., 1.5 TR - 21 nos., 1TR - 4 nos. = Total 59.5 TR.

**Conclusion:**

The comprehensive presentation and the metered reading of energy import and export table gives a clean picture of a Government building like CSERC:

1. Which is very critically placed (with axis of main approach from South - West)
2. Where typical system of construction of Government buildings where minimum intermediate construction interferences are encouraged by the contractor and extra items are severely discouraged.
3. Where component cost is a huge challenge.
4. Where agency, contractors and mesons, etc. are not well trained and well informed about energy efficiency.

5. Where at construction site, architects role is limited to only advisory capacity.

6. Where enough pre construction details are not well timed. etc

With the above and many un-expressible facts, it was not only a challenge but a mission to erect energy efficient building whose final gross EPI came down to about 50 kWh/sqmt/annum and where more than 60% of gross carpet area is conditioned / cooled. After 80 kW SPV power plant installation, the net EPI came down to (-) 15.87 kWh/sqmt/annum. **Today CSERC building is the 1st Net Energy Plus building of country. Furthermore, it has been awarded 5 Stars Rating by Bureau of Energy Efficiency (BEE) (Govt. of India, Ministry of Power) for being the most energy efficient building in the State of Chhattisgarh.**
DESIGN, CONSTRUCTION AND O&M ARRANGEMENTS OF THE FOREST COMPLEX, SAS NAGAR (MOHALI) (GREEN BUILDING) UNDER THE CATEGORY OF ENVIRONMENT MANAGEMENT, ENERGY CONSERVATION AND GREEN BUILDING

Under the category of “Environmental Management, Energy Conservation and Green Building”, the award was given to Department of Forest and Wildlife Preservation, Punjab for incorporation of green design, construction and O&M arrangements in the Forest Complex Building at SAS Nagar, Mohali, Punjab.

SUMMARY

The state-of-the-art “Forest Complex” has been constructed in a 2 acre institutional plot with all modern amenities. The Complex comprises of five aesthetically appealing inter-connected Towers (RCC structure with attractive Aluminium Composite Panel / DGU’s of High Performance Glass on Façade). Constructed at a cost of Rs. 57 crores (inclusive of interiors, furniture, networking etc but excluding supervision and other non-construction charges), the 100’ high building has a covered area of 1,51,385 sq.ft. located in the basement, ground and 7 upper floors.

All the offices of the Punjab Forest Department and Corporation (PSFDC) which were earlier located all over Chandigarh and Mohali have shifted into three out of the five Towers of the Complex. The remaining two Towers have been rented out.

The Salient Features of this Complex include:

Large and attractive (open to sky) Central Courtyard with a beautiful 40’ high waterfall; “Switches Free” Building with all lights and A.C Cassettes controlled through 650 Occupancy/ LUX level sensors; 100% Power Backup with automatic switchover to DG’s on power outage; High Window to wall ratio for maximizing natural light, Solar Water Heating, Sensor Taps, Rain Water Harvesting, Addressable Fire Detection System, Modern Atmospheric Lightening Arrestor System, Green rated construction materials; Servo Stabilized Power; Modern Glass Elevators; fully Networked Building with Voice/ Data connectivity through Customized Access Points; Conference rooms, Guest suites, open air theatre, large terrace gardens on first and third floors etc.
The Project has been funded by State Government, JICA, PSFDC and HUDCO. The State Government had adequate funds from its own resources and JICA Project to complete the construction of 3 Towers which were sufficient to accommodate all the wings of the Forest Department/PSFDC. However, in a radical departure from conventional planning, it was decided to utilize the full FAR and complete the construction of all 5 Towers by taking a loan of Rs.20.0 crores from HUDCO and to rent out the extra 2 Towers for payback of loan and meeting O & M costs. This innovative model has worked very successfully and the rental income is being used to pay back the HUDCO loan without default and for meeting the O & M costs.

**Situation before the initiative began**

The offices of the State Forest Department, Wildlife Wing and the Forest Corporation were earlier scattered in 11 different locations across Chandigarh and Mohali. The working conditions (especially for staff) were very poor and there was huge wastage of time, energy and money on correspondence between different offices. The general public was also subjected to great inconvenience on account of the scattered location of the offices.

**Establishment of priorities**

The following priorities were established for this Project:

1) Construction to be on Green Building design principles with special emphasis on Energy conservation;

2) Full permissible FAR to be utilized; all modern features and amenities to be provided;

3) Construction to be completed in the shortest possible time with complete transparency in all works and in decision making;

4) Against established practice in Government working of execution of Project as a “Deposit work” through PWD, the entire Project would be executed by the Forest Department itself;

5) The Complex should generate adequate funds for payback of loan and for its sustainable O & M. Formulation of objectives and strategies:

Objectives and the strategies were formulated keeping the aforementioned priorities in view. In order to obtain/ select the best Architectural Design, open Tender was issued. Evaluation and selection of design and the architect was done after taking detailed Proposals/Presentations from the shortlisted firms. The design submitted by M/s Renu Khanna & Associates, Panchkula was approved and this firm was appointed as the Architect of the Project. A composite tender for Civil,
Public Health, External/ Internal Electrification, HVAC etc was prepared and L1 Bidder M/s Sandhu Contractors Private Limited (SCPL) was awarded the Contract. Detailed strategy was chalked out for looking after all aspects of Project implementation, organizing budgetary resources and for ensuring quality, transparency and timely execution of all works.

**Mobilization of resources**

Mobilization of resources presented the biggest challenge as the initial funds available for the construction of the Forest Complex were only Rs.450 lacs which was just 7% of the approximate total budgetary requirement of Rs 6400 lacs. Additional resources were mobilized as under:

**Process**

A three member committee comprising senior officers under the Chairmanship of Additional Principal Chief Conservator of Forests (Development) was constituted by State Government for overseeing all aspects of Project design, tendering and actual implementation. The Committee was entrusted with full powers and responsibilities by State Government. Requisite delegation of Financial and other powers was also given by Government to the 3 member committee.

The structural design was vetted from Punjab Engineering College, Chandigarh, which was also entrusted with overall quality control of structural works. Composite was vetted by Punjab Small Industries & Export Corporation Ltd (PSIEC)/ PEC and was issued by the Committee. M/s SCPL was awarded the contract after evaluation of the Techno-Commercial Proposals. Supervision of day to day works, maintenance of MB’s, ensuring quality and checking / submission of Bills was entrusted to the PSIEC on payment of mutually agreed supervision charges.

The construction of the Complex was undertaken at a rapid pace by effectively Monitoring, Motivating and Coordinating the work of all agencies – i.e. the Forest Department, PSFDC, Contractor, Architect, PEC and PSIEC. Resultantly, the Forest Complex was completed and inaugurated in 18 months after the Foundation Stone was laid. Whilst implementing the Project at maximum speed, full importance was also given towards safety and quality of the works.

**Results achieved**

The Project has fully achieved and perhaps even exceeded all the objectives for which it was launched. With the shifting of all offices of the Forest Department, PSFDC and Wildlife Wing into a single location, enormous wastage of time, money and energy on correspondence between different hierarchical levels of the Department has been completely eliminated. Decisions and orders are now often taken within hours. The extremely neat, comfortable and modern office with all amenities for officers and staff alike (workstations, Central HVAC, customized Access Points with Voice/ Data Connectivity as per actual seating plans, storage optimizers etc) provide an efficient and pleasurable working experience which vastly improves both the quantity and quality of the output.

Another benefit that has accrued is through sharing of resources (especially of ministerial staff) by all offices. This has been achieved by having common Sections/Branches serving all the offices. The Project has also greatly benefited members of the Public who have work with the Department as they no longer have to run around to different offices and are able to get all their works done at a single location.

**Sustainability**

One of the strongest features of this Project is its Financial, Social and Environmental Sustainability:

**Financial Sustainability**

Based upon current and projected rentals and O & M expenses, the Revenue/Expenditure forecast for 51 years
(minimum life time of the Complex) has been worked out. It is noted that the rental income will yield a Cumulative net Revenue to State Government of close to Rs. 2000 crores (after payback of loan, meeting entire Electricity/Diesel expenses and O&M costs) against a loan of Rs. 20 Crores. The PSFDC will also make a handsome profit of Rs. 437 crores (10% net revenue) in this process. This shows that the project is self sustainable.

**Social and Cultural Sustainability**

The Complex is Socially and Culturally sustainable as all categories of staff have been provided excellent working conditions which are far better than their previous conditions and compare very favorably with conditions in even the top Corporate Sector Companies.

**Environmental Sustainability**

The complex is also Environmentally sustainable as a host of “Green Building” and “Energy Efficient” Measures have been adopted in its construction. Particularly noteworthy in this regard are the Occupancy / LUX level sensors which control the A/C Cassettes and all lights. Installed at a cost of about Rs. 51 lacs, these sensors are estimated to result in saving minimum 25% of the Electricity consumption (or average saving of Rs. 2 lacs per month). The cost of the Sensors will, therefore, be recovered in about 2 years and, thereafter, they will generate net savings throughout their life cycles. Similar is the case with the Double Glazed Units of High Performance Glass (St Gobain HP Glass, KT 440 Nano Series) installed in the façade, which permits adequate light to pass whilst restricting the heat.

**Lessons Learned**

It is a fact that opting for a more conventional and “Practical” design would have resulted in just another “Good” building whereas the Forest Complex in its present form is magnificently unique. Conversely, there are a number of extremely valuable lessons to be learnt from the Good Practices adopted in this Project including:

- Having a single composite tender for all components of the Project;
- Outsourcing the quality control and Supervision to independent agencies;
- “Freezing” Steel / Cement Rates in the Financial Bids with the client hedging
- (absorbing) all increases/decreases in the actual prices viz-a-viz those fixed in the Tender
- Providing Zero Cost Escalation in the Tender for the entire project period;
• Practice of having weekly review Meetings of all Stake Holders for improved decision making and transparency in all activities.

Transferability

The practice of weekly review meetings of all stakeholders has already resulted in considerable transfer of the knowledge and the good practices adopted in this Project to the Appointed Architect, PSIEC and the Civil Contractor. All these agencies would certainly use the same directly or indirectly in similar future works undertaken by them.

The other, even more effective, transfer is occurring through actual visits of other prospective builders to the Forest Complex. Several Government Departments and even private builders / developers from within and outside the State have visited the Complex and are adopting the strategies and initiatives taken in this Project in their respective ventures. The Forest Complex is also regularly attracting a large number of students from Colleges of Architecture in the region who enthusiastically imbibe the practices adopted in this Project and are sure to use the same in their future careers.

Transfer of best practices adopted in the construction of the Forest Complex is also being achieved through publications / news reports etc.
CLEAN CITIES CHAMPIONSHIP CAMPAIGN (SOLID WASTE MANAGEMENT) UNDER THE CATEGORY OF SANITATION

Warangal Municipal Corporation, Andhra Pradesh was awarded for its Solid Waste Management initiatives under the category of “Sanitation” for its Clean City Championship Campaign.

The objective was to prove that if right planning and strategy is done in the spirit of competitiveness, any municipality can provide 100% door to door collection with substantial segregation (more than 70%) and the city can be completely cleaned within 7 days. It was able to demonstrate that the most critical 6 steps out of 7 steps of MSW Rules 2000, can be implemented holistically and scientifically within 7 days. For seven days it provided an opportunity to learn, lead, share and improve waste management services not just to local staff but also to 154 teams of other municipalities training more 600 staff of other municipalities too. This was world’s first such championship played for implementation of a Rule, which is also required by the Hon’ble Supreme Court of India. It was an institutionally driven campaign to implement the MSW Rules through a strong participatory learning and leadership under a fair, transparent guidance and rules from experts where the campaign team came with a cumulative experience of more than 60 years.

It not only proved that a city of 6 lakh + population can receive 100% door to door collection with over 70% segregation both through primary and tertiary means, but also proved that if accurate information and communication are delivered to citizens, the municipality can ensure its participation in segregation (in 4 types: organic, paper, plastic and others and combustible, first in India) and non-littering. One of the key achievements was that it proved lack of planning and often exaggerate waste generation rate incurs huge losses to the municipality (from so-called 350 – 400 tons to 120-135 tons). It also proved and achieved that the municipal staff on its own can successfully implement the MSW Rules and generate huge resources through recycling and composting processes. SHG groups were effectively used for door steps for segregation through demonstration, radio channels for mass awareness, competitive cards for students for segregation etc, worked as wonders to clean up the city just within 7 days. Currently 100% waste generation is collected and weighed everyday per route and the data bank is updated on real-time basis through sms based web system, a first in the world.

SITUATION BEFORE THE INITIATIVE BEGAN

Before the initiative, Warangal could be described as any other city with inefficient and irregular collection system and a very untrained and unresponsive municipal staff. There were nearly 430 open dumps on the road sides, no door to door collection or segregation, 100% open dumping and public open spaces served as places for animals to feed on the rotting waste. Women and children were the most affected beside the low income group as they were more or less completely neglected for waste collection as it often is the case.
ESTABLISHMENT OF PRIORITIES

After the Clean Cities Championship Campaign (CCC) team gave a comprehensive plan to the Commissioner, he took the leadership and instructed the team to undertake a field assessment for preparedness and assigned the roles and responsibilities for wing heads in taking the Campaign forward. People from other departments were also roped in and SHG women groups played a vital role in awareness and monitoring of the entire championship beside the NCC cadre who played the role of supervising the event. The various religious groups were roped in to make announcements of the program and support cleanliness and segregation, which proved very helpful. It was decided by the Commissioner and CCC team that both segregation and door step collection should be prioritize simultaneously to show results.

FORMULATION OF OBJECTIVES AND STRATEGIES

The key objective of the CCC campaign was to prove that any municipality can be cleaned within 7 days using the competition format and 6 out of the 7 critical steps of MSW Rules 2000, can be implemented holistically and scientifically within 7 days with a holistic planning and operation cost can be reduced by more than 30%. If right messages are put across with culturally appropriate means, people will participate in segregation and keep their own areas clean.

The host and participating municipal teams (field staff) were trained by the expert through field demonstration. The strategy was also to instill a sense of positive competition among various participating teams of other ULBs which can help them measure their efficiency and commitment with other teams from other municipalities. Simultaneously, 7 innovative IEC campaigns were taking awareness, and creating a platform to learn, lead, share and improve their ways of working.

MOBILISATION OF RESOURCES

The financial resources came from APPCB and APUFIDC in the form of 25 lakh and 5 lakh in assistance to hold the campaign. In fact the money was used to procure some of the necessary infrastructure like push-carts, bins, jumbo bags and IEC banners for the campaign which have became assets to the municipality. There were no
additional human resources hired but the current staff of the municipality were organised, given intensive training by CCC experts, SHG groups of around 3000 members were trained for household segregation, NCC cadres were trained for supervision of collection, segregation and overall cleanliness.

**PROCESS**

The biggest problem came from the middle level of the municipal staff attitude that campaign of such a magnitude with aim of 100% collection and segregation in 4 types cannot be possible within 7 days and a just 2 week preparation, planning and intensive training. The pro-active Commissioner took the initiative to assure, that he will provide all support to the entire staff in carrying out the campaign. Along with the help of CCC experts, he roped in all civil society, religious, market associations in explaining the objectives of the campaign and how it can benefit and improve the environment and life of all citizens of Warangal.

On the assurance of the Commissioner, the entire municipal staff including the engineering department geared up to hold the championship in the right spirit to begin with. Both the Health/Sanitation department and the other departments including the engineering and town planning department took additional responsibilities on their shoulder to complete some of the tasks on a priority basis. Many from the engineering department took the role of nodal officers for various circles and the sanitation inspector worked hard (work efficiency of 30-35 % to almost 100%) to monitor and motivate the field staff for carrying out the proposed work in the given format. The Commissioner himself regularly visited the field, pushed the waste collection cart, did segregation and quickly solved the hitched.

Collection route maps were prepared for the entire city,
each house was visited by SHG members to physically demonstrate segregation, religious organisation announced on significance of cleanliness, field staff trained in “Change Management” both physical and spiritual. Many came from the city to provide inputs and carried out jobs at cost basis taking cognizance of the public interests objectives of this campaign.

A performance measurement tool was designed and both the workers and supervisors were trained on this. This included, wearing personal protective equipments, reporting on time, keeping push carts clean, informing households and collecting segregated waste or segregating and awareness building. They were marked for each of the steps and at the end of the 7 days program, based on the performance and overall cleanliness and additional innovative works done in the area, teams were declared winners. Similar exercises were carried out for Nodal Officers and SHG members.

RESULTS ACHIEVED

The city achieved 100% door step collection with over 70% segregation in 4 different types at a pre-given time. The major beneficiaries were housewives who did not have to go to dispose waste in open and children whose open spaces were cleared for their recreation.

- Better co-ordination and integration between various actors, organizations or institutions was established. For the first time inter-departmental coordination was established for solid waste management, with town planning and engineering department also owned circles and started facilitating work as nodal officers for the given zones/circles. The DRDO provided crucial help through SHG to be utilized as Change Makers. Almost all CSO were roped in and their participation and consensus are taken.

- Immediately after the championship, there was demand for continuing the services at the same level from various civil society organisations, resident welfare associations and the system has since then been continuing and institutionalised.

- For the first time in the history of WMC, The real field staff received such intensive training on door step collection and segregation (600+950), including a training on attitudinal change through workshops. It was first time that they participated in any event to clean up the area to the best of their abilities.

- The campaign has been institutionalised and citizens since then continue to receive daily door step collection. The municipality took the decision to set up local recycling resource centres and so far has collected more than 300 tons (31-12-2012) of recyclables and sold at 2 Rs per kg. Earlier, all of these ended at the dumpsite. The C&DMA has selected 5 more municipalities of different size to hold the championship. Karnataka and Odisha are also considering replicating the practice.

- The campaign event served as an opportunity not only to implement the MSW rules 2000 but also to build institutional capacity and institutionalize the practice. It also brought into light much inefficiencies
and wastage of municipal human and financial resources. A step wise plan being devised and implemented has created the a vision of “No Dump City” and a revenue model.

- There have been several changes that were marked during the CCC campaign. Many activities which were thought to be better handled by the engineering department has been allocated to them while coordination between various departments has been organised through nodal officers based on their expertise.

- Change in people's attitudes, behaviour and in the respective roles of women and men.

From cynicism to action and now to belief, the CCC campaign journey has become the hallmark of Warangal and Andhra Pradesh. People have realized the value of segregation, non-littering, keeping the open spaces clean for children etc. Women are amenable to segregation practices and also monitor the services.

**SUSTAINABILITY**

- The municipality did not have to seek any additional budget for these activities. Except for holding the CCC campaign, now the municipality earns money through selling the recyclables, which will be ploughed back to door step collectors. Since there were much inefficiency in the system, the municipality saves money in its fleet operation, diesel cost and less temporary man-power hiring.

- For the first time, perhaps in any Indian city, it was decided that all citizens, including slums will receive the same services as richer neighbourhoods. Unemployed women were hired for secondary segregation of recyclables at resource centre.

- The planning process considered the local socio-cultural behaviour and protection of the heritage site. Some areas were given a priority cleaning, those frequented by public and other visitors like the famous 1000 pillar temple.

- To start with, waste disposal reduced by 22% from day 1, as all recyclables are being recovered and sold for recycling. Reduced transportation and improvement in carrying capacity led to less energy use (diesel) in its fleet, and the dumpsite has been improved, a small percentage of organic waste is being composted now, with disposal reduced by 45% thus saving the precious landfill space and increasing its life span by 45%.

**LESSONS LEARNED**

The CCC Campaign provided an eye opener opportunity of the definite need of planning and strategising each activity of solid waste management to bring efficiency, transparency and cost reduction. It not only improved the cleanliness of the city but has been saving much needed
financial resources, its fleet management has improved, attendance of worker was improved and less waste goes to dumpsite now.

It showed that the people who need training most are not the middle and higher management, but the waste collection crew and supervisors because at the end of the day, it is they who have to physically clean the area and interact with the public.

It showed that there are huge inefficiencies and wastage of financial and human resources in general waste management. Each activity of the solid waste management has to be specific, be it segregation practice or secondary transportation, or processing. All of these require special attention and need to be managed by relevant trained department or people.

For the first time, Warangal realized that municipality too can earn money from solid waste management through merely motivating citizens to segregate waste. It generated additional livelihoods for more than 110 people at different levels of recycling value chain and helped conserve natural resources, which in turn reduces its carbon foot print and helps mitigate climate change happening due to waste mismanagement.

**TRANSFERABILITY**

The CCC campaign has already been accepted by the Commissioner and Department of Municipal Corporation, Andhra Pradesh Government. Both the Urban Development Minister and Secretary UD have asked to conduct such campaigns and institutionalize its practice in different municipalities. The C&DMA – AP has now selected five municipalities to hold the CCC campaign. Beyond Andhra Pradesh, The Department of Municipal Administration of Karnataka has requested to hold the CCC campaign in Hospet. The MLA of Bellary, Karnataka has also requested to hold the championship. Local media has widely published the achievements of the Warangal Municipal corporation and APUFIDC has already published a booklet on this. A formal process documentation for institutional memory is underway. It has already been visited by several municipal officials from Andhra Pradesh and Karnataka, as a learning lab.

The team of experts from the CCC team have already worked in Suryapet, Bobilii and Saluru where they
successfully experimented from reduced dumping to no dumping. This team had already upgraded a dumpsite in Saluru to a wedding venue, and a Bobili dumpsite to a resource centre. All these experiences came handy in conducting the CCC campaign.

As stated above the C&DMA of Andhra Pradesh (5) and Karnataka (2) have already selected municipalities to hold the campaign and institutionalise the practice. The Government of Odisha has evinced keen interest in the CCC campaign and asked for a proposal to be submitted.

The campaign taught the Warangal Municipal Corporation that talking to everybody helps in implementing such programs which is impacted by such services. A multi-stakeholder platform is a necessity for implementing such crucial services. At the same time, it also taught that too much of emphasis on technicalities are not much of a relevance in solid waste management as apart from processing activities, the rest are general common sense which required acceptance by public rather than technology driven decisions. It also taught women and students are the key stakeholders in waste management and segregation cannot be ignored.
CITY-DEVELOPMENT PLANS - e-INCLUSIVE PLANNING & IMPLEMENTATION IN MP (REGIONAL PLANNING) UNDER THE CATEGORY OF URBAN DESIGN AND REGIONAL PLANNING, INNER CITY REVITALISATION AND CONSERVATION

Under the category of “Urban Design and Regional Planning, Inner City Revitalisation and Conservation”, the award was given to Directorate of Urban Administration and Development Department, Govt of Madhya Pradesh for its regional planning efforts in developing City Development Plans involving e-inclusive planning and implementation approach.

Summary

Generally development plans never get finished within the stipulated time frame. The planning process itself gets delayed which further hinders the implementation. The root cause of this is lack of monitoring, delays in payments and lack of clarity and transparency in the process. The traditional process of payments through cheques further encourages the corrupt practices. During implementation the traditional tendering process proves to be a major flaw.

In view of the above, when Government of Madhya Pradesh decided to formulate City Development Plan for every town, a detailed strategy was framed out. It was decided to keep the process transparent by adopting e-monitoring model & presenting all the information/status on website. The softwares designed under this initiative are so developed that there is almost negligible possibility of errors. All the day to day transactions/payments are being done online which prevents the corrupt practices.

For the implementation of projects identified under CDP, the State Government launched schemes like Mukhya Mantri Shahri Peyajal Yojna’(Chief Minister Urban Water Supply Scheme), Mukhya Mantri Shahri Adhosanrachna Vikas Yojna (Chief Minister Urban Infrastructure Development Scheme)” & Mukhya Mantri Shahri Swachatha Karyakram " (Chief Minister Urban Sanitation Mission). The capital investment required in execution of the identified projects is being met through an MoU that has been signed with HUDCO and financial support (loan) of Rs.2000 cr. has been received.

For the project implementation e-tendering has been made compulsory and a contract has been signed between Government of Madhya Pradesh and Wipro for the same.

The initiative is a proven successful example of urban planning, implementation and monitoring.

Situation before the initiative

- No development Plan in almost 225 towns of Madhya Pradesh.
- No "To the scale" maps in more than 200 towns of Madhya Pradesh.
- No dedicated State schemes for infrastructure (water supply, Sewerage, Roads etc).
- Absence of e-tendering in ULB works.
- Poor management of accounts and improper disbursement of funds for infrastructure works.

The small and medium towns also face issues related to insufficient technical man power, due to which no proper plan document was available in most of the ULBs. Most of the ULBs were not in position of even thinking about capital investment in major infrastructure works. Only available funds with these ULBs were either from JNNURM
or the regular state grant which they used to receive for provision of basic services.

**Establishment of priorities**

After analysing the need of planning interventions in small and medium towns along with there existing technical capacity, it was decided to initiate the planning process in a robust & centralised manner. The Urban Administration and Development Department (UADD) alongwith City Managers' Association Madhya Pradesh (CMAMP) decided to implement the CDP project in a phase wise manner.

The 10 Municipal Corporations and 96 medium towns (Municipal council towns pop.>50000) were covered in the first phase. In the second phase all the small towns (258) were covered.

UADD and CMAMP didn’t had adequate in-house resources to prepare CDPs, therefore selection of a consultant was a critical decision. The most important single factor was: strong, committed consultants. The selection of consultants was based upon two criterions:

- Technical evaluation based upon RFP
- Consent of consultants empanelled under JNNURM.

Following a rigorous selection process 21 companies were selected and 17 JNNURM empanelled firms were found interested.

**Setting up of work priority through community participation**

General perception is that the Development plans are prepared without stakeholder’s participation. Keeping this issue into consideration, all the consultants were asked to conduct stakeholder workshops and a feedback window was also provided on the website through which citizen may give their feedback/opinion on various development issues.

Participatory approach is an essential requisite for the success of the project. It was incorporated from the very beginning of the project. Citizens/Stakeholders are giving suggestions through online portal as well as via email for making their cities better. It was mandatory to conduct stakeholder’s consultation workshop at each & every stage of Development Plan to maximize participation of citizens, political representatives & other para-statal agencies.

**Priority of keeping whole monitoring system transparent and robust**

A detailed strategy for implementation of CDP (of plan preparation process) was made. It was decided to work on e-monitoring model and [www.mpcdp.com portal](http://www.mpcdp.com) was developed. The process was made transparent by presenting all the information/status on website. The aim of the exercise was to support various cities/Urban Local Bodies of Madhya Pradesh in preparing the CDP for their respective cities. The CDP was expected to provide a comprehensive medium term strategy (Vision 2035) as well as City Investment Plan (CIP), based on which the concerned ULB had access to funds under GoI/GoMP. The document also provides Financial operating (FOP) possibility in case of manual records. All the payments/transactions are done online which prevents the corrupt practices.

**Plan implementation**

- For implementation of CDP projects related to Roads, Parks drains: District headquarters town and town of religious, heritage and tourism importance were selected on priority.

- For implementation of CDP projects related to Water supply: District headquarters towns and towns facing water crisis/supplying water once in 3-4 days were selected on priority.

It was made mandatory to issue all the tenders through e-tendering process to direct the ULBs for mobilizing
various financial resources to implement the identified projects. Next objective was to implement the projects that were identified as a result of priorities set by the various stakeholders during the CDP preparation.

Objectives of this exercise can be summarized as:

- To ensure planned development of the entire urban region of the state.
- To prepare City Development Plan for each city/town of Madhya Pradesh
- To provide a reliable, efficient, friendly and easily-accessible means for monitoring & implementation.
  
  - To monitor and evaluate each step of CDP preparation through web portal (www.mpcdp.com)
  
  - To manage the process with transparency (initiate e-transactions for all the consultancy fee)
  
  - To introduce e-tendering process for execution of various works.
- To maximize stakeholders’ participation.
- To introduce cost effective mechanism.
- To implement all the priority projects identified under CDP through separate funding arrangements.
- To frame out policies for implementation of various infrastructure work.
- To ensure transparent execution of works (through e-tendering & post tender works through urban sector Management Information System).

Policies and Strategies

Government of Madhya Pradesh decided to formulate City Development Plan for every town. As a part of the strategy web portal www.mpcdp.com has been designed. The target users were mostly not well versed with English language, hence the contents have been designed with an option of browsing in Hindi language too. The information was presented in a simple and user-friendly manner.

Following steps have been eliminated in the new system:

- Paper communication.
- Transaction through Cheques
- Tender submission and opening through traditional system.
- In person appearance (attendance) of the town official in parent office for review meetings.

As a part of strategies following new activities have been introduced in the system which was not there in the earlier system:

- Paperless communication.
- e-Transaction/payments of consultancy fee.
- e-Tendering for implementation of projects.
- Video-conferencing for plan monitoring & implementation.

In order to implement the projects identified under CDP, the State Government has launched CM Urban Infrastructure Scheme, CM Urban Water Supply Scheme and CM Urban Sanitation Mission. The State Government has signed MoU with Housing & Urban Development Corporation (HUDCO) where HUDCO would provide loan assistance of Rs. 2000 Cr. to the State Government. The funds are being disbursed to various ULBs for the implementation of projects identified under CDP. The financial frame work between the State Government and ULB will be as below:

- The repayment would be done by the ULB’s & UADD to HUDCO.
- Execution of agreement between HUDCO and State Govt./UADD (covering all the ULB’s) with following main provisions:-
o State Govt. will make payment of 75% of loan along with interest of each ULB directly to HUDCO on quarterly basis.

o State Govt./UADD will pay 25% of agency share to HUDCO through octroi compensation/state grants payable to the agency as The grant : loan mix can be understood as:

<table>
<thead>
<tr>
<th>Category</th>
<th>Grant</th>
<th>Loan</th>
<th>(50%) Loan repayment</th>
</tr>
</thead>
<tbody>
<tr>
<td>State share</td>
<td>ULB share</td>
<td>State share</td>
<td>ULB</td>
</tr>
<tr>
<td>ULB</td>
<td>30%</td>
<td>70%</td>
<td>75%</td>
</tr>
</tbody>
</table>

The e-tendering implementation is being done through a transaction based model. Neither the State Government nor the ULB has to pay any fee or money against this service. The contractor participating in the tender has to pay Rs.610 for participation in the bid.

**Mobilisation of resources**

The City Development Exercise is being managed by City Managers' Association with the support of Urban Administration and Development Department, GoMP. The different financial, technical and human resources were mobilized at various stages.

**Stage 1:**

**Preparation of CDP**

**Mobilization of resource for development of web portal www.mpcdp.com**

It is a customized solution designed for monitoring & implementation of development plans. The solution is developed in-house by CMAMP's IT experts. The web space was procured with a minimal expenditure. The in-house & iterated development delivered robust & cost effective project.

For the preparation of CDP document various consultants were engaged through open tender (on fixed cost basis). A separate budget provision (for consultancy fees of the consultants engaged) was made in the department's budget in the following manner:

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>Rs. 10.69 Cr.</td>
</tr>
<tr>
<td>2011-12</td>
<td>Rs. 8.00 Cr.</td>
</tr>
<tr>
<td>2012-13</td>
<td>Rs. 3.75 Cr.</td>
</tr>
</tbody>
</table>

**Stage 2:**

**Policy for Implementation of works identified under CDP**

E-tendering has been made compulsory for execution of the projects. e-Tendering training is being given at CRISP(Centre for Research and Industrial Staff Performance Bhopal), where hands on training was provided to the representatives of Divisional Offices & Urban Local Bodies. Neither the Government nor the ULB has to pay any fee or money against this service. The contractor participating in the tender has to pay Rs.610 for participation.

**PROCESS**

**The implementation process basically involved following steps:**

I. Preparation of CDP

II. Launch of policy for implementation of projects under CDP

III. e-tendering process
The stepwise process is discussed as below:

**Preparation of RFP, CDP toolkit and recruitment of Monitoring and management cell (City Managers’ Association M.P. was nominated)**

**Selection of Consultants based upon technical evaluation and consent (of JNNURM empanelled firms)**

**Orientation workshops for Consultants and ULBs officials**

**Monitoring** (Formation of separate website for better information dissemination and transparency)

**Review**
1. State level Review of all the CDPs at 2 stages
2. Appraisal of CDP reports at every stage
   - (District level review by a committee headed by District collector)
   - (City level review by ULB and Council)

**Approval and consultancy fee payments**
- All the payments are being done only after the appraisal of stagewise reports
- All the payments are being done through interbank-transfer (RTGS)

Figure 4 Website for CDP information

Website www.mpcdp.com for information dissemination and CDP progress monitoring
Website also gives information on status of CDP report, appraisal and payment status of consultancy fees
Regular updation of Web-site is done
Immediate and constant interaction with the consultants through e-mail

1. Preparation of CDP involved the following steps:
II. Launch of policy for implementation of projects under CDP

In order to implement the projects identified under CDP the State Government has launched CM Urban Infrastructure Scheme, CM Urban Water Supply Scheme and CM Urban Sanitation Mission. The financial tie-up has been done with HUDCO as indicated above.

III. e-tendering process

E-tendering has been made compulsory for execution of the projects. e-Tendering training is being given at CRISP (Centre for Research and Industrial Staff Performance Bhopal), where hands on training was provided to the representatives of Divisional Offices & Urban Local Bodies.

Results Achieved

• The systematic participatory planning approach including prioritization of needs of the citizens, specially women, can result in proper diagnosis of a city or a town.

• As per the identification of sanitation needs of most of the urban poor population, State Govt is providing grant based support to all the ULBs to construct Community toilets and individual toilets. It has significantly improved the living condition of Urban poor.

• Stakeholders are also able to view the final visionary documents of their cities & can give feedback/suggestions on development of their town.

• Digital maps of the towns are available on web portal at a single click. Various agencies like Reliance, Airtel, Indian Oil, etc. require to the scale city maps in order to have an idea of spatial conditions for laying telephone/gas line etc.

• e-tendering helped in G2B transactions. It improved the efficiency, brought transparency & offered an equal opportunity to all businesses.

• Project Monitoring & Implementation Tools are being used by the Citizens for monitoring, participation, information flow & tracking.

• All the payments released to the consultants engaged in preparation of development plans are being done through interbank-transfer (RTGS) and data related to payment is available on monitoring portal.

• City Investment Plan (CIP) acts as a guiding path to get funding requirement. Based upon the investment identified Hon’ble CM, 3 new schemes have been approved in cabinet. These schemes will bring improvement in Water Supply, Infrastructure & Sanitation condition of entire Urban Population of Madhya Pradesh.

• Digital and to the scale maps are being used for implementation of “Property Tax Reform” using GIS & Multi Purpose Household Survey (MPHS) and thus helped the department in improvement of “Property Tax Collection”.

• e-tendering helped in reduction of cost, time and energy as compared to manual tendering.

• Video Conferencing on weekly basis improved monitoring of the project, while Project Monitoring Tools assisted the Higher Authorities to keep track of projects progress.

• Interbank-transfer (RTGS) brought transparency and improved efficiency of the department. It also helped in cost reduction.
- The project is used by all the 7 Divisional Offices, 50 District Offices, 380+ Urban Local Bodies, 150 national & international consultancy firms, as well as Citizens for monitoring, participation, information flow & tracking.

- The e-inclusive approach provided a convenient platform to review the project progress, get stakeholder's feedback and disseminate information to the project consultants & cities.

**Sustainability**

State Government has made special provisions in its budget for implementation of projects identified under CDP. The financial sustainability regarding implementation of projects has been ensured through loan based support from HUDCO.
OTHER APPRECIATED ENTRIES
The following entry submissions were appreciated by the Committee but these were not awarded. They are listed below in no order of reference.

- Ring road development under Self financing mechanism by Karnataka Urban Infrastructure Development and Finance Corporation Ltd.
- Service level Benchmarking (SLB) by Municipal Reforms Cell, Directorate of Municipal Administration, Karnataka.
- Public Grievance and Redressal System (PGR) by Deptt. of Municipal Administration, Karnataka (c/o KUDIFC).
- AASTHI (GIS Based Property Tax Information System) by Deptt. of Municipal Administration, Karnataka (c/o KUDIFC) – Urban Governance.
- Widening and improvements of the road from FRC Gate to TB Hospital Bellary by City Corporation, Bellary.
- Seamless Bus connectivity between Bangalore City and the Bangalore International Airport” by Bangalore Metropolitan Transport Corporation.
RING ROAD DEVELOPMENT UNDER SELF FINANCING MECHANISM BY KARNATAKA PREFER OUT URBAN INFRASTRUCTURE DEVELOPMENT AND FINANCE CORPORATION LTD.

Summary

Generally the developments of roads have been done through state budgetary grants after acquisition of required lands. But there are limits of providing grants through the State for taking up such works. Also the development of roads have typically involved land acquisition which not only takes time but also has been challenged by public in the Courts at times on the very need of acquisition as well as the amount of compensation. Because of these reasons viz., funds constraints and delays in land acquisition, there have been very few projects taken up leaving a large gap in requirement and provisioning of infrastructure. Therefore the developments of these roads are taken by levy of betterment tax.

Bidar is one of the most backward districts of Karnataka. It is a border district, farthest from the capital city of Bangalore. Bidar district head quarter is a City Municipal Council (CMC) having a present population of about 2.75 lakh, the city which was once the seat of Bahamani kingdom and had a glorious past, now suffered from lack of basic civic infrastructure and uncontrolled as well as unplanned growth. The master plan for the city was made way back in 1988 and same was revised in 2001, but most of it remained on paper. The main arterial roads of the city were very narrow and old city (which was the walled city) had almost become unapproachable because of congested roads.

Many Towns are facing a general challenge of lack of road infrastructure leading to a situation where traffic congestions have become a common sight even in smaller towns. Most of the towns do not have roads as per their approved master plans i.e. either these do not exist or do not have sufficient width where these do exist. Therefore we can simply put the challenge as formation of new roads and widening of the existing congested roads.

It is well known that as a consequence of development of roads like ring road in a town, the value of lands abutting the ring road, up to certain width of influence zone, appreciates tremendously. Similarly when a narrow and congested road especially passing through a commercial area is widened, the values of balance left properties appreciate on both sides of the road. If a part of this land value appreciation through legal provisions like Betterment Tax is collected, revenues could be raised for meeting the huge demands of funds required for meeting the road infrastructure in town areas. Therefore the scheme of implementation of infrastructure of roads can be taken up in a self financing way.

First important congested roads widening are formulated in the same way planned to develop major ring road. The strategy adopted was mutual consultation and benefits of projects were explained to the land owner. Mutual discussion and public participation has given good results.

The model developed by KUIDFC for implementation of ring road development scheme under self financing mechanism scheme is as follows:

1. Whereas a consequence of execution of any road development scheme, the market value of any land abutting to the road and influence zone will increase.
2. The local body/development authority have legal provision to levy of betterment tax, these tax would be 1/3rd of increase in the market value of the land.

3. The land required for the road may be acquired through normal land acquisition procedures and on the increase in the land value, levy of betterment tax of 1/3rd on increased value may be imposed.

4. Land acquisition compensation amount is adjusted in betterment tax amount.

5. When land owners come to the development permission betterment tax is levied.

In this way the land made available for development and through collection of betterment tax financial resources are raised.

Subsequent to the successful story of Bidar, it is proposed to implement this scheme in many towns of the state.

The progress of the some of the towns of the state is as follows:

1. Basava Kalyan: 11 km length of road project under implementation, this project has been already approved by the Government.

2. Chitradurga: 15 km length of road project submitted to the government for approval.

3. Chamarajanagar: 10km length of road project under this scheme is under preparation.

4. Raichur: 25km length of road project under this scheme is under preparation.

5. Koppal: 10 km road project under this scheme is under preparation.

6. Hospet: 4 km road project under this scheme is under preparation.

The cities like Haveri, Belgaum and Towns like Gokak, Nippani, Ilkal, Hadagalli are taking up this scheme and many more towns/cities looking for this scheme.

Wider public consultation.

The experience of some towns like Bidar, which shows that such schemes can be successful if these are taken up with lot of public consultations. The district administration in Bidar has been successful in getting the public to voluntarily contribute lands for development of about 40 kms of ring road and other major roads and for widening of about 35 kms in core city area.

Nearly 40 kms construction of ring road and major roads. Also widening of 35 kms road in core city area.

The experience has shown that as a result of ring road formation the market value of abutting lands have increased 8 to 10 folds. Similarly once the congested roads in commercial areas have been widened, the markets have got virtually revitalized and values of abutting properties have increased manifolds. The Bidar development relied heavily on informal procedures and public consultations.

Therefore there is an evidence of successful implementation of the model by involving the public.

**Sustainability:** Due to improvement of transport network within the city fully sustainable transportation system.

**Lessons learned:** Wider public consultation, public participation, can help in any development.

**Transferability:** This can be used as an innovative tool for other aspects of urban development.
SERVICE LEVEL BENCHMARKING (SLB) BY MUNICIPAL REFORMS CELL, DIRECTORATE OF MUNICIPAL ADMINISTRATION, KARNATAKA

Summary

Tulana – Service Level Benchmarking provides the mechanisms by which the ULB knows if it is achieving its objectives as the online application transforms data into information useful for decision making. The Municipalities have been vested with certain obligatory functions and the government through Directorate of Municipal Administration supervises the functioning of the municipalities, collects municipal data and prepares its statistics; inspects and interacts with both elected representatives and employees to find out their specific problems and work out the solutions manually. However, ULBs were also making sincere efforts to control and solve the problems in various services and thereby improve the efficiency of delivery systems to the citizens. In the absence of proper statistics and defined standards for various service deliveries, the ULBs were facing constraints in further improving the system.

Apart from the above, the DMA had to measure the level of resources mobilized in municipalities and utilized in optimal manner. To monitor the outcome of financial investments of the ULBs in water supply and sanitation, the DMA had to manually collect the information from individual municipalities and compile it to compare the efficiency levels of the urban local bodies (ULBs). However, there was no specific tool, nor a proper monitoring system to do the comparison of functioning and efficiency level of the ULBs in a scientific manner. To overcome such difficulties, there was a need for development of sophisticated and scientific online monitoring system for improvised governance.

Establishment of Priorities

- DMA in association with CMAK designed the data collection templates based on indicators.
- This templates were tested over 8 ULBs where in both good and poor performing ULBs were targeted.
- User Manual and Technical Manual for ULBs was developed by CMAK.
- The online application was developed based on the experience of pilot towns.
- User ID and passwords were issued to all the ULBs and DUDCs.
- Rigorous Orientation workshops were conducted by DMA, CMAK and KMDS for 213 ULBs and all 30 Districts.

The data was keyed in by the ULBs. The same was analyzed and validated centrally.

These data are collected and monitored at quarterly / annual basis.

Tulana is a web-based online tool which enables performance measurement, assists in analyzing trends, reflect trends and also provide quantitative and qualitative information.

It provides the platform to:

- Rationalize decision making.
- Strengthen the accountability.
- Provide greater transparency.
- Mobilize and allocate resources effectively.
- Prioritize developmental activities.
- Compare the service delivery levels to other towns and cities encouraging them to know their strength and weakness.
Ease the monitoring mechanism of the services.

Benchmarking is now well recognized as an important mechanism for introducing accountability in service delivery. It can be defined as the process of determining how efficiently and effectively the concerned agencies are delivering the services and the effort of the agencies in improving the mobilization of own resources and to measure whether this resources are being utilized in an optimum manner or not. It also provides an assessment of the quality of work the local body is doing and how successful; it has been in satisfying community needs and expectations.

Service Level Benchmarking (SLB) application provides ULBs with a tool for monitoring the inputs and outputs associated with each service, evaluating their performance level and taking corrective actions to improve their performance and hence the service. It also helps ULBs in identifying resources and how to improve the same.

2. Waste Water Management (sewerage and sanitation).
3. Solid Waste Management.
4. Roads, Road side Drains and Street lights.
5. Disease Control.

Implementation process of Tulana:

a. The performance review became essential after the launch of urban reforms programme by Government of Karnataka known as Nirmala Nagar Yojana in 2003.

b. In the year 2003, Directorate of Municipal Administration (DMA) framed templates to evaluate impact of provision of urban municipal services.

c. A citizen perception survey was conducted for 32 Nirmala Nagar towns/cities in the year 2003-04.

d. This framework was further refined and a center for performance measurement was set up at CMAK in 2004 - 05.

e. A scientific set up was formed comprising of Advisory Panel, Mentor and Resource Panel.

f. Initially 116 indicators were framed that were reduced to 42 based on the Phase-I experience.

g. Finally, keeping the indicators decided by the Government of India, 49 Indicators were finalized for Karnataka SLB in the month of January 2009.

h. Data collection templates were designed based on those indicators.

i. Templates were tested over 8 ULBs, wherein both good and poor performing ULBs were targeted.

k. Online application was developed based on the experience of pilot towns.

l. User ID and passwords were issued to all the ULBs and DUDCs.

m. Rigorous orientation workshops were conducted for 213 ULBs.

n. Date was provided by the ULBs. The same was analyzed and validated.

o. Data is collected and also monitored on quarterly and annual basis.

**Features of the application are as follows:**

- Web based application.
- Facility to capture the data online from all 213 ULBs.
- Inbuilt data validation.
- Facility to generate the data reports.
- Data entry updation status report for monitoring.
- Inbuilt indicator formula.
- Automated ranking generation based on indicator results.

**Criteria adopted for evaluating of performance of ULBs:**

a. Every sector and indicator has been assigned with fixed weightages based on the priorities and essential service.

b. Evaluation scale has been derived against individual indicator.
c. The value of indicator would be calculated based on the data provided in the template.

d. The indicator value will be compared to the evaluation scale and the score will be assigned.

e. Based on this scoring the ULBs would be ranked in comparison to others.

f. Also the score can be compared and analyzed with the standard benchmark to know their service delivery levels.

g. There are only two frequencies of data capturing i.e. quarterly and annually.

This system will generate online real time reports at ULB, District and DMA-level in all categories.

**RESULTS ACHIEVED**

Tulana now provides the mechanisms by which the ULB knows if it is achieving its objectives as the online application transforms data into information useful in decision making. The system is able to deliver the following from the perspective of Service Users:

The ULB is the direct user of this tool to fill in their data which in turn helps the DMA to assess the performance of the ULB and also helps in deciding where the ULB needs the help of the DMA or the Government.

- Measure performance
- Improve performance
- Prioritize the activity
- Streamline /flow of data
- Attract financial investment
- Retain/maintain quality of life
- Competing with other ULBs
- Performance improvement plans

This tool has enabled citizens to assess their own city in comparison with other cities.

This tool also helps citizens to involve in the local body decision making, through this effective community participation could be assured. Planning to include the citizen role in the application for viewing the reports regarding the services through which each and every citizen is able to know the services and its level in ULB.

**SUSTAINABILITY**

In case of ‘Tulana’, sustainability is not a problem as the Directorate of Municipal Administration, Government of Karnataka has already taken laudable initiative in making the system robust by establishing a society.

The Karnataka Municipal Data Society (KMDS) has been setup with a self-sustaining revenue generation mechanism, and has created a model structure that can be replicated across the country.

**TRANSFERABILITY**

In case of Tulana, the vision was to create a standardized set of systems and processes across the state which would not only provide the benefit of knowledge sharing across the individual bodies, but also create a common platform on which, comparative evaluation between municipalities could be undertaken. Under this framework, some of the most innovative decisions taken on the e-governance front are given as under:

1. Creation of a centralized system, which was common in terms of process and data model across the state.
2. The centralized approach enabled the technology team to leverage the internet to develop an application that was accessed by the individual municipal bodies over the internet.
3. The applications are now hosted centrally at Municipal Data Center, which is an entity of the Directorate of Municipal Administration (DMA).
The Public Grievance and Redressal System (PGR) module is a citizen friendly complaint registration and tracking system that functions over internet, Phone and Paper form. Through this system citizens can register their grievances and be able to track progress of its redressal in a structured and efficient manner. Upon registration, the computer system generates a “Complaint Tracking Number” using which the status and progress of the complaint can be checked by the citizen over internet “24X7”.

The common grievances that are redressed at the PGR Centre are Road repairs, Under ground drainage cleaning, Maintenance of street lights, Removal of garbage, Unauthorized constructions/Encroachments and Removal of Carcass of stray dogs/pigs. In case of an Emergency the PGR Centre functions as an Emergency Response Centre.

The uniqueness of PGR system has been that it has introduced transparency and accountability from Municipal Administration. This system includes advanced features like, Auto routing of complaints to appropriate redressal officer and if the complaints are not redressed in the stipulated time, they automatically get escalated to the higher level officer. Application generates Unique Complaint Tracking Number which eases the tracking of the complaints. It helps in easy dialog between citizen and redressal officer and it has the facility to forward the complaints to appropriate person.

Urban Local Bodies in Karnataka provide various civic services to the citizens. However most of the citizens were expressing their dissatisfaction with the procedures involved in delivery of services or attending their grievances. They felt a lot of time and money is spent in visiting the different departments of the civic agency frequently for getting their work done. To address such basic issues of governance being experienced by the citizens in the municipalities, the Directorate of Municipal Administration has taken steps to promote the use of technology specifically targeting basic & essential services. Hence ICT Driven Government-to-Citizen service
Public Grievance Redressal System was introduced with the objective of delivery in transparent, fair, speedy and economical manner thereby minimizing corruption and enhancing efficient and effective governance. This system of PGRS was launched in 1st June 2005 by Directorate of Municipal Administration through an online application in 49 larger cities of Karnataka in Phase I. Phase II covered all the remaining 164 ULBs under KMRP from 2007. **Thus PGR cells have been established in all 213 ULBs of the State.**

ULB has appointed Non-Government organization (NGO) for fair handling of PGR cell with nominal monthly fee and also agreement has made between ULB and NGO with the condition that NGO has to work round the clock for City Corporations and City Municipal Councils and it has to work 12 hours for Town Municipal Councils and Town Panchayat.
AASTHI (GIS BASED PROPERTY TAX INFORMATION SYSTEM) BY DEPTT. OF MUNICIPAL ADMINISTRATION, KARNATAKA (C/O KUDIFC) – URBAN GOVERNANCE

AASTHI (GIS based property tax information system) is introduced for effective collection of property tax and for improving property tax net. It aims to do it through a GIS based Property Tax Information System which would improve the record keeping of properties, increase the tax compliance rates.

Earlier, the ULBs in Karnataka were following annual rental value (ARV) system of property taxation. The government used to appoint Assessing Officers, to carry out revision of assessment, once in five years. The property records were maintained in MAR - registers. As the property tax details were maintained in hard copy it was difficult for the ULBs to track the tax defaulters and to trace out unauthorized and under-taxed properties, thus resulting in poor coverage of properties, low revenue and inefficient tax management system. The Government of Karnataka, as part of its urban reforms, introduced capital value system (CVS) of property taxation along with schematic GIS and MIS of all properties of urban areas.

Property tax is the largest source of revenue for most Urban Local Bodies (ULBs) in India. The objective was to introduce reforms across these municipal bodies in order to improve administrative efficiency, make them more transparent and most importantly, equip them to provide better citizen services.

The project was rolled across the state in a phased manner. In Karnataka there are 213 Urban Local bodies (ULB) which are categorized as City Corporation, City Municipal council, Town Municipal council & Town Panchayat. In these ULBs there are approximately 35 lakh properties (both assessed and unassessed). To begin a pilot study was first taken up at Ward No.4 of Byatarayanapura CMC in Bangalore District to evolve the process of project implementation. On learning's from the pilot project, 49 ULBs were selected as part of Phase I under Nirmala Nagara Project (NNP) and subsequently, the same initiative was rolled out to the remaining 164 ULBs under Karnataka Municipal Reforms project (KMRP). This covers all the ULBs of Karnataka except BBMP. All these 213 ULBs are service delivery centres.

Objectives of property tax reforms are:

- To computerize the revenue section of ULB for efficient tax management.
- To put in place a GIS-based Property Tax Information System to streamline the process of property tax collection.
- To improve the record keeping of properties, and enable the ULB officials to make informed decisions.
- To maximize coverage by bringing unassessed properties into tax net.
- To make property tax levy and collection transparent.
- To augment the revenues of the ULB by improving the compliance rate.

Responsibility for calculating property tax due was shifted from city officials to property owners themselves. A comprehensive survey of all taxable land of all municipalities (excluding Bangalore) was conducted. The new IT system for tracking and managing property tax collections was implemented all municipalities across the state.

Steps taken-up towards implementation of ICT enabled GIS based Property Tax System along with its salient features:
• Field Survey of all the properties in the ULB.
• Preparation of digitized ward maps with individual properties having a unique property ID Number.
• Sound Database of all the properties.
• Automatic calculation of the property tax demand based on the CVS methods.
  ➢ Property tax Demand Calculation from 2005-06
  ➢ DCB report from the year 2005-06
  ➢ DCB Report at Different ULB Boundary levels
  ➢ Demand Adjustment due to Property Modifications
  ➢ Demand Adjustments due to any Write offs
• Auto Rebate and Cess calculation if any.
• Penalties are auto calculated.
• Generation of Bank Deposit Challans and the Daily Collection reports.
• Citizen friendly, pay anywhere anytime system.
• Automated Online Tax Calculator to the citizen.
• Auto generation and issuing of Tax Paid details : FORM III, over the counter to the citizens on demand.
• Auto generation and over the counter issuing of Khatha Extract to citizens any point in time.
• All Property details of the ULB is available to the citizen
through GIS search pan, hence the citizen can cross verify the details in case he wants to do a transaction.

- Easy Tracking of the Tax defaulters.
- Automatic generation of demand notices and seizure notices.
- Information of various types of properties in each ULB.
- Can handle Office, Bank and Field payments, with the ability to integrate with Credit Card and ATM systems.
- MIS reports at City, Ward, Street levels as decision support tools for the revenue department and citizens (e.g. Defaulters Report, Ward-wise collections).
- GIS Enabled till Parcel Level.

**RESULTS ACHIEVED**

This system has brought transparency in the process of property tax collection. Property tax notices are generated automatically and the property tax details are shared with the owners of the property. The system has increased the responsibility and accountability on the part of Bill Collectors and Revenue Officials.

This software helps to monitor and control the entire property tax collection system without depending on the information being provided by the lower staff manually.

The system also has central database at the State Level.
The concept of BRTS is to encourage more people on the public transit system, which with high quality service is delivered. It is about equal access and equal sharing of road space for people. By providing a dedicated corridor within the street for BRTS vehicles, more people can travel to destination in a time that is comparable to single occupancy vehicles such as cars, two wheelers.

Ahmedabad is a compact city characterized by mixed land uses, high density development and balanced street network system with well developed 5 rings and 17 radials. Total road length is about 2500 km. There are 7 bridges to connect the eastern part of the city with west. Sixteen rail-over/under bridges enable crossing the railway lines at appropriate places.

Two wheelers, both motorized and bicycles dominate the traffic on the streets of Ahmedabad. The city has 22 lakh registered vehicles of which two wheelers are about 73%. As per the household survey (CEPT, 2006), 8 lakh bicycles are in operation in the city accounting for 19% of the total trips. The share of four wheelers is still low. They constitute to about 12.5% of the total vehicles and 3% of total trips.

The Ahmedabad Municipal Corporation (AMC) has been running a well organized public transportation system. However, due to resource crunch and operational inefficiencies of the system, the fleet size got reduced to 450 in the year 2005. As a result, significant loss in patronage was experienced. Average daily ridership in 2005 was 3.5 lakh. While the share of public transport declined, the share of Auto rickshaw increased. In the city, there were about 60,000 auto rickshaws operating catering to 10% of total trips. As most of these were using adulterated fuel, air quality was affected significantly. As a result, the city of Ahmedabad figured as one of the top 3 cities in the list of 88 critically polluted cities of India.

AMC undertook a restructuring exercise during 2006 and invited private operators to operate on gross contract basis leading to doubling of fleet size, with half owned by AMTS and the remaining half hired on gross contract basis. Through concerted efforts, AMC undertook fuel switch operations. Today all buses and auto rickshaws in the city are operated on CNG, contributing to significant lowering of pollution load from transport sector.

While these initiatives have had slight dampening effect on the traffic, the rate of motorization being rapid (every day 430 vehicles are added to the city vehicular register) and slow but steady increase in the share of cars will lead the city onto a grid lock unless persistent efforts to improve public transport, promotion of non-motorized vehicles and introduction of demand management measures are made. These are essential for achieving the goal of sustainable city and good quality of life.

The various factors which lead to the selection of Bus Rapid transit system in the city of Ahmedabad are as follows:

- No strong CBD
- Highly randomized development with localized trips
- Urban pull – spreading out
- Need for decongestion
- Flexibility in routing
Easily expandable
Scope for both low density and high density passenger movement
Project implementation easier
Wider reach
Leverages the full scope for public space and accessibility improvement
Can be operated according to the city ethos
Environment friendly

The Government of Gujarat had declared 2005 the ‘Year of Urban Development’ (Shaheri Vikas Varsh). During this particular year, the urban development department undertook various initiatives to resolve urban issues such as traffic management, and the introduction and enhancement of a city transport system. The Gujarat Infrastructure Development Board (GIDB), AMC and Ahmedabad Urban Development Authority (AUDA) jointly drafted a comprehensive urban mobility plan keeping in mind the needs of Ahmedabad as a mega city, and included in it, the implementation of the Bus Rapid Transit System (BRTS) and the planning of the regional rail and metro for future years.

CEPT University was assigned the work of the preparing of a detailed project report (DPR) for the implementation of the BRTS project in Ahmedabad. AMC submitted its proposal to the government of India for the BRTS project under JnNURM, which was the first of its kind in the country. As approved by the ministry of urban development, the AMC is implementing the BRTS project in a phased manner. The BRTS project was approved in November 2006 and work on the project commenced in 2007.

The project of 88.8 kms BRTS networks has been sanctioned under the JnNURM project in 2 phases where 35% of the fund comes from the Central Government under JnNURM and 15% share from State government and the balance 50% is borne by the AMC. The City government, Ahmedabad Municipal Corporation (AMC) is the lead agency for planning and implementation of BRT system in Ahmedabad. The Ahmedabad Urban Development Authority (AUDA), City Traffic Police, Gujarat Infrastructure Development Board (GIDB) and the State Urban Development Department support the plan implementation. A special purpose vehicle, The Ahmedabad Janmarg Limited (AJL) has been created under the companies Act to manage BRTS. CEPT University, Ahmedabad is the principal consultant for the project.

The project of 90 kms BRTS networks has been planned under phase-1 and 2 in Ahmedabad. Of these 61 kms has been made operational. Another 15 kms will come under operation by 2013. Eight flyovers have been built as part of the system. Two Rail over bridges and Two river bridges have also been built.

Ahmedabad transport strategy is focused on moving people and not on vehicles. The Urban Mobility strategy is based on the understanding that all people should be able to move around in Ahmedabad with comfort and efficiency. They must feel safe and secure. Travel must be affordable. They must have choices for their mobility in terms of walking, bicycling, rickshaw, bus, BRT or any other form of transport depending on where they are going. To emphasize this, the system has been named as ‘Janmarg meaning peoples way’.

The concept of BRTS is to encourage more people on the public transit system, which with high quality service is
delivered. It is about equal access and equal sharing of road space for people. By providing a dedicated corridor within the street for BRTS vehicles, more people can travel to destination in a time that is comparable to single occupancy vehicles such as cars, two wheelers.

Janmarg is the first full BRTS systems in India operated as a closed system. ‘Networks and not corridors’ and ‘connect busy places and avoid busy roads’ have been basic principles for selecting 90 km long network. The network connects central city with traffic generators such as transit terminals, markets, industries and institutions.

It uses integrated transit management system (ITMS). ITMS includes transit signal management, smart card integration, passenger information system, Geographic Information System (GIS) on the buses.

Dedicated right of way for the buses and stations with level boarding saves travel time for the buses and make the system more competitive with the auto travel. BRTS streets are complete streets with dedicated bus lanes, cycle tracks, pedestrian facilities, personalised vehicles and optimum parking. It enhances quality of life for all citizens. For people with disability, access to BRTS stations is now easier with ramps, level boarding and better buses. Trail run of BRTS was conducted over three month period. The major objective of trial runs was to allow the passengers to understand the system and its applications. During trial runs 14 buses with 6 min. frequency for 6 hours in the morning and 5 hours in the evening. Around 18,000 to 20,000 passengers were used the service daily.

The proposed BRT network connects the important origins and destinations and transit points like Railway stations, regional bus terminals, university areas, industrial areas, residential (LIG, MIG, EWS) and commercial hubs of the city and recreational public spaces like Kankaria lake front that is recently pedestrianised. The idea is to increase mobility and accessibility to these points through a well connected network of BRT.
ial (LIG, MIG, EWS) and commercial hubs of the city and recreational public spaces like Kankaria lake front that is recently pedestrianised. The idea is to increase mobility and accessibility to these points through a well connected network of BRT.

THE SUCCESS OF THE BRT SYSTEM HAS ALSO LED TO AN OVERALL IMPROVEMENT IN THE SERVICE QUALITY

OF THE AHMEDABAD MUNICIPAL TRANSPORT SERVICE (AMTS).

BRTS IS NOW A PART OF LARGER LEVEL REGIONAL PLAN FOR AHMEDABAD, WHERE TRANSIT CORRIDORS HAVE BEEN IDENTIFIED AND THE SYSTEM IS EXPECTED TO HAVE A MUCH WIDER COVERAGE. IT WILL ALSO BE INTEGRATED WITH THE PROPOSED RAIL-BASED
The work of widening and improvement of road from FRC Gate to TB Hospital, Bellary was taken up to improve the infrastructure in the roads and drains sector, to decongest the traffic in the area thereby improving living conditions of the people residing around the area. Total of 2.20 Km of the road was widened from the average width of 7 mts to a width of 17.6- 20.0 Mts at the total cost of Rs. 999.00 Lakhs. The weak cross drains were structurally strengthened, water supply lines are restored and utility crossings are provided at every 200 Mts with 300 mm RCC pipes. All the existing electrical overhead lines are replaced with underground cables. LT Feeder pillar boxes were provided on both sides of the road for accessing electrical power supply connection to the property holders on either side of the road. Land roughly about 10,000 sq. Mtr was acquired from the public without paying any compensation. Most of the demolishes were done by the people themselves voluntarily. This is the most unique feature of the project. The contractors have done a very good job.

Situation before the initiative began

Average road width of 7.0 Mtrs and a clear average width of 10-12 Mtrs and cross drains were about to fail. Overhead electrical lines were sagging posing danger to public. People were living in the most precarious conditions especially during monsoon. Lot of loading and un-loading activities were taking place. Utilities were clogged resulting in operation and maintenance problems on daily basis. The place was one of the main commercial centres with horrible sanitation and UGD at worst level and unmanageable condition. It was a lifeline road link connecting to different localities.

Mobilization of Resources

Financial resources were mobilized through Chief Ministers Nagrothana Yojana. Rs 100 Crore special package given to Bellary City Corporation. Technical consultants were appointed to prepare DPR, design,
estimate and to provide project management services in various sectors such as roads, water supply, waste water system storm water drain, parking spaces and urban transport. The work was executed through the civil contractor.

Results achieved
‘Very good utilities’ sanitation has improved water supply line restored, easy movement of traffic, better living and environmental conditions, aesthetic look. No overhead electrical lines.

Sustainability
People are aware of their living conditions and know the difference between the situation before and the conditions now existing.

Lessons Learned
Active involvement and co-operation from the public and local residents expedites speedy completion of work. This work of urban renewal to decongest traffic and other related problems which used to affect the daily life of residents inhabiting in the busy Bazaar area has brought great relief and easy mobility of men and goods. The cobwebs in utilities is now resolved which pass underneath.

The important lesson is work of this kind cannot be completed successfully without full participation of all stakeholders.

Transferability
Every City/Town has an older bazaar area with choked utilities and infrastructure in bad shape. As such Bazaars are economic centres of growth and means of livelihood for local residents. Avoiding or bypassing the traffic from such areas would affect the livelihood of the localities on one hand and non-improvement would make the area backward/stagnant and miserable for local residents.

This is a good example of Inner City Re-Development. This model can be replicated to decongest such prime areas with active participation of the stakeholder.
MUMBAI AREA TRAFFIC CONTROL PROJECT, MUNICIPAL CORPORATION OF GREATER MUMBAI

Summary

The Mumbai Urban Transport Project (MUTP) was taken up to improve the traffic and transportation situation in the Mumbai city with the World Bank assistance. One of the major traffic management components of MUTP was the Area Traffic Control (ATC) System Project. The project was undertaken by the Municipal Corporation of Greater Mumbai on behalf of the Mumbai Traffic Police, who would be the end user through Mumbai Metropolitan Region Development Authority (Co-ordination Agency).

The project covers 253 junctions out of total 525 signal junctions in Mumbai. It was divided into two phases –

Milestone 1 - 53 signals (Major corridors between Mantralaya and Haji Ali)

Milestone 2 - 200 signals (Major corridors extending from Haji Ali to the suburbs)

The central control room is in the Traffic Police Head Quarter and an Information Centre is located in the MCGM’ office. The work of project was awarded to the Joint Venture of Telvent Trafficco y Transporte of Spain and CMS Computers Limited of India. M/s. Pell Frischmann Consultants, UK are the Engineer to the project.

Status of The Project

- Project commenced in October 2007.
- Milestone 1 was completed in September 2009 and Milestone 2 was completed in August 2011.
- Traffic Police and MCGM Engineers are trained for the use and management of the system.

A system of centrally co-ordinating traffic signals using real time data collected through detectors (Area Traffic Control) was used here. This is an advanced tool in traffic management for efficient urban road network utilisation. The benefits of this System are

- Centralized Control of traffic signals
- Reduction of Signal Cycle time (180 sec average to 120 average)
- Improvement of speed –10% increase in traffic speed in the Milestone 1 area
- Reduction of stoppage delay on the network estimated at 17%
- The evaluation studies revealed that the actual savings are at around 1300 PCU-H/H for the peak hours. The annual savings estimated about 1.8 million litres of fuel.
- Reduction in electricity consumption by 30-40% due to LED signal heads
- Accidents reduced from 22795 (2006) to 15378(2011)- a 19% reduction in 5 years.

The traffic signals previously installed were working on fixed time and were not synchronized with each other. These signals were operating in isolation locally. The Traffic Police also used to operate the signal junctions through the local controller manually. This would result in clearing the traffic at that junction but causing congestion elsewhere in the network.

The signal lights were incandescent bulbs and were required to be replaced frequently. There was no ducted cabling network available and therefore the signal system was prone for more cable faults. Most of signals aspects were installed on the existing street light poles and
therefore the maintenance was an issue.

Following were the objectives & strategies for the project:

- Fully Coordinated Control Centre at Traffic Police HQ & Information centre at MCGM office.
- New Traffic Signal furniture including controller and Vehicle Detection equipment.
- Fully ducted cable network
- Leased Line Data network
- Civil works essential including junction improvement and road markings

This project was a part of the Mumbai Urban Transport Project (MUTP) funded by the World Bank under MUTP-I. MCGM was an implementing agency on behalf of Traffic Police. MCGM as the part of the project has created a project who were trained in Mumbai & abroad (country of origin of the installed ATC system i.e Spain) for operation of the Central Control Room. The expense for training was part of the contract awarded to M/s. Telvent-CMS (JV).

This was one of the most challenging jobs in the city which created over 64 km of fully ducted network with inspection / maintenance chambers. The project used up some 192 km of signal cables, 8,000 signal poles, 500 cantilever poles and 15000 LED signal aspects. Also a state of art Control room was established in the Traffic Police Headquarters and information centre was set up in MCGM office under the project.

The following were the issues faced and overcome during the project:

In Mumbai during the day time, no work is possible due to the high traffic movement. The only feasible time to work on the streets is the night time. But in the residential areas, The Addl. Municipal Commissioner of MCGM wrote personal letters requesting all the residential societies and ALMs (Advance Locality Management) to co-operate by elaborating the importance of the project and benefits to the society. Also, MCGM officers were present through the night at the work site for ensuring that the work did not get stopped.

The density and diversity of the utilities needed extreme care on the part of the contractor and supervising team to select the path of the new ducted network. This was a time consuming exercise, but was unavoidable and was proved to useful in long run. The terrorist attack in Mumbai on 26th November 2008 & 13th July compelled the staff of the foreign contractor to leave Mumbai. As
the works were carried out during night time, these attacks brought the restrictions on the labour employment and movement. This was overcome by issuing photo identity cards to the workers.

The agencies involved in the implementation were many. This included the implementing agency MCGM, the end user Traffic Police, the nodal agency of MMRDA, several utility companies and other infrastructure developers (mono rail, metro etc.). The co-ordination of the same among all these agencies was a daunting task, which was achieved by timely interventions of various officers of the agencies involved.

**RESULTS ACHIEVED**

- Reduction of Signal Cycle time (180 sec average to 120 average).
- Improvement of speed – About 5-30% depending on location and time of day.
- Decongestion of traffic - stoppage delay reduced by about 17%.
- The annual savings translate to huge values, roughly estimated to about 1.8 million litres of fuel.
- Savings in carbon emissions on the road is approximately 6.2 million kgs annually - 10% of the original value in ‘Before’ Scenario.
- Reduction in electricity consumption by 30-40% due to LED signal heads.
- Accidents (rear end collisions) reduced from 22795 (2006) to 15378(2011) - a 19% reduction in 5 years due to better visibility of signals.

The World Bank published The Mumbai ATC project as a cover story in its newsletter in May 2011. The World Bank has deputed the project implementing agencies of various developing countries to learn from the Mumbai ATC Project implementation.

The representatives from the Japan International Cooperation Agency (JICA), which is funding Hyderabad Intelligent Traffic System (ITS) has also visited the implementing agency i.e MCGM and the end user i.e Mumbai Traffic Police for discussing the scope and implementation of ITS in various Indian cities.
SEAMLESS BUS CONNECTIVITY BETWEEN BANGALORE CITY AND THE BANGALORE INTERNATIONAL AIRPORT BY BANGALORE METROPOLITAN TRANSPORT CORPORATION

Bangalore Metropolitan Transport Corporation is pioneer in implementing the best practices to make the public life happy and comfortable. One among them is a new branded service which has been started to provide efficient, comfortable, reliable, safe, economic & high end bus connectivity between the city of Bangalore and its new International Airport at Devanahalli. It may well termed as the “Seamless Bus connectivity between Bangalore city and the International Airport”.

The newly acquired city version B7R290 model Air-conditioned Volvo buses were chosen for deployment. Keeping in view the special profile of the section of commuters targeted for this service and focusing on making the service comfortable and anxiety free, some special features were configured into the bus.

- Kneeling mechanism to facilitate ease entry and exit of passengers including to the physically challenged ones.
- Room for parking and securing of wheel chairs.
- Comfortable seating for 33 passengers.

BMTC took the historic leap by inaugurating the Vayu Vajra Airport Dedicated Bus Service on 24th May 2008, the day of BIAL’s own inauguration. 48 services on 9 routes having a total daily schedule kms of 22,541.2 were made operational. The routes were designed to touch high potential locations and localities in and around city including I.T. hubs like Electronic city & Whitefield.

BMTC has been successful in achieving its dual goals namely improving the traffic scenario in this sector through marginalization of personalized and semi personalized transport at least by 3000 trips per day and in blocking further deterioration of air quality.

The service emerged as a real alternative to other modes of transport on this sector. The inception of this new concept service by BMTC received more than encouraging response from the Airport commuters which
these services. The airport authorities were contacted to secure the place for parking and departures of the buses. The buses were ordered to meet the airport bound passengers. The demand survey for the airport services was conducted to know the traffic generating points and the requirements of the passengers. The NGOs in the field of consumer movement and Resident Welfare Associations were consulted in operation of the services. The Government of Karnataka were requested to authorise BMTC to operate these services. The Depots, where the vehicle are repaired, crew is booked and kept ready for operation were identified, the crew were specially trained to handle the esteemed airborne passengers. The private taxi people were consulted to provide connectivity services to these passengers. The working together helped this initiative successful. The services were inaugurated in front of the Legislature of Karnataka State.

**FORMULATION OF OBJECTIVES AND STRATEGIES**

The BIAL was scheduled to start in 2008, BMTC spared no time in formulating the strategy to operate the passenger services to this place to help the passengers to get relief from the taxi operators, ensure the safety, offer quality service, ensure environment friendly service and help in reducing the environment pollution by reducing the personilised vehicles on this road to fulfill the BMTC vision to provide world-class transport services to the citizens of Bangalore Metropolitan Area.
The Government of Karnataka was convinced to permit BMTC to operate services, the brand new buses were procured, crew got training to deal the esteemed passengers, publicity through media, booklets and brochures was taken up and the buses were inaugurated in front of legislature house of Karnataka.

MOBILISATION OF RESOURCES

BMTC mobilised the funds within and borrowing from the financial and non-financial institutions. M/s Volvo India is in the production of air conditioned buses for public transport operation in India who were ready to supply the buses with advanced technology with attractive design, colour and seating. This was a new type of service hence the crew of this service operation were sent for special training in driving the vehicle. The vehicles were fitted with GPRS based GPS on Bus Units to track the location and disseminate the information to the passengers. To make this service easily identifiable separate bus stops were identified, the conductors carried the mobile phones through which passengers contacted the crew for information.

PROCESS

The Government of Karnataka, the BMTC management, Employee and the passengers are the stake holders. The Government of Karnataka was to be convinced that the Bangalore International Airport at Devanahalli fall within the jurisdiction of BMTC operation and the BIAL to handover the area earmarked for the city bus shuttle. The CEO and Officers made efforts to convince both the parties and got the order to operate the city services.

The BMTC board gave approval to operate the services on the objectives envisaged in the Road Transport Corporation Act. The mechanical engineering department spared no time in procuring the buses with all specification and ensured the arrival of the vehicles on time. The Finance department mobilised the funds for this new initiative on right time. The traffic department simultaneously conducted the traffic survey to identify the routes to be operated on potential areas and came out with the proposal for operating in nine routes initially.
Luggage Management in Vayu Vajra Service

The IT department assisted the other department in taking up this project. The employee was trained by the HRD department to equip them for taking up the new initiative. The challenges were addressed without compromising the interest of passengers and Corporation. The wide publicity was given in the media about this initiative and the buses were inaugurated in front of the legislative house of Karnataka State.

BMTC took the historic leap by inaugurating the Vayu Vajra Airport Dedicated Bus Service on 24th May 2008, the day of BIAL’s own inauguration. 48 services on 9 routes having a total daily schedule kms of 22,541.2 were made operational. The routes were designed to touch high potential locations and localities in and around city including I.T. hubs like Electronic city & Whitefield. The others being Indira Nagar, M.G.Road, HAL airport, Jeevanbhimanagar, Whitefield, Koramangala, HSR Layout, Electronic city, BTM Layout, J.P.Nagar, Shanthinagar, Mysore Road, Vijayanagar, Rajajinagar, Majestic, Malleswaram, Sadashivnagar, Bangalore palace etc.

The service was priced keeping in view;

- The anticipated competition from the established players in the field like taxis and other intermediate public transport.
- To bring the service within the financial reach of the maximum number of airport commuters including the non-flyers like ground personnel of service providers, etc. BMTC introduced modestly priced monthly commuter passes named “Vayu Vajra Gold Pass.” It also introduced special rebate on bulk purchases.
Value additions

Advance Seat Reservation

BMTC introduced advance online/ Offline seat reservation by co-opting two highly reputed agencies in the field viz; VIA & Red Bus.

Last mile connectivity

Keeping in view the special requirement and concerns of the airport commuters, BMTC introduced Feeder Taxi Service called Home “Home Connect“ to offer a total travel package to the airport commuters. This service made available for to and fro passengers is being provided by an established Taxi agency viz M/s. Cell cabs. Special rebate coupons are printed and supplied by BMTC to this agency for the benefit of the commuters.

Passenger Amenities

1. Establishment of full-fledged control point at BIAL manned round the clock and by well-trained informative, dedicated and courteous staff.

2. Established control point at all origin points equipped with mobile telephone connectivity to provide service information to the commuters.

3. Printing and supply of high quality, eye catching service brochure and pamphlets giving information about routing, timing & fares.

4. Service information through an electronic display on the lines of the air-line passenger information

5. Baggage transfer to and from the bus is done by BMTC’s staff.

Services are operated 24x7 with two hours rest between 2.00 to 4.00 Hrs where there is no arrival of flight.

RESULTS ACHIEVED

BMTC has been successful in achieving its objectives and
goals namely improving the traffic scenario in this sector through marginalization of personalized and semi personalized transport at least by 3000 trips per day and in blocking further deterioration of air quality.

The service is well on its way to emerge as a real alternative to other modes of transport on this sector. The inception of this new concept service by BMTC received more than encouraging response from the Airport commuters which included a big chunk of ground staff of service providers. It also received appreciation from other quarters too including State and National media.

BMTC has always adopted the practices to protect the interest of traveling public. The distant location of Airport burdened the passengers by way of heavy cost if they travel by Taxi, environment pollution and traffic congestion by way of increased number of taxis on road and safety of the passengers who travel in the late night. The operation of Airport services (Vayuvajra) by BMTC was a solution for the above problems.

Today, BMTC operate 63 Airport services in 11 routes, 71 vehicles perform 650 Trips every day, carry 78,000 passenger daily. The passengers are happy with services. Vehicles are air-conditioned, crew behaves courteously, and the feedback from the passenger is excellent.

The introduction of this unique service has been vindicated by the level of patronization it has garnered in an area of transport till then monopolized by other non-public modes.

By doing so, BMTC has set an envious precedent for Public Transport Organizations in the country’s other Metropolises to follow in its footsteps in making the comfortable living environment of the city people.

**SUSTAINABILITY**

Sustainability is a real challenge in the operation of public transport. BMTC made it to happen by adopting the “Government regulated and Corporate driven” principle. The financial sustainability was achieved through scientific pricing method, the service was priced keeping in view

- The anticipated competition from the established players in the field like taxis and other intermediate public transport
- To bring the service within the financial reach of the maximum number of airport commuters including the non-flyers like ground personnel of service providers etc. With focus on non-flying regular airport commuters, BMTC introduced modestly priced monthly commuter passes named “Vayu Vajra Gold Pass”. It also introduced special rebate on bulk purchases.

The cost of operation per km is Rs 54.91 and the earning per km is Rs 54.95 thereby BMTC almost maintained the level of breakeven and made this initiative sustainable financially.

It has also achieved to a great extent its goal of reducing road congestion on this crucial traffic corridor and reduction in air pollution through marginalizing to some extent the other modes of transport such as personal cars, taxis etc. It can be safely assumed that by transporting approximately 78,000 passengers per day it has contributed to elimination of at least 20,000 round trips by four wheelers in this sector.

The Vayu Vajra service has become choice mode for the people travelling to the airport, especially for the safety during night time, the international travellers prefer BMTC services.

**LESSONS LEARNED**

BMTC learnt lessons every time a new initiative was introduced; the operation of Vayu Vajra services is in
compliance with the provisions envisaged in the National Urban Transport Policy. The consultation of various stakeholders gives very good inputs in implementing the initiative. The Government of Karnataka advised BMTC to price the services in competitive manner and make the services more frequent. The Board of Directors gave innovative inputs in taking up this initiative, the Officers worked enthusiastically to implement the new initiative. The workers preferred to work in this service.

The operation of Vayu Vajra service was a necessity to the passengers than luxury, there was a competition from the private taxi operators but the passengers patronised these services hence there is continuous increase in the passengers travelling in this service.

BMTC is still finding it difficult to maintain the frequencies assured to the passengers mainly because of the traffic congestion.

The red colour of the bus was changed into green symbolising as environment friendly bus which has reduced the usage of taxi to the airport.

Visualisation & Planning are a must for sustainability of the projects, the services will sustain when the customers genuine demands are met.

TRANSFERABILITY

After introduction of this service the public transport operators from different parts of the country visited BMTC to study and collect the information regarding the operation of airport connectivity services. BMTC happily share this information with them. The article relating to operation of public transport to airport and presentations at government level were made.

This initiative has been well adopted in Hyderabad and New Delhi. The transferability is very easy and BMTC is ready to share the experience in implementing the initiative.
## SECTOR-WISE LIST OF BEST PRACTICES RECEIVED FOR HUDCO AWARD 2012-2013

### I. URBAN GOVERNANCE

<table>
<thead>
<tr>
<th>Sl. of the Agency</th>
<th>Name &amp; Address of the Agency</th>
<th>Name of the Best Practice</th>
<th>Sub-Category</th>
</tr>
</thead>
</table>
| 1.                | Shri Gaurav Gupta, IAS Chairman  
Bangalore Water Supply & Sewerage Board  
Cauvery Bhawan, K.G. Road, Bangalore – 560 009  
Tel No. 080-22945100  
Fax No.080-22945101  
Email: chairman@bwssb.org, eerbc@bwssb.org  
Shri T Venkataraju  
Engineer-in-Chief  
Tel 080-22945105  
Email : eic@bwssb.org | Web based Revenue Billing & Collection System | E-Governance – Innovative methods of collection of Property Tax/Other taxes/Bills |
| 2.                | Shri Manish S. Bhatt  
Director (IT)  
Vadodara Municipal Corporation  
EDP Department Khanderao Market Building,  
Palace Road Vadodara – 390 023  
Email: vmcdirit@gmail.com | E-Governance by Vadodara Municipal Corporation | Innovative Methods of collection of Property tax/other taxes/bills |
| 3.                | The Commissioner  
Coimbatore City Municipal Corporation  
Big Bazar Street, Town Hall  
Coimbatore – 641 00, Tamil Nadu  
Tel No.0422-2396026  
Fax No. 0422-2390167  
Email: commr.coimbatore@tn.gov.in  
CCMC-09442546000  
IT Officer CCMC : 09442501873 | E-Governance by Coimbatore City Municipal Corporation | E-Governance |
|   | The Executive Director  
Kudumbashree – State Poverty Eradication Mission  
11th Floor, TRIDA Rehabilitation Complex  
Chalakuzhi Road, Medical College P O  
Trivandrum – 695 011  
Te No. 0471-2554714, 2554715  
Fax No. 0471-2554717  
Email : info@kudumbashree.org  
www.kudumbashree.org | Management Information System for Planning and Implementation of Rajiv AwasYojana in the State of Kerala | Management & Information System |
|---|---|---|---|
| 5. | Shri Mahesh Gohel  
EDP Manager  
Computer Department  
Rajkot Municipal Corporation  
Dhebar Road, Rajkot – 360 001  
Tel No.0281-2230920, Fax No.0281-2224258  
Email : msgohel@rmc.gov.in, msgohel@yahoo.com  
Mob 9714503717 | E-Governance: An Efficient way to meet Citizens Expectations | E-Governance |
| 6. | Shri M.V. Ravishankar, IAS  
Commissioner  
Directorate of Municipal Administration  
Municipal Reforms Cell  
1-4, 6th Floor, IT Park  
Rajajinagar Industrial Estate  
Bangalore – 560 001  
Tel No.080-23003100, Fax No.23003111  
Email : msravishankar55@gmail.com  
Shanthala.kt@mrc.gov.in  
C/o KUIDFC | Service Level Benchmarking (SLB) | E-Governance |
| 7. | Shri M.V. Ravishankar, IAS  
Commissioner  
Directorate of Municipal Administration  
Municipal Reforms Cell  
1-4, 6th Floor, IT Park  
Rajajinagar Industrial Estate  
Bangalore – 560 001,  
Tel No.080-23003100, Fax No.23003111  
Email : msravishankar55@gmail.com  
Shanthala.kt@mrc.gov.in  
C/o KUIDFC | Public Grievance and Redressal System (PGR) | E-Governance |
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<tr>
<td>8.</td>
<td>Shri M.V. Ravishankar, IAS</td>
<td>Commissioner</td>
<td>Directorate of Municipal Administration Municipal Reforms Cell 1-4, 6th Floor, IT Park Rajajinagar Industrial Estate Bangalore – 560 001, Tel No.080-23003100, Fax No.23003111 Email : <a href="mailto:msravishankar55@gmail.com">msravishankar55@gmail.com</a> <a href="mailto:Shanthala.kt@mrc.gov.in">Shanthala.kt@mrc.gov.in</a> C/o KUIDFC</td>
<td></td>
<td>AASTHI (GIS based Property Tax Information System)</td>
</tr>
<tr>
<td>9.</td>
<td>Shri Utpal C. Padia</td>
<td>Deputy Municipal Commissioner Ahmedabad Municipal Corporation Sardal Patel Bhawan Danapith Ahmedabad – 380 001 Tel No.079-25352828 Fax No.079-25354638, 9825009736 Email: <a href="mailto:utpalpadia@gmail.com">utpalpadia@gmail.com</a> <a href="mailto:mcahemadabad@egovamc.com">mcahemadabad@egovamc.com</a></td>
<td></td>
<td></td>
<td>E-Governance at Ahmedabad Municipal Corporation</td>
</tr>
<tr>
<td>10.</td>
<td>Mrs. Indu Gupta</td>
<td>State Informatics Officer National Informatics Centre 8318, N.W. Block, Secretariat Jaipur – 302 005 Tel No.0141-2227992 Email : <a href="mailto:sioraj@nic.in">sioraj@nic.in</a> Shri Abhay Kumar Secretary Rural Development Department Jaipur – 302 005 Tel No. 0141-2227390 Email : <a href="mailto:secr-rd-rj@nic.in">secr-rd-rj@nic.in</a></td>
<td></td>
<td></td>
<td>Roll Out of Web Based Application Awaas Soft in Rajasthan</td>
</tr>
<tr>
<td>11.</td>
<td>Shri C.S. Pratinitdhi</td>
<td>Advisor (UWS), Mr.RaghavendraPurohit Task Manager (KUWSMP)</td>
<td></td>
<td></td>
<td>Reforms &amp; Service Improvements through Private Sector Participation</td>
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<tr>
<td>No.</td>
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<td>12.</td>
<td>Shri Sanjit Rodrigues</td>
<td>Managing Director</td>
<td>Goa State Infrastructure Development Corporation Limited</td>
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<td></td>
<td></td>
<td></td>
<td>7th Floor, EDC House</td>
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<td>Dr. Atmaram Borkar Road</td>
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<td>Email: <a href="mailto:email@gsidcitd.com">email@gsidcitd.com</a></td>
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</tbody>
</table>

| 13. | Mrs. Ujwala Paranjpe           | Director                              | “Karn”                                                                                 |
|     |                                |                                       | Ghanshyam Nagar                                                                        |
|     |                                |                                       | Sangli Madhavnagar Road                                                                 |
|     |                                |                                       | Behind Mahalbungalow                                                                   |
|     |                                |                                       | Sangli – (Mah)                                                                         |
|     |                                |                                       | Tel No. 0233-2314639                                                                   |
|     |                                |                                       | Email: ujjwalap@bsskindia.org                                                          |
|     |                                |                                       | Mob: 0980014466                                                                        |

| 14. | Shri M.V. Ravishankar, IAS     | Commissioner                          | Fund Based Double Entry Accrual Accounting System (FBDEAAS)                           |
|     |                                |                                       | Municipal Reforms Cell                                                                 |
|     |                                |                                       | 1-4, 6th Floor, IT Park                                                                |
|     |                                |                                       | Rajajinagar Industrial Estate                                                          |
|     |                                |                                       | Bangalore – 560 001                                                                    |
|     |                                |                                       | Tel No. 080-23003100, Fax No. 23003111                                                |
|     |                                |                                       | Email: msravishankar55@gmail.com                                                      |
|     |                                |                                       | Shanthala.kt@mrc.gov.in                                                                |
|     |                                |                                       | C/O KUIDFC                                                                             |

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<td>E-Tendering</td>
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<td>“Karn” – A home for Destitutes</td>
<td>Institutional Reforms</td>
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<td>14.</td>
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<td>Fund Based Double Entry Accrual</td>
<td>Municipal Double entry pure accrual accounting</td>
</tr>
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</table>
| 15. | Mr. Kailash Chandra Pandey  
Deputy Project Manager  
Project Management Unit  
Mussoorie Dehradun Development Authority  
Dehradun (Uttarakhand)  
Email: k.c.pandey@gmail.com  
(Innovest Advisory Services Ltd)  
C-71 B, Seventh Floor Super Mart  
DLF Phase IV, Gurgaon (Haryana)  
Mob: 09897749417 | ERP (Enterprise Resource Planning) | E-Governance |
| 16. | Shri Kishore Kanyal  
Additional Commissioner  
Bhopal Municipal Corporation  
Sadar Manzil  
Bhopal – 462 001  
Tel No. 09425116934  
Fax No. 0755-2701223  
Email: kishorekanyal@gmail.com | Implementation of SAP-ERP based Municipal Administration System (MAS) for improved & transparent citizen services and better efficiency and effectiveness of internal process | E-Governance |
## II. HOUSING URBAN POVERTY AND INFRASTRUCTURE

<table>
<thead>
<tr>
<th>Sl. of the Agency</th>
<th>Name &amp; Address of the Agency</th>
<th>Name of the Best Practice</th>
<th>Sub-Category</th>
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<tbody>
<tr>
<td>1.</td>
<td>The Secretary, Corporation of Cochin Park Avenue, P.B. No.1016 Cochin – 682 011 Tel No.0484-2369007, 2350434, Fax No.0484-2350434 Email : <a href="mailto:piukchksudp@gmail.com">piukchksudp@gmail.com</a></td>
<td>Community Infrastructure works through KSUDP at Vathuruthi Colony</td>
<td>Slum and Settlement upgrading and improvement/ Service for Urban Poor/ Education and health</td>
</tr>
<tr>
<td>2.</td>
<td>Shri Navanit C. Patel Chief Officer Himatnagar Nagarpalika, Himatnagar – 383 001 Distt. S.K., Gujarat Tel No. 02772-241710 Fax No.02772-249305 Email : <a href="mailto:np_himatnagar@yahoo.com">np_himatnagar@yahoo.com</a> Web : himatnagarximarpalika.org</td>
<td>IHSDP Housing Scheme for Urban Poor at Himatnagar Nagarpalika</td>
<td>Affordable Housing/ Access to housing finance/Access to land for urban poor/ Education &amp; health</td>
</tr>
<tr>
<td>3.</td>
<td>Shri M.V. Ravishankar, IAS Commissioner Directorate of Municipal Administration Municipal Reforms Cell, 1-4, 6th Floor, IT Park Rajajinagar Industrial Estate, Bangalore – 560 001 Tel No.080-23003100 Fax No.23003111 Email : <a href="mailto:msravishankar55@gmail.com">msravishankar55@gmail.com</a> <a href="mailto:Shanthala.kt@mrc.gov.in">Shanthala.kt@mrc.gov.in</a> C/o KUIDFC</td>
<td>ASHA Kiran Mahithi (AKM)</td>
<td>Slum &amp; Settlement Upgrading and Improvement</td>
</tr>
<tr>
<td>4.</td>
<td>Shri Utpal C. Padia Deputy Municipal Commissioner Ahmedabad Municipal Corporation Sardal Patel Bhawan, Danapith Ahmedabad – 380 001 Tel No.079-25352828, 9825009736 Fax No.079-25354638 Email: <a href="mailto:utpalpadia@gmail.com">utpalpadia@gmail.com</a></td>
<td>Affordable Housing for Urban Poor under JnNURM</td>
<td>Affordable Housing to Urban Poor</td>
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<td>Fax No. 079-25354638</td>
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<td></td>
<td>Email: <a href="mailto:utpalpadia@gmail.com">utpalpadia@gmail.com</a></td>
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<tr>
<td>6.</td>
<td>Shri Vivek Trivedi</td>
<td>SDO, SJSRY, CYP Sector 12 Chandigarh</td>
<td>Learning on Wheels</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tel No. 0172-2744482, 5021504</td>
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<td></td>
<td></td>
<td>Email: <a href="mailto:sjsry.chd@gmail.com">sjsry.chd@gmail.com</a></td>
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<tr>
<td>7.</td>
<td>Shri Vivek Trivedi</td>
<td>SDO, SJSRY, CYP Sector 12 Chandigarh</td>
<td>Eco-friendly Handbags manufactured by HIV – Poor Women SHG</td>
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<td>Tel No. 0172-2744482, 5021504</td>
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<tr>
<td>8.</td>
<td>Shri Vivek Trivedi</td>
<td>State UPA Cell, Room No.42 MKC Building Sector – 17, Chandigarh</td>
<td>Women as change agent in Building leadership and bringing changes in their Community</td>
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<tr>
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<tr>
<td>9.</td>
<td>Shri B F Patil, IAS Commissioner</td>
<td>Karnataka Slum Development Board #55, Abhaya Complex Risaldar Street Sheshadripura Bengaluru – 560 020</td>
<td>A Case of Two in Situ Slums</td>
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<tr>
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### III. URBAN TRANSPORT

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<th>Name &amp; Address of the Agency</th>
<th>Name of the Best Practice</th>
<th>Sub-Category</th>
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</table>
| 1.                | Shri N. Manjunatha Prasad, IAS Managing Director  
Karnataka State Road Transport Corporation  
SarigeBhavan, K.H. Road  
Shantinagar  
Bangalore – 560 027  
Tel No. 080-22221125  
Fax No.080-22226323  
Email: md@ksrtc.org, lathaksrtc@gmail.com  
080-22224988 | GPS Based Initiatives for Transport Improvement | Urban Transport |
| 2.                | Shri Mahesh M Thakur  
Executive Engineer (Area Traffic Control)  
Municipal Corporation of Greater Mumbai  
Office of the Executive Engineer(ATC)  
Ground Floor, Engineering Hub Building  
Dr. E. Moses Road, Worli Mumbai  
Mumbai – 400 018  
Tel No.022-24983407, Mob. 9820019494  
Email : mmt.mcgm@yahoo.co.in | Mumbai Area Traffic Control Project | Urban Transport |
| 3.                | Shri Harsh Gupta, IAS  
Managing Director  
Karnataka Urban Infrastructure Development  
And Finance Corporation Ltd  
Silver Jublee Block, 2nd Floor  
Unity Building Annexe, 3rd Cross  
Mission Road, Bangalore – 560 027  
Tel No.080-22232021/22232134  
Fax No.080-22232147  
Email: info@kuidfc.com | Ring Road Development under Self Financing Mechanism | Urban Transport Planning |
<table>
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<tr>
<th></th>
<th>Name</th>
<th>Position/Contact Information</th>
<th>Department</th>
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<tr>
<td>4</td>
<td>Shri Utpal C. Padia</td>
<td>Deputy Municipal Commissioner Ahmedabad Municipal Corporation Sardal Patel Bhawan, Danapith Ahmedabad – 380 001 Tel No.079-25352828, 9825009736 Fax No.079-25354638 Email: <a href="mailto:utpalpadia@gmail.com">utpalpadia@gmail.com</a></td>
<td>Ahmedabad Bus Rapid Transit System – JANMARG Urban Transport</td>
</tr>
<tr>
<td>5</td>
<td>Shri Vivek Kulkarni</td>
<td>Commissioner Ahmednagar Municipal Corporation Ahmednagar Tel No.0241-2343622, 2345127, 2340522 2341455, 2346010, 2323019 Fax No. 0241-2328837 Email : <a href="mailto:amc_anr@rediffmail.com">amc_anr@rediffmail.com</a></td>
<td>Ahmednagra City Transport Service Urban Transport</td>
</tr>
<tr>
<td>6</td>
<td>Shri Anjum Parwez, IAS</td>
<td>Managing Director &amp; CEO Bangalore Metropolitan Transport Corporation Central Offices, 4th Floor Shantinagar TTMC Building, K H Road Bengalure – 560027 Tel No.080-22537501(o) Fax No. 080-22537504 Email : <a href="mailto:bmtcmd@gmail.com">bmtcmd@gmail.com</a>, <a href="mailto:bmtcdirit@gmail.com">bmtcdirit@gmail.com</a> <a href="mailto:ingalagi_kn@yahoo.co.in">ingalagi_kn@yahoo.co.in</a> Shri Kumar Pushkar, IFS Director (IT) Dr. K.N. Ingalagi Chief System Officer</td>
<td>Seamless Bus connectivity between Bangalore City and the Bangalore International Airport Urban Transport Planning</td>
</tr>
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## IV. ENVIRONMENTAL MANAGEMENT, ENERGY CONSERVATION AND GREEN BUILDING

<table>
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<th>Sl. of the Agency</th>
<th>Name &amp; Address of the Agency</th>
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<tbody>
<tr>
<td>1.</td>
<td>The Member Secretary</td>
<td>Bangalore Nirmithi Kendra</td>
<td>Appropriate and Low Cost Materials and Construction Technology</td>
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<td></td>
<td>Bangalore Nirmithi Kendra (Urban)</td>
<td>Kendra</td>
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<td>C/o D.C. Office Compound</td>
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<td></td>
<td>Kempe Gowda Road</td>
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<tr>
<td>2.</td>
<td>Shri Pravin Bhagat</td>
<td>Catch Water Where it Falls: Rain Water Harvesting</td>
<td>Rain Water Harvesting</td>
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<td></td>
<td>State Coordinator</td>
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<td></td>
<td>City Managers Association</td>
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<tr>
<td></td>
<td>Room no 306/307, 2nd floor</td>
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<td>Palika Bhavan, Shivaji Nagar</td>
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<td>Email: <a href="mailto:cmamp@mpurban.gov.in">cmamp@mpurban.gov.in</a></td>
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<tr>
<td>3.</td>
<td>The Deputy Commissioner</td>
<td>Nirmithi Kendra, Chitradurga, Karnataka</td>
<td>Appropriate &amp; Low Cost Building Materials &amp; Construction Technology</td>
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<tr>
<td></td>
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<td>Village Chitradurga Taluk&amp;Distt.</td>
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<td>Chitradurga – 577 502 (Karnataka)</td>
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<td></td>
<td>Email : <a href="mailto:chitradurgank@yahoo.co.in">chitradurgank@yahoo.co.in</a></td>
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<tr>
<td></td>
<td>Chief Engineer</td>
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<td></td>
<td>Chhattisgarh State Renewable Energy Development Agency (CREDA), 2nd Floor</td>
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<td></td>
<td>CSERC Building, Shanti Nagar</td>
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<td>Raipur – 492 001</td>
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<td>Tel No.0771-4029224/7/4019228</td>
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<td>Fax Bo.0771-4268389</td>
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<td>Email : <a href="mailto:sjain218@gmail.com">sjain218@gmail.com</a></td>
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<td></td>
<td>Company/Individual</td>
<td>Details</td>
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</table>
| 5. | M/s Chemtrols Industries Ltd | M/s Chemtrols Industries Ltd  
Amar Hill, Saki Vihar Road, Powai  
Mumbai – 400 072  
Tel No. 022-67151395/1236  
Fax No. 022-28574385  
Email: envirx.india@gmail.com | Renewal Energy | Process Analytics,  
Process Automation,  
Process measurements,  
Environment Monitoring and Energy Management |
| 6. | Shri Suresh Mengade | Shri Suresh Mengade  
Principal  
Police Training School, Turchi  
S.No.1008A/1, A/p : Turchi Village  
Taluka : Tasgaon  
District : Sangli – 416 312 (Mah)  
Contact : 9326576233, 09923565656  
Email : prinptsturachi@gmail.com | Energy Efficient  
Police Training School at Turchi, Tasgaon | Environmental Sound Technologies |
| 7. | Shri V. S. Sunda | Shri V. S. Sunda  
Additional Chief Engineer  
Jaipur Development Authority  
Shri Ram kishore Vyas Bhawan  
Indira Gandhi Circle  
Jawaharlal Nehru Marg  
Jaipur – 302 004  
Tel No.0141-2569696  
Fax No. 0141-2563614  
Email : info@jaipurjda.org | Rain Water Harvesting | Rain Water Harvesting |
| 8. | Architect Pramod Chaugule | Architect Pramod Chaugule  
Managing Director  
ChagulePatil Consultants Pvt Ltd  
Studia 8-8-8, Abhalmaya  
C.S. No.13700, Local Board Colony  
Near UdyogBhawan  
Sangli (Maharashtra)  
Phone No.0233-2675858  
Fax No. 0233-2670388  
Email : chaugulepatil@gmail.com | Studio 8-8-8, Abhalmaya  
An Energy efficient office building | Green Building &  
Green Building indicators |
<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Address</th>
<th>Role</th>
</tr>
</thead>
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<tr>
<td>9.</td>
<td>Mr. Anoop Shah</td>
<td>Near Godrej Foods&lt;br&gt;Gut No. 943&lt;br&gt;Tal : Miraj, Distt. Sangli (Mah)&lt;br&gt;Tel : 0233-2377585, 2377702&lt;br&gt;Fax No.0233-2372147&lt;br&gt;Email : <a href="mailto:san.apshah@gmail.com">san.apshah@gmail.com</a></td>
<td>Whispering Woods&lt;br&gt;Urban Greening</td>
</tr>
<tr>
<td></td>
<td>Architect Pramod Chaugule</td>
<td>Managing Director&lt;br&gt;Chaugule Patil Consultants Pvt Ltd&lt;br&gt;Studia 8-8-8, Abhalmaya&lt;br&gt;C.S. No.13700, Local Board Colony&lt;br&gt;Near Udyog Bhawan, Sangli (Maharashtra)&lt;br&gt;Phone No.0233-2675858, Fax No. 0233-2670388&lt;br&gt;Email : <a href="mailto:chauguelepatal@gmail.com">chauguelepatal@gmail.com</a></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Shri H.S. Gujrat, IFS, PCCF (HoFF)</td>
<td>Principal Chief Conservator of Forests (HAG+)&lt;br&gt;Deptt. Of Forest &amp; Wildlife Preservation&lt;br&gt;Forest Complex, Sector 68&lt;br&gt;Mohali – 160 062 (Punjab)&lt;br&gt;Tel No.01722298000, 2298004&lt;br&gt;Fax No. 0172-2298038, Mob : 9814020341&lt;br&gt;Email : <a href="mailto:pccfpunjab@gmail.com">pccfpunjab@gmail.com</a>&lt;br&gt;Mr. Aseem Kumar, IFS&lt;br&gt;Dy. Conservator of Forests Mob : 9814098540&lt;br&gt;Email : <a href="mailto:aseempfs@gmail.com">aseempfs@gmail.com</a></td>
<td>Design, Construction and O &amp; M arrangements of the forest complex, SAS Nagar (Mohali)</td>
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### V. SANITATION

<table>
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<th>Sl. of the Agency</th>
<th>Name &amp; Address of the Agency</th>
<th>Name of the Best Practice</th>
<th>Sub-Category</th>
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<tbody>
<tr>
<td>1.</td>
<td>Shri Vivek Yadav, IAS</td>
<td>Clean Cities Championship</td>
<td>Solid Waste Management</td>
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<tr>
<td></td>
<td>Commissioner</td>
<td>Campaign – Warangal Municipal Corporation</td>
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<td></td>
<td>Warangal Municipal Corporation</td>
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<td></td>
<td>Warangal – 506 002</td>
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<td></td>
<td>Tel No. 0870-2424656 Fax No.0870-2562831</td>
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<td></td>
<td><a href="mailto:ourwmc@gmail.com">ourwmc@gmail.com</a>, <a href="mailto:ourwmc@yahoo.co.in">ourwmc@yahoo.co.in</a></td>
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<td>C/o Dr. B. Janardhan Reddy, IAS</td>
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<td>Commissioner &amp; Director</td>
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<td>Municipal Administration</td>
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<td></td>
<td>640, A.C. Guards, Opposite PTI Building</td>
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<td>Hyderabad – 500 004</td>
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<td>Tel No. 040-23302150 Fax No.040-23302151</td>
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<td></td>
<td>Mob : 9849908576 Email : <a href="mailto:cdma@cdma.gov.in">cdma@cdma.gov.in</a>; <a href="mailto:janardhan_b2001@yahoo.co.in">janardhan_b2001@yahoo.co.in</a></td>
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<td>2.</td>
<td>Mr. Suresh Jagtap</td>
<td>Plasma gasification</td>
<td>Solid Waste Management</td>
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<tr>
<td></td>
<td>Joint Commissioner and In-charge</td>
<td>pyrolysis technology, non incineration based solid waste to energy solution</td>
<td>Waste to energy solutions/Waste Recycling/ Eco friendly technologies in sanitation</td>
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<td></td>
<td>Department of Solid Waste Management</td>
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<td></td>
<td>Pune Municipal Corporation</td>
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<td></td>
<td>Shivaji Nagar, Pune-411005</td>
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<tr>
<td></td>
<td>Cell no: +91 9689931414 Email: <a href="mailto:sjagtap@punecorporation.org">sjagtap@punecorporation.org</a> <a href="mailto:swm@punecorporation.org">swm@punecorporation.org</a> Website: <a href="http://www.punecorporation.org">www.punecorporation.org</a></td>
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<td>3.</td>
<td>The Commissioner</td>
<td>Solid Waste Recycling/ Management</td>
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<td>Namakkal Municipality</td>
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<td></td>
<td>Email : <a href="mailto:commr.namakkal@tn.gov.in">commr.namakkal@tn.gov.in</a></td>
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<td></td>
<td>The Commissioner of Mun. Admn.</td>
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<td>Chennai -5</td>
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<td>4.</td>
<td>Mr. Suresh Jagtap</td>
<td>Joint Commissioner and In-charge</td>
<td>Zero Garbage Ward, Pune</td>
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<td>Department of Solid Waste Management</td>
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<td>Shivaji Nagar, Pune-411005</td>
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<td></td>
<td></td>
<td>Cell no: +91 9689931414</td>
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<td>Email: sjagtap@pune corporation.org</td>
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<td></td>
<td>swm@pune corporation.org</td>
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<td>5.</td>
<td>Mr. Suresh Jagtap</td>
<td>Joint Commissioner and In-charge</td>
<td>Integrating the Informal Sector in Municipal Waste Management</td>
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<td>Department of Solid Waste Management</td>
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<tr>
<td>6.</td>
<td>Mr. Suresh Jagtap</td>
<td>Joint Commissioner and In-charge</td>
<td>Power Generation from Solid Waste Generated in Suburban Area using Spatial Techniques – Refuse into Resource through Biogas</td>
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</table>
| 1.               | Mr. D.L. Narayan Commissioner  
City Corporation, Bellary  
Directorate of Municipal Administration  
9th Floor, Vishweshwaraih Towers  
Dr. Ambedkar Veedhi  
Bangalore – 560 001  
Tel No. 08392-273479, Fax No.08392-273477  
Email : bellarycommissioner@yahoo.co.in | Widening and Improvements of the Road from FRC Gate to TB Hospital, Bellary | Inner City Renewal/revitalisation |
| 2.               | Mr. Kailash Chandra Pandey Deputy Project Manager  
Project Management Unit  
Mussoorie Dehradun Development Authority  
Dehradun (Uttarakhand)  
Email : k.c.pandey@gmail.com  
(Innovest Advisory Services Ltd)  
C-71 B, Seventh Floor Super Mart  
DLF Phase IV, Gurgaon (Haryana)  
Mob : 09897749417 | Chakrata Road Development in PPP  
Indira Market Redevelopment in PPP  
Dispensary Road Redevelopment Projects | Urban Renewal |
| 3.               | Shri S. S. Topgi  
Director of Town & Country Planning  
Government of Karnataka  
M.S. Building, Phase 4, Gate 4  
Dr. B.R. Ambedkar Veedhi  
Bangalore – 560 001  
Tel : 080-22258988  
Fax No.080-22389519  
Email: dtphkar@hotmail.com  
C/o KUIDFC | Mapping or Urban Areas in Karnataka State | Urban Management & Administration |
| 4.               | Shri Sanjay Kumar Shukla, IAS Commissioner  
Urban Administration & Dev. Deptt.  
Directorate of Urban Administration & Development,  
Palika Bhawan Room No. 203, 6 No. Stop Shivaji Nagar, Bhopal – 462 016 M.P.  
Tel No.0755-2552356  
Fax No.0755-2552591  
Email : commuadmp@mpurban.gov.in | State-Wide City Development Plans - e-Inclusive Urban Planning & Implementation in MP | E-Governance, Urban Management and Administration/Transparency & Accountability |
### VII. DISASTER PREPAREDNESS, MITIGATION AND REHABILITATION

<table>
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<th>Sub-Category</th>
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</table>
| 1.                | The Managing Director  
Karnataka Rural Infrastructure Development Ltd  
Gate No.18, Chinnaswamy Stadium  
Rajbhavan Road  
Bangalore – 560 001  
Tel No.080-22865037, 22865450, 22861319  
Fax No.080-22869016  
Email: mdkridl@gmail.com, gmpklac@gmail.com | Aasare Programme for Flood Affected Districts of North Karnataka in October 2009                                      | Post Disaster Rehabilitation/reconstruction                                                                    |
| 2.                | Shri N.S. Mahadev  
Managing Director  
Rajiv Gandhi Rural Housing Corporation Ltd  
Plot No.1-4, 1st Floor, IT Park  
Rajaji Nagar Industrial Estate  
Bangalore – 560 044  
Tel No.080-23118888  
Fax No.080-23145085  
Email: rgrhcl@nic.in, rgrhcl@rdiffmail.com | Houses for all in the Safe New World (Aasare)                                                                       | Post Disaster Rehabilitation/Construction                                                                 |
## Team Members

<table>
<thead>
<tr>
<th>Managing Editors</th>
<th>Committee for Selection of Award Winning Entries</th>
<th>Field of Expertise</th>
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<tr>
<td>Mr. V. P. Baligar, Chairman and Managing Director, HUDCO</td>
<td></td>
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<tr>
<td>Mr. A. N. Krishnamurthy, Executive Director (Training), HSMI, HUDCO</td>
<td>• Prof. Chetan Vaidya, Director School of Planning and Architecture, New Delhi</td>
<td>Architect &amp; Town Planner</td>
</tr>
<tr>
<td>Editorial Team – HSMI, HUDCO</td>
<td>• Dr. Amod Kumar, Consultant &amp; Head of Department of Community Health, St. Stephen’s Hospital, Delhi</td>
<td>Medical Practitioner</td>
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<tr>
<td>Mr. Surendra Kumar, Fellow/Dy. General Manager (Projects) Ms. Shobha Kumar, Asstt. General Manager (Projects) Mr. Jeewan Lal, Asstt. General Manager (Sectt.)</td>
<td>• Mr. V. K. Dhar, Ex-Faculty, NIUA, Delhi</td>
<td>Engineer &amp; Town Planner</td>
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<td>• Mr. R. K. Safaya, Ex. Executive Director, HUDCO</td>
<td>Architect &amp; Urban Designer</td>
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<td>• Dr. N. B. Mazumdar, Ex. Chief Projects (Waste Management), HUDCO &amp; Chairman of Expert Committee on MSWM, MoUD, GOI</td>
<td>Solid Waste Management Expert</td>
</tr>
</tbody>
</table>

### Contact

Human Management Settlements Institute, Research and Training Wing, HUDCO House, Lodhi Road, New Delhi-110003 Telephone: 011-24369534, 011-24308600/606, Fax: 011-24365292, 24366426; E mail: edthsmi2013@gmail.com, cpdhsmi@gmail.com

Housing and Urban Development Corporation Limited
Corporate Office: Core 7-A, HUDCO Bhawan, India Habitat Centre, Lodhi Road, New Delhi-110003 Telephone: (EPABX) 011-24649610-23, 24627113-15, After Office Hours: 011-24648193-95, Fax: 011-24625308 E mail: hudco@hudco.org Website: www.hudco.org