WASTE 2014 CONFERENCE

Paper Title:

Managing Change through Integrated Waste Management System (IWMS)

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ABSTRACT

Integrated Waste System (IWS) is a multidimensional urban development paradigm that ensures sustainable solution at all levels; encompassing collection, transportation, treatment and disposal of the waste. However, in particular context of resource constraint developing economies, managing change through policy and institutional reforms is an uphill task in the realm of waste management. The core challenge is not only contingent with mere shortage of resources; rather it demands the softening of the hard attitudes which may lead towards progressive solutions. The underlying objective is the safe and efficient collection of waste and its disposal in accordance with the enumerated environmental standards through the best utilization of available resources. In this regard, the key analysis in this paper pertains to the adoption of IWS as the most preferred mode of reform in the backdrop of dysfunctional waste systems. At the second step, the scope of change management is discussed in terms of social and institutional perspective. In this regard, a practical case of Faisalabad (*the third largest city in Pakistan*) has been discussed. The city is presently undergoing a complex change management process; lead by the newly established "Faisalabad Waste Management Company (FWMC)" in the backdrop of establishing IWS. In this regard various research methodologies were adopted that may comprise the primary and secondary modes of research. The research is exploratory as well as illustrative that involves qualitative analysis through literature review, historical perspective as well as practical referencing from the experience of IWS in the city of Faisalabad. The overall conclusion unequivocally supports the adoption of IWS amidst other management options, where the institutional and social perspective remains the key areas which ultimately determine the scale of success achieved through this experience.

KEY WORDS

IWS	Integrated Waste Systems
FWMC	Faisalabad Waste Management Company
GOP	Government of Punjab
WTE	Waste to Energy
CDGF	City District Government Faisalabad
HW	Hazardous Waste
RDF	Refuse Derived Fuel
MRF	Machine Recycling Facility
MSWM	Municipal Solid Waste Management
HCT	Handling Collection & Transportation
LCS	Leachate Collection System
SWOT	Strength, Weakness, Opportunity and Threat
PESTEL	Political, Economic, Social Technological, Ecological and Legal
GHG	Green House Gasses
NPV	Net Present Value

Introduction:

In particular context of resource constraint economies, the two key factors determine the pace of development; the first is the availability of resources and its access cost and second is the capacity to utilize those resources at institutional and operational levels. The historical perspective shows that the path of development will be smooth and even if both these factors work simultaneously in one situation. Alternatively; if certain factor underperforms in the given perspective, then the development path may be chaotic or slow. While the waste management is deemed as one of the basic but most important aspects of urban development, its performance is also subtly linked with the economic performance of certain country. Quite logically the two key factors governing the economic performance as mentioned above directly affect the quality of service provision in a given waste management system. The research review highlights that the key reasons behind dysfunctional or ill organized waste management systems are the tight priorities and low economic margin. This hinders the reasonably required capital inflow within the waste systems and resultantly if the trend continues it will converge into colossal collapse. The critical role of waste management systems can be gauged from the fact that its underperformance in any case may likely cause cascading impact upon the overall urban development paradigm. This may incurs huge cost of health, environment as well as other negative externalities.

The growing awareness about the waste management issues worldwide as well as cost of negligence at local level are the key pushing factor towards redefining the priorities at urban development level. This is the critical juncture which gives impetus to our research relating to waste management reforms and the underlying change management process. The fact of the matter is that; the continued negligence of the waste management systems in the developing economies often caused damage at different levels of operation i.e. Handling, Collection and

Transportation (HCT), Landfill management, public engagement, system design, logistics etc. In that particular scenario this will be immaterial to focus only particular area of waste management operations at the cost of other key dimensions of the systems. For example, if only human resources management is concentrated and the resources are deployed accordingly in that only direction, the result may not be palpable. Because, mere an efficient work force will be ineffective if not supported through the required waste management fleet of operational vehicles and technological paraphernalia. Even, if technologically sound support is added with the efficient waste management workforce, the system remains still at risk, if public in general are not recognized and treated as the key stakeholders of the system. Hence, this is quite clear that a comprehensive and multi-faceted reforms system remain inevitable for the overall improvement in the waste management systems.

That means the system should be designed in such a away to integrate different operational and other functions in a well coordinated fashion, so as to build a robust, dynamic and responsive waste management model. This may be termed as Integrated Waste systems (IWS); that is based upon simultaneous set of reforms to be initiated at different nodes and corners of the system. The World Bank defines Integrated Waste Management System as; "[1]A frame of reference for designing and implementing new waste management systems and for analyzing and optimizing existing systems Based on the concept that all the strategic aspects of the MSWM system should be analyzed together since they are interrelated and development in one component frequently affects other areas of the system". This further elaborates the system as; "A practice using several alternative waste management techniques to manage and dispose of specific components of the municipal solid waste stream. Waste management alternatives include source reduction, recycling, composting, energy recovery and land filling".

The above definition clarifies much of the context of integrated functions in the waste management systems. Beyond, the conventional functions; the integrated context stretches itself to the application of the waste towards exploring new business models i.e. composting, Material Recycling Facility (MRF) and waste to Energy (WTE) etc. This can be transcribed from the above that the Integrated Waste Systems (IWS) needs to be put in a strategic perspective, where collection, transportation and disposal still remains the key areas of operation. However the system should also ensure reduction, reuse, recycle or further transformation of waste into salable commodity that may suite the particular urban development context. In view of experimenting IWS in a typical developing economy, the case of Faisalabad, the third largest city of Pakistan will be the apt choice to understand the dynamics as well as associated complex change management process. The Solid Waste Management System in Faisalabad has recently been corporatized. Resultantly, Faisalabad Waste Management Company (FWMC) has been established by the Government of Punjab Province (GOP) which has been saddled with the responsibility of building Integrated Waste Systems (IWS) in the city and lead the subsequent change management process. The key objectives of the research are:

i. Analyzing Integrated Waste Systems (IWS) as the most appropriate tool that may yield the ultimate improvement within an archaic or dysfunctional waste relating functions.

ii. Exploring the process of Change Management relating to implementation of IWS in the given institutional and social perspective

The results of the literature review strongly support the application of Integrated Waste Systems (IWS) in the given context of developing economies. This is mainly because of the certain dysfunctional aspects as well as underlying loose bonds between different functions and stakeholders. This also clarifies that the change management process has no fixed definition and it

varies from case to case in accordance with the specific institutional outlook and social fabric. Lastly, the case studies of different regions indicate the quintessential linkage with sustainable functions within the system as well as engagement of public not only mere as customer; rather a key stakeholder of the overall system.

Materials and Methods:

The research methodologies are employed for either; exploring some idea, investigating any matter or solving particular problem (s). In particular context of change management dynamics in the backdrop of the Integrated Waste Management System (IWMS), the key objectives of research revolves round all the aforesaid purposes of research. For instance, the research tries to explore the multiple shades of IWS and the context of change management separately. In the next step the research undergoes investigative phase, when the city of Faisalabad, Pakistan is taken as reference case in terms of various initiatives taken by the Faisalabad Waste Management Company (FWMC). Finally, the problem solving aspect becomes when clear when change management processes are discussed as a measure of improving the overall graph of collection, transportation and disposal of solid waste and bringing desired efficiency within the system. Hence it is quite clear that research can be described as exploratory as well as illustrative.

While conducting the research, various modes of investigation were employed. This includes primary and secondary nature of research activities. In particular reference with the city of Faisalabad the research questions were primary addressed through variety of empirical analysis and reports in the current as well as historic perspective of the city. In this regard, the records of the City District Government Faisalabad (CDGF), Pakistan were investigated in detail to

understand the results of various development initiatives taken earlier. The SWOT (Strength, Weaknesses, Opportunity and Threat) analysis of these initiatives helped in understanding the importance of IWMS and the complexity of change management process.

In particular context of primary research, the investigation was mainly concentrated upon the specific government offices, interviewing government functionaries, trade union and local government representatives along with multiple range of civil society groups and public at large, spread across different social segments. Moreover, in order to get in depth idea of past initiatives vis-a-vis proposed IWMS modalities, the media records was referred to understand the reasons behind the dilapidated status of solid waste management in the city. This helped a lot in learning lessons from the past as well as strengthening the stance for the establishment of IWMS in the city of Faisalabad. Besides this, various relevant books, journals and studies were referred on the general topics "Change Management" and "IWMS", so as to create in depth clarity of the topic.

The quantitative aspects of the research involved cost comparisons of different options relating to infrastructural upgrading as well as impact analysis of those options. This includes, quantifying the system improvements through concrete benchmarks and targets e.g. conducting "Waste Workers Census" conducted by FWMC in the city of Faisalabad and then measuring its impact through the improvement in the availability of staff and the getting feedback from the public to verify that impact. Further to this, this exercise helped in identifying the ghost waste workers and its subsequent impact upon financial savings in terms of salaries head of the annual budget.

The qualitative aspect of the study deals with intangible part of the analysis. Although various qualitative aspects can be measured today through the modern state of art benchmarking and standards, however many are still to be explored through speculative means. While a sound solid waste management system is critical to other echelons of urban development, its systematic management through IWS helps at different social and economic ends i.e. reducing health cost, improving environmental sustainability, bringing more investment in the city development, rehabilitating the confidence of people, alleviating the chances of public unrest etc, etc. The qualitative aspects of IWS are varied and many, however it is difficult to analyze these in the narrow perspective of a few months. The referenced case of FWMC is at its budding stage; hence it is quite difficult to highlight the empirical view relating to qualitative aspects of the initiative. However, the secondary research analysis relating to different case studies relating to IWMS clearly shows that the various operational plans launched on the lines of FWMC's existing development track leads towards positive impacts on societal behaviors, social harmony, attractiveness from investor's point of view etc.

Results and discussion:

The Integrated Waste Management System (IWMS) not only advocates the adoption of a systematic approach towards different waste management functions; rather prime focus is paid upon the linkages which ultimately determine the robustness into the system. In this regard one of the important linking factor is budgeting which can be characterized in terms of assigning equitable budget portions to multiple waste management functions. These linkages can also be explained in terms of either operational functions or attainment of broader strategic goals. For example, the equitable focus on collection, transportation and disposal of

waste material and their coordinated functioning ascertains integrated waste operations. Similarly, the linkages between, reductions, recycling, energy and material recovery points out towards achievement of broader environmental goals in the strategic context.

In fact, IWS has very strong environmental dimension and the overall cohesion of the system seems to follow the patterns of minimizing Green House Gases (GHG). The policy of minimizing waste actually saves tones of energy to be used for processing or disposing that waste. Similarly, the reuse and recycling of some of the recovered material does the same job for the environmental cause. In order to have in depth understanding of the Integrated Waste Systems (IWS), there requires an exploratory analysis from the following key perspectives:

Why IWS is the most appropriate tool against dysfunctional waste system?

The different case studies as well as literature review suggests that under dilapidated status of waste management functions IWS not only serves the environmental and cleanliness purposes; rather it proves to be an appropriate cost cutting option. "When SWM is on the public agenda in developing countries, it is driven by the same concerns as industrialized countries, although it tends to be driven most strongly by public health; the key priority is still getting the waste out from underfoot, as it was for the Europe and the United States up until the 1960s" [2](Coffey and Coad, 2010)

The studies further clarifies that the GHG generated through conventional waste management is always more than generated from energy recovery, composting or other organic treatment functions. This approach determines the waste hierarchy, which can be characterized as the model of waste management priorities based on the "Ladder of Lansink", a hierarchy of waste handling

techniques going in order from prevention to reuse, reduction, recycling, energy recovery, treatment (such as incineration), and finally landfill disposal (Price and Joseph, 2000)[3].

Under a perfect IWS system the landfill diversion stands as 90-95%. That means IWS wants to achieve almost zero waste regime, which implies that almost same amount of waste is being divested from its conventional dumping; that could have imposed certain amount of financial and environmental cost. Apart of this, IWS is the most planned way of managing waste that takes in mind not only the existing patterns of waste generation and handling but also does not seem to lose focus off the futuristic perspectives. The futuristic considerations helps in bringing about planned and timely allocation of cost in due course of time which otherwise could have imposed manifold price if consistently neglected. This mainly can be explained in terms of Net Present Value (NPV) of the future pay off on waste management functions. In any system other than IWS, funds are applied in a haphazard manner which at some point in time overemphasize one particular aspect of waste management and ignores the remaining parts. Therefore, the waste stream does not follow a value chain pattern and ultimately leaves many cleavages which later on impose high system cost. Per contra with this, even under resource constraint scenario IWS can be established through incremental but consistent measures i.e. unleashing a multi-pronged approach at limited range and then scaling up the same through periodic allocation of funds and savings through system efficiency.

As discussed above, the material recovery stands as one of the important aspects of IWS. In a typical scenario of solid waste management, about 30% of material can be recycled that in effect saves much of the natural resources as well as preventing the cost of disposing that

material and resultant emission of Co2 and other GHG gasses. Moreover, the wet or organic content of the waste can be converted into composting through aerobic and anaerobic processes. Again the end product can be used for increasing the harvesting capacity of soil, hence may establish new composting markets and so on imparts economic benefits through new job creation etc. The remainder dry or combustible elements can be used in number of ways i.e. building RDF cakes to be used in the industry that enhances the burning capacity of main fuel hence increases the efficiency of incineration processes. The same can also be used through direct conversion into power through specialized equipment.

Based upon above analysis, this is quite evident that IWS stands as the most appropriate policy choice that may yield desired results in the economic and environmental perspective, even under dysfunctional operational set up or in the face of financial challenges.

How the change management works in the backdrop establishing IWS?

Change management can be characterized as "[4]A systematic approach to dealing with change, both from the perspective of an organization and on the individual level. A somewhat ambiguous term, change management has at least three different aspects, including: adapting to change, controlling change, and effecting change". A proactive approach to dealing with change is at the core of all three aspects. For an organization, change management means defining and implementing procedures and/or technologies to deal with changes in the business environment and to profit from changing opportunities". This above definition significantly attributes to three core dimensions of change management. The first one deals with the change in the external environment that requires subsequent adoption by the organization or individual to adapt with that external change factor. This may be change in law, change in the customer trend or more succinctly the change in the PESTEL (Political,

Economic, Social, Technological, Ecological and Legal) perspective. The organizations often face such situation and then follow their change management strategy to adjust or adapt with the external environment.

The second key aspect of change management deals with the "controlling of the change" which has both external and internal dimensions. In the external backdrop, this relates to the potential of organization to control external change. For example, in case of change of law, the organization may launch pro or against response through its own vantage position, available resources or may also wield influence through the stakeholders in such a way to control the quantum of external change. In context with the internal perspective, there are many factors which may unleash internal change that ought to be controlled so as to take the maximum advantage from the situation. This may be change in the business strategy, diversification, change in the market plan or change in the HR Policy etc. However the organizations often try to control the internal change in such a way to gain thee anticipated strategic advantage. Similarly the third important aspect of change management i.e. "effecting the change" is mainly about the implementation of change management process through number of well hatched initiatives, so as to enable the systems and individuals to smoothly undergo the aimed change.

From individual's point of view Change Management can be defined as "[5]To apply a systematic approach to helping the individuals impacted by "the change" to be successful by building support, addressing resistance and developing the required knowledge and ability to implement the change". This particular definition of change management attributes change either planned or imposed within the internal or external ambience and accordingly focusing the individuals in terms of building their capacity, so as to help them adapt with the change and play their roles as change agents in controlling effecting that change. Again the key aspects of change management i.e. adapting, controlling and effecting are glaringly evident in the said definition.

In particular context of managing change in the perspective of establishing Integrated Waste Management Systems (IWMS) there are four fundamental factors that need to be considered. Any successful change management process relating to IWMS; encompassing the adapting, controlling and effecting aspects should be governed be the following pivotal considerations:

1. Identification and subsequent coordination of stakeholders.
2. Institutional adjustments within the functional domain
3. Strategic and operation waste management plans
4. Resource planning or financial arrangements and its timely allocation

In context with the above key considerations, the case study of Faisalabad the third largest city of Pakistan (Population: 30 Million) is the most relevant reference. The city has recently been selected along with other important provincial cities for establishing Integrated Waste Management Systems (IWMS) under the auspices of the Government of Punjab, the largest in terms of population. The Change Management story relating the city of Faisalabad will also be an important reference for other resource constrained economies which are presently implementing IWS or wish to do as planned policy initiative. This will be quite interesting to notice the interplay of the above four (4) key considerations of change management in the given perspective IWS in the case study relating to the city of Faisalabad.

Change Management Story of Faisalabad

Faisalabad **W**aste **M**anagement **C**ompany (**FWMC**) is a newly constitute public sector corporation, working under the auspices of Government of Punjab, Pakistan. The Company envisions the establishment of an efficient, responsive, sustainable and integrated waste management system in the city of Faisalabad. Presently, about 1200 to 1400 tons of solid waste being generated in the city of Faisalabad that may create various business options

Background:

Prior to the establishment of FWMC, a full-fledged department of solid waste management has been working under city district government of Faisalabad since many years. However, the same remained largely dysfunctional despite gulping a huge amount of annual budget. With a large work force of almost 3000 workers, the department failed to maintain even the basic track record of its workers as manage the department at basic administrative level. The soaring institutional chaos within the organization as well as the absence of visionary leadership triggered an aura of organized corruption which systematically cost the efficiency, transparency and the responsiveness of the waste management system in the city. So much so; that the department even failed to maintain a basic workshop facility for its huge fleet of 128 operational vehicles. So much so that the dilapidated state of waste functions in the city started contaminating other urban development sectors. This has been the plight, which motivated the government to corporatize the institution; hence FWMC came into being.

While being the first Managing Director /CEO of FWMC, Mr. Amjad A. Awan is the key signatory of SAMA (Services and Asset Management Agreement); an agreement signed between FWMC and City District Government Faisalabad (CDGF) on December 11th, 2013. By virtue of this historic Agreement, the CDGF transferred its operational staff as well as its overall waste management assets including operational vehicles to FWMC. Accordingly, FWMC acceded to its financial resources on 25th December 2013 after fulfilling all the requisite legal cum regulatory requirements. This incidence triggered a new era in the history of Faisalabad; assigning huge responsibility to FWMC for the challenging course of change management in the waste relating operations.

Vision

Establishing Efficient, Transparent, Responsive, Sustainable and Integrated Waste Management Systems in Faisalabad.

Mission Statement

Developing institutional capacity that may enable continuous improvements for quality based service delivery through the best available resources.

Key Objectives

FWMC is aiming at the achievement of following key objectives:

- Formulating a robust operational plan relating to waste management functions; including but not limited to collection, transportation and disposal of solid waste in accordance governing national laws and international environmental standards.
- Developing a medium to long term waste management strategy for the next 5-10 years that may lead FWMC to achieve modern standards of minimizing, reuse and recycling of the solid waste.
- Bringing efficiency in the solid waste management functions through an integrated system that may bay be based upon codification and benchmarking at all levels of solid waste management operations.
- Adopting modern technological tools for ensuring a transparent and smooth service delivery across the board.
- Rehabilitating public confidence through recognizing them as a key stakeholder as well as involving them through multiple modes of feedback and continuous improvement.
- Charging a multi-faceted public awareness campaign, sensitizing the people to safeguard their collective interests and responsibilities relating to cleanliness and hygienic living.
- Developing a system of tariffs and permits for the engagement of private sector in the waste management functions.

- Ensuring the disposal of industrial and hospital waste (hazardous and non hazardous) through complying the international environmental standards.
- Establishing revenue generation plan that may help the organization to continue its operations in a self sustaining manner.
- Developing a business plan that may help adoption of most suitable option based upon the waste characterization analysis pertaining to city of Faisalabad. This may prioritize the green options including composting, recycling, RDF as well as other waste to energy alternatives.
- Developing modern Landfill facility for the environmentally safe disposal of solid waste generated in the city.

The establishment of Faisalabad Waste Management Company (FWMC) is one of the key initiatives towards developing an efficient and sustainable institution. Presently, FWMC launched "Waste Management Reforms" in the following key areas:

- Waste Logistics
- Organization of operational and corporate staff
- Complaint Redressing System
- Waste Transport
- Public Awareness Campaign
- Development of State of Art Landfill site.
- Social uplift of operational staff and their training

Following are some of the glimpses of initiatives / services presently being provided by FWMC:

- **Reorganizing** waste operational staff through various modes of training, distribution of specially designed environment friendly uniforms, protective shoes, gloves caps etc.

- **Designing and distribution** of a new range of manual hand tools; specially designed to facilitate the waste workers in performing their cleanliness job.
- **Manufacturing** of labor friendly manually operated waste carts and its free distribution among waste operators.
- **Putting in practice the Waste Grabbing System** through waste trolleys in the commercial areas.
- **Conducting electronic Census** of workforce for better organization control.
- **Providing immediate vaccination** facility as well as arranging for 4-5 medical service help desks at various locations; specifically dedicated to waste operators.
- **Elevating the social stature of workforce** through changing their nomenclature from "Sanitary Workers" to "Waste Workers"
- **Reorganizing the workforce** through better monitoring arrangements, codifying the workers as well as providing open access to public in the monitoring process.
- **Outsourcing the transport workshop services** to branded market players e.g. M/s HINO and M/s MF (Massy Ferguson) etc.
- **Installing modern "Electronic Tracking System"** in the operational vehicles for 24 hour monitoring, so as to address the challenges of theft, fuel pilferage and outpouring etc.
- **Developing a professional corporate organization** set up involving, hiring, staffing, training and other HR relating functions.
- **Defining all the operational activities** through achievable timelines and conducting performance management through balanced scorecard system.
- **Developing a responsive Complaint Redressing Cell** that operates through the phone calls as well written and direct personal interface. The system shall soon be put online through

the especially designed software program; once the website will be constructed in the meantime.

- **Launching of comprehensive and robust public awareness campaign** in the city, using multiple modes of media and public outreach.
- **Allotment of 150 acres land** dedicated for the development of the state of art landfill site.

Need for Donor External Support

Following are the key areas; where Donor Support is required from international agencies:

- Technical and Financial Support for the development of landfill site *(The land is already allotted to FWMC)*
- Developing business plan in view of various green options i.e. Composting, Recycling, Residual Drive Fuel (RDF), waste to Energy etc as well as implementing the same through Public Private Partnership (PPP) / Private Finance Initiatives.
- Training and Capacity Building of Corporate Staff relating to modern waste management practices.

Medium to Long Range Perspective of Change Management in the city of Faisalabad:

"Historically, public health concerns, security, scarcity of resources, and aesthetics acted as central drivers for waste management systems" (Louis, 2004, Melosi, 1981, Ponting, 1991, Wilson, 2007 and Worrell and Vesilind, 2012)[6]. Same are the reasons which caused the establishment of Faisalabad waste Management Company (FWMC), which is currently leading the change management process in a systematic and organized way in the city. Although, the Company could undertake a long term strategic plan at the very first step; however it directly approached towards operational reforms. However, in that case the society could have criticized the budding organization in terms of its being slow or inconsistent with public aspirations. In that situation, the Company chose to register some initiatives directly affecting the public service delivery, so as to ensure its institutional credibility among

public at the very first step. This approach received well among the public and the Company earned substantial public applause in terms of its being swift and sensitive with respect to public concerns.

However, in terms of its medium to long term strategy, FWMC aims to plan its grand operation plan through state of art methodologies i.e. adopting modern GPS devices and zoning its jurisdictional areas. Moreover, FWMC plans to deploy its manpower and operational fleet in such a way to improve its waste collection from door to door as well as render 80-90% efficiency in terms of dumping the waste at landfill site. Later on, in parallel to scaling up its logistics and technological support, FWMC plans to seek functional expansion through extending its services range to hospital, debris and industrial waste systems. Hence the strategic view of the organization manifests a broad periphery of functions that may engage industrial and real states sectors. In the same direction, FWMC currently plans to develop its landfill site that may house business activity from the solid waste resource. For example, FWMC is currently engaging credible consulting organizations to develop a business plan that may help choosing the best business model that may be put in practice at landfill site. This may include, Compost, WTE, RDF, Bio power or hybrid of these business activities. The business plan will be an input to Geographic Information System (GIS) and Environment Impact Assessment (EIA) Studies.

T he case study relating to city of Faisalabad reflects the practical approach towards adoption of Integrated Waste Management System (IWMS). This study also highlights the process of change management and introduction of systematic reforms for the overall improvement in the service delivery. However the immediate operational initiatives need to be interweaved with the overall strategic direction that may open new vistas of development and show a macro view of the overall efforts.

CONCLUSION

Change Management is a complex process that encompasses shift in the mindsets, institutional structures, functional domains, prevailed practices as well as existing social culture. The situation becomes more complex when change is lead through a planned process in pursuit of enumerated goals and targets. The integrated approach in waste; as highlighted above does not only concentrate upon mere technical and material aspects of waste management rather it explains a broad periphery of external domains. "In the 1990s, integrative policy gained much attention because it had become evident that advocating for ever-increasing environmental protection was not enough; an integrative regulatory approach was needed that encompassed not only the technical and environmental but also the political, social, financial, economic, and institutional elements of waste management if environmental protection were to be realized ". [7] (McDougall et al., 2001, van de Klundert and Anschutz, 2001 and Wilson, 2007).

The perspective and context of change are the essential so as to understand the external environment and ground realities. In the current situation the change is lead in terms of implementing Integrated Waste Systems. The context is highly sensitive not only in terms of health and environmental concerns but due also to its sensitivity vis-à-vis wide range of stakeholders and conflict of interest among those.

Among all the stakeholders, public and civil society are the key recipient of service delivery, hence the ultimate purpose of change management stands as bringing overall improvement in the lives of people. Among various conflicting interests, the more evident is people's sense of responsibility vis-à-vis cleaning their homes, streets, roads, colonies and commercial areas. Hence for any institution that undertakes the responsibility of establishing IWMS in the city

should essentially focus upon public outreach campaigns. The key purpose behind such overtures should be to conduct a continuous and dynamic dialogue process that may cover the key social pockets of society as well as institutions. In such scenario, FWMC has adopted a multi pronged public awareness campaign that employs different modes of media i.e. TV, Radio broadcast, newspapers and other print media along with billboards, flyers, brochures and other avenues. The key purpose is to educate the public in terms of their social responsibilities with respect to generation, recycling and disposal of solid waste within their social preview. Secondly, the Company tries to improve public suggestibility that may help creating a harmonious environment and refined social attitudes in the society. The public sensitization is one of the focal considerations that may be worked upon with cautious planning otherwise no matter how efficient the organization may be it will fail if not supported by general public.

While concluding the discussion, it should not be forgotten that the whole cycle of Integrated Waste Management Systems (IWMS) should not lose its focus off the overall environmental sustainability. That means, the functions, initiatives and the programs should be organized in such a way that it may not impose a permanent cost on existing and future resources. These resources may not necessarily be only natural or green resources, rather the economic and financial resources as well. That means, the whole purpose should be to design IWMS in such a way that it be self reliable, sustainable and should not become permanent liability on governmental resources. That means while IWMS seem cost intensive and cumbersome processes, however it should be lead in such a way to generate its own revenues for its self sustenance. In particular context of developing economies, the revenue generation plan should be the cornerstone of the IWMS systems that must be worked throughout the reform

processes. The magic of earning public credibility will be key factor towards attaching price tag on the delivery of service. This is important in terms of highlighting the cost consciousness among public with respect to generation of solid waste at residential, commercial and industrial ends. In view of above, this is quite evident, that public awareness and sustainability go hand in hand with the successful institutionalization of IWS. In this regard further research is required to see how a fully functional waste management paradigm attracts Foreign Direct Investment (FDI) and how Public Private Partnership (PPP) can be procured for win-win situation.

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