

**MODERN ABATTOIR AT AGRA : A SUSTAINABLE PUBLIC-PRIVATE
PARTNERSHIP RESULTING IN MITIGATION OF POLLUTION
OF RIVER YAMUNA**

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BACKGROUND

Agra is well known all over the world because the great Moghul monument of love, the Tajmahal is located there. However, very few people know that the river Yamuna (a sacred river in Hindu mythology) on the bank of which this monumental poetry in white marble is located is severely polluted due to the combined discharges of sewage, and effluents from industrial and trade activities from the cities of Delhi, Faridabad, Mathura, Agra etc. The situation is all the more complicated because of a series of barrages on the upstream, which have reduced the flow in the river to almost 10% of the original in the entire stretch starting from Delhi and going beyond Agra upto another 400 odd km. In this scenario, among others, the unorganised meat industry in Agra was considered to be a major cause of concern. Demand of meat in the local market corresponded to around 100 small animals (sheep and goat) and 50 large animals (water buffaloes). As in case of a typical large Indian town, a major part of the demand was being met from the manual slaughterhouse which was maintained by the Agra Municipal Corporation (AMC). However, this slaughterhouse generated large quantity of wastewater and was devoid of any measures for control of water pollution. Besides the municipal slaughterhouse, there were number of small scale merchants operating illegal slaughterhouses who carried out their business (slaughtering of small animals) in backyards, by-lanes and at times even in shops interspersed in residential and commercial areas of the city. Besides this, typically over 5000 poultry birds are slaughtered every day in the city to meet the demand of chicken. Undoubtedly, the combined load of pollution generated from this activity was corresponding to a strong area source of water pollution wherein the animal blood and solid remains were being eventually discharged into the river Yamuna. Numerous protests by the community and concerned citizens did not lead to any solution of this problem. The Pollution Control Authorities were unable to take necessary action as the activity was confined to the unorganised sector and spread over a large geographical area in and around the city. Besides, this was the only source of livelihood for otherwise uneducated and unskilled Kureshi community which has been traditionally involved in the business of slaughtering and retailing of meat.

THE CIVIL ACTION

In view of the lack of enforcement of existing provisions of the Environment Protection Act, a group of concerned citizens led by Mr. M.C. Mehta, an environmental activist and a lawyer of national repute decided to take alternate legal recourse on behalf of the civil society. They resorted to the Indian Penal Code which has provisions that allow an aggrieved citizen to file public interest litigation (PIL) against the state for an activity that is perceived to be detrimental to the interest of the society at large. Notwithstanding the social limitations of the problem, the PIL was filed in the Supreme Court (the highest level of judiciary) with the objective of obtaining stern directions for the Agra Municipal Corporation and other state agencies to take the necessary preventive action. After a prolonged legal battle, the civil society group was able to get justice when the Supreme Court directed that operations in the antiquated manual slaughterhouse should be discontinued and all the illegal dispersed slaughtering activity is banned. The Court directed that a modern abattoir with necessary pollution control measures should be installed to meet the requirement of meat in the local market.

THE MODERN ABATTOIR

While the Supreme Court directed to install a modern abattoir, the Municipal Corporation was faced with a set of different problems. It soon found out that domestic technical know-how in the sector was very limited and there were no indigenous suppliers of the technology. All the modern abattoirs in the country were set up in the private sector by overseas technology providers, while there was only one such plant under a municipal body at Mumbai. However, with great difficulty AMC was able to get one large Indian engineering company to undertake the project on a turnkey basis.

Next concern was finding a suitable site which is logistically close to the market but at the same time away from residential areas or villages. Typically communities are strongly opposed to setting up an abattoir in their vicinity as it leads to increased traffic and movement of cattle, pollution of air and water, generation and movement of solid waste and eventually drop in real estate values. To avoid such a situation, this aspect was factored in at the planning stage itself and an isolated site about 8 km away from the city was identified.

It took over four years for complete construction of the abattoir which was finally commissioned in March 2001. The plant has a capacity of 500 bovine animals per day and includes a 24 hour liirage facility for ante-mortem inspection, post-mortem inspection, blood collection system, cold storage, and a wet rendering plant.

As the site is spread over an area of 5.5 ha, a buffer zone of dense forest has been created all around the abattoir for improved aesthetics and control of pollution. A wastewater treatment plant has been installed which takes care of highly contaminated process effluent. The treated effluent is used for irrigation of the green belt in the buffer zone.

Investment structure

Since private sector participation was not envisaged at the outset of the project, the entire capital investment of Rs. 93.8 million in land, plant and machinery was made by AMC. In this unprecedented initiative a partial grant assistance was received from the Department of Animal Husbandry & Dairying, Ministry of Agriculture, Govt. of India under an ongoing special scheme for municipal bodies. This grant constituted almost 60% of the total capital investment and acted as a major catalyst or assistance for AMC.

SITUATION ANALYSIS FOR SUSTAINABLE MANAGEMENT

Once the modern abattoir was erected and commissioned, AMC realised that the knowledge and skill set required for successful operation and maintenance of such a sophisticated facility were not available in-house. The initial market survey revealed that all the private sector abattoirs in the country were catering to the export market and were running profitably while the municipal abattoir at Mumbai was found to be financially unviable and was not in the best of operating conditions. Obviously the municipal workers are trained for delivering public health and sanitary services and not for running an industry on profitable lines. Moreover, the plant capacity was found to be much higher than the requirement of the local market which was around 150 large animals per day. Thus a new set of problem had to be addressed to make the entire project sustainable.

The traditional wisdom

In the course of the ensuing investigation, it was found out that across the country, traditionally only the Kureshi community has been involved in the business of slaughtering and selling of meat. Over the years this community has developed such skills and practices that no part of the animal body except the contents of intestine is allowed to go waste. For instance there are several kinds of by-products that are derived from the apparently waste material of the animal which fetch high value in both the domestic and overseas market. Some are the obvious ones e.g., the hide, the horns, and the feet etc. However, what are not so obvious are the products of pharmaceutical and industrial significance derived from blood, intestine, bones etc. It was

realised that the expertise of extraction, processing and marketing of these by-products is confined within the said community and there is a strong nexus between these activities and the meat export industry. In this context, it is not surprising that the business houses that have prospered and established in the sector have also emerged from the same community and are currently operating the selected modern abattoirs in the country.

Moreover, all the rejected body parts are generally collected and processed (rendering) and converted into pet meal. The pet meal as well fetches high price in the overseas markets. Thus the solid waste is absolutely minimised while revenue from individual animal body is maximised.

In view of the above, it is not surprising that almost 60% of the revenue comes from sale of these by-products while the obvious revenue stream of meat constitutes only 40%. Undoubtedly, the former becomes primary stream of revenue while the latter gets secondary status. Incidentally the gross material from which these by-products are derived is considered waste by the typical municipal worker and he does not make any efforts to maximise the revenue out of them.

Catering to the niche market

An important aspect that needs to be highlighted is that the Indian buffalo meat is derived primarily from grass fed animals and therefore it is believed to be free from 'mad cow disease' kind of problems. Moreover, the value of the raw buffalo meat is found to appreciate a number of times when it is processed properly and stored and handled in a frozen state. As this type of processed and frozen meat fetches high premium in the international market it is also found to be a major export commodity. Typically the consumers from West Asia, East Asia and North Africa place a high demand on Indian buffalo meat. Therefore all the modern abattoirs are focused on selling frozen meat in the overseas market. It is because of this export oriented business economy, that the modern abattoirs are able to not only sustain resource intensive operations but generate fairly high level of profits.

Lessons for AMC

A modern abattoir under a typical municipal body would continue to cater only to the local demand and would not explore additional revenue potential from by-products. However, from the above situation analysis, having understood the relationship among various stakeholders and aspects of the business, AMC realised that an unconventional model of operation and management would be required which will allow the following :

- Participation of the Kureshi community for leveraging its traditional wisdom
- Maximising the revenue potential from by-products, and
- Targeting the niche market by providing high quality frozen meat

At the same time if high level of consistency has to be maintained for product quality and revenue generation for financial sustainability, then the facility has to be run as a typical private industrial enterprise. At this point of time, the excess capacity of the plant turned out to be a blessing as it would help in marketing the facility to prospective private operators who would be able to leverage it profitably by catering to the export market.

THE PUBLIC PRIVATE PARTENERSHIP

Based on the lessons learnt, AMC set on to explore the possibility of involving an established business house having organic linkages with the said community for O&M of the newly constructed abattoir. The conditions laid down for selection of the operator specified that the agency should be :

- an experienced business house in meat trade business, and
- registered with Agriculture Produce Export Development Agency (APEDA) as a meat exporter.

As it was well known that the existing APEDA registered meat exporters in the country enjoy a strong rapport with the concerned community and bring a combination of technical, marketing and financial strength, AMC was assured of soundness of the bidding parties. AMC decided to adopt leasing arrangement with a private operator such that the latter would take complete responsibility of O&M of the plant by deploying his own capital and in return would pay a license fee to the AMC for using the infrastructure. In this arrangement, he would be expected to arrange for the following aspects for O&M of the plant:

- Provide staff, labour, butchers, operators, supervisors, electricians, mechanics etc. for the O&M of all the plant machinery, facilities and ancillary units e.g., rendering plant, the effluent treatment plant etc.
- Provide veterinary doctors for ante-mortem and post-mortem inspections and bear the cost of the veterinary doctors deputed by the State Health Department.
- Arrange for the Maulavis (priests) for the religious rites prior to slaughtering of the buffaloes.
- Manage the entire abattoir complex in accordance with the rules and regulations as

applicable to food processing industry of this nature; and those pertaining to pollution control.

- Reserve 30% of the plant capacity for small scale butchers / meat traders for meeting local requirement of the city.
- Use remaining 70% of the plant capacity for own business to cater to the export market.
- The local small scale traders would be allowed to bring their own animal and get them slaughtered on payment of a certain agreed fee which to start with was kept at Rs. 100 per cattle.
- The operator would adopt 'five tag' system where the small traders would collect the meat portion from respective animals and leave behind the waste matter which would become property of the operator. The latter would use it for extraction of various by-products.

The financial deal

The above criteria prima facie was found to be acceptable as it addressed the interests of all the stakeholders. Based on this policy, bids were invited for leasing out the plant for 10 years. Out of several competitive bids received from experienced players in the industry, the winning bid came from M/s. Frigorifico Allana Ltd. Mumbai, which is a golden star status trading and export house and one of the leading meat exporters in the country. The winning bidder agreed to pay a license fee of Rs. 1,266,699/- per month for the first year, with a 5% annual increment for second to fifth year, and further 10% annual increment for sixth to tenth year. Distribution of the license fee is presented in Exhibit 1 which shows that the present value of total license fee receivable by the AMC would be Rs. 163.6 million. This represents a net gain of 74% over the initial capital investment of Rs. 93.8 million made in 2001, and thus AMC stood to gain considerably from the deal.

In addition, the bidder specified interest in capacity expansion and product diversification at appropriate stages of the lease period. The operator stands to gain considerably as he would be able to get operation control over a fairly large size abattoir in prime agriculture region of the country without any capital investment. For both, the operator and the AMC it represents a win-win deal.

The Social dimension

The interest of the local meat trading community as well as the butcher community was adequately taken care. For instance the workers employed at the abattoir come from the local butcher community who are well versed in processing caracas as well as in extraction of by-

products from remaining body parts. Similarly the trader community was unaffected as the operator was made to reserve 30% of the processing capacity for them and was not supposed to target the local market. Thus from the point of view of these stakeholders as well, the partnership represents a win-win deal.

Exhibit 1 : Distribution of license fee receivable by AMC

SL. NO.	YEAR	LICENSE FEE	PRESENT VALUE (2002)
		Rs., million/annum	Rs., million
1	2002	15.2	15.2
2	2003	16.0	15.2
3	2004	16.8	15.2
4	2005	17.6	15.2
5	2006	18.5	15.2
6	2007	20.3	15.9
7	2008	22.4	16.7
8	2009	24.6	17.5
9	2010	27.1	18.3
10	2011	29.8	19.2
	Total	208.1	163.6

Note : interest @ 5% has been considered for present value calculation

From a local consumer’s point of view, he is also assured of quality meat as it has been processed in internationally acceptable hygienic conditions and properly checked by qualified veterinarian doctors at various stages of processing.

THE CURRENT STATUS

The modern abattoir has been under the management of the private operator since April 2002 and it has been working satisfactorily for last two years. The operator has been regular in payment of the license fee and thus there have been no concerns for the AMC.

The operator has been running the plant as per the international industry norms and has been able to increase its revenue from exports. However, due to obvious business reasons an estimate of revenue is not available and can not be provided here. It is understood that the operator is now expanding the capacity of the abattoir and is also adding additional ancillary units for extraction and processing of by-products. Obviously this is an indicator of higher profitability for the operator and other stakeholders.

Environment protection

The operator has taken consent from the concerned state pollution control authority and has been running the existing wastewater treatment plant regularly. As the treated wastewater is used for irrigation of afforested land, there is no discharge of effluent from the plant into the river. Moreover, as the centralised activities have enabled better management of solid waste and its subsequent processing into pet meal, the concerns related to its indiscriminate disposal have also been dispelled. Thus the civil society which took the initiative for protection of the river Yamuna has also been assured and has seen a victory of sorts.

CONCLUSION

Innovative and community sensitive planning has led to a win-win situation for all the stakeholders and a financially rewarding partnership has been demonstrated between the public and private sector. It was primarily out of the desire of AMC to explore ways for ensuring sustainability of the entire project that research in dynamics of the meat industry and the concerned community was carried out. This research provided insight on diverse aspects of the trade and helped in exploring ways for establishing sustainable business relationship with the private sector. Obviously such 'out of the box' thinking has made every stakeholder happy and demonstrated a way forward for other municipal bodies in the country which are struggling with the same problem.