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GREENING OF MICRO AND SMALL LEATHER INDUSTRY & ITS IMPACT ON MAKE IN INDIA PROGRAMMESOME SELECTED ASPECTS -A CASE STUDY OF LEATHER CLUSTER AT KANPUR

Mohammad Hasan
Assistant Professor, Department of Business Administration, A.M.U. Centre, Malappuram, Kerala, India.

Abstract
The problems of wastewater management at 'Cluster' of tanning industries at Kanpur, U.P. and its impact on progress in 'Make in India' programme has been examined. Leather industry in general is a high export industry worth USD 11 billion. The present set up at 'Kanpur cluster' alone has sufficient infrastructure to meet 3% of total export of finished leather and leather products. However, the leather industry is working only at about 50% of its potential. The worst affected sector is the 'Kanpur Cluster' where about 50% of units are closed down almost every year for one reason or the other for a variable period of time causing loss of millions of dollars in exports. Last year the Kanpur Cluster had almost 50% decline in exports. The study is based on primary and secondary data. The main problem ailing the tanning industry at Kanpur is the present method of disposal of wastewater. The most plausible solution to this problem appears to be the introduction of internationally accepted Italian 'SCREEN' method of initial treatment of wastewater and taking over the treatment of chemical contamination by government managed institutions at Secondary and Tertiary treatment set-ups. The details of the wastewater management at Kanpur Cluster are discussed.

Key Words:' Make In India'; Wastewater Management; Kanpur Cluster; Hides and Skins Processing Units.

Introduction

Make in India programme was launched by the Prime Minister on 27th September 2014, principally with the aim of earning foreign exchange and for developing a strong technical infrastructure in the country with the vision to make India "as the top destination globally for foreign direct investment, surpassing China as well as the United States".

The programme incorporates better incentives for foreign direct investment, national initiatives directed to improvement of industrial infrastructure, development of manpower by better training facilities, new initiatives, removal of hindrances in manufacture and export, etc.

Twenty five sectors of the economy which account for a major potential were selected for special attention. Leather industry contributing to $ 11 billions of export earning is one of them. India is endowed with a great resource of raw material for hides and skins, having the largest population of livestock in the world. As per the present estimates it has about 12.3% of bovine hides and skins, 18.68% of goat and kid skins, and 69% of sheep and lamb skins. India thus has the tanning capacity to meet 10% of global requirement with the available resources and infrastructure.

This industry generates a high percentage of jobs for the underprivileged population, mostly young people and for women. Approximately 30% of women constitute the workforce of finished product industry.

The problem

1. In spite of the high export potential that India is endowed with the present capacity to meet 10% of world requirement, it is able to contribute only to approximately 5% of global requirement. Thus, the existing infrastructure has been working at less than 50% its potential, inflicting a loss to the tune of billons of dollars to the Country
2. The Major production center of leather and leather products are located at Chennai, Kolkata, and Kanpur, which together constitute about 87 to 90% production of leather and leather products in the Country.
3. The establishment of tanning and manufacturing centers at these sites is because their location by the sides of river banks allows easy disposal of the large amount of wastewater and other debris generated from leather industries. However the ill planned disposal of gases and other effluents produces environmental hazards which, in turn, adversely affect the functioning of leather industries.
4. The production of finished products of leather industry is directly affected by the activity of hides and skins processing industry. The small scale, cottage and artisan sectors account for over 90% of the total production. It provides great job opportunities for young people and for women workers. Sickness of hides and skins manufacturing units adversely affects these benefits.

Aims of the Study

The principal aim of the present study was to find the causes of sickness of hides and skins processing units and suggest measures for their cure under the Prime Minister's 'Make in India Initiative', with special reference to the 'Clusters' at Kanpur.

Materials and Methods

Kanpur region was selected because:

1. It is the oldest industry in the 'Central Region' of hides and skin processing centers in the country.
2. It is this region which showed about 50% decline in its output last year.
3. Furthermore, its nearness to the river Ganga is repeatedly blamed for the possibility of Ganga pollution, resulting in closure of the industry for a certain period of time every year. Such closures have adverse impact on exports. There have been political agitations threatening permanent closures of this industry at Kanpur under the myth of their pollution potential to Ganga.

The study was mainly directed to examining the problems of smaller hides and skins processing units because they are the most vulnerable ones. With constraints of resources in terms of land and finances they are handicapped in meeting the mandatory requirements of the environment monitoring agencies.

The study comprised of primary and secondary data.

Primary data

The study comprised of visits to different production units in Kanpur to collect relevant information. The government offices and private industries which were contacted during the study included U.P. Pollution Control Board, Lucknow; Small Tanners Association, Kanpur; Super Tannery Limited (A government recognized Export House, and one of the biggest tanneries at Kanpur); Humera Tanning Industries PVT Ltd. (a large size tannery at Kanpur); Makhdoom Tanning Industries (a small tanning company); K.C.Jain industries (a micro level company). Data was collected in the form of a questionnaire. The purpose of data was not for statistical analysis but to collect the information required for meeting the aims of the study. Also, the various sections of the hides and skins processing units and the government managed linking of effluent channels from 'Kanpur cluster' of processing units were visited to obtain first hand information about their functioning and limitations. The Secondary Treatment Plants for treatment of wastewater from hides and skins processing units, as well as from city, managed by U.P Government, were visited and the issues were discussed with the personnel involved with different operations.

Secondary Data

Secondary data was obtained from the information available on the internet. Another source of secondary data was the information available in publications dealing with this subject listed under the references. Environmental problems are suitably reviewed in the Supreme Court of India Judgment (M.C. Mehta And Anr vs Union Of India & Ors on 20 December, 1986)

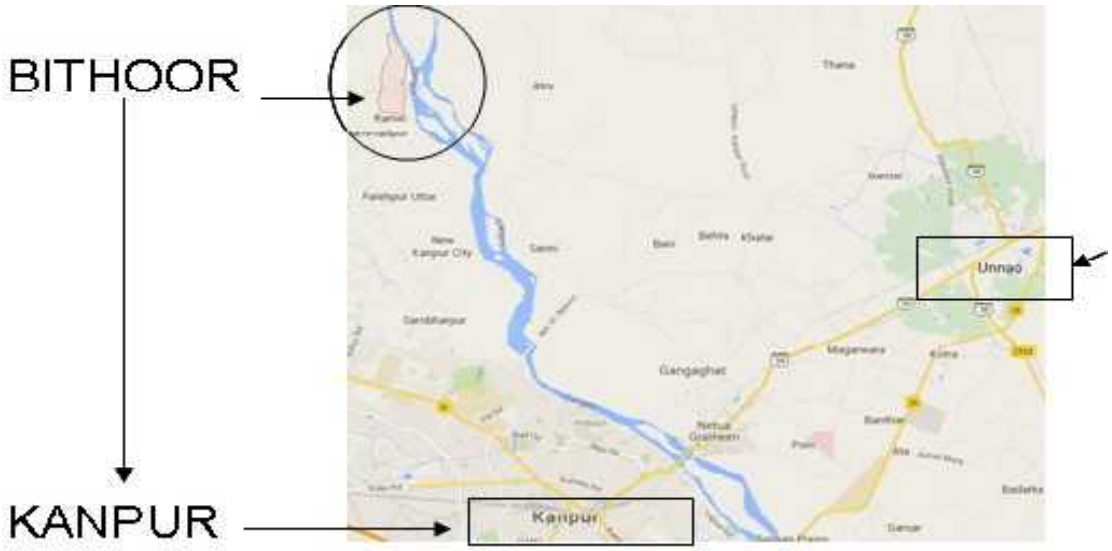
Observations

1. **Export Potential of Kanpur Based Leather Processing Industries**
   There are 400 registered tanneries in Kanpur. With this infrastructure, Kanpur provides export to the tune of about 3% of world share of finished lather export. However, last years export fell by about 50%. As documented above, this is much below the production capacity of infrastructure available at the 'Cluster'.

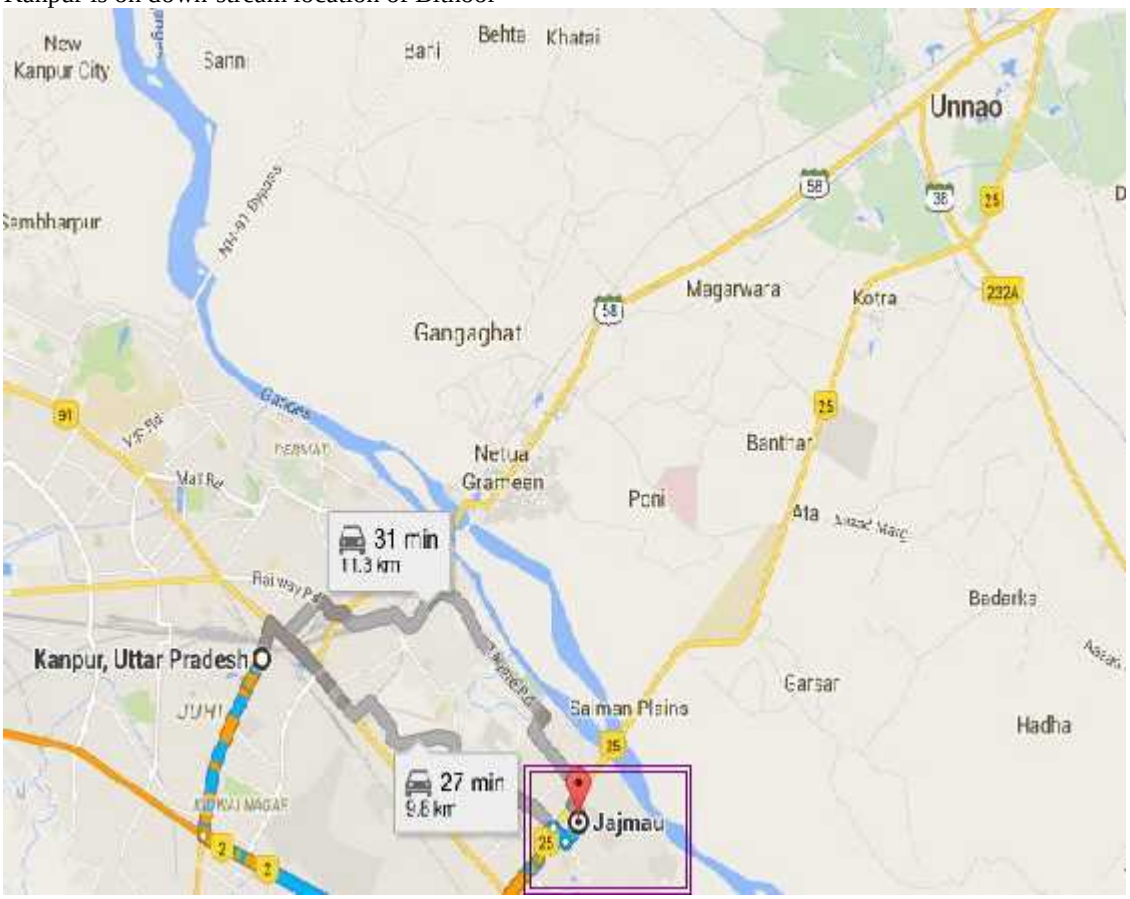
2. **Power Supply**
   Earlier, a sore point was the frequent disruption of power supply leading to disruptions in factory operation. During power supply cuts the companies had to depend on diesel generators which added to the cost of production and also produced pollutant gases. However, the power supply has greatly improved since the year 2012 to the tune of 60% or more, and by February 2016 it is expected to improve by 90%, and is expected to become Roastering free. This will not only greatly improve the working of the industries but will also obviate the use of generators.

3. **The myth of Ganga Pollution from factories at Jajmau**
   Since Jajmau industries at Kanpur are located on the bank of river Ganga it gives an impression that improperly processed effluents from the leather processing industries at Jajmau play a huge role in pollution of Ganga. It is because the water of Ganga adjacent to Jajmau locality when tested was found to have objectionable level of pollutants. There were instances when political leaders threatened to completely close down the factories located there. The matter was therefore pursued by the 'Small Tanners Association' at Jajmau. They showed that pollution in

the Ganga water detected at Jajmau were similar to that detected at places upstream – namely Bithoor and Kannaug, hence it was from the up-stream places. Thus, the pollution was not caused by effluents from tanneries at Jajmau but it was of the improperly treated water from places up-stream. The following maps document the position of Bithoor, Kanpur, Unnao and Jajmau, which are self explanatory.



Map showing the location of Bithoor, Kanpur and Unnao.
Kanpur is on down-stream location of Bithoor



Map showing Jajmau, where tanneries are located

In spite of the above clear position, the local administration orders a preventive closure of tanneries during religious festivals to avoid incidents of violence because of widespread misunderstanding in the public or for fear of exploitation by some politicians.

1. Poorly designed pollution monitoring procedure

A brief discussion of processing of hides and skins process is essential to understand the problems in pollution monitoring process and consequent closure of factories leading to huge loss of export earnings.

Processing of hides and skins entails the following steps:

i. Removal of hairs and shredding resulting from splitting and smoothening of hides and skin
ii. Use of chemicals (salt, alkali, acid, precipitating agents, chromium and other colouring substances) for processing of hides and skins and colouring and modifying the texture for the desired leather finish.
iii. Plenty of water to clean the skin of shredded portions and removal of chemicals

The Italian system

The Italian system for treatment of effluents, which is reputed to be the best in the world, is the answer for the many evils being faced by hides and skins industry in the country. It is internationally accepted and should have been adopted in India.

In the Italian system the suspended portions (hairs, shredding, etc) are first removed by what is called the 'SCREENING METHOD'. This process is carried out in three steps:

In the first step, the water containing the suspended matter and the dissolved chemical resulting from treatment of raw skin are strained through 'SCREENS' or sieves of different dimensions to remove the suspended particles. The 'SCREENS' simply remove the suspended particles, while the wastewater with all its dissolved chemical impurities is carried through specially designed drain system to special treatment unit, away from the 'cluster' of factories', for further treatment.

The Step 2 is carried out at special units where specially designed process is operated by highly skilled personnel for removing the toxic substances from the wastewater. Most of the substance thus recovered from the wastewater is profitably re-used for processing of other lots of raw hides and skins, or for utilization in farming, thus greatly minimizing the cost of the operation.

The third step: Finally, the wastewater from Step 2 is sent to another unit where all harmful and toxic substances are removed. After this process the water achieves a state in which it can be released into the river for its final abode in sea, or is profitably utilized for cultivation or other uses.

During the British time the processing of wastewater was done to the stage 2 mentioned above. The effluent was designed to be released to fields for cultivation of flowers (floriculture). For that purpose the British purchased several acres of land at Jajmau. The scheme if properly implemented as designed would have gone a long way in better performance of the whole activity without causing damage to the environment. But unfortunately the arrangement could not be fully implemented as it was desired to be. At that time the process of vegetable colouring of hides and skin was done which produced less harmful effects on the environment. Later, the method of chromium staining was introduced for which proper infrastructure could not be adequately introduced. The third stage of wastewater treatment as discussed above has not been introduced so far in the country.

How the Present System Differs From the Italian System and Its Ill-Effects

In the Italian Screening System, the factory owner is only required to remove the suspended portions from the wastewater. No treatment of chemical impurities is required to be done by the factory owners. The wastewater (with suspended impurities removed, but containing all chemical impurities) is the passed on to the second purifying units to be run by the Government or by other qualified agencies approved by the Government.

As per the present schedule of treatment the factory owners at Jajmau, Kanpur, are required not only to remove the suspended matter but also to maintain the pH of the wastewater and also to remove some other contaminations. Specific standards for pH maintenance and chemical contamination have been laid down and the factory owners are to strictly comply with those standards, otherwise they are de-licensed and have to close down their factories till their subsequent samples are found to meet the recommendations.

The 'mother of all evils' is the requirement for maintenance of pH, and some chemical treatment of the wastewater at the level of tanneries.

It is this aspect that the factory owners consider to be the mother of all evils. Two samples of the effluent are collected from their factories. No third sample is left with the factory owner. No third party is allowed to simultaneously analyze the samples. The report sometimes describes the samples as inappropriate with respect to suspended matter and some time one or more chemical parameters are not found to meet the recommendations. The factory owners are helpless as they cannot get their samples analyzed at any other reputed laboratory in the Country, and find themselves to depend solely at the 'whims and fancy' of the monitoring agencies. As a result a number of factories are shut down every year. Last year about 50% of factories met that ill fate. It takes plenty of time and loss of money (and of course the mental tension associated with it) before they are able to obtain permission to re-start the tanning process.

Possible improvements in functioning of the Government bodies handling the effluent

1. Avoid the avoidable evil

The matter is really not difficult at all. We only have to introduce the well tested 'Italian SCREEN method' as the responsibility of the factory owners, while the pH adjustment and some other biochemical treatment should be the responsibility of the offices managed by Government bodies.

The monitoring of suspended particle size and amount of wastewater released from the factory can be easily monitored by discharging the effluent through a specialized pumping system. This pumping system can easily monitor the size of the suspended matter and the amount of effluent discharged from the factory just like any other measuring device. The amount of effluent depends upon the number and size of hides and skins processed. The factory owners will be issued license as per the number of hides and skins that the factory owner is permitted to process depending upon their infrastructure facilities. Any surreptitious excess production by factory owner will thus be prevented.

There is not much extra financial issue involved either. The factory owners are ready to pay for the 'SCREENING shields' and the 'pumping sets'. The only hurdle is reluctance of the officials to accept this simple procedure, unmindful of the colossal financial loss (billions of dollars) to the nation as has been discussed above.

2. Strengthen the existing conveyer channels for transporting wastewater and the Secondary Treatment Plant.

The present conveyer channels have to be re-planned and modified so that the wastewater flows with gravity to the treatment plant for secondary treatment of the effluent. This is a very important requirement. The expenses to be incurred for this exercise are hoped to be partly compensated from savings on the cost of transport. Also the factory owner may be levied a part of the cost of this project. Partial funding may be made from State and Central Government funds. The detailed design need to be drawn up by an expert committee comprising of specialists in this field.

The present Secondary Treatment Plant available at Jajmau is too small to handle the amount of wastewater being released from the present 'Cluster' at Kanpur. In fact the Secondary Treatment Plants all over India fall too short to meet the requirement of wastewater treatment.

3. Separate civil-wastewater and factory-wastewater

At present the Secondary Treatment of wastewater from domestic use as well as from tanneries is carried out in the same plant. The secondary treatment plant is grossly insufficient to take care of civil-wastewater. According to Central Pollution Control Board (CPCB) the present capacity of the Secondary Treatment Plants is approximately only 21.3% of current load of civil-wastewater. This cannot be justified in anyway if we have to make significant progress under 'Make in India' programme for hides and skins processing units. The problem is especially acute at Jajmau and deserves urgent attention of the authorities.

4. Establish tertiary treatment plant

As discussed before, there exists no tertiary treatment plant in the country. Establishment of this facility is unavoidable in the interest of greening of the supply chain process in hides and skins trade. The first such plant needs to be established at the earliest at Kanpur as a part of Ganga Cleaning Programme. Such a plant will not only go a long way in speeding up the Ganga Cleaning Programme but will also be of immense help in modernizing and augmenting the 'Cluster' at Kanpur and will help in earning huge foreign exchange with development of confidence of buyers and international investors.

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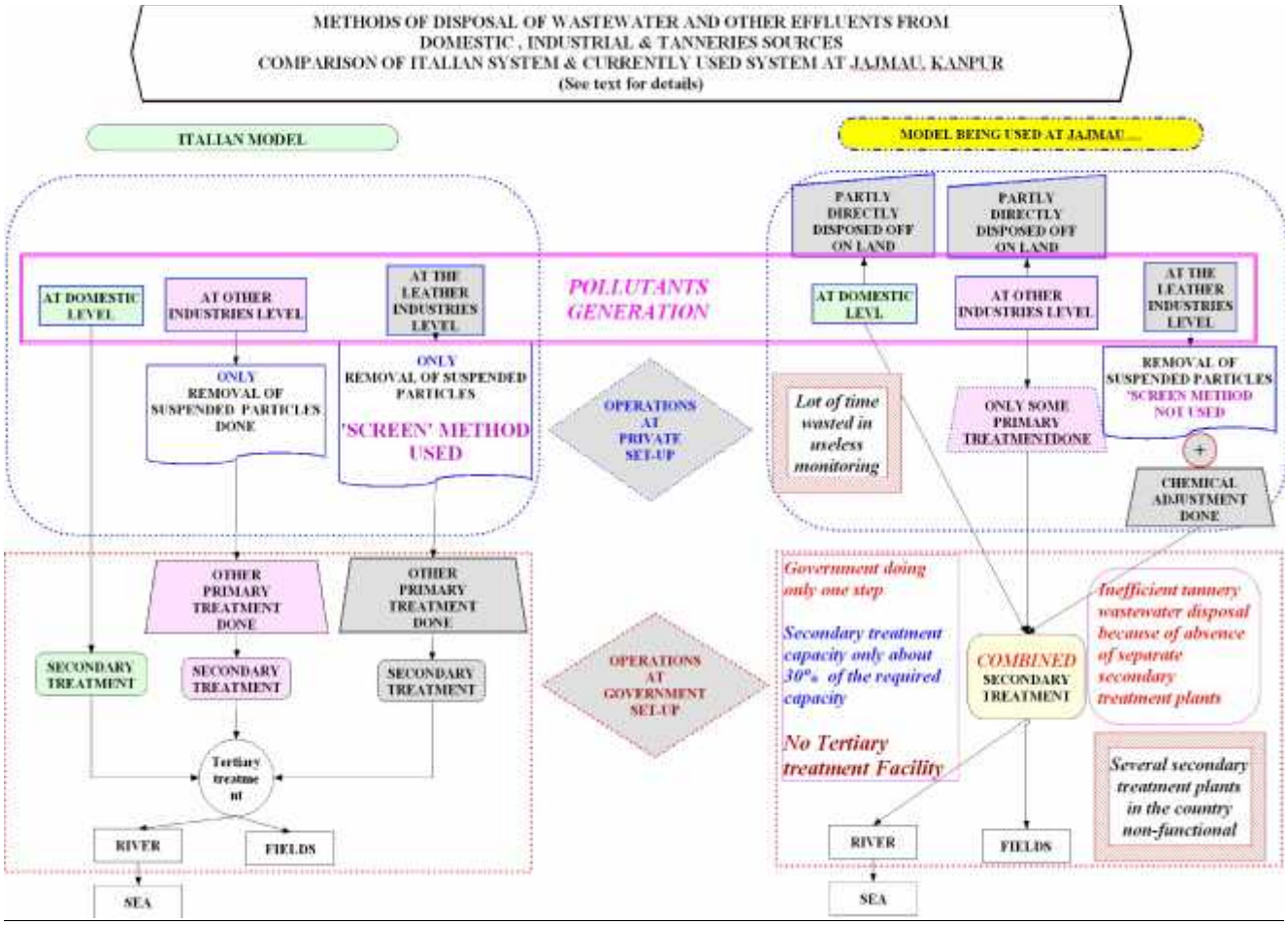
The present wastewater management system and the Italian 'Screening Method" system is summarized in the following flow diagram.



5. Resort to time saving methods in monitoring

The present procedure of pollution monitoring is antithesis of the present day paperless working and on-line documentation. At present each leather processing unit is visited by about eight different agencies listed below.

Further it is not one inspection body, but different bodies are there to monitor different aspects. The following is the list of bodies paying visits to leather manufacturing units.

1. Ground water authority of India
2. Uttar Pradesh Pollution Control Board
3. Central Pollution Control Board
4. National Ganga Basin River Authority of India
5. Mission Clean Ganga
6. National Clean Ganga
7. Ministry of Environment and Forest
8. U.P. Jal Nigam
9. Ministry of water resources.

These different agencies basically look at one aspect, namely pollution control. It is this area which can be easily simplified as follows

1. It should be one inspecting body which should comprise of members of all the bodies concerned for each inspection.
2. There should not be more than two inspections in a year.
3. A format may be circulated for providing the data on some time-base schedule which should be available on internet. All bodies concerned with inspection may communicate with individual industries for provision of any other information if required.

4. There should be surprise inspection.
5. There can be central monitoring of the waste management area of the factory.

6. Take steps to improve buyer's confidence

The recent decline of exports of leather and leather goods from the 'Cluster' at Kanpur has been attributed by all offices interrogated in this study to be the dwindling confidence of buyers. The buyers are not sure that their orders will be faithfully met because of the fear of closure of the factory by the pollution monitoring authorities, and the time that will be needed for re-issuance of permission to run the factory on the basis of effluent samples tested for pollutant levels.

7. Introduction of the proposed 'SCREEN Method' and associated transfer of the responsibility of treatment of chemical impurities in the wastewater will surely improve the confidence of buyers. This is the single most important requirement that deserves TOP PRIORITY consideration.

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