MANAGERIAL PLANNING, STRATEGIES AND IMPLICATIONS OF REHABILITATION PROGRAMME AND COMPENSATION IN REFERENCE TO BHOPAL GAS DISASTER

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ABSTRACT

One of the biggest chemical disasters resulting 2500 deaths and serious damage to thousands of people, animals and plants, took place in Bhopal, India on the mid night of 2-3 December, 1984. In view of the present rehabilitation programme and compensation disbursement, there is an urgent need to study the entire programme so that in future proper strategic planning can be developed. This research paper also concludes that sustainable development can be possible only when we take utmost care in the establishment of industrial setups and continuous monitoring with respect to air, water and soil pollution emission from them.

Key Words : Bhopal gas disaster, Compensation disbursement, Rehabilitation, Relief

INTRODUCTION

The disaster followed leakage of large quantity of highly toxic gases on the mid night of 2nd-3rd December, 1984 at the Union Carbide Factory in Bhopal, India from stainless steel tank number 610. One of the biggest chemical disasters resulting 2500 deaths and serious damage to thousands of people, animals and plants, took place in Bhopal. As opposed to natural disasters that have been extensively studied, major industrial accidents have seldom been the objective of systematic studies. It is obvious in case of Bhopal gas disaster that no legal regulatory measure can be applied in initial stages to regulate the flow of compensation money, obviously a suitable strategy could be evolved to mitigate the possible adverse effects and provide appropriate environment for improving the efficacy of favorable effects. This has further created interest and anxiety in knowing that what would be possible impacts of the flow of large sum of money disbursement of compensation. A study was conducted entitled “Socio-Economic Impact of disbursement of interim relief to gas Affected families of Bhopal” by Academy of administration, Government of Madhya Pradesh with help of the Centre for Rehabilitation Studies in year 1991 to address some of the issues. The State Government of M.P. and Government of India had initiated several rehabilitation program including financial relief. In view of the present rehabilitation programme, there is need to study the entire programme so that in future proper strategic planning can be developed in better way which can enable maximum benefit in terms of utilization of resources.

OBJECTIVES

2. Medical documentation/monitoring and treatment for the victim population.
3. Economic rehabilitation of the victim.
4. Environmental improvement
5. Disaster preparation plan to the community against fight such type of disaster.
6. Formulating of relevant rehabilitation package which include financial incentive and legal package.
**DISCUSSION**

**Disaster risk assessment and quantum of compensation**

Disaster risks index (D1) can be broadly classified into 4 categories: environmental/ecological risks (E), health Hazard (H), reactivity (R), and fire (F). Similarly, the magnitude and consequences may be graded in terms of amount of the affected people (P), material (A), and natural resources (N). Total risk appraised multiplied by total consequences anticipated will give the overall impact (I) of a potential disaster (2):

\[ I = (H+F+R+E) (A+P+N) \]

The risk is to be anticipated and controlled by disaster preparedness and industrial safety conditions (S) on behalf of the management and disaster coping capacity of community and administration machinery (M) Thus the actual magnitude will be

\[ \frac{I}{S+M} \]

i.e.

\[ \frac{(H+F+R+E) (A+P+N)}{(S+M)} \]

Compensation (C) \( \propto \) \( \frac{(H+F+R+E) (A+P+N)}{(S+M)} \)

<table>
<thead>
<tr>
<th>S/N</th>
<th>Location/year</th>
<th>Disaster Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>London smog(5-9 Dec.) 1952</td>
<td>Smoke particles, Carbon dioxide, Hydrochloric acid, fluorine compounds Sulphur dioxide converted Sulphuric acid/5days/deaths 4000-12000</td>
</tr>
<tr>
<td>2</td>
<td>Serveso, Italy 1976</td>
<td>2,4,5 trichlorophenol, Sodium trichlorophenate, Ethylene, Glycol, Sodium hydronide/3000 animals dead, 200 people affected with chloracne</td>
</tr>
<tr>
<td>3</td>
<td>Geneva Nov. 1984</td>
<td>Bromine/5 hours/affected 91</td>
</tr>
<tr>
<td>4</td>
<td>Bhopal Dec. 1984</td>
<td>Methyl Isocyanate+HCN and HCN adducts with MIC droplets, Carbon Di Oxide, Carbon Mono Oxide, Hydrogen Ammonia, Methyl Chloride, Carbon Tetra Chloride, some Alkylamines and N,N'-dimethyl carbo-di-imide/4hours/2500 persons died and more than 5 lakhs persons suffered various health related problem particularly respiratory disease(3,4)</td>
</tr>
</tbody>
</table>

Table 1: Toxic gas disasters(1952-1984)

Disaster risk management includes activities, programmes and measures which may be taken up before, during and after a disaster with the purpose to avoid a disaster, reduce its impact or recover from losses. (Table 1) Process model of compensation and rehabilitation, is basically a life cycle model where each component of process contribute in model development in changing environmental conditions and interact with external environment like social, economic, legal, medical, physical environment and political. It is a continuously updated database, facts, knowledge base, which will be more appropriate for current situation. This management process model helps to frame issues related to health as well as economic recovery, relief, rehabilitation, compensation settlement, disbursement and disaster preparedness after a disaster. This process model is useful in uncertain situation for management. Welfare commissioner office was set up for disposal of compensation claims filed by the Bhopal Gas Victims. It works under the control of Department of Chemicals and Petrochemicals, Ministry of Chemicals and Fertilizers, Government of India. A department of Bhopal Gas Tragedy Relief and Rehabilitation was created in 1985 to undertake the task of
relief and rehabilitation of gas victims and also a Directorate of Gas Relief and Rehabilitation has been set up for coordination of works between department and entire MIC affected area. The toxic gas disaster area has been constituted into a medical district under Chief Medical Officer to coordinate and supervise the working of all the medical units.

MANAGERIAL PROCESS: MODEL FOR COMPENSATION AND REHABILITATION

Setting objectives

Perceiving opportunities

Diagnose and select a course of action

Design a program to achieve objective

Giving Directions to program

Planning

Organising

Controlling performance

Implementing

Result/output

Evaluation / Assessment Observing tend/packages

Follow up

Disaster Management information System

Disaster Inventory Disaster preparedness plan

Tools for data collection

Rehabilitation and Compensation disbursement related information have been collected through secondary sources like annual reports in the department of gas rahat and relief department and the Welfare Commissioner office(1).

External Environment

1. Medical factors
2. Socio-Psychological factors
3. Economical factors
4. Environmental factors

Observation

Relief and rehabilitation planning and implementation strategies

Soon after the disaster the government of Madhya Pradesh undertook a number of measures to provide some immediate relief to the victims and their families.
Immediate relief
The Government took immediate steps to go ahead with providing immediate relief to the gas victims.

a) Free rations, milk etc was provided to the gas victims to the tune of Rs 19.20 crores.
b) Rs 1500/- was disbursed to all gas victims.
c) Rs 3500/- was disbursed to all victims who suffered permanent injury.
d) Rs 4500/- was disbursed to such victims who were permanent disabled.
e) Rs 26.00 lacs was disbursed to such victims who lost their livestock.
f) Ex-gratia payment of Rs 10000/- was disbursed to the kith-kin of the deceased.

The Government spent approximately Rs 36 crores in providing immediate relief to the Gas victims.

Interim Relief
Although the Act did not specifically and expressly provide for the grant of Interim Relief (IR) to the victims, the Supreme Court observed that "Had the Act not been enacted the victims could have and perhaps would have been entitled not only to sue the Union Carbide themselves, but also to enter into settlement or compromise of some sort with them. The provisions of the Act deprived the victims of the legal right and opportunity and that deprivation is substantial deprivation, because upon immediate relief depends, often the survival of these victims. In that background, it is just and proper that this deprivation is only to be justified if the Act is read with the obligation of granting IR or maintenance by the Central Government. Until the full amount of the dues of the victims is realised from the Union Carbide after adjudication or settlement and then deducting there from the IR paid to the victims. It was further observed that It must be, to use the well known phrase 'the major inarticulate premise' upon which though not expressly stated, the Act proceeds. It is on this promise or premise that the State would be justified in taking upon itself the right and obligation to proceed and prosecute the claim and deny access to the court of law to the victims on their own. It is only so read, it can only be held to be constitutionally valid. IR is being granted to the victims. Out of 56 wards of Bhopal city, 36 are classified as affected wards on the basis of mortality and morbidity caused by MIC gas and are receiving IR. Rs 788 crores have been disbursed to 578,000 gas victims residing in 36 affected wards of the city out of 56 municipal wards. Out of these accounts of 388554 victims have been renewed in the second-phase offer canceling the accounts of such persons who were income tax payees, property tax payees, sales-tax payees and who had not applied for compensation in the claims tribunals. (Table 2)

Rehabilitation
Apart from providing immediate and interim relief and giving compensation for the losses they suffered, the Government took up a large scale rehabilitation program for providing medical, Economic, social and Environmental relief to the Gas victims.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Name of project</th>
<th>Sanctioned amount in the action plan (Rs. in crores)</th>
<th>Expenditure up to Oct. 2014 (Rs. in crores)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Medical Rehabilitation</td>
<td>150.36</td>
<td>656.72</td>
</tr>
<tr>
<td>2</td>
<td>Economic Rehabilitation</td>
<td>21.18</td>
<td>27.06</td>
</tr>
<tr>
<td>3</td>
<td>Social Rehabilitation</td>
<td>49.71</td>
<td>45.69</td>
</tr>
<tr>
<td>4</td>
<td>Environmental Rehabilitation</td>
<td>49.71</td>
<td>37.53</td>
</tr>
<tr>
<td>5</td>
<td>Others</td>
<td>5.29</td>
<td>9.93</td>
</tr>
<tr>
<td>6</td>
<td>Legal and Administrative</td>
<td>7.70</td>
<td>81.99</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>258.00</td>
<td>858.92</td>
</tr>
</tbody>
</table>
Now Second Action Plan(272.75 Crores) is under progress. The rehabilitation programme mainly covers the following areas:

Medical assistance: Medical facilities have been extended in the existing hospitals and several new centres have been opened in the affected areas. At present 15 allopathic institution 3 Ayurvedic and 3 each of yunani and Homeopathic Institution are operating in the affected areas. Computerised e-hospital has been started for better patient care of gas victims. BMHRC hospital with 8 mini clinics are also functioning for the benefit of gas victims. (Table 3)

Economic upliftment: Under this programme main emphasis has given an training and employment. An special industrial area was developed in Govindpura on a plot of 21 hectares after conducting study titled “Economic opportunities for rehabilitation of Bhopal Tragedy victims: A plan ” by Gujarat Industrial and Technical consultancy organization Limited Ahmedabad, Gujarat, India in October 1987.

Various economic rehabilitation schemes launched are as follows:

a. Industrial Training Institute: The targeted capacity of Gas I.T.I. is 3600 trainees per year through 40 trades.

b. Worksheds: Forty two worksheds have been constructed in gas affected areas which have been handed over to various Non-Governmental Organisations who in-turn provide employment to gas victims by running various training come production schemes.

c. Industrial Sheds: 152 large industrial sheds have been constructed in the special industrial Area which are being allotted to private entrepreneurs and Govt. undertakings to run large industrial units with a view to provide employment to a large number of gas victims.

d. Ready-made garments centre: With a view to provide employment and expertise to a target group of 500 women, the Government has launched an ambitious project of running a ready-made garments centre with technical collaboration from M.P. Handicraft Development Corporation.

e. Skill development programme and Nehru rojgar yojana: In an average, 1400 gas victims are being provided training for self employment every year.

f. Jute training: About 1200 victims have been provided training in various jute related trades.

g. Step-up programme: About 28700 beneficiaries have been provided loan to tune of Rs19.20 crores under this programme for self employment.

h. PMRY: On an average 1000 entrepreneurs are being provided training and loan from various banks for self employment.

Environmental improvement: Under this programme efforts are being made in 100 localities of the city to improve the road drainage culverts water supply and provision of proper sanitary services. Tree plantation and distribution of smokeless chullah with 50 percent subsidy are also undertaken.

Social security: Under this programme various works were under taken like pension to widow, free houses to relative of deceased persons etc.

Research: ICMR- National Institute of Research in Environmental Health is working as nodal agency in research works. Results of ICMR studies on gas victims were reported in the form of three Technical Reports of ICMR namely Epidemiological Studies(2,6), Clinical Studies & Toxicological Studies.

Claims and compensation planning and implementation strategies

Section 1 of the Act gave power to the Central Government to frame a scheme for carrying into effect the purposes of the Act. Clause (f) of Section 9 (2) speaks of the utilization, by way of disbursement (including apportionment) or otherwise, of any amounts received in satisfaction of the claims. (Table 4) The central Government framed the scheme Bhopal gas leak disaster (Registration and processing of claims) scheme, 1985. Clause 10 of the scheme provides for the claims and Relief fund and includes disbursal of amounts as relief including IR to persons affected by the disaster. Clause 11
(3) stipulates that Deputy Commissioner shall determine the quantum of compensation payable to each claimant. An overall settlement of the claim in the suit was made for 470 million U.S. dollars. Claims applications were invited in two phases-in 1985 to 89 and in 1996-97 in the first phase (1985-89), 6,18,861 cases were registered while in the second phase (1996-97) 4,10,654 claims applications were received.

Table 3 : Settlement of claims and payment of compensation

<table>
<thead>
<tr>
<th>S/N</th>
<th>Category</th>
<th>No. of Cases</th>
<th>Year 1985-89</th>
<th>Year 1996-97</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01- Personal injury</td>
<td>5,97,908</td>
<td>4,03,815</td>
<td>10,01,723</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>02- Loss of Livestock</td>
<td>612</td>
<td>46</td>
<td>658</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>03- Losses suffered by commercial/Business establishments</td>
<td>4745</td>
<td>156</td>
<td>4901</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>04- Death cases</td>
<td>15,310</td>
<td>6840</td>
<td>22150</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>05- Losses incurred by Central/State Govt./Non Gov. Organizations</td>
<td>84</td>
<td>84</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>6,18,659</strong></td>
<td><strong>4,10,857</strong></td>
<td><strong>10,29,516</strong></td>
<td></td>
</tr>
</tbody>
</table>

Status of settlement of claims and payment of compensation as on 31st October, 2017
* Total Awarded Cases = 5,74,391
* Total rejected Cases = 4,55,128
* Total amount disbursed = 3066.44 Crores

Table 4 : Amount disbursed according to decision in GOM by Claim court (up to 31st Oct. 2017)

<table>
<thead>
<tr>
<th>S/N</th>
<th>Category</th>
<th>Cases</th>
<th>Amount (in lakh) as per GOM</th>
<th>Settlement of cases</th>
<th>Rejected Cases</th>
<th>Disbursed amount (in Crores)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Death Cases</td>
<td>5479</td>
<td>10.0</td>
<td>5,479</td>
<td>0</td>
<td>421.70</td>
</tr>
<tr>
<td>2</td>
<td>Severely ill</td>
<td>42</td>
<td>5.0</td>
<td>23</td>
<td>11</td>
<td>0.69</td>
</tr>
<tr>
<td>3</td>
<td>Permanent disability</td>
<td>4902</td>
<td>5.0</td>
<td>4733</td>
<td>2</td>
<td>181.25</td>
</tr>
<tr>
<td>4</td>
<td>Temporary disability</td>
<td>37900</td>
<td>1.0</td>
<td>29,338</td>
<td>4,906</td>
<td>77.87</td>
</tr>
<tr>
<td>5</td>
<td>Cancer Patients</td>
<td>10251</td>
<td>2.0</td>
<td>7227</td>
<td>2,887</td>
<td>102.86</td>
</tr>
<tr>
<td>6</td>
<td>Renal failure patients</td>
<td>5250</td>
<td>2.0</td>
<td>1,193</td>
<td>3,092</td>
<td>17.16</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>63,824</strong></td>
<td><strong>47993</strong></td>
<td><strong>10,898</strong></td>
<td><strong>801.53</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source : Annual report (2017) of Department of gas relief and rehabilitation Government of Madhya Pradesh

Scientific base for avoiding Bhopal like disaster through utilizing this model:
1. Safety Audit System: The two main activities which help preparing case report are (a) hazard identification (b) risk assessment
2. Emergency response system
3. R&D activities in the area of chemical safety

i. Safer Technologies
ii- Simulation Studies
iii- Evaluation of safety of chemicals
iv- Data bank for accident
v- Disaster medicine

4. Protocol for disaster preparedness in a chemical industry management.

Unparallel in human history The Bhopal Gas Tragedy has shown serious weaknesses in policies pertaining to industrialisation and urbanization. It has brought out severe jult, how discharge of toxic and other substances of an industry can bring man made disaster on the entire community living around it . It is not only the immediate human and physical misery but also a number of its for reaching consequences that it has drawn our attention to development. The whole question of the industrial location, the technology, the safety measures and the public regulation of all these have been called into question for policy maker. The whole process of rehabilitation and compensation shows different individuals and agencies are in-charge of each chain of events which leads to poor coordination and information exchange. Loose coupling occurs because there is no single centralized agencies responsible for crises management but this process model can organized multidisciplinary approach to the problem of rehabilitation and compensation.

Compensation are distributed according to severity of exposure but not with occupational profile in terms of economic activities, socio-economic background, level of skill, socio-psychological stabilities and adaptabilities. Certain occupation are prohibited to gas victims with having particular type of morbidity such gas victims should have different type of compensation management programme . There are many organisation like Gas ITILNGO who are responsible for entrepreneurship development, trade training should also consider the occupational disabilities. A huge data base must be prepared for gas victims on the basis of contra chart to match their ability for work. Economic loss in man-made disasters is more fatal ,as people lose their working capacity or efficiency . They become invalid and dependent on the society . Hence it has a long term economic effects on the country. The decision is based on broad considerations claimants compensation through this process model. Finding long term epidemiological study (1985-1994) and (1996-2010) revealed that acute morbidity(Dec.1984),98% came down to 20% and mortality to near national level. It signify that compensation model perfectly works if these activities were integrated.

In summary, it can be said that step to disbursement of compensation was more appropriate ,adequate ,proper mode of disbursement ,proper coverage and favorable effects in long terms if process model was used. This model can integrate both rehabilitation work and compensation disbursement for the benefits of gas victims and delivered optimum service to gas victims. Total management of gas victims are possible through iterative process of discussed management compensation process model system after taking proper planning and implementation strategies under continuously interacting external environmental factors of medical, economical ,socio-psychological, environmental/ecological risk, political and legal.

CONCLUSION

After compensation disbursement their favorable effects were seen in gas exposee like their socio-economic health status, education ,housing facilities etc. All available instruments in fields of health care, administration and law should be worked continuously in proper coordination to solve the problem of gas victims. By using the management compensation process model in continuous basis to make rehabilitation package which include medical insurance, housing scheme and fixed deposits in long term basis and also update disaster control programme. This management compensation model will generate risk communication, environmental awareness programs and effective total management .This management model asked prospective participants to the extent feasible, about unmet needs and provided assistance including referrals and resources to reduce risk and maximize benefits. Compensation model may play role in achieving careful, toxic gas disaster protocols that both consider the value of the research to
advance science and reduce suffering along with the dissemination of disaster preparedness, disaster inventory and research results.

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REFERENCES