REPORT ON NETWORK WORKSHOP

on

www.hrdp-idrm.in web platform

at

Nagpur

(June 11th – 12th June, 2009)

Prepared by –
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Executive summary

Code	SID|2008|iDRM|23
Title	*Train the Trainers in industrial Disaster Risk Management – networking workshop - Networking of Training No 1*
Short title	*Networking of Training Providers industrial Disaster Risk Management – 1*
Training type (see below)	Development Workshop
Thrust area	Human Resource Development iDRM / SID
Project	Networking of Training Providers / iDRM
Training provider	DMI and InWEnt
Institutions involved	NDMA, DMI, NCDC, CRISP, DGFASLI, MAX Healthcare, GAIL, Directorate of Health & Safety, Gujarat, Chhatishgarh Environment Conversation Board, Maharashtra Pollution Control Board, Inspectors of Factories and Boilers, Goa,
Target group	Regulatory bodies of states and centre, Civil Defence, Healthcare, Oil & Gas, Inspectors of Factories etc.
Course objectives	One of the objectives of the iDRM programme is the start to establish a **network of training providers** under the main guidance of DMI. This is a long term endeavour and in the line with the efforts to make DMI a centre of excellence. It is backed by the comments of Gen. Bhardwaj, member, NDMA, GOI to ASEM and InWEnt to continue the support of DMI in the process of the forming of the centre of excellence.
Expected or achieved results/impacts in terms	The workshop achieved the following results: • The participants discussed about the present banner which includes the DMI banner. It was suggested that DMI to think over about that it a network platform in iDRM. The final discussion about the change could be after completion of all the four networking workshops. The possible options for the banner includes the following – - "Network for Capacity Building in industrial Disaster Risk Management" - "Industrial Disaster Risk Management Network" • DMI along with InWEnt wants to establish a network of training providers under the main guidance of DMI. This network will be in the form of the web platform which is already in existence. The purposes of the network workshops are to strengthen the relations and build a network of partners by which all the partners are able to share the knowledge and information. • Ready to prepare the compilation of "Capacity Building Programmes" - using existing material and documents and involve modern principles of teaching and skills training. • Regional stakeholders will understand and will start using the www.hrdp-idrm.in web portal. • It was felt that www.hrdp-idrm.in will be the most significant tool in meeting the long standing demand of ensuring the generation and publicly availability the information on capacity development of iDRM in Indian context. Stakeholders agreed to share the training information through DMI on the web platform • Regional training providers will extend their technical support by providing inputs.

- A working programme of the participants of iDRM-net has been initiated and will conclude by all four network workshops.
- All presentations have already been loaded on the www.hrdp-idrm.in (please refer the http://www.hrdp-idrm.in/e6547/e6546/e10804/e12182/).

- Relevant databases, information, programmes of the participants' institutions will be reflected in the platform to and help to share such information within the network. Identify the existing and relevant databases, review documents and assessments and provide direct access to these data/reports
- Explore the possibilities about the modus operandi of linkages with the exiting important

Description of contents /agenda	See programme in text.
Participants numbers	*Total 19* *male 17* *female 2*
Start dd/mm/yy	*11/06/09*
End dd/mm/yy	*12/06/09*
Duration	*2 days*
Venue	Hotel Tuli International Nagpur Residency Road, Sadar, Nagpur - 440 001. Maharashtra (INDIA) Tel No. +91-712-253 4784 - 88, +91-712-661 2160 -64. Fax No. +91-712-253 4473 Email : info@tuligroup.com

1.0 BACKGROUND

Disaster Management Institute, Bhopal, in cooperation with InWEnt and GTZ-ASEM (under the Indo-German cooperation, running a project on **capacity development on industrial Disaster Risk Management (iDRM)** with the objective of disaster risk reduction in the area of industrial (chemical) disasters. Under this programme, in addition to organization of numbers of training programmes, a hrdp web platform has been developed (www.hrdp-idrm.in)www.HRDP-iDRM.in).

The prime objective of iDRM is to develop, evaluate, and implement projects and activities that aim at improving industrial disaster risk management and promoting the civil administration, industries and communities to develop a disaster resilience society.

The iDRM has main focus on:

- concept development of hazards identification and risk assessment (HIRA) and its application in overall emergency development,
- on-site and off-site emergency planning development to reduce the vulnerability of the industries and society respectively,
- Development of iDRM web platform and make the wider utility by involving the various stake holders.

Other related important partner institutions are the Directorate General of Factories Advice Services and Labour Institute (DGFASLI) and the State Chief Inspectorates of Factories and Boilers, national and states training institutions, public and private sectors major accident hazards (MAH) industries, NGO's, civil society, universities and research community in India.

Under this project the web platform www.hrdp-idrm.in has been created. Lt. Gen. (Dr.) J R Bhardwaj, Member, NDMA has launched the platform on 12th February 2009 in *Conference on (Industrial) Chemical Industrial Disaster Management, Pipelines, Storages and Medical Preparedness*, New Delhi. Since after that the visits made to the website are quite interesting and have been encouraging to make this web site more useful and increase the reach to wider spectrum of target groups.

2.0 THE NEED FOR WORKSHOP

In the iDRM project operation plan (2009-2012), approved by MoEF in June 2009, the need for transfer of knowledge, demonstration of state-of-the-art technologies and processes that can create multiple effects in the area of industrial disaster risk management was expressed with a series of networking workshops.

To make it more effective a series of the regional networks workshops has been planned at Nagpur, Udaipur, Chennai and Guwahati (these places are subject to change depending upon the availability of infrastructure support and willing to network) in the next four months to:

- Share experiences in HIRA, Off-Site and On-site plans to get a common understanding and getting ideas about who has what material,
- Discussion about the possibilities of inclusion of Civil Defence, Medical preparedness, fire fighting as themes in iDRM on NDMA recommendations,
- Discussion about the possibilities for a joint use for knowledge management and management of training events in iDRM of www.hrdp-idrm.in,
- Identify the existing and relevant databases, review documents and assessments and provide direct access to these data/reports - Start linkages to other web sites and agree on authors training in the future - Explore the possibilities about the modus operandi of linkages with the exiting important Indian websites of iDRM related activities,
- Exchange experiences about capacity building efforts and constraints,
- Characterise in detail stakeholders (stakeholder map), target groups of training (field, levels in the hierarchy, specific needs),
- Define the main topics for each of the target groups according to administrative level (manager, operational, disaster management responsible organisations and individuals, etc.) and
- The responsibility of web manager and its possible linkages with main stakeholders for value additions in www.hrdp-idrm.in

3.0 OVERALL OBJECTIVES

The overall objective of the workshop is to impart awareness and knowledge on use of www.hrdp-idrm.in with all key stakeholders and to show its usefulness and relevance for the announcement and documentation of training courses and training material.

➢ *Awareness:* To provide awareness on the following:

1. What is www.hrdp.idrm.in how it is viewed and what it contains how it can be used by various stakeholders.
2. All aspects of disaster management e.g. preparedness, prevention, mitigation, response, rehabilitation and resettlement so that environmental planning can be upgraded on considerations for Disaster Risk Reduction in future development.
3. Communication with local community for preparedness & response.

- *Knowledge:* To provide knowledge through www.hrdp.idrm.in on the following:

4. Understanding hazards, risk, consequences of disasters, etc. by making available the posters and literature for all types of target groups.
5. Availability of various Indian Standards and regulations on hazardous chemicals and safety related information.
6. Information on various past and future training events and there applications for making it an effective tool in human resource development by all stakeholders.

4.0 PROGRAMME DETAILS

4.1 Dates and Venue

The programme commenced on **Thursday, June 11th, 2009** and concluded on **Friday, June 12th, 2009**. The programme successfully concluded at Hotel Tuli International, Nagpur with the support of National Civil Defence (Under the Ministry of Home Affaires, Govt of India) and Disaster Shield.

4.2 Registration

The programme started as per schedule on 11th June 2009 with the registration of the participants. The participants assembled in the Reception Counter for registration at 9.30 am.

4.3 Inauguration

The programme activities started as per the schedule on 11th June 2009 at 10:30 am. **Shri G S Saini, Director, National Civil Defence College, Nagpur inaugurated the programme.**

In the inaugural speech, Mr. Saini talked about the work being done in USA about public safety response whether it deals with Industrial accidents or deliberate attempts to disrupt/create mass casualty events through hazardous material located in Industries. He told that India is lagging behind in this regard and has to do a lot about the management of Industrial safety information exchange to be better prepared. He felt that India has no shortage of technical knowledge but it has to be used for the benefit of masses. According to him Civil Defence has to be given a lot of priority and this can be done through local crisis groups in the industrial establishments. He added that civil defence needs to be strengthen in India on priority.

Dr. Rakesh Dubey, Director, Disaster Management Institute, Bhopal told that India has more knowledge base than any other country in the field of disaster management, but it is not being shared with the people. He advocated that the referred web platform should be a strong instrument through which the knowledge can be made available to the people at large. He emphasized that the educational institutions can contribute to spread the disaster preparedness knowledge in the country by using this platform. Dr Dubey has also expressed his views on the possibilities to attract the civil defence and medical preparedness component of iDRM in the present www.hrdp-idrm.in web platform for wider application to reduce the disaster vulnerability. Dr Dubey expressed the hope of the programme and possibilities to hold such three more workshops to get partners from whole country from all

corners of the nations. He added that he will not leave any stone upturn to involve MOEF, GOI to become a partner for great success and acceptability nationwide.

Dr. Florian Bemmerlein-Lux, who represents the Indo-German Development Cooperation (InWEnt - Capacity Development International and the German Technical Cooperation 'Advisory Service in Environmental Management GTZ-ASEM') presented I detail the properties and functioning of the DMI web platform and talked about the importance of bringing about synergies of all organizations – public and private - that offer training courses through a joint internet based networking platform.

Mr. S.S. Gautam, Director of DGFASLI (Directorate General of Factory Advice Services & Labour Institute, Ministry of Labour, GOI, Mumbai) talked about the importance of this kind of platform for the benefit of the worker community, whose safety and security have to be enhanced. This can be done through coordinated action of participating government agencies.

The inaugural function was widely covered by the leading local English news paper The Hitavada. A copy of the news published is attached for reference **as annexure I.**

G S Saini, Director of National Civil Defence College inaugurating the networking workshop by lighting the traditional while other dignitaries (from left to right Sri S S Gautam, Director, DGFASLI, Mumbai; Dr Rakesh Dubey, Director, DMI, Bhopal; Sri Florian Bemmerlein-Lux, *Sr Advisor, InWEnt)*

5 Participants

Altogether 19 participants as per the **annexure II,** all of senior cadre and responsible for formulation & implementation of environmental and industrial disaster risk reduction policy and regulation interventions from highly industrialized states' of India, participated in the programme. Some of the noteworthy participants were National Disaster Management Authority, Chief Inspectors of Factories & Boilers from Goa, Gujarat, Maharashtra, and Chattisgarh along with senior officers from State Pollution Control Boards of Maharashtra & Chattisgarh, GAIL and Max Healthcare.

5.1 Short Description about participating Institutions

5.1. NATIONAL DISASTER MANAGEMENT AUTHORITY (NDMA)

The National Disaster Management Authority (NDMA), headed by the Prime Minister of India, is the Apex Body for Disaster Management in India. The setting up of the NDMA and the creating of an enabling environment for institutional mechanisms at the State and District levels is mandated by the Disaster Management Act, 2005.

The development and promotion of an ethos of prevention, mitigation and preparedness countrywide to mitigate the damage and destruction caused by natural and man-made disasters, through sustained and collective efforts of all Government agencies, Non-Governmental Organisations and people's participation, by adopting a Technology-Driven, Pro-Active, Multi-Hazard and Multi-Sectoral Strategy for building a Safer, Disaster Resilient and Dynamic India is the focus of the NDMA.

5.1.2. DISASTER MANAGEMENT INSTITUTE (DMI), BHOPAL

DMI was established in 1987 in the backdrop of world's worst ever chemical disaster in Bhopal.

The President of the organization is the Chief Minister of MP and the vice-president is the Minister of Environment of the state.

The principal objective of the institute is to evolve the techniques for and enhance competence in prevention, mitigation and management of natural as well as industrial disasters in India.

The main objectives includes –

- Train government officials, executives of PSUs and private sector firms in various facets of Disaster Management.
- Carry out research on causes, effects etc. of disaster management, and mitigation and state-of-the art techniques.
- Collect, store and effectively disseminate information regarding hazards and disasters.
- Offer consultancy services to the industries and others.
- Institute awards, medals, scholarships and prizes to promote these objectives

The ultimate objective of DMI is to prevent and mitigate the consequences of disasters and thereby benefit the general community.

5.1.3. National Civil Defence College (NCDC), Nagpur

NCDC was founded on 29th April 1957 at Nagpur as Central Emergency Relief Training Institute (CERTI) to offer advanced and specialist training for efficient conduct of relief operation after any disaster.

The training programmes of CERTI primarily focused on emergency services necessary to be organized after disasters.

CERTI was renamed as National Civil Defence College in 1968 after the passage of Civil Defence Act, 1968 by the Parliament.

The objectives of NCDC includes –

- To organize scientific and specialized skill oriented training of trainers in order to enhance capabilities of Emergency Relief officers and personnel for efficient conduct of Disaster Response and Relief operations during War Emergencies and Natural Disasters.
- To advise Ministry of Home Affairs in technical matters related to Civil Defence Organisation.
- To assist the Ministry of Home Affairs in compilation of handbooks, manuals and other Civil Defence literature.

5.1.4. Centre for Research and Industrial Staff Performance (CRISP), Bhopal

CRISP is an autonomous society, set up in 1997 under Indo-German Technical Co-operation agreement, it has facilities in the areas of:

(a) Industrial Automation
(b) Modern Manufacturing
(c) Information Technology
(d) Computer Aided Handicraft Design and
(e) Human Resource Development (Behavioural Science)

Within a short span of Ten years CRISP has become a leading centre for imparting sophisticated skills to the personnel drawn from Industries, Development organisations, Technical Institutions and Jobseekers.

CRISP has also emerged as a pioneering organisation in planning and implementing pilot projects for socially disadvantaged groups. It has also emerged as a nodal centre in the state of Madhya Pradesh for producing Training Materials. The Training Materials (including curriculum and course material development) are developed in the field of Vocational Education and Training (VET) in technology areas.

5.1.5. Directorate General, Factory Advice Service and Labour Institutes (DGFASLI), Mumbai

The office of the Chief Adviser of factories, which is now called Directorate General, Factory Advice Service and Labour Institutes, was setup in 1945 with the objective of advising Central and State Governments on administration of the Factories Act and coordinating the factory inspection services in the States. The Directorate General, Factory Advice and Labour Institutes (DGFASLI) comprises:

- Headquarters situated in Mumbai
- Central Labour Institute in Mumbai
- Regional Labour Institutes in Chennai, Kanpur, Kolkata and Faridabad

The DGFASLI is working under the administrative control of the Ministry of Labour & Employment, Government of India and serves as a technical arm to assist the Ministry in formulating national policies on occupational safety and health in factories and docks. It also advises factories on various problems concerning safety, health, efficiency and well - being of the persons at work places.

5.1.6. MAX Healthcare

Founded in 1985, MAX Healthcare is a part of Max India Limited, a listed public limited company.

Max Healthcare is focused on knowledge, people and service oriented businesses of healthcare and life insurance.

Max Healthcare believes in Total Patient Care. Total Patient Care is not only curing and managing the patient's disease but caring about their physical, mental and emotional values. It's all about empathetic listening, offering choices and respecting patients' medical and non-medical needs and concerns.

Max Healthcare's network is designed to serve the entire gamut of medical needs of the nation and beyond, through a network of specialised healthcare facilities across Delhi, Noida and Gurgaon which includes –

- Department of Cardiology
- Department of Cardiac Surgery
- Max Institute of Neuro-Sciences
- Max Institute of Orthopaedics
- Max Institute of Obstetrics and Gynaecology
- Max Institute of Paediatrics
- Max Institute of Aesthetic & Reconstructive Surgery
- Max Eye Care
- Department of Mental Health & Behavioural Sciences
- Department of Lab Medicine & Transfusion Services
- Allied speciality

5.1.7. GAIL Training Institute (GTI)

GAIL Training Institute is situated in Noida. The training institute is a part of Gas Authority of India (GAIL), the largest transmitter of oil and gas with a total turnover of over Rs.18000 crores. The GAIL Training Institute is set up to provide overall training to the staff of GAIL and other institutions that are in the business of oil and gas. One such institute is also opened in Jaipur to meet the increasing demands in this field.

The training strategies of GTI focus on offering world class training in India related to oil and gas transmission, handling and disposal. GTI is having a world class faculties which posses a blend of academic and practical experiences to achieve the goals for which it is established.

Besides the in-house training, the GTI is also offering the world class customized training to other institutions based on the inputs received from the partners. The major areas of training may be summarized as follows –

- Natural Gas and LPG Pipeline O&M, construction and project management
- Emergency handling and safety aspects in pipeline industries
- Flow metering
- Energy conversation
- Management Behavioural Programmes
- Computer skills up gradation
- SAP Modules

5.1.8. Directorate of Industrial Health & Safety, Gujarat

Directorate Industrial Safety and Health is a part of Labour and Employment Department, Govt. of Gujarat. Directorate Industrial Safety and Health, Govt. of Gujarat previously was known as Factory Inspectorate, but after declaration of new designations for Factory Inspectors by state govt; this administration is now Directorate of Industrial Safety and Health. It is functioning under direct control of Director Industrial Safety and Health, Gujarat State. The Directorate Industrial Safety and Health looks after the implementation of following statues

- The Factories Act 1948 and Gujarat Factories Rules, 1963
- The Environment Protection Act, 1986
- The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989
- Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996
- The Building and Other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996
- Gujarat Building and Other Construction Workers (Regulation of Employment and Condition of Service) Rules-2003
- The Payment of Wages Act, 1936 and Rules there under
- The Maternity Benefit Act, 1961 and Rules there under
- The Gujarat Physically Handicapped Persons (Employment in Factories) Act, 1982
- The Gujarat Payment of Unemployment Allowance to workmen (In Factories) Act, 1981
- The Cotton Ginning and Pressing Factories Act, 1925

The Directorate of Industrial Safety and Health implements technical in nature, the officers appointed are mostly engineers, qualified in various disciplines of engineering. Looking to major concentration of chemical factories in the state, the Directorate Industrial Safety and Health has constituted a multi-disciplinary specialist cell in each region headed by Joint Director Industrial Safety and Health. Moreover one Assistant Director Industrial Safety and Health (chemical) has been appointed for assisting and advising Chief Inspectors of Factories about hazards and safety in chemical factories.

5.1.9. Chhattisgarh Environment Conversation Board (CECB), Raipur

For Prevention and Control of water pollution and maintaining or restoring of wholesomeness of water and prevention, control & abatement of air pollution environmental laws namely Water (Prevention and Control Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 have been enacted. Central and State Pollution Control Boards came into existence to fulfil the purpose mentioned in the above Acts. With the Constitution of Chhattisgarh State, a Board namely Chhattisgarh Environment Conservation Board came into existence.

Chhattisgarh Environment Conservation Board is constituted by Government of Chhattisgarh on 25th July, 2001 and Notified in the Chhattisgarh Government's Official Gazette on 31st August, 2001. The Board is constituted under section 4 of Water (Prevention and Control of Pollution) Act, 1974. CECB is required to carry out the functions as specified in section 17 of Water and Air Acts and to implement certain provisions of Environment (Protection) Act, 1986 & the rules made there under.

5.1.10. Maharashtra Pollution Control Board (MPCB)

Maharashtra Pollution Control Board (MPCB) is implementing various environmental legislations in the state of Maharashtra, mainly including Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, Water (Cess) Act, 1977 and some of the provisions under Environmental (Protection) Act, 1986 and the rules framed there under like, Biomedical Waste (M&H) Rules, 1998, Hazardous Waste (M&H) Rules, 2000, Municipal Solid Waste Rules, 2000 etc. MPCB is functioning under the administrative control of Environment Department of Government of Maharashtra.

Some of the important functions of MPCB are:

- To plan comprehensive program for the prevention, control or abatement of pollution and secure executions thereof
- To collect and disseminate information relating to pollution and the prevention, control or abatement thereof
- To inspect sewage or trade effluent treatment and disposal facilities, and air pollution control systems and to review plans, specification or any other data relating to the treatment plants, disposal systems and air pollution control systems in connection with the consent granted
- Supporting and encouraging the developments in the fields of pollution control, waste recycle reuse, eco-friendly practices etc.

5.1.11. Inspectorate of Factories & Boilers, Goa

Inspectorate of Factories & Boiler, Goa is a regulatory body in thestate of Goa. It is established under the Goa Boiler Operations Engineers' Rules, 2004. It is a regulatory authority in the state of Goa. The main legislation which are concerned for implementation are –

- Factories Act, 1948
- Boilers Act, 1923
- Environment Protection Act, 1986
- Child Labour (Regulation & Abolition) Act, 1986

Functions of the Inspectorate includes –

- Registration of boilers
- Renewal of boiler licences
- Steam test
- Approval of factory plans
- Grant of factory license
- Accident investigation
- Factory inspections
- Prosecutions
- Framing/ Amendment of state rules

6.0 CONDUCT OF NETWORKING WORKSHOP

6.1 Programme

The lecture topics for the networking programme were designed to establish a **network of training providers** under the main guidance of DMI as per the **annexure III**.

Looking to the level of the participants, DisasterShield has prepared the background material after extensive research, on the following three topics:

i. Hazard Identification and Risk Assessment (HIRA)
ii. On-site and Off- site Emergency Plans on Chemical Disaster
iii. Emergency Assessment System for award of Shield/ Trophy

The background material circulated during the workshop is enclosed as **annexure IV.**

Training providers have been defined in a broad sense as all above institutions, major industries and authorities that offer a substantial course programme on iDRM or put much effort in development of capacity building measures in the area of iDRM. The purpose is to draw a roadmap for the training providers and their networking with DMI/ InWEnt for the use of all stakeholders including the community.

The workshop was designed to achieve crucial objective of the iDRM project through compilation of "**Capacity Building Programmes through Networking using the web platform**" by using existing reading material and documents on the subject by involving modern principles of teaching and skills training from various experts institutions and individuals. The institutions which provide the details of their training programmes, course material, and a short description about their institute will be treated as partners and full support will be given to the partners who contribute to this platform with the following objectives:

- Access to information provided on web platform
- Identify the existing and relevant databases, review documents and assessments and provide direct access to these data/reports
- Simultaneously query datasets stored in these participating databases by user identity and provide direct links to the requested information - users can then easily locate additional information about the selected theme or sub-theme of iDRM
- Provide information about the source of the retrieved data, and provide direct access to the data or document collection
- Provide description of the type of review the data have undergone
- Explore the possibilities about the modus operandi of linkages with the exiting important Indian websites of iDRM related activities.

6.2 Trainer and Speakers:

The programme was designed to be conducted in training cum learning mode by sharing of information through participatory mode. The following experts shared their views in the workshop and given a direction for future.

1. Dr. Rakesh Dubey, Director, DMI, Bhopal
2. Dr. Florian Bemmerlein–Lux, InWEnt
3. Mr. Anil Sharma, Chief Engineer, Chattisgarh Environment Conversation Board, Raipur
4. Mr. Mukesh Sharma, CRISP, Bhopal
5. Mr. HS Dave, DISH, Kalol, Gujarat
6. Mr. Jitin Saxena, GAIL, NOIDA
7. Mr. SM Paranjape, CIF, Goa
8. Mr. MN Gadappa, ISLH, Nagpur
9. Mr. SS Gautam, Director, DGFASLI, Mumbai
10. Mr. GS Saini, Director, NCDC, Nagpur
11. Dr. Talat Halim, Chief ADM, Max Health Balaji, Delhi
12. Brig BK Khanna, NDMA, New Delhi

The participants also shared their experiences during the programme. DMI hopes to use their experiences in further development of the www.hrdp-idrm.in.

Dr. Rakesh Dubey, Director, DMI, Bhopal, Dr. Florian Bemmerlein–Lux, InWEnt and DisasterShield conducted the whole programme in a coordinated way to achieve the set objectives of the programme.

6.3 Results of the discussion

The workshop achieved the following results:

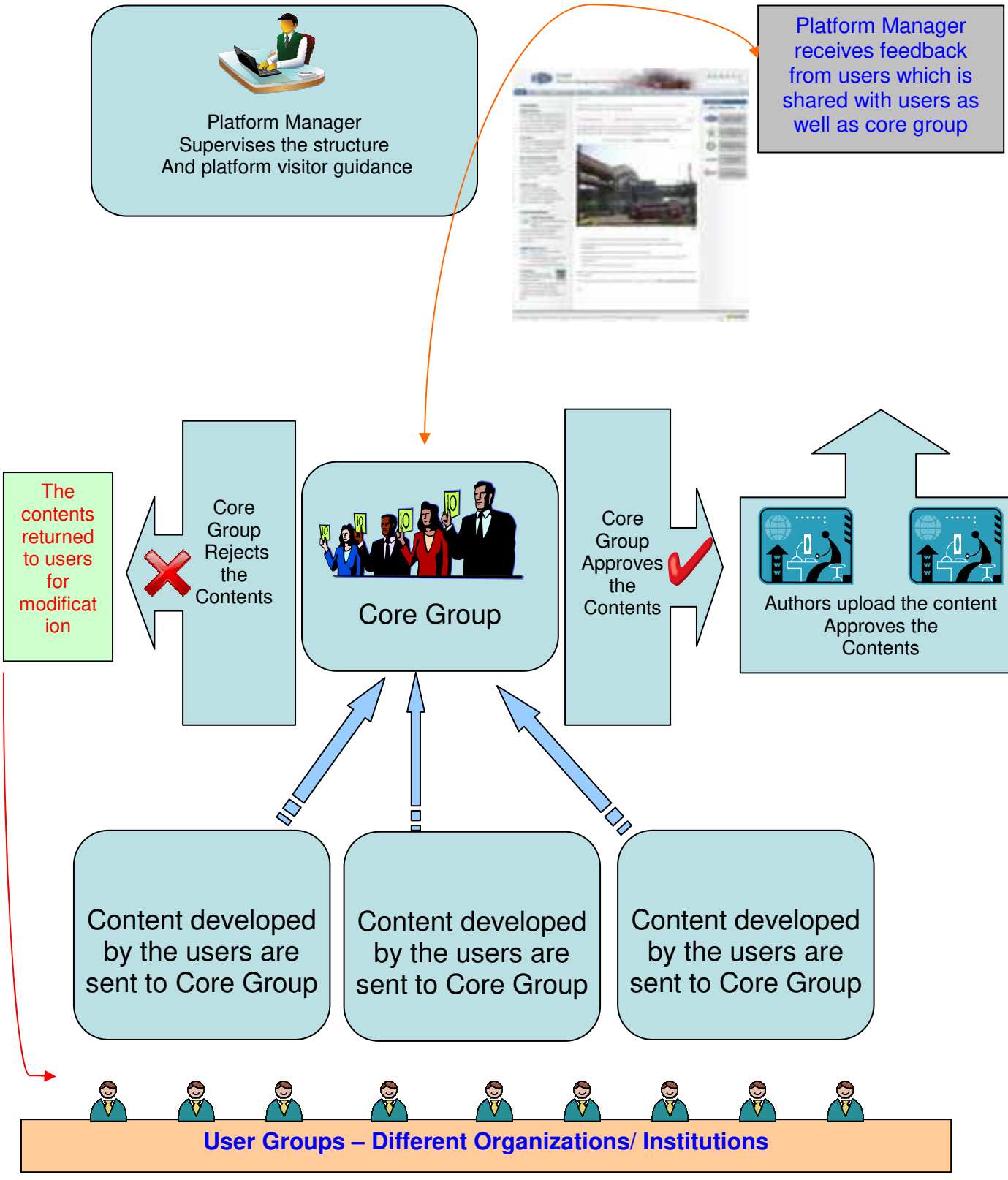
- The participants discussed about the present banner which includes the DMI banner. It was suggested that DMI to think over about that it a network platform in iDRM. The final discussion about the change could be after completion of all the four networking workshops. The possible options for the banner includes the following –
  - "Network for Capacity Building in industrial Disaster Risk Management"
  - "Industrial Disaster Risk Management Network"
- DMI along with InWEnt wants to establish a network of training providers under the main guidance of DMI. This network will be in the form of the web platform which is already in existence. The purposes of the network workshops are to strengthen the relations and build a network of partners by which all the partners are able to share the knowledge and information.
- Ready to prepare the compilation of "Capacity Building Programmes" - using existing material and documents and involve modern principles of teaching and skills training.
- Regional stakeholders will understand and will start using the www.hrdp-idrm.in web portal.
- It was felt that www.hrdp-idrm.in will be the most significant tool in meeting the long standing demand of ensuring the generation and publicly availability the information on capacity development of iDRM in Indian context. Stakeholders agreed to share the training information through DMI on the web platform
- Regional training providers will extend their technical support by providing inputs.

- Agreement on criteria for an award for best practices for Industries in Disaster Preparedness and define the approach for implementation. CIF&B, Goa agreed to support as a pilot project in consultation with DMI, DisasterShield and InWEnt.
- Drafting of MoU of the participants for an iDRM-net with objectives and outline of a working programme has initiated and will conclude by all four network workshops.
- All presentations have already been loaded on the www.hrdp-idrm.in (please refer the http://www.hrdp-idrm.in/e6547/e6546/e10804/e12182/) hence not included in this report.

The workshop concluded to the following recommendations:

- All iDRM network partners should be prominently present on the platform. Therefore the platform will add the logos of the partners with a short description of text up to 3 to 4 paragraphs about the introduction of the partner. Up to 3 photographs of the network partners will be placed on the iDRM platform with links to the respective websites.
- The management platform for HRDP-iDRM will provide the information and material and material about upcoming and past training and workshops, conferences, key concepts, important links and up to date rules and regulation of the concerned partner.
- A core group to be set up by DMI. It was suggested that the initial members of the core group may include NCDC, Nagpur; CRISP, Bhopal; GAIL, NOIDA; and DGFASLI, Mumbai. However, a formal announcement of the core group would be only through a notification after the all four workshops are conducted.
- It was suggested that core membership will be rotating and more and more partners should get an opportunity to become member of the core group in turn.
- The major functions of the core group would be to decide the publication of the material sent by the partners, whether it is related to the selection of material of the place where the material to be published. For this, the core group will formulate a strategy that will decide the content of the platform.
- The participants felt that more and more rules and regulations are to be uploaded on the platform. Standards developed by PNGRB should be uploaded. OSID standards are also required to be uploaded.
- Members found that the web platform lacks the feedback system. Dr. Florian Bemmerlein-Lux informed that it is not so, there is a system of feedback in the platform but it is not activated because there is no dedicated person appointed so far. It was suggested that the web manager should be given this responsibility of compiling feedback from users which then forward to core group for their comments. The mechanism of the whole process of content management, authoring and web management is depicted in the following picture.

Flow Chart – Content Management for www.hrdp-idrm.in



- The platform has the focus on Human Resource Development and is first place a forum to announce and document training activities and material. This will increase the outreach of the partner's institute. It was recommended that the partners will start sending their training activities details in the Course Characterisation Form (CCF) which can also be downloaded from the link http://www.hrdp-idrm.in/e5785/e12236. This link also includes training and conference events questionnaires. DMI will take initiative and will send the CCF to all partners with a request to send information in 10 days so that information can be pasted before next workshop to demonstrate the output of first workshop.
- Selection and training of authors and web platform manager will be conducted by InWEnt as soon as partnering institutions are serious to join the network and appoint a responsible person for contacts and the development of material and communication.
-
- It was informed that InWEnt and DMI will take action on priority to appoint web manager to run the platform efficiently and effectively.
- Brig (Dr) B K Khanna, Sr. Advisor, NDMA assured to share information of chemical disaster mock drill.
- In last Dr. Dubey assured the gathering that DMI will take all efforts to link the capacity building project with MoEF action plan on chemical (industrial) disaster risk management for the sustainability of the www.hrdp-idrm.in

Outline for next steps

Based on the activities of two days workshop the following steps for next action have been discussed:

- To make national network on www.hrdp-idrm.in three workshops should be organized in next three months to make a core group for sustainability of the web platform. As a result of which DMI will explore the possibilities of the locations for the remaining three workshops.
- As soon as first implemented results are visible and some routine started the main focus has to be on making the platform known to all relevant stakeholders. NDMA and MOEF will play an important advisory role in this process. A coordinated effort is necessary to avail internet services to expected intranet users in govt. and public sector institutes.
- A model needs to be developed for the sustainability of the web platform after 2010. It is also felt that online learning and query set need to be developed on priority for wider use.
- Since web platform management requires a dedicated person hence before the notification of core group of network institutions and persons DMI-InWEnt can take action on priority to appoint a web manager who should help DMI and InWEnt in running the web platform.
- The participating institutions specially NCDC, GAIL, DGFASLI, should send the following desired information to DMI for consideration to put on web platform:
  - Logo of the networking partners (in.jpg or gif format and high resolution)
  - A short describing Text (max 3 paragraphs with about 5 to 10 lines each)
  - Up to 3 pictures or graphs
  - Links to respective websites

DMI will make effort to accelerate the process before the second workshop.

6.4 Evaluation

Feed back about the programme was obtained from the participants as per the prescribed format. In the feedback depicted in evaluation sheets and during the interaction in the final session of the programme;

Main results:

1. Participants were of the view that while attending this programme they had a great time to interact with the representative of different organizations.
2. They were of the view that this interaction with the other participants and the faculty will help them a lot while they will be dealing with the various aspects of industrial disaster management.
3. As far as the background course material, lecture duration and lecture contents are of great value;
4. The overall response of the participant's was above the satisfactory level.
5. Participants were happy that the workshop got the objective for which the workshop was planned.
6. Participants strongly recommended the organisation of the rest workshop to cover whole country and all possible target groups.

The summary of evaluation is attached as **annexure V**.

7.0 VALEDICTORY SESSION AND RECOMMENDATIONS OF NETWORKING WORKSHOP

The valedictory sessions started with a panel discussion and presentation by the participants on group exercise. Dr. Florian, InWEnt, Dr. Rakesh Dubey, Director, DMI, Mr. G S Saini, Director NCDC were present on this occasion. Brig (Dr) B K Khanna, Sr Advisor, NDMA, GOI, New Delhi chaired the valedictory session. DisasterShield made a brief presentation of of the two days activities during the concluding session.

After a good brain storming in this panel discussion, good and realistic suggestions for the improvements of the website were concluded as recommendation for effective networking of the web platform.

Participants were of the view the workshop has proven a good learning experience for all of them and they will take all steps to translate these learning in their day to day activities and will use the www.hrdp.idrm.in in training and learning exercises. Also the participants gave their feedback about the programme. They stressed that at least three – four more programmes should be organised to cover whole country. Small group workshop was appreciated by the all participants.

After the lunch a visit was organised to visit NCDC, Nagpur. Director, NCDC made a brief presentation to all participants. All participants then dispersed to their respective places at 5.00 pm in the evening.

Report will be send to all participants of the workshop for their comments and observation with in a period of one month for their observations and action.

Annexure I

Press Release published in Daily Hitavada on 12th June, 2009

FRIDAY ▪ JUNE 12 ▪ 2009 ▪ NAGPUR ▪ The Hitavada

'Need for strong networking for disaster risk reduction'

■ Staff Reporter

A TWO-DAY networking workshop on "Hyperlink http://www.hrdp-idrm.in" was inaugurated by G S Saini, Director of National Civil Defence College, Nagpur at Hotel Tuli International on Thursday. The website "Hyperlink http://www.hrdp-idrm.in" was launched by General Bhardwaj, Member of National Disaster Management Authority, New Delhi in the month of February 2009.

In his inaugural speech, Saini talked about the work being done in USA on public safety response whether it deals with industrial accidents or there are deliberate attempts to disrupt/create mass casualty events through hazardous material located in industries.

Saini stated that India is lagging behind in this regard, and has to do a lot about the management of Industrial safety information exchange, to be better prepared. He felt that India has no shortage of technical knowledge but it is not being used for the benefit of masses.

G S Saini, Director of National Civil Defence College inaugurating the networking workshop by lighting the traditional while other dignitaries look on.

According to him, Civil Defence has to be given a lot of priority and this can be done through local crisis groups in the industrial establishments.

Rakesh Dubey, Director of Disaster Management Institute, Bhopal, in his speech, said that India has more knowledge base than any other country in the field of disaster management, but it is not being shared with the people.

Dubey added that this web platform on managing Human Resource Development, is an instrument through which the knowledge can be made available to the people at large. He emphasised that the educational institutions can contribute to spread the disaster preparedness knowledge in the country.

Dr Florian Bemmmerlein Lux, who represents the Indo German Development Cooperation (InWent capacity development International and German Technical Cooperation Advisory Service in Environmental Management GTZ-ASEM) talked about the importance of bringing about synergy's of all organisations –public and private- that offer training courses through a joint internet-based networking platform.

S S Gautam, Directorate General of Factory Advice Services and Labour Institute, Mumbai, talked about the importance of this kind of platform for the benefit of the worker community, whose safety and security has to be enhanced. This can be done through coordinated action of participating government agencies.

In the two-day workshop, Chief Inspectors of Factories and Boilers from Goa, Gujarat, Maharashtra, Chhattisgarh along with senior officers from State Pollution Control Boards of Maharashtra and Chhattisgarh, GAIL and Max Healthcare are participating in the workshop. The workshop will conclude on Friday.

Annexure II

NETWORK WORKSHOP AT NAGPUR on June 11-12, 2009

S. No.	Name , Designation & Organization	Email id	Contact No.
1.	**Mr. Florian Bemmerlein-Lux** InWEnt Capacity Building International, Germany	flo@ifanos-concept.eu	09817843683
2.	**Dr. Rakesh Dubey** Director – Disaster Management Institute, Bhopal	rakeshddubey@hotmail.com	09893250923
3.	**Brig B. K. Khanna** NDMA, New Delhi	bkkhanna2@gmail.com	09911297972
4.	**Shri S S Gautam** Director – Director General, Factory Adivse Service & Labour Institute, Mumbai	cli@dgfasli.nic.in	09869007209
5.	**Shri G S Saini** National Civil Defence College Govt. of India, Ministry of Home Affairs 61/1, Civil lines, Nagpur	gss_saini@yahoo.co.in	09422804452
6.	**Shri M N Gadapaa** Chief Inspector of Factories Commerce, Nagpur	mngadappa@gmail.com	09869069546
7.	**Shri S. M. Paranjape** Chief Inspector of Factories and Boilers, Government of Goa, Panaji, Goa	ifs.goa@in.com	09422440008
8.	**Shri Jitin Saxena** Gail Training Institute, Gail (India) Ltd., Plot No. 24, Sector - 16 A, Noida – 201301, Distt. Gautam Budh Nagar, UP	jitin.saxena@gail.co.in	09810203369
9.	**Shri Mukesh Sharma** Centre for Research and Industrial Staff Performance (CRISP), Shamla Hills, Bhopal - 462002	mukesh.sharma@crispindia.com	09425302040 Fax : 91-755-4220022
10.	**Shri H. K Dave,** Dy Director Director of Industrial, Health and Safety, Gujarat, Kalol.	harkant@gmail.com	09879206388
11.	**Dr. Talat Halim** Max Health Care Limited, Max House No 1, Press Enclave Road, Saket, New Delhi	talathalim@gmail.com	9818605111
12.	**Shri Anil Sharma** Chattisgarh Environment Conservation Board, H. No. 1. Tilak Nagar, Shiv Mandir Chowk Avanti Vihar Raipur	akscecb@gmail.com	9827126123
13.	**Dr. Prakash Rao**, Advisor, DisasterShield, Professor, A-43, Minal Residency, JK Road, Bhopal	pvprakasarao@yahoo.com	9009192426

14.	**Dr.M C Jain**, Advisor, DisasterShield, Retired Chief Inspector of Factories, Raipur, Chhatishgarh	jainmc61@gmail.com	09425834248
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16.	**Shri K M Sharma**, Event Manager, DisasterShield	info@disastershield.co.in	09425647156
17.	**Ms Nividita Mishra**, Program Asst., DisasterShield, Nagpur	nymishra@gmail.com	09823360461
18.	**Shri U V Bhadule** Research Officer, Maharashtra Pollution Control Board, Nagpur	dip4prash@yahoo.com	09422345696
19.	**Mrs. Hema Deshpande** Sr. Officer, Maharashtra Pollution Control Board, Nagpur	hema_mayur@yahoo.com	09922939591

Annexure III

Schedule of Workshop

	First day	
Time	**Programme**	**Key Words**
9:30-10:00	Registration	Registration
10:00-10:30	Programme Inauguration & key note addresses	
10:30-10:45	**Tea**	
10:45-11:30 11:30-12:30	Presentation of the www.hrdp-idrm.in platform as a possible management tool on iDRM Discussion about the possibilities for a joint use for knowledge management and management of training events in IDRM of www.hrdp-idrm.in by **Dr Florian Bemmerlein-Lux**	Management, web portal, Possibilities, joint use
12.30-13:00	Sharing of experiences in HIRA, Off-Site and On-site plans to get a common understanding and getting ideas about who has what material **by Dr Rakesh Dubey**	**HIRA, on-site, off-site**
13:00-14:00	Lunch Break	
14:00-17:00	• Presentation by Sri G S Saini, about the NCDC activities and NCDC role in web platform • Presentation by Sri Mukesh Sharma about the CRISP activities and CRISP role in web platform • Presentation by Sri Paranjpae about the CIF&B, Goa activities and CIF&B role in web platform • Presentation by Sri Harkant Dave about the Software of information prepared by Govt of Gujarat and their role in web platform • Presentation by Dr. Talat Halim about the importance of heath component in iDRM activities • Presentation by Sri Anil Sharma, about the CPCB activities and CPCB role in web platform	Activities of the respective organisation and their role in iDRM
17:00-17:30	Summary of the whole day activities by Dr Florian B-Lux and Dr Rakesh Dubey	
17:30-18:00	Redefining the activities for the next day action plan	
	Second Day	
09:00-11:15	Exchange experiences about capacity building efforts and constraints Characterise in detail stakeholders (stakeholder map), target groups of training (field, levels in the hierarchy, specific needs),	Characterisation of stakeholders
11:15-11:30	**Tea Break**	
11:30-12:30	Define the main topics for each of the target groups according to administrative level (manager, operational, disaster management responsible etc.) development the criteria for information flow from all stakeholders to DMI for web platform management	Topics for target groups

12:30-13:30	Agree and develop the steps for next activities on web platform and consensus for holding next workshop for involving whole country	Development of criteria
13:30-14:30	Afghanistan experience sharing by Dr Florian Bemmerlein-Lux Valedictory session chaired by Brg B K Khanna Conclusion and closing	Drafting of MOU
13:30-14:30	**Lunch**	
14:30-15:00	Visit to NCDC	

ANEXURE V

NETWORK WORKSHOP

on

www.hrdp-idrm.in web platform

at

Nagpur

(JUNE 11th –12th, 2009)

Contents

HAZARD IDENTIFICATION

AND

RISK ASSESSMENT

(HIRA)

HAZARD IDENTIFICATION AND RISK ASSESSMENT (HIRA)

1.0 Introduction

The first step of the HIRA review is to select an area, task or activity. Priority should be given to areas, tasks or activities thought to present special risks, based on:

- past experience (eg accidents, near-misses, complaints);
- concerns expressed by staff;
- requirements of legislation or University policies and procedures (eg workplace changes);
- requests from the various Health and Safety Teams, etc.

2.0 Hazard Identification

Hazards can be grouped under various categories, as listed below. The items listed under each category are provided as examples.

2.1 Bio-mechanical and Postural

Repetitive or sustained postures, movements or forces as listed below for more than 30 min at a time, or for more than 2 hours over a workday

i) Excessive bending or twisting of back or neck in any direction
ii) Working with hand(-s) above shoulders
iii) Reaching to front/side more than 30 cm from body
iv) Reaching behind body
v) Squatting, kneeling, crawling, semi-lying or jumping
vi) Standing with most of body weight on one leg
vii) Twisting, turning, grabbing, picking or wringing actions with fingers, hands or arms
viii) Working with fingers close together or wide apart
ix) Very fast movements
x) Excessive bending of wrist(-s)
xi) Carrying with one hand or one side of the body
xii) Pushing, pulling, dragging, holding or restraining

High force actions as listed below

i) Lifting, lowering or carrying heavy loads
ii) Applying uneven, fast or jerky forces
iii) Sudden/unexpected forces

iv) Pushing/pulling objects hard to move or stop
v) Awkward grips
vi) Throwing, catching, hitting, kicking or jumping
vii) Holding, restraining or supporting person, animal or heavy object

2.2 Physical Environment and Workplace Design

i) Poor housekeeping, uncontained spillages or wastes
ii) Uneven or slippery work surfaces
iii) Obstacles in passageways, near equipment, risk of collision with stationary objects, etc
iv) Inadequate work platforms, stairs, ladders, guardrails, harnesses, etc for work at height
v) Personnel access within 2 metres of edge of roof, high place of work, etc
vi) Unprotected openings or gaps in walkways & platforms
vii) Poor lighting
viii) Exposure to harmful noise levels
ix) Confusing or inadequate labelling of controls
x) Mismatch between plant, workplace, office workstation design, activity or task and user physical characteristics (height, strength, speed, mobility, fitness, etc)
xi) Body parts coming in contact with hot components during testing, inspection, operation, maintenance, cleaning or repair
xii) Exposure to camp fires and hot items from fires
xiii) Fall or collapse of ground, materials, plant, structures, etc
xiv) Exposure to extremely cold materials or components (eg dry ice)
xv) Exposure to radiation (ionising and non-ionising, lasers)
xvi) Entry into cool rooms

2.3 Mechanical

i) Hair, clothing, jewellery, rags, etc liable to become entangled in moving components
ii) Uncontrolled or unexpected movement of machinery, components, work pieces, vehicles or loads
iii) Inability to slow, stop or immobilise machines, vehicles…
iv) Body parts coming in contact with moving, sharp, hot, or "live" components during testing, inspection, operation, maintenance, cleaning or repair
v) Possibility of traffic accident
vi) Persons or body parts trapped or sheared between moving component & fixed plant, materials or structures
vii) Persons pushed, pulled or thrown off plant, structures…
viii) Machines, components, or materials disintegrating (eg grinding wheels)
ix) Persons being injured by damaged, poorly maintained or unguarded equipment (including electricals)
x) Components, work pieces, fluids, etc being ejected

2.4 Electrical

i) Contact with "live" components during testing, inspection, operation, maintenance, cleaning or repair
ii) Contact with overhead power lines
iii) Contact with underground power cables
iv) Explosion or ignition of electrical components, etc
v) Unauthorized access to electrical services, switchboards, controls, etc

2.5 Chemicals and Toxicity

i) Explosion or ignition of gases, vapours, liquids, dusts, etc
ii) Exposure to toxic concentrations of chemicals (skin, inhalation, ingestion, etc)
iii) Exposure to oxygen-depleted atmospheres
iv) Damage to gas lines, compressed gas cylinders, chemical storage containers, etc

2.6 Biological and Human

i) Exposure to venomous or dangerous animals
ii) Exposure to toxic natural substances (plant, mushrooms, gases, etc)
iii) Exposure to (potentially) infectious substances
iv) Accidental collision with another person
v) Assault by another person (*Note: where workplace violence is being reviewed, special risk assessment forms should be used. They are available from the OHS Services Unit, ext. 9370).*

2.7 Organisational and Procedural Arrangements

i) Insufficient first-aid equipment or trained personnel
ii) Insufficient evacuation, emergency or rescue planning and facilities
iii) Access to hazardous equipment by unauthorised or untrained people
iv) Insufficient job rotation, rest breaks
v) Inappropriate, insufficient or poorly maintained personal protective equipment

2.8 Psycho-social Environment and Task Design

i) Insufficient consideration given to the probability of human error and its consequences
ii) Lack of clarity in work roles of employee(-s)
iii) Lack of control or recognition in work roles of employees
iv) Mismatch between task demands and workers'/people's behaviour or capabilities
v) Insufficient consideration given to consultation prior to workplace changes

2.9 Natural Environment

i) Drowning
ii) Bushfires
iii) Persons becoming lost or ill in remote locations
iv) Possibility of being engulfed in loose or crumbling ground
v) Exposure to extreme environmental conditions (hot, cold, dry, wet, snowy, stormy, etc)
vi) Possibility of tree limbs falling
vii) Lightning in exposed locations
viii) Risk Assessment

Risk assessments are based on 2 key factors:

- the likely severity of any injury/illness resulting from the hazard and
- the probability that the injury/illness will actually occur.

		Probability			
		Very likely Could happen any time	**Likely** Could happen sometime	**Unlikely** Could happen, but very rarely	**Very Unlikely** Could happen,
Severity	Death or permanent disability	**1 (HIGH)**	**1 (HIGH)**	**2 (HIGH)**	**3 (MEDIUM)**
	Long-term illness or serious injury	**1 (HIGH)**	**2 (HIGH)**	**3 (MEDIUM)**	**4 (MEDIUM)**
	Medical attention and several days off work	**2 (HIGH)**	**3 (MEDIUM)**	**4 (MEDIUM)**	**5 (LOW)**
	First aid needed	**3 (MEDIUM)**	**4 (MEDIUM)**	**5 (LOW)**	**6 (LOW)**

4.0 Risk Control

Urgent action is required for risks assessed as priority 1. The actions required may include:

- instructions for the immediate end of the work, process, activity, etc
- isolation of the hazard until more permanent measures can be implement

Documented control plans with responsibilities and completion dates are required for priority 2 and 3 risks. *(Refer to HIRAC Report available at: www.ballarat.edu.au/ohs/HIR_Rep.doc)*

The risk control hierarchy ranks risk control measures in decreasing order of effectiveness. Risk control measures should always aim as high in the list as practicable. Control of any given risk generally involves a number of measures drawn from the various options (except if option 1 is selected).

4.1 Risk Control Hierarchy:

A. Elimination of hazard: examples include the proper disposal of redundant items of equipment that contain substances such as asbestos or PCBs, the removal of excess quantities of chemical accumulated over time in a laboratory, etc. The elimination of hazards is 100% effective

B. Substitution of hazard: examples include the replacement of solvent-based printing inks with water-based ones, of asbestos insulation or fire-proofing with synthetic fibres or rockwool, the use of titanium dioxide white pigment instead of lead white, etc. The effectiveness of substitution is wholly dependent on the choice of replacement.

C. Engineering controls: examples include the installation of machine guards on hazardous equipment, the provision of local exhaust ventilation over a process area releasing noxious fumes, fitting a muffler on a noisy exhaust pipe, etc. The effectiveness of engineering solutions is around 70 - 90%.

D. Administrative controls: include training and education, job rotation to share the load created by demanding tasks, planning, scheduling certain jobs outside normal working hours to reduce general exposure (eg planning demolition and building works during summer recess), early reporting of signs and symptoms, instructions and warnings, etc. The effectiveness of administrative controls ranges from 10 to 50%. They typically require significant resources to be maintained over long periods of time for continuing levels of effectiveness.

E. Personal protective equipment: includes safety glasses and goggles, earmuffs and earplugs, hard hats, toe-capped footwear, gloves, respiratory protection, aprons, etc. Their effectiveness in realistic work situations does not exceed 20%.

5.0 Definitions

"**Hazard**": is the potential to cause harm to a person or to the natural environment.

"**Risk**": means a combination of the severity and likelihood of harm arising from a hazard.

"**Risk assessment**": is the process of evaluating the severity and likelihood of harm arising from a hazard.

"**Risk control**": is the process of implementing measures to reduce the risk associated with a hazard. The control process must follow the control hierarchy, in order, as prescribed in some health and safety legislation. It is important that control measures do not introduce new hazards, and that the ongoing effectiveness of the controls is monitored.

"**Risk control hierarchy**": ranks risk control measures in decreasing order of effectiveness:

- elimination of hazard;
- substitution of hazardous processes or materials with safer ones;
- engineering controls;
- administrative controls; and
- personal protective equipment.

The risk control measures implemented for the hazards identified should always aim to be as high in the list as practicable.

6.0 Hazard Identification Techniques

These typically include:

HAZOP (probably the best and most detailed)

Preliminary Hazards Analysis (widely used)

Failure Modes Effects and Criticality Analysis or FMECA (specific for equipment such as fired heaters etc.)

What if? (not so common as it depends upon the correct questions being asked).

Hazard Indices (Dows Index, Mond Index etc.) - (used mainly by Insurance companies) **Hazard Studies** (a powerful technique, invented by ICI that addresses hazard issues right from inception to commissioning and stabilisation phase of a project).

Others
Discussion is on PHA and HAZOP.

6.1 Preliminary Hazard Analysis

This examines a facility from the point of view of identifying areas, processes, locations and chemicals which pose a hazard potential. It is carried out as a first activity as it affects the balance work of a hazard study. Techniques used for hazard identification during a Preliminary Hazard Analysis include ranking through screening consequence analysis programmes (to find which chemical is "worse"), through the use of preset checklist based rankings, through experience, through past incidents and others. PHA would identify the areas with their rough hazard potential. For example, the PHA would identify that the reaction section of a chemical unit has a potential to cause widespread devastation compared to the raw material storage which may cause damage only locally. Also, the PHA could identify that the Reactor, on

failure of brine circulation for reactor cooling, could result in a runaway reaction, with potential for major damage.

6.2 HAZOP study

A HAZOP study or HAZOP analysis is a structured technique that attempts to identify hazard and operability concerns through a formal design scrutiny using certain key "Guidewords" (such as NONE, MORE OF, AS WELL AS , OTHER THAN etc.) and deviation "Parameters" (flow, temperature, pressure etc.) . The study is conducted by a Team and discussion is focused on predetermined "Nodes" or sections of manageable dimension. Any identified and significant deviation is studied in detail for causes, protections provided and consequences. When the consequence is not acceptable. the HAZOP Team suggests remedial measures where possible. HAZOP studies have become an integral part of any new design, any plant modification and increasingly used to evaluate existing plant designs for ensuring maximum compliance to latest safety norms. In addition, as the name suggests, HAZ- "OP" studies are also important from the "operations" angle, usually synonymous with plant availability and smooth, trouble free operation. Despite the early introduction of HAZOP as a formal technique by ICI in the 1960s, it still remains the most powerful hazard identification technique for process plants. It usually also forms the basis for formal Quantitative Risk Assessment or QRA studies by identifying failure cases for detailed quantitative examination in a QRA. The HAZOP would identify scenarios that need to be evaluated during detailed risk analysis. For example one of the HAZOP recommendations could be “Evaluate through QRA whether there is a need for an additional SDV (Shut Down Valve) on the line. Similarly, there would be others that are evaluated during Risk Analysis.

"Risk" is a function of consequence effect as well as frequency of occurrence. For example, an incident could occur once a year but kill 365 people and another could occur once a day and kill 1 person each time. Clearly, both incidents kill 365 people in a year, but their characteristics are totally different. Risk analysis consists of identifying the events that contribute to the discrete risk at different locations away from the facility and summarising them. For example, an "Individual " located a kilometre away from Factory Z could be exposed to a "Risk" R, which consists 20% due to an incident (say a rupture of a Reactor in the plant, 22.5% due to failure and fire of a storage tank etc. Risk analysis analyses these contributions to understand the components contributing to the risk (contribution by frequency or consequence).

7.0 Risk Assessment

Having analysed the risk contributors at different locations, the next step is to identify recommendations that result in Risk reduction where it is unacceptable. This activity could involve a decision as to whether to build a 6 lakh Rs. bund wall around a vessel resulting in a 14% risk reduction or whether buying a SDV for 4 lakh Rs. giving a risk reduction benefit of 12%. Cost benefit analysis is carried out (after of course putting a value to human life) and the optimum recommendations worked out. This subject is highly structured and if used properly, could be used to great benefit, as only meaningful recommendations (which actually result in benefit to society) are implemented as part of the safety program of a chemical industry.

*****

ON SITE AND OFFSITE EMERGENCY PLANS

ON

CHEMICAL DISASTER

ON SITE AND OFFSITE EMERGENCY PLANS ON CHEMICAL DISASTER

Why Emergency Planning is required?

After the incident of Bhopal gas disaster, the Factories Act has been amended and a new chapter i.e. Chapter IVA – provision relating to hazardous processes has been added to the Factories Act with addition of new provisions sec 41A, 41B, 41C, 41D, 41E, 41G & 41H covering all hazardous process industries. Under the provision of Sec 41B(4) every occupier shall with the approval of the Chief Inspector of Factories draw up an On-site Emergency Plan and detailed disaster control measures for his factory and make known to the workers employed therein and to the general public living in the vicinity of the factory the safety measures required to be taken in the event of an accident taking place. This is the statutory provision laid down in the act for preparation of On-site Emergency Plan to control disaster in the factories. Major accidents may cause emergency and it may lead to disaster, which may cause heavy damage to plant, property, harm to person and create adverse affects on production. Many disasters like Bhopal gas tragedy, Chernobyl nuclear disaster etc. have occurred at many places in the world causing heavy loss of life and property. Emergency situation arises all on a sudden and creates havoc and damage to person, property, production and environment. Therefore such situations and risks should be thought in advance and it should be planned before hand to tackle them immediately and control them within the shortest time.

As per the Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 the following provisions have been made for on-site and off-site emergency management plans

On-site Emergency Plan:

(1) An occupier shall prepare and keep up-to-date an on-site emergency plan detailing how major accidents will be dealt with on the site on which the industrial activity is carried on and that plan shall include the name of The person who is responsible for safety on the site and the names of those who are authorised to take action in accordance with the plan in case of an emergency

(2) The occupier shall ensure that the emergency plan prepared in accordance with sub-rule (I) lakes into account any modification made in the industrial activity and that every person on the site who is affected by the plan- is informed of its relevant provisions.
(3) The occupier shall prepare the emergency plan required under sub-rule

(a) in the case of a new industrial activity before that activity is commenced;

(b) in the case of an existing industrial activity within 90 days of coming into operation of these rules.

Off-site emergency plan:

(1) It shall be the duty of the concerned authority as identified in Column 2 of Schedule 5 to prepare and keep up-to-date an adequate off-site emergency plan detailing how emergencies relating to a possible major accident on that site will be dealt with and in preparing that plan the concerned authority shall consult the occupier, and such other persons as it may deem necessary.
(2) For the purpose of enabling The concerned authority to prepare the emergency plan required under sub-rule (1), the occupier shall provide the concerned authority with such information relating to the industrial activity under his control as the concerned authority may require, including the nature, extent and likely effects off-site of possible major accidents and the authority shall provide the occupier with any information from the off-site emergency plan which relates to his duties under rule 13.
(3) The concerned authority shall prepare its emergency plan required under sub-rule (1),-

(a) in the case of a new industrial activity, before that activity is commenced;

(b) in the case of an existing industrial activity, within six months of coming into operation Of these rules.

What is emergency?

A major emergency can be defined as an accident/ incident that has potential to cause serious injuries or loss of life. It may cause extensive damage of property, serious disruption both in production and working of factory and may adversely effect the environment. The following factors may cause major emergency.

(i) Plant failure.
(ii) Human error.
(iii) Vehicle crash.
(iv) Sabotage.
(v) Earthquake.
(vi) Natural Calamities.

On-site Emergency:-

If an accident/ incident takes place in a factory, its effects are confined to the factory premises, involving only the persons working in the factory and the property inside the factory it is called as On-site Emergency.

Off-site Emergency:-

If the accident is such that it affects inside the factory are uncontrollable and it may spread outside the factory premises, it is called as Off-site Emergency.

Objectives:- The main objectives of an emergency plan are-

a. to control and contain the incident/ accident and if possible, eliminate it and
b. to minimize the effects of the incident on person, property and environment.

Each major hazardous factory should prepare an emergency plan incorporating details of action to be taken in case of any major accident/ disaster occurring inside the factory. The plan should cover all types of major accident/ occurrences and identify the risk involved in the plant. Mock drills on the plan should be carried out periodically to make the plan foolproof and persons are made fully prepared to fight against any incident in the plant. The plan will vary according to the type of industry and emergency.

Statutory Provision:-

After the Bhopal gas tragedy (1984) and supreme court direction in case of M/S. Sriram Foods and Fertilizers, the Govt. of India has made some important amendments to the Factories Act 1948 in the year 1987 with

incorporation of special provisions relating to hazardous process. Under Section 41(B)(4) every occupier is to prepare On-site Emergency Plan and detailed disaster control measures for his factory. Again under provision of Rule 13 of the Manufacture, Storage and Import of Hazardous Chemicals Rules 1989, the occupier shall prepare and keep up to date On-site Emergency plan containing details how major accidents will be dealt with on the site on which the industrial activity is carried on and that plan shall include the name of the person who is responsible for safety on the site and names of those who are authorized to take action in accordance with the plan in case of emergency.

The occupier shall ensure a mock drill of the on site emergency plan is conducted at least one in every six months. A detailed report of the mock drill conducted under rule shall be made immediately available to the Inspector and Chief Inspector of Factories.

Main elements of On-site Emergency plans :-

i) Leadership and Administration.
ii) Role and Responsibilities of Key Personnel.
iii) Emergency action.
iv) Light and Power.
v) Source of energy control.
vi) Protective and rescue equipment.
vii) Communication.
viii) Medical care.
ix) Mutual Aid.
x) Public relation.
xi) Protection of vital records.
xii) Training.
xiii) Periodical revision of plan.

Emergency Action Plan:- The Action Plan should consist

- Designated Emergency Control Centre/Room.
- Key Personnel.

Emergency Control Centre:- This is the main center from where the operations to handle the emergency are directed and co-ordinated.

Maximum facilities to be made available in the emergency control are –

i. Internal and external communication.
ii. Computer and other essential records.
iii. Daily attendance of workmen employed in factory.
iv. Storage of hazardous material records and manufacturing records.
v. Pollution records.

vi. Walky-talky.
vii. Plan of the plant showing-

i. Storage area of hazardous materials.
ii. Storage of safety equipments.
iii. Fire fighting system and additional source of water.
iv. Site entrance, roadway and emergency exist.
v. Assembly points.
vi. Truck parking area.
vii. Surrounding location.

viii. Note Book, Pad and Pencil.
ix. List of Key Personnel with addresses, telephone number etc.

Assembly Points:-

A safe place far away from the plant should be pre determined as assembly point where in case of emergency personnel evacuated from the affected areas are to be assembled. The plant workers, contract workers and visitors should assemble in assembly point in case of emergency and the time office clerk should take their attendance so as to assess the missing person during emergency.

The Key Personnel for onsite emergency:-

1. Works main controller.
2. Works incident controller.
    a. Communication Officer.
    b. Security and Fire Officer.
    c. Telephone Operators.
    d. Medical Officer.
    e. Personnel/Administrative Officer.
    f. Essential work team leaders.

Works Main Controller:-

The General Manager of the Plant should act as main controller. His duties are to -

1. Assess the magnitude of the situation and decide whether the evacuation of staff from the plant is needed.
2. Exercise and direct operational control over areas other than those affected.
3. Maintain a continuous review of possible development and assess in consultation with work incident controller and other Key Personnel.
4. Liaison with Police, Fire Service, Medical Services, Factory Inspectorate and other Govt. agencies.
5. Direct and control rehabilitation of affected area after emergency.

6. Intimate Off-site Emergency controller if the emergency spreads beyond the factory premises and likely to affect the surrounding area.
7. Ensure that evidence is preserved for enquiries to be conducted by statutory authorities.

The Works Main Controller will declare the emergency and he will instruct gate office to operate the emergency siren after assessing the gravity of the situation.

Work Incident Controller(WIC):-

He is the next responsible officer after the Works Main Controller. Generally the plant manager is designated as Work Incident Controller. In case of emergency he will rush to the place of occurrence and take overall charge and report to the Works Main Controller by personal communication system like cell phones or walky talky and inform about the magnitude of emergency. He will assess the situation and considering the magnitude of emergency he will take decision and inform Communication Officer to communicate the news of emergency to different agencies. He will give direction to stop all operations within the affected area. He will take the charge of Main Controller till the Main Controller arrives. He will order for shutdown and evacuation of workers and staffs from affected area. He will inform all Key Personnel and all outside agency for help. He will inform security and fire officers and State Fire Services. He will ensure that all non-essential workers/staff are evacuated to assembly point and areas searched for casualties. He will report all significant development to Communication Officer. Moreover he will advise to preserve evidence of emergency into the cause of emergency.

Other Key Personnel and their Duties:

Communication Officer: On hearing the emergency siren/alarm he will proceed to the control center and communicate to work incident controller. He will collect information from the emergency affected area and send correct message to work main controller for declaration of emergency. He will maintain a log book of incident. He will contact all essential departments. He will take stock of the meteorological condition from local meteorological Department. He will communicate all information as directed by Works Main Controller.

Security and Fire Officer: The Security or Fire officer will be responsible for the fire fighting. On hearing the emergency alarm/siren, he will reach the incident area with fire and security staff. Immediately after arrival to the emergency area, he will inform through telephone or walky talky to the communication officer. He will inform to the Work Incident Controller about the situation and requirement of outside help like State Fire Service and other mutual aid members.

At the site, the entire fire squad member will respond to the advice and information given by the works incident controller.

The security will control the visitors and the vehicle entry.

Telephone Operator: In case of fire is discovered but no emergency siren is operated, he shall ensure the information about the location of the fire/emergency incident from the person discovered/ notices the above and communicate to different Key Personnel immediately with clear message.

Medical Officer: Medical Officer with his team will report to the Works Incident Controller on hearing the fire/ emergency siren immediately. The ambulance will be parked nearest to the site of incident. Name of injured and other casualties carried to the Hospital will be recorded and handed over to Works Incident Controller. The ambulance will carry the injured to the nearest hospital for treatment.

Personnel/ Administrative Officer: He should work as a liaison officer liaisoning with works main controller and other essential departments such as Police, Press and Statutory authorities. His responsibilities shall include-

- To ensure that casualties receive adequate attention to arrange additional help if required and inform relatives.
- To control traffic movement into the factory and ensure that alternative transport is available when needed.
- When emergency is prolonged, arrange for the relief of personnel and organize refreshment and catering facilities.
- Arrange for finance for the expenditure to handle the emergency.

Essential Works and Team Leaders: During emergency the plants immediately affected or likely to be affected, as determined by the Works Main Controller, need to be shut down for safety. In the area immediately affected, it may be possible to isolate equipment from which flammable or toxic material is leaking. This work must be immediately carried out by plant supervisors and essential operators.

Workers/ staffs need to be nominated to carry out the following essential works at the time of emergency-

- Extra first aid personnel to deal with casualties.
- Emergency engineering works, provision of extra or replacement of light, isolation of equipment, temporary by pass electrical lines etc.
- Moving tankers or other vehicles from area of risk.
- To carry out tests on ambient air quality.
- To act as runner in case of communication system fails.
- The Works Main Controller will require a task force of suitable trained people for the following works-

i. Manning of assembly points to record the arrival of evacuated people.
ii. Assistance of casualty arrival areas to record details of casualties.
iii. Manning the factory entrance in liaison with security to direct emergency vehicle containing the gate e.g. ambulance, fire tenders etc.

For these essential jobs designated teams should be made available. The responsibilities of the team and the leader should be given.

The essential work teams are-

1. Task Force and repair team.
2. Fire fighting team.
3. Communication team.
4. Security Team.
5. Transport Team.
6. First aid and medical team.
7. Safety team.

Alarm System: Alarm system varies and will depend on the size of the works area. Simple fire bell, hand operated siren – break open type, fire alarm etc. Automatic alarm may be needed for highly hazardous nature of plant.

Communication System:

Communication is a key component to control an emergency.

The following communication system may be provided in the plant-

- Walky Talky.
- Telephone (internal & external).
- Cell phone.
- Intercom/paging.
- Runners (verbal or written messages).

Siren for Emergency: Siren for emergency should be different from the normal siren. The emergency siren should be audible to a distance of 5 KM radius. The emergency siren should be used only in case of emergency.

Escape Route: The escape route from each and every plant should be clearly marked. The escape route is the shortest route to reach out of the plant area to open area, which leads to assembly point. This route should be indicated on the layout plan attached to the On-site Emergency Plan.

Evacuation: All non-essential staff should be evacuated from the emergency site. As soon as the emergency siren rings the workers have to shut down the plant and move to the assembly point. The plant shut down procedure in case of emergency should be prepared and kept ready and responsible person should be nominated for the purpose.

Counting of Personnel: All personnel working in the plant should be counted. Time office person should collect the details of personnel arriving at the assembly point. These should be checked with the attendances of regular workers, contract workers present in the site on the day of emergency. The accident control should be informed and arrangement should be made for searching missing person in the emergency affected area. The employees' address, contact number of next to kin should be maintained in the time office so that during emergency relatives of those affected due to emergency may be informed accordingly.

Information in respect of emergency should be given to the media and other agency.

All Clear Signal: After control of emergency the Work Incident Controller will communicate to the works main controller about the cessation of emergency. The main controller can declare all clear by instructing the time office to sound "All Clear Sirens".

Mutual Aid System: Mutual aid scheme should be introduced among industries so that in case of emergency necessary help from mutual aid partner may be extended.

Essential elements of this scheme are –

- Mutual aid must be a written document signed by the Chief Executive of the industries concerned.
- Specify key personnel who are authorized to give requisition of materials from other industries.
- Specify the available quantity of material/equipment that can be spared.
- Mode of requisition during emergency.
- Mode of payment/ replacement of material given during an emergency.
- May be updated from time to time based on experience gained.

Mock drills on emergency planning should be conducted once in 6 months and sequence of events should be recorded for improvement of the exercise. Exercises on On-site Emergency Planning should be monitored by Factory Inspectorate and the high officials of the organization and the plan is reviewed every year.

Emergency facilities: The following facilities should be provided in any factory to tackle any emergency at any time.

1. Fire protection and fire fighting facilities.
2. Emergency lighting and standby power.

3. Emergency equipment and rescue equipment –
   i. Breathing apparatus with compressed air cylinder.
   ii. Fire proximity suit.
   iii. Resuscitator.
   iv. Water gel Blanket.
   v. Low temperature suit.
   vi. First aid kit.
   vii. Stretchers.
   viii. Torches.
   ix. Ladders.

4. Safety Equipment –
   i. Respirators.
   ii. Gum boots.
   iii. Safety helmets.
   iv. Asbestos Rubber hand gloves.
   v. Goggles and face shield.
   vi. Toxic gas measuring instruments.
   vii. Explosive meter.
   viii. Oxygen measuring instruments.
   ix. Toxic gas measuring instrument.
   x. Wind direction indicator.

On-site Emergency Plan should contain -

1. Site plan and topographic plan.
2. Plan showing the fire fighting facilities.
3. Plan showing hazardous material storage area.
4. Material safety data sheets for hazardous chemicals.
5. Facilities available in main control center.
6. List of emergency equipment.
7. List of Safety Equipment.
8. List of important telephone numbers and addresses.
   i. Nearest hospitals and ambulance service center.
   ii. Nearest fire station.
   iii. Govt. Officials.
   iv. Transport provider.
9. Names and address & contact telephone number of Key Personnel.

The on site emergency plan so prepared shall be documented in a printed form in sufficient copies to give all concerned for knowledge, study and easy follow up. The emergency plan shall be rehearsed and practised at regular

intervals to test efficiency of personnel, equipments co-ordinated efforts and to increase confidence and experience to operate such plan.

An occupier of MAH industry should make the on-site plan as per the schedule 11 of MS and IHC Rules 1989. Annexure 1

Off-site Emergency Plan:

The main objectives of the plan are –

i. To save lives and injuries.
ii. To prevent or reduce property losses and
iii. To provide for quick resumption of normal situation or operation.

Risk Assessment: Risk assessment is most essential before preparing any off site emergency plan. Hazardous factories and their hazard identification, other hazard prone areas, specific risks, transportation risk, storage risks, pollution risks by air and water pollution, catastrophic risks such as disasters, natural calamities, acts of god, earthquake, landslide, storm, high wind, cyclone, flood, scarcity, heavy rain, lightening, massive infection, heavy fire, heavy explosion, volcano, heavy spill, toxic exposure, environmental deterioration etc., risks from social disturbances, risks from the past accidents must be considered while carrying out risk assessment for a particular area(district) from which the offsite emergency plan is to be prepared.

Central Control Committee: As the offsite plan is to be prepared by the Government, a Central Control Committee shall be formed under the Chairmanship of the District Collector. Other officers from Police, Fire Service, Factory Inspectorate, Medical Department shall be incorporated as members of the Central Control Committee. Under the Central Control Committee the following committees shall be constituted under the control of the District Collector.

i. Incident and Environment Control Committee.
ii. Fire Control Committee.
iii. Traffic control, Law and order, Evacuation and Rehabilitation Committee.
iv. Medical help, Ambulance and Hospital Committee.
v. Welfare, Restoration and Resumption Committee.
vi. Utility and Engineering Services Committee.
vii. Press, Publicity and Public Relations Committee.

The Off-site Emergency Plan shall be prepared by the District Collector in consultation with the factory management and Govt. agencies. The plan contains up to date details of outside emergency services and resources such

as Fire Services, Hospitals, Police etc. with telephone number. The district authorities are to be included in the plan area.

a. Police Department.
b. Revenue Department.
c. Fire Brigade.
d. Medical Department.
e. Municipality.
f. Gram Panchayat.
g. Railway Department.
h. Telephone Department.
i. Factory Department.
j. Electricity Department.
k. Pollution Control Department.
l. Explosive Department.
m. Press and Media.

Mock exercises on Off-site plan should be carried out at least once in a year to train the employees, up to date the plan, observe and rectify deficiencies.

HAZOP Study:

Before making the on site and off site plan HAZOP study has to be carried out to identify the potential hazardous situations and to find out possible control measures. HAZOP study is to be carried out by a team of experts. The team should consist of –

(a) Mechanical Engineer.
(b) Chemical Engineer.
(c) R & D Chemist.
(d) Works Manager.
(e) Project Manager.
(f) Outside experts.
(g) Safety Officer/ Manager.

Conclusion:

To carry out mock exercises and rehearsal of the off site plan to ensure its efficiency, test and response, interaction and co-ordination of operators various service organizations evaluate the effectiveness and adequacy of the equipments and to gain experience and confidence to implement the plan. The finalized disaster plan shall be given to all concerned for implementation and rehearsal for preparedness.

The Civil administration of the MAH industries should make the off-site plan as per the schedule 12 of MS and IHC Rules 1989. Annexure 2

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1[SCHEDULE-11] [See Rule 13(1)]

DETAILS TO BE FURNISHED IN THE ON-SITE EMERGENCY PLAN

1. Name and address of the person furnishing the information.
2. Key personnel of the organization and responsibilities assigned to them in case of an emergency
3. Outside organization if involved in assisting during on-site emergency:
   a) Type of accidents
   b) Responsibility assigned
4. Details of liaison arrangement between the organizations.
5. Information on the preliminary hazard analysis:
   a) Type of accident
   b) System elements or events that can lead to a major accident
   c) Hazards
   d) Safety relevant components
6. Details about the site:
   a) Location of dangerous substances.
   b) Seat of key personnel
   c) Emergency control room
7. Description of hazardous chemicals at plant site:
   a) Chemicals (Quantities and toxicological data)
   b) Transformation if any, which could occur.
   c) Purity of hazardous chemicals.
8. Likely dangers to the plant.
9. Enumerate effects of :
   (i) Stress and strain caused during normal operation:
   (ii) Fire and explosion inside the plant and effect if any, of fire and explosion out side.
10. Details regarding:

(i) Warning, alarm and safety and security systems.
(ii) Alarm and hazard control plans inline with disaster control and hazard control planning, ensuring the necessary technical and organizations precautions;
(iii) Reliable measuring instruments, control units and servicing of such equipment's.
(iv) Precautions in designing of the foundation and load bearing parts of the building.
(v) Continuous surveillance of operations.
(vi) Maintenance and repair work according to the generally recognized rules of good engineering practices.

11. Details of communication facilities available during emergency and those required for an off-site emergency.
12. Details of fire fighting and other facilities available and those required for an off-site emergency.
13. Details of first aid and hospital services available and its adequacy.

[1][SCHEDULE 12]

[See Rule 14(1)]

DETAILS TO BE FURNISHED IN THE OFF-SITE EMERGENCY PLAN

1. The types of accidents and release to be taken into account.
2. Organizations involved including key personnel and responsibilities and liaison arrangements between them.
3. Information about the site including likely locations of dangerous substances, personnel and emergency control rooms.
4. Technical information such as chemical and physical characteristics and dangers of the substances and plant.
5. Identify the facilities and transport routes.
6. Contact for further advice e.g. meteorological information, transport, temporary food and accommodation, first aid and hospital services water and agricultural authorities.
7. Communication links including telephones, radios and standby methods.
8. Special equipment including fire fighting materials, damage control and repair items.
9. Details of emergency response procedures.
10. Notify the public.
11. Evacuation arrangements.
12. Arrangements for dealing with the press and other media interests.
13. Longer term clean up.

****

EMERGENCY ASSESSMENT SYSTEM

FOR

AWARD OF SHIELD/TROPHY

EMERGENCY ASSESSMENT SYSTEM FOR AWARD OF SHIELD/TROPHY

After having known the regulatory tools it is important that we must evaluate the overall preparedness of an Industry for industrial (chemical) disaster. To achieve the objectives everyone works in a spirit of collaboration and consensus in order to design and promote ways of improving prevention, preparedness and response (PPR).

The main objectives of the award are to:

- increase awareness of the risks associated with hazardous substances;
- develop an culture of appreciating those who are making efforts for emergency preparedness, and
- increase the quality of joint emergency PPR activities by local authorities and plant site personnel in communities with hazardous installations—those that manufacture, use, handle, store, make ready for transport or dispose of hazardous substances.

An integrated emergency PPR program is highly recommended in communities that have hazardous installations or those that are situated on dangerous goods transportation corridors. Communities with such a program are generally better prepared and more capable of effectively responding to disasters—human-made. To facilitate the development of such a program requires that members of the community and its industry work together in a single forum of cooperation and consensus.

Representatives of each of the following organizations will help the community to raise its current level of PPR through award:

- emergency services organizations (fire, police, ambulance, public works);
- regional or community emergency measures coordinators;
- elected officials;
- medical services (public health, emergency services, hospitals);
- industry representatives;
- major transportation companies (rail, trucking, marine, warehousing, pipelines);
- non-governmental organizations with emergency response capability, Red Cross, St. John's Ambulance etc.;

• public and public advocacy groups;

• media;

• provincial emergency measures coordinators and environment officers; and

•regional directors from relevant federal departments, such as Emergency Preparedness

AWARD ASSESSMENT TOOL

General Information

Name of company: _____-
_____

Location of site: _____

Name of site: _____

No. and street: _____

City: _____

Province: _____

Postal code: _____

Latitude: _____

Longitude: _____

Approximate number of employees on the site (including regular contractors): _____

Hazardous substances on-site on the list according to regulations: _____

_____

_____

Substances kept on the site exceeding the limit: _____

_____

_____

Site Emergency Preparedness

A. Requirements to achieve the ESSENTIAL level

	YES	NO
1. Is there a documented emergency plan?	☐	☐
2. Has this plan been tested?	☐	☐
3.	☐	☐
4. Etc.		

Additional requirements to achieve the ENHANCED level

	YES	NO
7. Have the requirements in case of emergency been communicated to local authorities in order to include them in the community emergency plan?	☐	☐
8.	☐	☐
9. Etc		

Additional requirements to achieve the EXCELLENT level

YES	NO
☐	☐

LIKE OTHER SET OF QUESTIONS

*****

Current General Status of the Process Safety Management

In progress . . . . . ☐
Essential . . . . . ☐
Enhanced . . . . . ☐
Excellent . . . . . ☐

Site Representative

Name: _____

Title:_____

Area:_____

Tel.: Fax:_____

E-mail:_____

Self-assessment of Current Status

Process Safety Management
Requirements to Achieve the ESSENTIAL Level

A B C D

1. Accountability: objectives and goals

a)
b)

2. Process knowledge and documentation

a)
b)

3. Process safety review procedures for capital projects

a)
b)
c)

A B C D

4. Process risk management

5. Management of change

a) Is there a system to manage any modification to:
• technology/materials/products? ☐ ☐ ☐ ☐
• equipment/controls/software/
process operations? ☐ ☐ ☐ ☐

b)

c)

6. Process and equipment integrity

7. Human factors ☐ ☐ ☐ ☐

8. Training and performance

a) ☐ ☐ ☐ ☐

b) ☐ ☐ ☐ ☐

8. Incident investigation

a

10. Company standards, codes and regulations

11. Audits and corrective actions

12. Enhancement of process safety knowledge

*****

Set of Questions for ENHANCED Level

Requirements to Achieve the ENHANCED Level

A B C D

*****

Questions for the assessment of EXCELLENT Level

*****

About the Community Participation

Guidelines for Assessing Community Preparedness

COMMUNITY SELF-ASSESSMENT TOOL

General Information

Name of municipality/industrial area: _____

Prepared by: _____Tel. No.:_____

Fax No.: _____

E-mail: _____

***Head of emergency: _____**

Tel. No.: _____

Fax No.: _____

E-mail: _____

*This person is responsible for the development and maintenance of the emergency plan of the municipality/industrial area. The designation of this individual may vary: head of emergency services, emergency program coordinator, emergency planner, head of emergency planning, etc.

Emergency Prevention and Preparedness Activities ESSENTIAL LEVEL

	NO IN PROGRESS	**YES**
1. Joint Coordinating Committee (JCC)		
Has your community established a joint coordinating committee (JCC) where local authorities and industry representatives work together to enhance community prevention, preparedness and response?		☐ ☐ ☐
2. Designated community emergency measures officer		

Has your community designated a community emergency measures officer who is specifically accountable for the development and maintenance of the community emergency plan? ☐ ☐ ☐

3. Joint community and industry hazard identification and risk assessment

Has your community completed and documented a joint community/industry hazard identification and risk assessment? ☐ ☐ ☐
If Yes,
provide year completed: _____

4. Community emergency plan

Has your community developed and documented a community emergency plan? ☐ ☐ ☐
If Yes,
provide year last updated: _____

5. Hazardous substances

Does your community emergency plan specifically address potential releases of hazardous substances? ☐ ☐ ☐

6. Community Emergency Operations Centre (EOC)

Does your community have a basic Emergency Operations Centre (EOC)? ☐ ☐ ☐

ESSENTIAL LEVEL

YES **NO** IN

PROGRESS

7. Documented industrial emergency response capability and resources

Has your community identified and specifically documented industrial emergency response capabilities and resources in the community emergency plan? ☐ ☐ ☐

8. Community and industry emergency information personnel

Are there designated representatives from both the community and industry identified in the community emergency plan who will act as

spokespersons during an emergency? ☐ ☐ ☐

9. Annual exercise

Does your community conduct an annual exercise to evaluate the community emergency plan? ☐ ☐ ☐
If Yes,
indicate year of most recent exercise: _____

10. Joint community and industry public education program

Has your community developed, documented and undertaken a joint community/industry public education program to inform the public and media of hazards in their community and what to do in case of an emergency? ☐ ☐ ☐
If you answered YES to all the questions numbered 1 through 10, your municipality has reached the Essential municipality PPR level.

Emergency Prevention and Preparedness Activities ENHANCED LEVEL

NO IN **YES**
PROGRESS

11. Enhanced community emergency plan

Has your community integrated industry requirements into the community emergency plan, and are they comprehensive enough to include telecommunications, alerting of the public, notification requirements, evacuation, resource lists, special equipment requirements and risk-based plans for specific industries? ☐ ☐ ☐

12. Trained community and industry spokespersons

Are the community and industry spokespersons identified in the emergency information plan adequately trained on the strategy and process for disseminating information during an emergency? ☐ ☐ ☐

13. Enhanced community Emergency Operations Centre

Does your community have plans in place to include industry involvement in the Emergency Operations Centre? ☐ ☐ ☐

14. Integrated community and industry emergency telecommunications system

Has your community developed, documented and put in place joint community/industry emergency telecommunications systems? ☐ ☐ ☐

15. Joint community and industry emergency preparedness training program

Has your community documented and undertaken a joint community/industry emergency preparedness training program? ☐ ☐ ☐

ENHANCED LEVEL

NO IN **YES**
PROGRESS

16. Comprehensive exercise program

Has your community undertaken a comprehensive exercise program to evaluate joint community/industry emergency preparedness? ☐ ☐ ☐

If you answered YES to all the questions numbered 1 through 16, your municipality has reached the Enhanced municipality PPR level.

Emergency Prevention and Preparedness Activities EXCELLENT LEVEL

NO IN **YES**
PROGRESS

17. Mutual aid or assistance arrangements

Has your community established and documented mutual aid or assistance arrangements with neighbouring communities? ☐ ☐ ☐

18. Comprehensive joint community and industry risk-based public education program

Has your community developed, documented and undertaken a comprehensive joint community/industry risk-based public education program? ☐ ☐ ☐

19. Joint community and industry information centre

Does your community have a joint community/industry information centrefor the dissemination of information to the media and the public during an emergency? ☐ ☐ ☐

20. Joint community and industry risk-based emergency prevention and mitigation program

Has your community developed and implemented a joint community/industry risk-based emergency prevention/ mitigation program? ☐ ☐ ☐

21. Risk-based land use planning guidelines

Has your community established and implemented risk-based land use planning? ☐ ☐ ☐

22. Designated community dangerous goods transportation routes

Has your community designated dangerous goods transportation routes? ☐ ☐ ☐

23. Joint community and industry risk-based recovery plans

Has your community developed and documented a community and industry recovery plan? ☐ ☐ ☐

EXCELLENT LEVEL

YES **NO** IN

PROGRESS

24. Joint community and industry review of emergency measures programs

Does your community conduct an annual joint community/industry review of the entire community prevention, preparedness and response program? ☐ ☐ ☐

If you answered YES to all the questions numbered 1 through 24, your municipality has reached the Excellent municipality/industrial area PPR level.

IT IS VERY HIGH TECHNICAL WORK HENCE ACTION FOR DEVELOPMENT OF CHECKLIST IS REQUIRED AND SUBSEQUENT THE EVALUATION IS REQUIRED BY EXPERTS.

****

Consolidated Summary Sheet for Participant - Evaluation of the Training Course

Consolidated Summary Sheet for Participant - Evaluation of the Workshop - CSPT Overall Summary			
Meeting / Symposia / Conference / Dialogue event - Title	**IDRM Platform Network Workshop - Nagpur**		
Code	**SID|2008|iDRM|23**		
Training Institution	**DMI Bhopal / NCDC, Nagpur**		
Duration	**from**	**11.06.2009**	**to 12.06.2009**

Overall training course and objectives						**(Q: 9-1, 9-2, 6-1)**
Number of questions (3) where response rounded average is equal to					**Evaluation Index (EI)***	**Rating****
1	2	3	4	5		
3	0	0	0	0	**3**	**very successful**

Objectives:	
6-1-1	Share experiences in HIRA, Off-Site and On-site plans
6-1-2	Discussion about the possibilities for a joint use for knowledge management and management of training events in IDRM of www.hrdp-idrm.in
6-1-3	Identify the existing and relevant databases - Start linkages to other web sites and agree on authors training in the future
6-1-4	Discussion about the possibilities of inclusion of Civil Defence, Medical preparedness, fire fighting as themes in iDRM on NDMA recommendations

Remarks	
9-3	**I liked especially:**
Health / Disaster Networking, Lecture presentation, Frame work of hrdp-idrm. Integration of all the members of the network. Information sharing platform. Training information within the network members.	
9-4	**I disliked especially:**
nil	
9-5	**What kind of awareness did you receive through this event?**
complete networking skill, development of IT skills, opening my horizon to the world through this site, awareness and training skills, knowledge about the networking.	

Organisation and venue						**(Q: 7-1 to 7-10)**
Number of questions (10) where response rounded average is equal to					**Evaluation Index (EI)***	**Rating****
1	2	3	4	5		
8	2	0	0	0	**9,5**	**excellent**

Analysis & conclusions by participants	
Follow-up	
8-1	**Which follow-up activities would you recommend? (e.g. further specialist events, e-Learning courses, etc.)**
To be trained all ever again, Establish resource & training centre, As trained this time by Dr. Flo, To provide contents of training, Association with hrdp-irdm, Integration of Environment aspects, Actions on the decisions taken in the workshop should be followed up within the agreed time limits.	
8-2	**Further comments and suggestions for improvements suggestions for improvement:**
The website should be uploaded on regular basis and the information should be provided to the members as it is updated, Association with hrdp-idrm should be developed among the partners, necessary information should be given to the members regarding any development.	

The moderator/facilitator and methods						**(Q: 4-1 to 4-4)**
Number of questions (4) where response rounded average is equal to					**Evaluation Index (EI)***	**Rating****
1	2	3	4	5		
4	0	0	0	0	**4**	**excellent**
Most of the participants liked the contents of the website. However, health training coursory should be included in the site.						

Participants - How do you assess						**(Q: 3-1 to 3-5)**
Number of questions (5) where response rounded average is equal to					**Evaluation Index (EI)***	**Rating****
1	2	3	4	5		
2	3	0	0	0	**4,25**	**very good**
Most of the participants were of the view that the course content was very good and the method of delivery was excellent. There was a good compilation of theory and practical aspects. Workshop Module was good.						

Relevance and impact of the work						**(Q: 2-1 to 2-2)**
Number of questions (2) where response rounded average is equal to					**Evaluation Index (EI)***	**Rating****
1	2	3	4	5		
2	0	0	0	0	**2**	**excellent**