EHS+ CENTER
ADVANCED TRAINING. INSPIRING CHANGE.

NORTH SOUTH UNIVERSITY
ইএইচএস+ সেন্টার, নর্থ সাউথ ইউনিভার্সিটি

Chemical Management Program In a Textile Process House

USAID FROM THE AMERICAN PEOPLE

SWEDEN

Walmart

INSTITUTE FOR Sustainable Communities

Target 2021- 50 Bn $ business in RMG

EHS+

Barrier to the dream….

- Nimtoli fire: (June 3, 2010): Fire in chemical storage in residential area
    - 117 died and injured hundreds.
    - Fire service officials admitted **90%** of the capital's chemical traders **– 867 out of 994** – did not have **valid licenses** issued by the fire service or the departments of narcotics and explosives.
- Chittagong Fertilizer Factory : (August 22,2016)
- One of the two 500-tonne tanks exploded at 9:50pm on Monday when workers at the factory were changing shift.
    - nearly 250 people sick.
    - From nearby 300-acre pond, 10 tons of fish died

EHS+

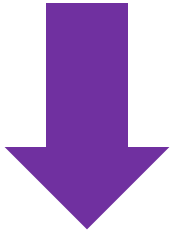
Statistics

- “About 60 percent of fire accidents in Dhaka are caused by chemical and plastic factories,”

  Enayet Hossain, a spokesman for the Fire Services and Civil Defense Department.

Other Challenges…

- Compliance with local regulation on Chemical Management.
- Comply with current GHS regulation.
- Follow ZDHC requirements.
- Hazardous chemical waste
- Other requirements……



Buyers Expectation
&
Access to International Market

EHS+

Benefit of Chemical Management

- Employees health and safety
- Environmental protection
- Save money from less amount of chemical use end energy efficiency
- Good business deal
- Reputation of the company
- Insurance premium
- Neighbor satisfaction from surrounding operation.

EHS+

Hazardous Chemicals

Hazardous Chemicals refers to chemicals with properties such as –

- toxic,
- corrosive,
- explosive,
- combustible,
- combustion-supporting,
- Flammable
- Irritant etc.

Type of Chemical Hazard

- Physical Hazard

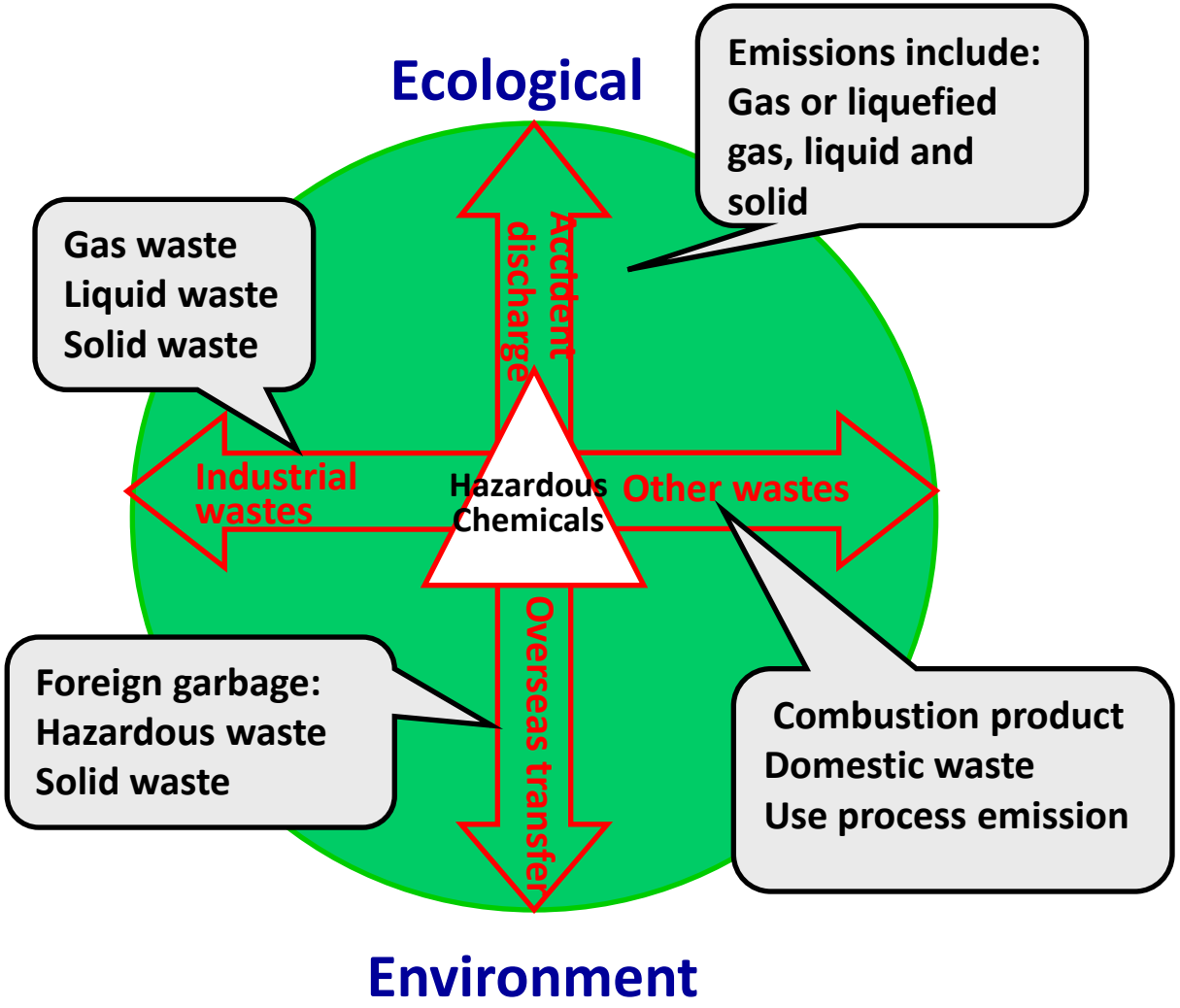
- Health Hazard

- Environmental Hazard

EHS+

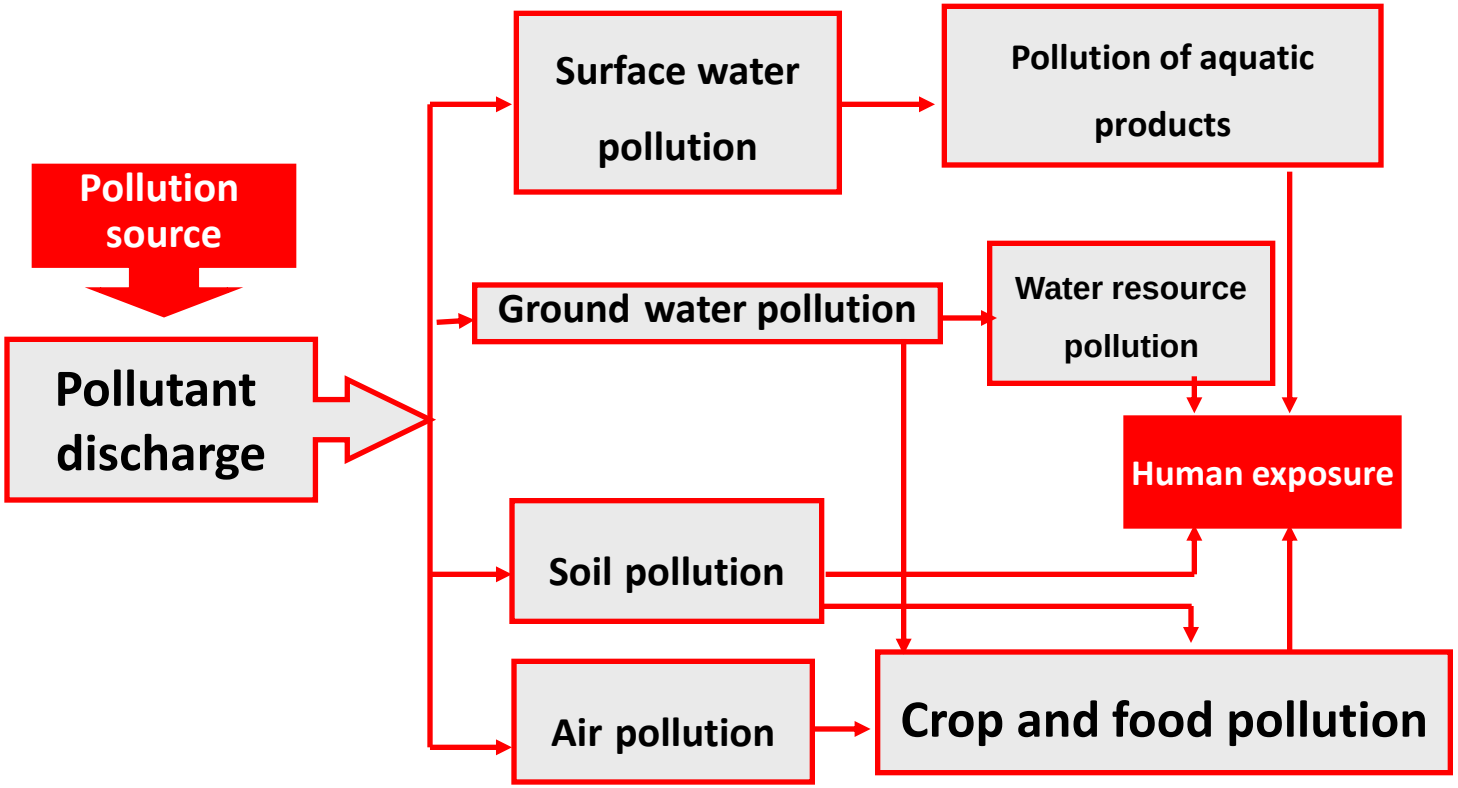
Environmental hazard of Chemical

Pathways for chemicals to enter ecological environment

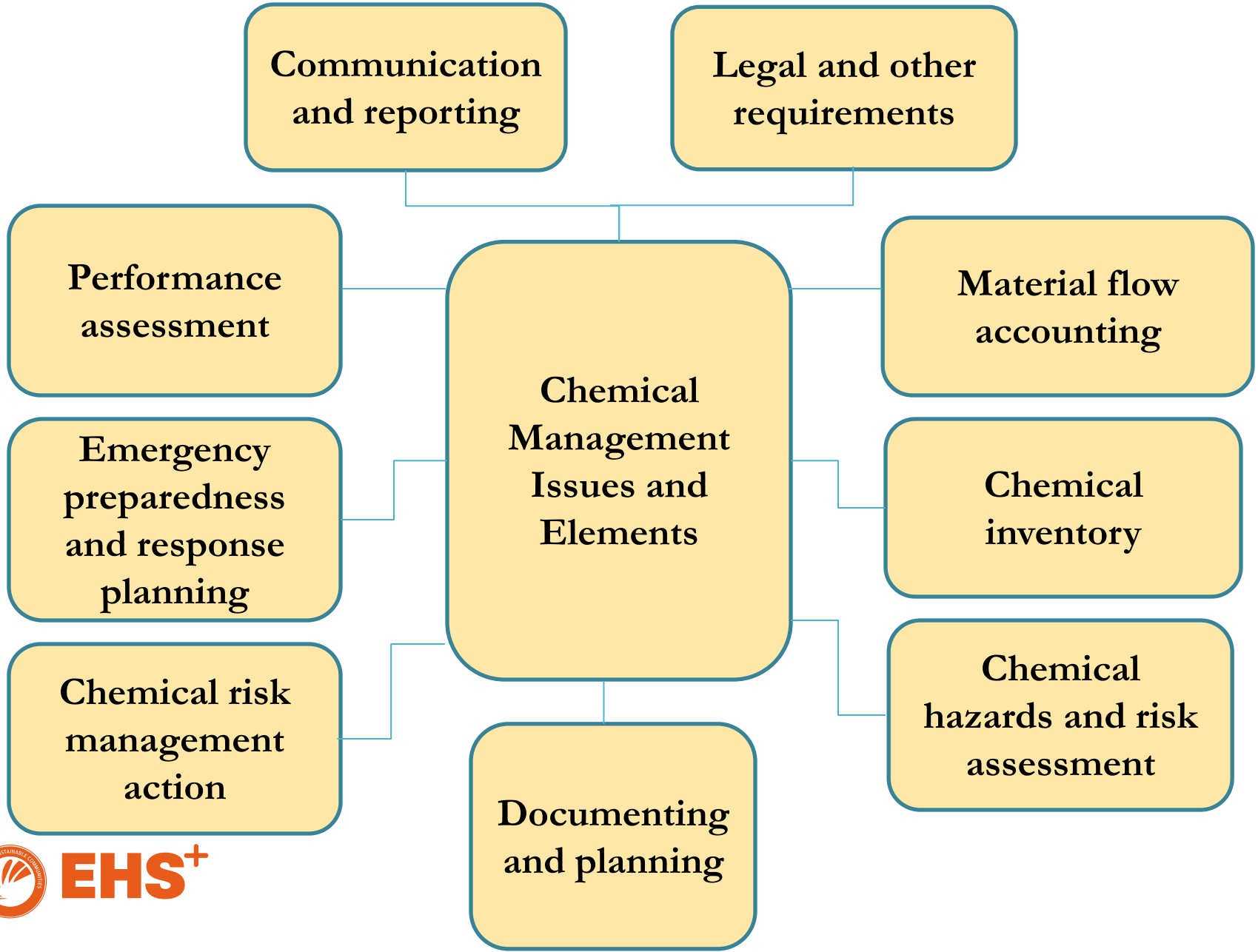


EHS+

Pathways for environmental hazards to enter the human body



Resource Efficient Chemical Management



EHS+

Calculating NPO costs

Input	Process	Output	Conventional cost accounting	Material flow cost accounting
100 kg Raw material 1000 $US	Processing cost 600 $ US	Desired final product 80 kg	80 kg desired product. Material cost 1000 Processing cost 600 Total 1600	80 kg desired product Material cost 800 Processing cost 480 Total 1280
		NPO 20 kg	**20 kg NPO** **Material cost 0** **Processing cost 0** **Total 0**	**20 kg NPO** **Material cost 200** **Processing cost 120** **Total 320**
			With conventional cost accounting NPO costs **are not visible!!**	With material flow accounting NPO cost **are visible**

EHS+

Points of loss

....chemicals in the effluent

....chemicals lost during processing

....chemicals wasted during preparation and handling

....chemicals spoilt and damaged during storage

?

Identification & Communication of Chemical Hazards

GHS Label Requirements

Information required on a GHS label:

1-Product identifier

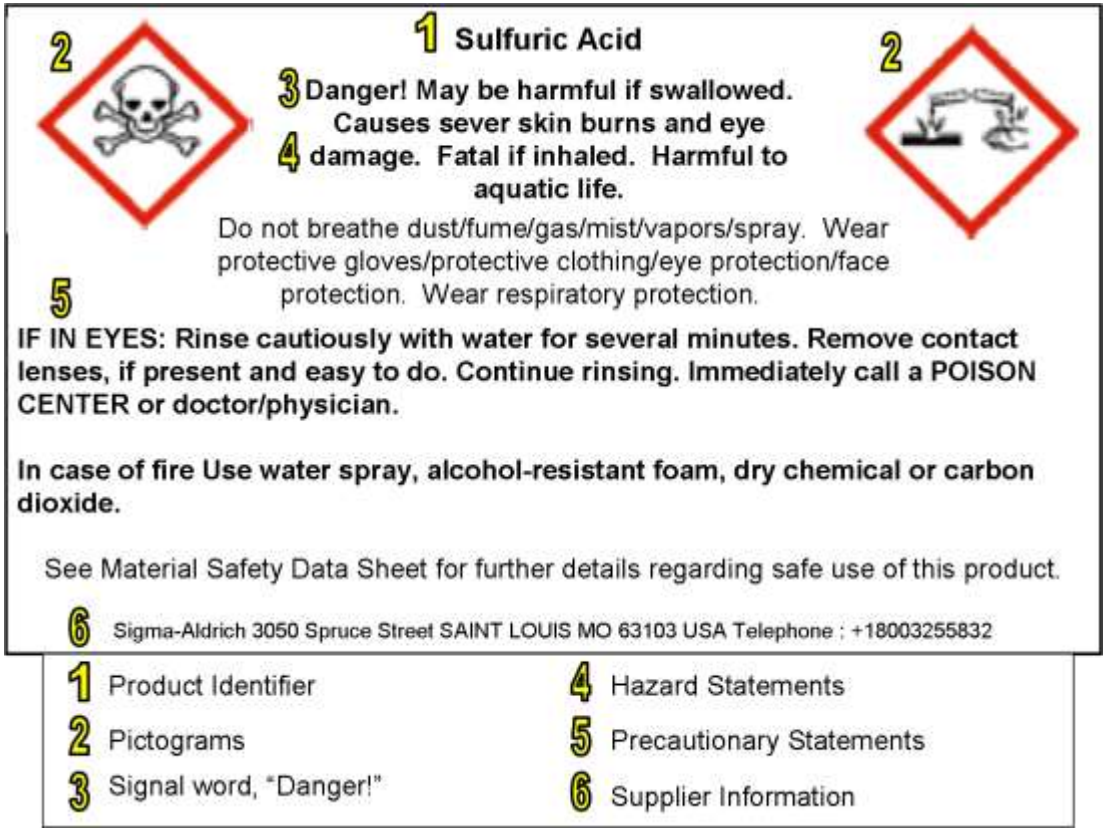
2-Pictograms

3-Signal word

4-Hazard statement

5-Precautionary statement

6-Supplier information



EHS+

Safe Transportation

Loading and Unloading of Chemicals

EHS+

Loading and Unloading of Chemicals

EHS+

Transportation - Internal

EHS+

Storage and Compatibility Chart

Compatibility Chart

EHS+

OK	OK Under Condition	Not OK

Secondary containment - Types

EHS+

Requirements for warehouse of hazardous chemicals

A : Architectural requirements

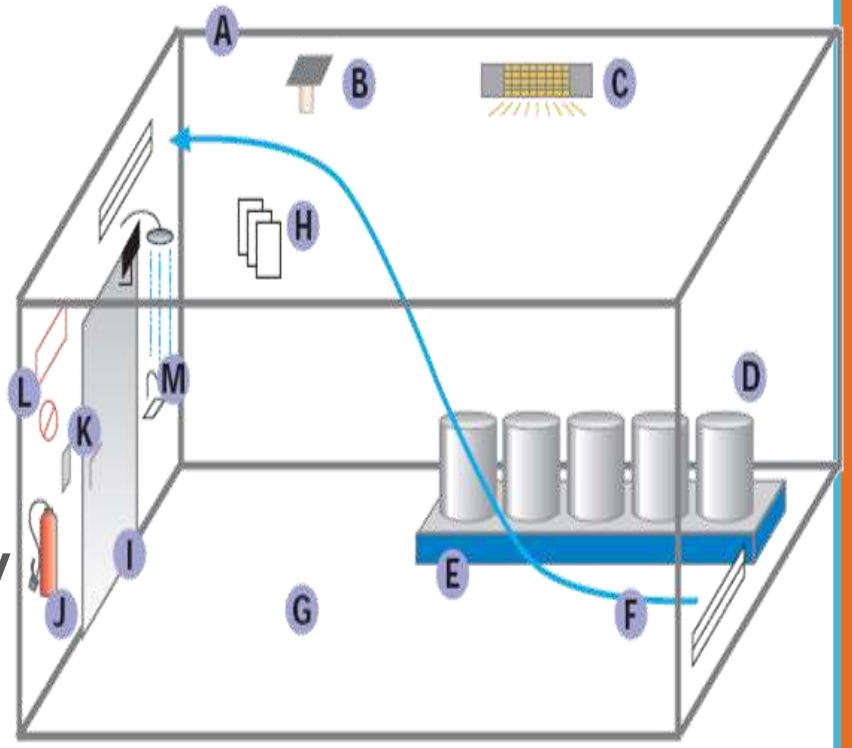
B : Fire fighting and gas alarm

C : Use explosion-proof lighting

D : Requirements for chemical containers

E : Leak-proof secondary containers

F : Explosion-proof mechanical ventilation



EHS+

Requirements for warehouse of hazardous chemicals

G : Requirements for leak-proofing ground

H : Equipped with SDS on site

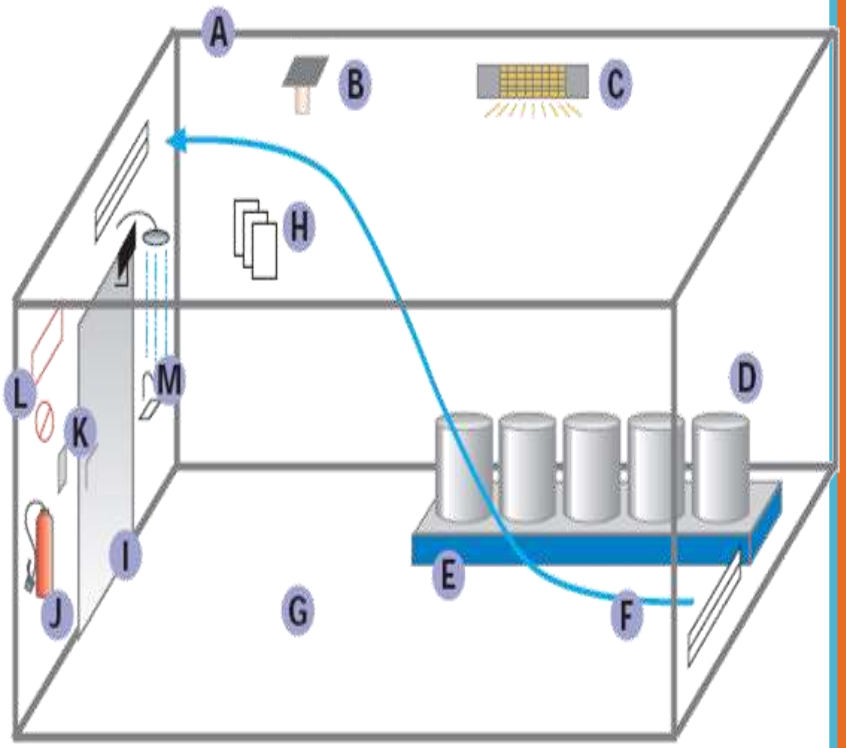
I : Closed fireproof door (outward opening door)

J : Fire-fighting facilities

K : Explosion-proof switch

L : Warning labels

M : Emergency shower and eye-wash devices



EHS+

Chemical Waste

Chemical Waste Management

Chemical waste is a kind of hazardous waste. It includes:

- spent chemicals, pesticides,
- used oils, batteries,
- contaminated clothes and materials,
- empty chemical containers

Photo: Anisur Rahman

EHS+

Chemical Waste Management

To respect the environment

- do not mix hazardous waste with regular waste, even in small quantities.
- do not throw up any chemical in the sink or sewer system.
- eliminate hazardous waste as soon as possible.

Stored in assigned areas:

- With secondary containment,
- Sheltered,
- Locked,
- Visible warning signs (WARNING – HAZARDOUS WASTE),
- Properly ventilated.

EHS+

Solution: Resource Efficient Chemical Management

- Conduct a common meeting with management on Chemical Safety.
- Start a project to implement chemical safety requirements.
- Develop a team for the project.
- List down all the chemical used in the factory (location , operation & process specific.

EHS+

Solution: Resource Efficient Chemical Management

- Collect SDS of all chemicals
- Perform a Risk assessment of all chemicals
- Find out the action plan (SDS posting, labeling, storing procedure, carrying procedure, chemical compatibility, secondary containment, required PPE, equipment's, training for the users etc.)
- Communicate to the management for budget and people
- Implement.

EHS+

- Manufacturers must **assess** hazards of chemicals.
- Distributors must **transmit** hazard information to employers.
- Employers must **provide** information to workers.

EHS+

Impossible!