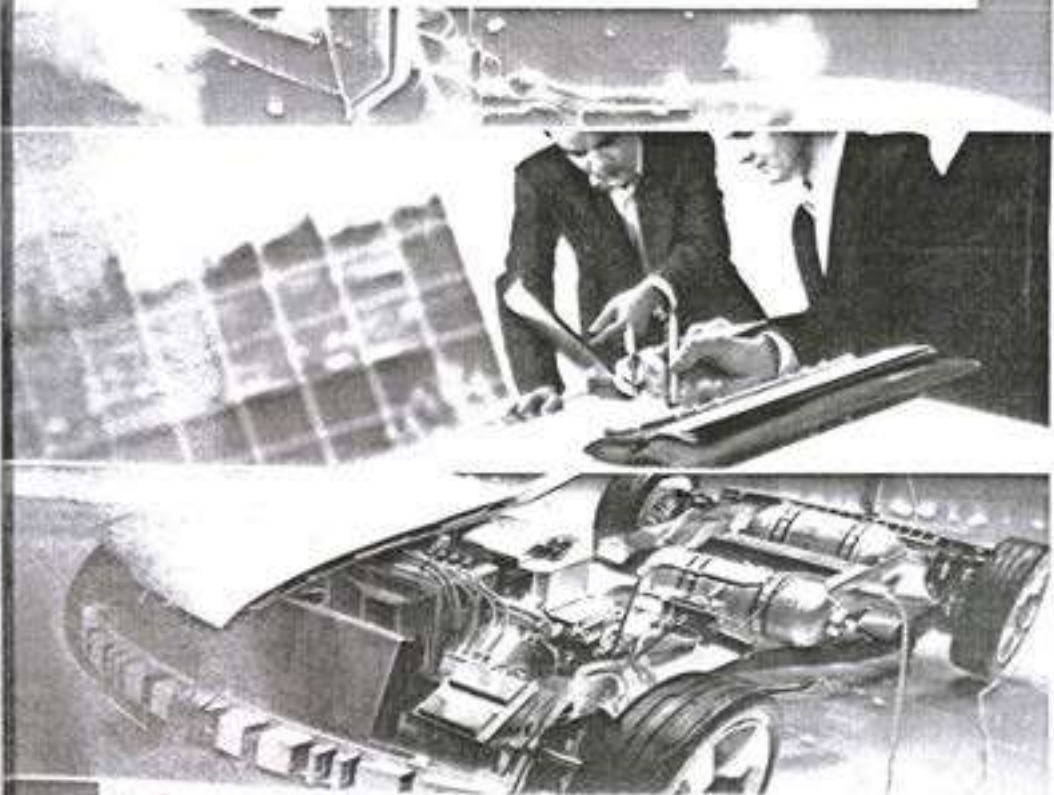




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Edited By
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- Editor in Chief :** Dr. Monica Singh
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- Design :** **Creative Department**
Vandana Shrivastava
Lalit Singh Bangari, Amit Soni
- ISBN :** 978-93-81358-70-9
- Published By :** AISECT Publications
SCOPE Campus NH-12, Hoshangabad Road,
Near Misrod, Bhopal-462047
- Printed at :** Drishti Offset, Bhopal

Youth India 2020 **UNMASK THE FUTURE :
OPPORTUNITIES
AND CHALLENGES**

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responsibilities. The interdependence of economies is today reflected in the transfer of certain types of technology from developed to developing countries. New technologies can contribute to improved safety. On the other hand, they may introduce new occupational risks. It is our shared responsibility to ensure that full safeguards, as applicable to developed nations, are made accessible to the developing world also. To this end, exchange of information on risks and their management must be encouraged.

Conclusion

It is time that we deliberate on occupational health and safety in chemical industries in transitional economies. As new industries develop, existing industries expand, and new technology is introduced, the environment is increasingly placed at risk and hazards to human health arise. History has shown that industrial innovation is rarely matched in speed with corresponding protection of the community and its environment. It is estimated by the International Labour Organization that some 200,000 work-related deaths occur each year all over the world. In addition, a large number of workers are victims of work-related accidents and illnesses. Against this background, the highly complex chemicals encountered in the work environment necessitate constant vigilance through an occupational health program to provide a scientific basis for decisions aimed at protection of human health from the adverse consequences of exposure to these substances in the occupational environment.

Chemicals have become an indispensable part of human life, sustaining activities and development, preventing and controlling many diseases, and increasing agricultural productivity. Despite their benefits, chemicals may, especially when misused, cause adverse effects on human health and environmental integrity. Widespread application of chemicals throughout the world increases the potential of adverse effects. Growth of chemical industries, both in developing and in developed countries, is predicted to increase. In this context, it is recognized that the assessment and management of risks from exposure to chemicals is among the highest priorities in pursuing the principles of sustainable development.

Research is needed to answer questions of direct relevance to the control of hazards in the occupational environment. Symposia, conferences, and continuing education courses are directed toward specific industrial processes, important chemicals, different research approaches, application of available technology, and other related matters.

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Recent Trends in Engineering: Coordinated efforts for smart cities

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Engineering has always formed the pillar of growth for human civilization. It is always evolving and with it, evolves our entire race. Today, there are several new trends in the engineering sector. But the spotlight is on one of the relatively new items viz. 'Smart Cities'. Smart Cities present a challenge as well as a milestone in the domain of engineering as different streams have to come together and work synchronously to realize this vision.

To increase efficiencies, reduce costs, and enhance quality of life, Information and Communications Technology (ICT) is required in cities around the globe. Cities that take this approach are commonly referred to as Smart Cities, a concept highly discussed in urban planning. One of the key components is the common network infrastructure which is the main platform for multiple technology components. It provides total connectivity and access to city services and solutions for citizens and city officials.

To make a Smart City there may be several initiatives but scope of this paper is limited to a few listed below:-

1. Smart City Network: The Smart City Network is the main platform that will connect all the service layers mentioned above. The network will be spread across the city in a modular and highly available fashion so that the services are run uninterrupted. The City network will help the city to build a converged network, bringing together different city management vertical solutions on a single foundational network infrastructure. The converged network will facilitate information exchange between resources and applications across different domains. It is an end-to-end open platform enabling Internet of Things services for cities. Its key objectives are to provide:

- a. IP connectivity to things, people, devices, and vehicles in the city street
- b. Wired and wireless, scalable, and highly secure network platform
- c. A data management framework to help enable data collection, organization, and sharing
- d. Distributed compute and storage services, location services, and security services

2. City Wi-Fi Hot Spot: The City Wi-Fi and associated wired network in the key identified locations will be built for the purpose of having a network infrastructure asset using which the administration can, not only provide internet access to Citizens, but also transform the engagement between the government and citizens for greater citizen services. It is intended to use this foundational network for improving various operations of civil and city administration. The vision here is also to engage the citizens in inclusive governance. This foundation network here is

expected to enable the following:-

- a. Internet access for all Citizens irrespective of their social and economic status for inclusive growth, inclusive governance and equitable government services
- b. Ability for Citizens to engage various government agencies and operations using digital technology for getting attention to various civic issues, public safety and security issues, business development aspects in the City.
- c. Ability for City administrative officials on the road and street to communicate and collaborate with their peers and colleagues for effective service delivery to Citizens.
- d. Ability to operate various aspects of civic services like traffic management, energy metering, water metering, public parking, video surveillance for public safety using this foundation Wireless and Wired Network
- e. Ability to use this platform as a catalyst to trigger enhanced trade and commerce in the central business districts and key commercial areas in Cities.

3. Video Surveillance for Citizen Safety: As part of citizen safety an integrated security solution needs to be deployed which is intended to effectively monitor all the critical operational areas of the locations & fully cover the perimeter along with all the access points. The broad objectives of the Video Management System are as follows:

- a) Access points monitoring with Motion Detection Alarms
- b) Perimeter coverage for detection of any intrusion
- c) Enhancement of operational control by covering critical areas
- d) Recording of camera outputs for analyzing critical events

The Video Surveillance System is required to ensure effective Security & surveillance of an area as well as create a tamper proof record for post event analysis. The Surveillance System shall provide an on-line display of video images on monitors at local security control room & also at any other place as defined for large locations as per requirement.

4. Smart Parking Management & Guidance: As the world's population keeps growing and the concentration of cars in cities increases, our society faces the significant challenge of global gridlock. Parking plays a major role in the solution to this problem, given that around 20-30% of the cars driving on a city's streets at any given moment are looking for a parking space.

To overcome this challenge it is important to deploy Smart Parking management based on parking availability continuously. There should be a dynamic mechanism that can easily identify availability and provide data back to citizens to help them take smart decisions at any given time. The system functions as a monitoring platform for availability, manage occupancy and help

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