



Paving The Path To A Viksit Bharat @2047: Role Of Occupational Safety, Health, Environment And Management In Manufacturing And Construction Industries

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Abstract: Viksit Bharat @2047 is a vision of Hon'ble Prime Minister to make India a developed country by the year 2047, when India will celebrate its 100th year of independence. The core objective of the Viksit Bharat vision is to foster inclusive economic participation among all citizens. A key component of this initiative is the ambitious goal of elevating India to the rank of the world's third-largest economy within the next five years. Through a multidisciplinary approach, the paper examines key pathways to achieving this vision, encompassing economic growth through productivity, technological innovation for industrial safety, social equity for workforce, and environmental sustainability. The study highlights the necessity of industrial safety and health for economic growth, statutory provisions for creation of safety culture, uses of safety management for strategic investments in human capital, and the importance of governance reforms to foster inclusive development. By analyzing current challenges and leveraging opportunities in sectors such as education & training, healthcare, and digitalization, the paper provides actionable insights and recommendations.

Index Terms - Viksit Bharat, Industrial/ Occupational safety, health and environment, Sustainable development, economic development, OSH Code.

1.INTRODUCTION: As India approaches the centenary of its independence in 2047, the nation stands at a pivotal juncture, poised to transform its socio-economic landscape. The vision of "Viksit Bharat @2047" encapsulates the aspiration for a developed India, characterized by robust economic growth, social equity, technological advancement, and sustainable development. This ambitious goal necessitates a comprehensive and multi-faceted approach, addressing the myriad challenges and leveraging the vast opportunities that lie ahead.

However, achieving this vision requires concerted efforts across various sectors. Key areas of focus include economic reforms, infrastructure development, education, healthcare, environmental sustainability, and governance. Each of these domains presents unique challenges but also holds immense potential for driving India towards a developed status. Economic growth remains a cornerstone of India's developmental agenda. Enhancing industrial productivity, fostering innovation, and creating a conducive environment for business are essential steps. Infrastructure development, including digital connectivity, transportation networks, and urban planning, forms the backbone of a modern economy and is crucial for facilitating economic activities and improving quality of life.

Education and healthcare are fundamental to human development and are vital for building a skilled and healthy workforce. Implementing sustainable practices and technologies is essential for preserving the environment and ensuring the well-being of future generations. Good governance, transparency, and effective policy implementation are indispensable for achieving the vision of a developed India. This paper explores

into the pathways to realizing the vision of Viksit Bharat @2047 through OSH implementation at workplace at manufacture and construction sites. Through a holistic and inclusive approach, this study aims to contribute to the discourse on India's future and outline a roadmap for achieving a developed nation status by 2047. This Viksit Bharat vision includes diverse aspects of development, such as economic growth, environmental sustainability, social progress, and good governance, with the goal of achieving a developed status by 2047.

The aim of 'developed India' will require to construct more infrastructures, highways & bridges, transport facilities which also demands building materials like cements, steel, equipment's and manpower. Use of advance technology for development of transport system as hyperloop trains, airports, speed trains, water transport system, will be required in coming days. Uses of renewable energy, green fuel required to increase to reduce dependency in energy. Use of digital transformation for modernize an organization's processes, products, operations and technology will require to reduce time period, for easy working process, banking system, etc.

2. OVERVIEW OF OCCUPATIONAL SAFETY, HEALTH & ENVIRONMENT: Manufacturing and construction industries are contributing significantly to GDP worldwide. Economic growth is the cornerstone of development.

Occupational Safety, health & environment (OSHE) at manufacturing and construction workplace is playing crucial role for providing safety workplace for workers, protecting them for various occupational disease and illness. The knowledge of OSHE not only used for reduction of injuries for cost cutting, also useful from layout of process to increase in production with minimize of wastes. Safe operating procedures (SOP's), use of checklists, toolbox training about hazards, inspection methods will help to identify hazards at various process and location at industries, which also protects man, machine, materials and indirectly money. Establishment adopting safety and health regulations properly will also secure environment of themselves with surrounding community & helps for sustainable development.

Presently, law relating to safety and health as The Factories Act, 1948 and The Building & Other Construction Workers Act, 1996, are taking care for protecting workers from unfair exploitation with provision of safety measures, welfare measures, leave, wages, provision of accident / dangerous occurrences reporting, health examination, responsibilities of employer for OSHE, etc.

National Safety Council of India has celebrating 'National Safety Day 2025', with theme "*Safety & Well-being Crucial for Viksit Bharat*", highlights the pivotal role of safety in building a prosperous India. A safe nation fosters productivity, innovation and sustainable growth.

3. OVERVIEW OF CHEMICAL REGULATIONS: Manufacture, Storage and Import of Hazardous Chemical (Amendment) Rules, 1989: The regulation was firstly enacted in 1989 by the Ministry of Environment & Forests (MoEF) and later amended in 1994 and 2000. It regulates the manufacture, storage and import of hazardous chemicals in India.

Ozone Depleting Substance (R&C) Rules, 2000: This regulation strictly controls the production, import and use of ozone depleting substances (ODCs) in India.

In August 2020, Draft Chemicals (Management and Safety) Rules was published. These Rules provide for Notification, Registration and Restrictions, or prohibitions, as well as labelling and packaging requirements related to the Use of Substances, Substances in Mixtures, Substances in Articles and Intermediates Placed or intended to be Placed in Indian Territory. The Indian Department of Chemicals and Petrochemicals has introduced additional Quality Control Orders (QCOs) for various chemical compounds. These new regulations are designed to enhance safety in the handling of these chemicals, benefiting both human health and the environment.

4. NATIONAL POLICY ON SHE AT WORKPLACE: The National Policy on Safety, health and environment at workplace had declared in 2009, provides frameworks for ensuring safety and health as a fundamental human rights. The Policy gives general guidance to all stakeholders to discharge their responsibilities in an appropriate manner, helps to create a positive safety and health culture, for enables development of research activities, skill development of employees, employers, enforcement authorities, and society at large. The policy also ensures better compliance and implementation through a mechanism of accrediting competent professionals and institutions. The implementation of the policy would enable timely collection, compilation, and analysis of work-related injuries, diseases, sicknesses etc. for qualitative decision making at the national level.

5. The Occupational Safety, Health and Working Conditions Code, 2020: The Occupational Safety, Health and Working Conditions Code, 2020 is a code to consolidate and amend the laws regulating the Occupational safety and health and working conditions of the persons employed in an establishment. It subsumes and replaces 13 labour laws relating to safety, health and working conditions. These laws include: Factories Act, 1948; Mines Act, 1952; Dock Workers Act, 1986; Contract Labour Act, 1970; and Inter-State Migrant Workers Act, 1979.

The Code sets up occupational safety boards at the national and state level to advise the central and state governments on the standards, rules, and regulations to be framed under the Code. The Code seeks to regulate health and safety conditions of workers in establishments with 10 or more workers, and in all mines and docks.

Female workers may work past 7 pm and before 6 am with their consent, and if approved by the government. The Code will remove burden of various acts, gives benefits as- Cine Workers are getting more benefits as Audio Visual Workers, area of compensation in case of death of workers will increase, One registration for establishment with provision of Online registration process will implement for reducing time and physical interaction with inspection system. Provision of Social Security Fund for welfare of unorganised workers is also available. The responsibilities of maintaining health, safety and working conditions is continue with maintenance of Registers, Records and Return and issue of appointment letter to the employees, are available.

6. FOCUS FOR VIKSIT BHARAT: For achieving the objective, we needs:

- Implementing sustainable health and safety policies.
- Integrating technology into health and safety systems.
- AI and IoT in workplace safety systems.
- Sustainable waste management in industrial settings.
- Robotics in hazardous work environments.
- Renewable energy systems for safer workplaces.

7. CHALLENGES AND OPPORTUNITIES:

Need for Improved Ease of Doing Business: Entrepreneurs and businesses often face bureaucratic inefficiencies, complex regulatory frameworks, and delays in obtaining necessary licenses and permits.

Reduction in logistics costs: India's high logistics costs, estimated to account for around 13-14% of GDP compared to 8-9% in developed nations, significantly reduce the competitiveness of Indian businesses in global markets. Inefficient transportation networks, inadequate warehousing infrastructure, and bottlenecks at ports lead to delays and increased costs.

Skill gaps and workforce development: Gaps in skill development hinder productivity and growth. A significant portion of the workforce lacks formal training, making it difficult for businesses to find talent suited to industries. Training for identification of hazards, operating equipment's, machines should be provided to enhance knowledge of workforce.

Infrastructure Deficiencies: Infrastructure development has been a priority, gaps remain in areas such as power, transportation, and urban planning. Inadequate infrastructure not only increases operational costs for businesses but also affects productivity and customer satisfaction.

Sustainable Practices: Use of Renewable energy and sustainable practices will play significant role in manufacturing process.

Use of AI Technology and Drone: Use of AI technology for various works as confirmation of wearing of PPE's at workplace, monitoring of working procedure for control of accidents, supplying of materials, etc.

8. ROLE OF 'OSHE' IN VIKSIT BHARAT:

1. Educates the public on daily safety practices by awareness for reducing accidents and injuries. Regular practice for safety drills, use of fire extinguishers will protect community in difficult situation. For promoting safety culture at every workplace and home, installation of fire extinguishers, smoke detectors should be made.
2. Reporting of Accidents/ Dangerous Occurrences: Encourage of workers in OSHE will reduce the accidents and other losses. It helps to create new innovations.
3. By organization's Occupational Safety & Health Policy, prepared on-site and out-site emergency plan, management can play a crucial role in Safety.

4. By implementation of Safety policy which includes training to workers, promotion of SOP's, Checklist, not only reduce hazards & accidents, also create environment that support innovation, sustainability and inclusive growth.
5. Prioritizing education and skill development to create a highly skilled workforce capable of driving innovation and productivity.
6. Adoption of Industry 4.0 technologies, including automation, artificial intelligence, and the Internet of Things (IoT), to enhance productivity and to provide Safety & health at workplace. Research and Development (R&D) works also required for new equipment's, machines.
7. Establishing a healthcare infrastructure at workplace that provides accessible healthcare to all workforce, reducing the occupational illness and protect financial burden on them.
8. Promotes adherence to safety regulations at workplace by adoption of industrial safety standards is required.
9. Integrating sustainable practices is essential for long-term business success.
10. Adopting of renewable energy, reducing waste & ensuring of sustainable supply chains will promotes sustainability.
11. Equal remuneration ensuring the economic development is equitable and benefits all segments of society.
12. Expanding the manufacturing sector through initiatives like 'Make in India' while also strengthening the services sector, particularly IT and financial services.
13. Promoting digital literacy and e-governance to make government services more accessible and transparent.
14. Increasing the share of renewable energy sources such as solar, wind, and biomass in the energy mix to reduce dependency on fossil fuels.

9. CONCLUSION:

Manufacturing and construction industries are pivotal for becoming a developed nation. While facing many challenges, every establishment may encourage their workforce for promoting a safety culture, should create awareness & education for safety protocols, ensure well-being at workplace. Practice for reporting of accident, dangerous occurrences and improvement workers involvement in safety like in safety committee, accident investigation, safety campaign programs, training for handling machines/ equipment's, will promotes moral and increase job security which also effects the productivity.

Use of digital facilities will strengthen for improvement of training, education. The digital development will reduce injuries by new initiatives, software's for handling machines, will improve man-machine relations. It helps for fast reporting, data keeping and also required in fast decision-making process.

Adoption of Occupational Safety and Health practices will save important resource- workforce and will provide health workplace. By implementing these recommendations and addressing systemic challenges, we can unlock economic potential and lay the foundation for creating safe and healthy workplace for our workforce.

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