



# **SOCIO-TECHNICAL FACTORS INFLUENCING WORKPLACE SAFETY IN CHINA**

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# Background

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- With high growth and rapid development since the 21st century in China, workplace accidents becoming serious - mines, tailings, chemicals, factories & projects, and each year
- 10 thousand workers dead in work places
- 0.7 million injured and
- 25 million working under the conditions of health hazards and risk





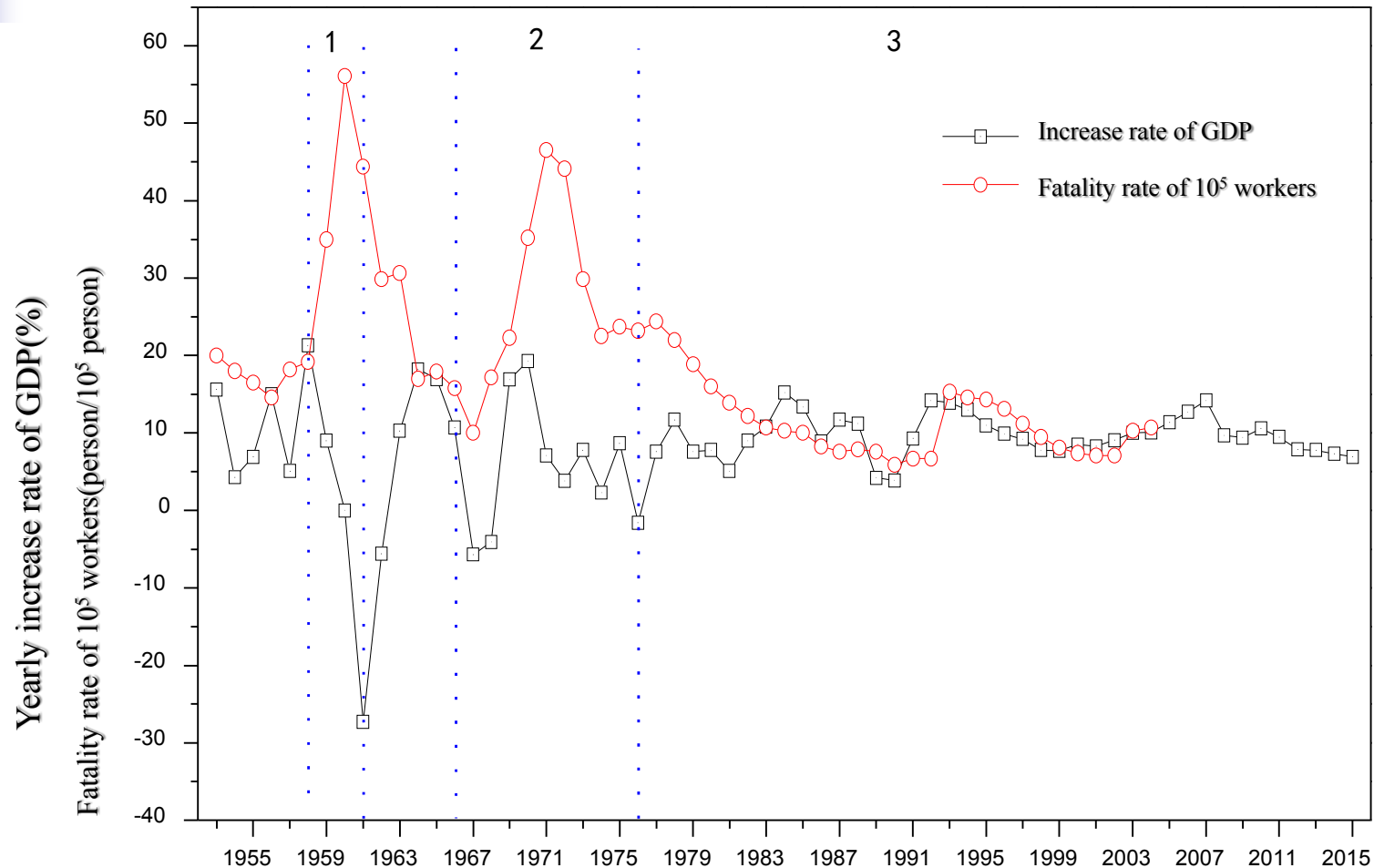
# Socio-technical factors

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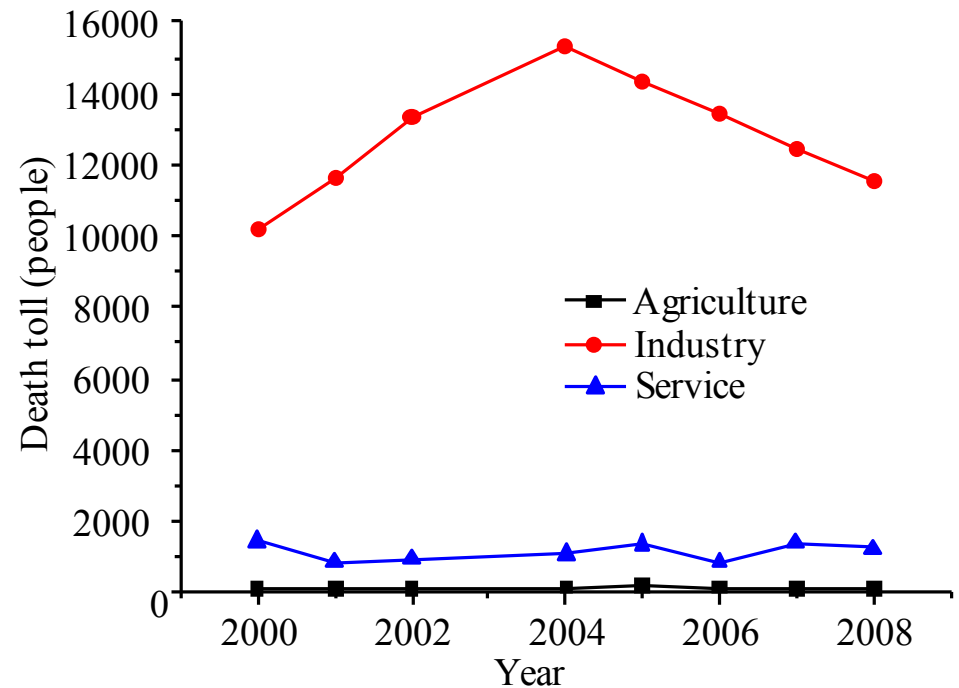
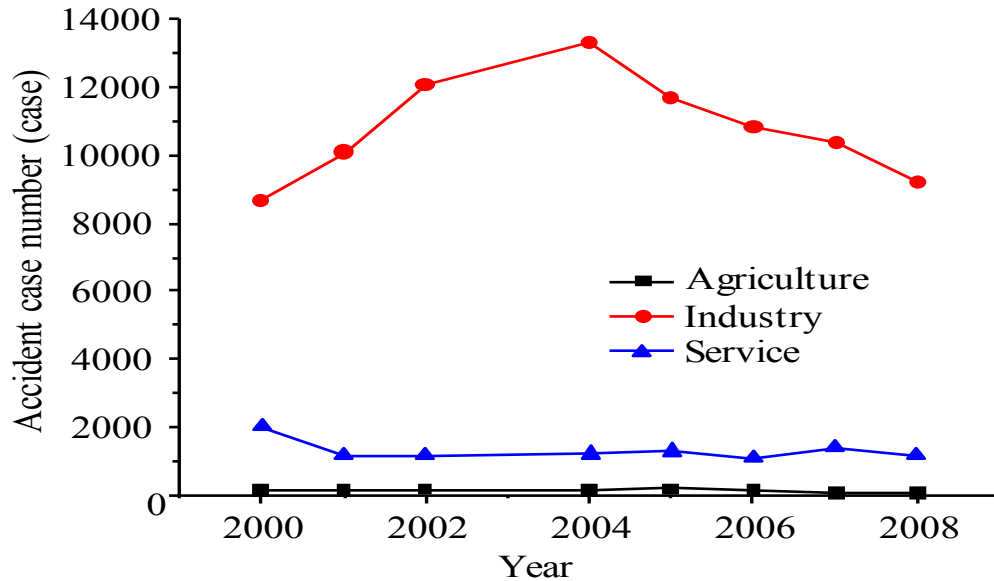
- Following social and technical factors are found to have related much with workplace safety:
- Economic fluctuations
- Dominating economic sectors
- Weak safety technology
- Human errors
- Enterprise ownerships or employment modes



# Socio-technical factors - Fluctuations



# Socio-technical factors - Sectors



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# Socio-technical factors - Technology

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- Technology contributes to work safety as well as productivity
- Production technologies have been more developed than safety technologies in China
- Especially true of the cases where economies are taking off but social concerns, costs and externalities are often neglected





# Socio-technical factors - Human errors

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- Human errors trigger workplace accidents. Worker's safety knowledge, operating skills with practices, and ergonomic designs all contribute to workplace safety
- Abundant and less expensive labor forces had helped China's rapid economic growth
- But the coupling of less skilled labor and less responsible managerial practice also contribute to the severe workplace safety conditions





# Socio-technical factors - Employment

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- Along with the transition of planned economy to market economy since the late 1970s, changes have been taking place in enterprise ownership and employment modes
- Private enterprises, collective enterprises, state enterprises and foreign enterprises coexist and work safety situations appear differentiated by ownership and employment mode







# Socio-technical tactics

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- Imperative to mitigate workplace hazards and risk by:
- Technology enhancement
- Safety system integrity
- Safety investment and compliance assistance
- Integration of work safety into economic policy
- Social license to operate safely





# Socio-technical tactics - Technology

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- Technology is significant for promoting work safety as well as economic growth
- The enhancement of technologies, processes and even standardized procedures will take a role in terms of
- both technologically functional improvement and increased productivity to reduce workplace labor intensity





# Socio-technical tactics - Integrity

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- Safety critical systems and techniques should be promoted for improving workplace safety
- Such systems function to monitor conditions, detect circumstances, suppress adverse effects and impacts, trigger protective measures, and safeguard human and property from losses
- Risk based safety integrity management will effectively mitigate workplace risk and improve workplace safety conditions



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# Socio-technical tactics - Assistance

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- Investment and compliance assistance for training, technology advancement, design and engineering, and integrity of production systems are all important for workplace safety
- Such assistance will help build inherently safer systems and safety capacity
- This is especially true of SMS mines with inadequate training, technology & engineering





# Socio-technical tactics - Integration

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- To integrate work safety solutions into national policies as a focus
- To consolidate SMS mines with inadequate technological and managerial capabilities as an institutional mechanism
- To focus on well being of ordinary people with safe, healthy, and productive life as a goal of Chinese transformation in the years to come





# Socio-technical tactics - social license

- In the early stages of economic and social development, economic growth has been of priority, and work safety was neglected to a considerable extent
- Along with the economic transformation from growth focused modes to sustainable oriented modes, those neglected externalities should be internalized through efficient mechanism such as a social license to operate safely & healthily





# Socio-technical tactics - social license

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- Current situations in China are such that the power of government penetrates into every facet of the society and the consultation and participation of civil society is weak
- Safety management should be transparent with participation by multiple stakeholders
- In addition to government, potential recipients of risk and harms should also play a major part





# Socio-technical tactics - social license

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- The principle of free prior informed consent should be exercised and employees must be empowered the rights to know, to be trained, and to be free of unacceptable work circumstances, hazards and risks
- In addition to WS & OH problems, communities are also affected by health and environmental impacts from industrial hazards and accidents







# Socio-technical tactics - social license

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- The traditional type of command and control regulation of industrial activities by legislation and government has been proven inadequate due to limited enforcement resources, rent-seeking malconducts and even corruptions
- Mechanisms for continual improvement in industrial safety should also include civil participatory processes and industrial voluntary activities such as CSR enhancement





# Remarks

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- As the world has been in the new normal, China is striving to transform its economy to a quality & sustainability oriented mode from its previous growth focused mode
- In such a process, institutional, educational, and technological mechanisms need to be profoundly improved to safeguard workplace safety, occupational health and community environment





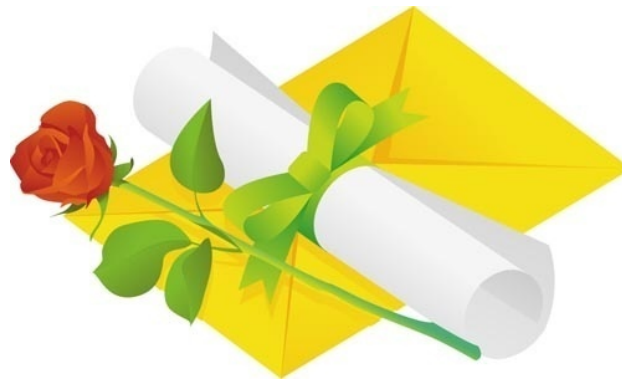
**Thank you for your attention**

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