

Chapter 17

Innovation System Linkages in Indian Hydrocarbon Sector

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ABSTRACT

With the liberalization of Indian hydrocarbon sector, the various organizations that comprise this sector face the challenge of becoming globally competitive. This chapter elaborates the concept of innovation system, that is, the formal or informal linkages between the policy makers, industry, academic and research institutions, etc. and its relevance for organizational effectiveness. Using creative and visual thinking tools, authors explore the reasons for the fragmentation of innovation system of Oil India Limited (OIL), a national oil company operating mainly in the northeast India. This fragmentation is evident from several issues such as stagnating oil production, technological obsolescence, continued impact of natural calamities and conflicts in the region and prolonged dependence on central government funding. The authors suggest a high impact solution consisting of policy-making directed at promoting entrepreneurship, strengthening the innovation system through improved stakeholder communication and prioritizing the science and technology investments to address the regional problems.

BACKGROUND: INDIAN ECONOMY IN THE POST INDEPENDENCE PERIOD

Historically speaking, Indian economy has been the largest in the world, constituting about 20-30% of the global economy before the British ruled India. Under the British rule, the indigenous manufacturing

base was decimated and the artisans were forced to lives of destitution. The global position of the Indian economy declined sharply. Some of the positive contributions of the British regime were the establishment of railways, roadways and postal system, educational system and institutions, etc. In the post-independence era, the Indian government adopted a socialist model and industrialization received a high priority. Also, it strived for supremacy

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in nuclear and space technologies. Protectionist measures were considered necessary to take care of the weaker sections of the society (Roy, 2007) and licenses were required for starting most of the businesses. The government wrested control of the hydrocarbon exploration, production and refining sector; considering these areas as too vital for national growth to be left in the control of private or multinational players.

Some of the notable achievements of the government in the post independence period were the 'green revolution', which transformed India from a country with frequent food shortages to one having surplus food. The expertise of India in nuclear energy and space technology has been considered to be on par with global standards.

With the increase in population and growth of economy, however, several constraints became obvious. The infrastructure was found to be inadequate and aging. The energy shortages were becoming acute and the promise of self-sufficiency in fossil fuels was becoming a distant dream. The licensing policy and protectionism was encouraging complacency and inhibiting competitive spirit of the businesses. While the urban landscapes provided contrasting images of slums alongside modern structures, the rural areas suffered due to migration to cities, outdated practices of agriculture, inadequate healthcare, etc.

The Liberalization Imperative

The balance of payment and fuel crisis in the 1990s forced the government of India to abandon the policy of protectionism. Policies for liberalizing the economy in order to integrate it with the global economy were taken up. It became apparent that the protectionist measures were stifling the growth and competitiveness of businesses. The most notable initiatives that formed the liberalization process were the capital market and hydrocarbon sector reforms, selective disinvestment from public sector enterprises, etc.

Another shift in the macroeconomic scene in recent years has been the emergence of India as the IT superpower and global destination for outsourcing. Economic growth picked up in the post-liberalization period, and one of the major factors contributing for the economic growth has been the emergence of a large middle class with disposable income and propensity for consumption. This has made India as one of the most important economies in the world after USA and China.

Liberalization, as it is being learnt in the wake of recent economic crises, brings in mixed results. Indian investors and businesses are exposed to volatility and uncertainties in a manner they had never imagined before. The stock market crash in the aftermath of economic crisis resulted in a standoff between government and businesses, with each side expecting other to do something about the situation.

Even with crises such as the prevailing one, the liberalization process will not be abandoned. Rather, these should serve to make the economy a 'learning' one. Some of the major concerns at this juncture are the underperforming agricultural sector and the relatively lower contribution of science and technology (S&T) to the economic growth process. Indeed, if the perception strengthens that economic growth or crises are the result of external factors, it will lead to the mindset that the circumstances are beyond one's control.

Post Liberalization Scenario in Hydrocarbon Sector

The liberalization of hydrocarbon sector (Atmanand, 2000) was necessitated due to the rising demand for fuels accompanying the economic growth and the stagnation in indigenous output of crude oil. The liberalization package of government of India, therefore, consisted of opening up the exploration, production and refining activities to private players, dismantling the administered price mechanism, offering a level playing field

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