

## Technological Capabilities of Major Shipbreaking Nations - A Comparative Study

Stuti Haldar<sup>1</sup> and Indira Dutta<sup>2</sup>

<sup>1</sup>Research Scholar, Centre for Studies in Economics and Planning and <sup>2</sup>Professor & Dean, School of Social Sciences, Central University of Gujarat, Gujarat, India.

**CITATION:** Haldar, Stuti and Dutta, Indira (2018), "Technological Capabilities of Major Shipbreaking Nations - A Comparative Study", *MERC Global's International Journal of Social Science & Management*, Vol. 5, Issue 1, pp. 23-39.

**ARTICLE HISTORY:** Submitted: November 12, 2017, Revision received: December 11, 2017, Accepted: January 05, 2018

**ARTICLE TYPE:** Review paper

### ABSTRACT

*Shipbreaking has an inherent potential of establishing itself as a green industry. Over 80 percent of the world trade by volume is carried out by sea. The rapidly growing marine fleet commissioned to cater to the demand for an international trade is sooner or later destined to the Shipbreaking Yards especially concentrated in the developing nations. Shipbreaking is the process of dismantling of marine vessels to extract reusable and recyclable equipment and materials from it. Hence it seems to be a green industry. However, the low technological capabilities and lack of proper infrastructure at the Shipbreaking yards of the transition economies such as India, Bangladesh and Pakistan have raised concerns related to environmental damage and unsafe and unhealthy occupational environment prevalent here. This study analyses the technological capability literature to derive parameters to measure sustainability in shipbreaking practices. It studies the current status of technological infrastructure and occupational conditions pertaining to the Shipbreaking industry in the developing world on the basis of these parameters. It also offers a comparative study of the methods adopted and level of technology used by major ship recycling nations such as India, Pakistan, Turkey, Bangladesh and China. The present study concludes by offering suggestions to develop the technological competencies of this industry in the developing nations so that they might offer a sustainable ship recycling platform for the world's decommissioned fleet in the true sense of the term.*

**KEYWORDS:** Shipbreaking industry, Sustainable ship recycling, Green recycling, Technological infrastructure, Technological capability.

### REFERENCES

1. Atkinson, A. B. and Stiglitz, J. E. (1969), "A new view of technological change", *The Economic Journal*, 79 (315), pp. 573-578.
2. Chien, Y. (2015), "What Drives Long-Run Economic Growth?", June 1, retrieved August 11, 2016, available at: <https://www.stlouisfed.org/on-the-economy/2015/june/what-drives-long-run-economic-growth>.
3. Demaria, F. (2010), "Shipbreaking at Alang - Sosiya (India): An Ecological Distribution Conflict", *Ecological Economics*.
4. FIDH. (2002), Where do the "Floating Dustbins" End Up? Labour Rights in Shipbreaking Yards in South Asia - The Cases of Chittagong (Bangladesh) and Alang (India).
5. Galley, M. (2014), *Shipbreaking: Hazards and Liabilities*, London: Springer International Publishing Switzerland.
6. GMB Ports. (n.d.), Ship Recycling Yards, Infrastructure Development, retrieved May 12, 2016, available at: <http://www.gmbports.org/ship-recycling-yards>.
7. Hillyer, H. H. (2012), "The Hard Reality of Breaking Up: The Global Transboundary Movement of Ocean Vessel Demolition and Waste", *Vermont Journal of Environmental Law*, 13, pp. 755 - 795.

8. Hoffman, K. (1989), Technological advance and organisational innovation in the engineering industry: a new perspective on the problems and possibilities for developing countries, Industry Development Division, Industry and Energy Department, Policy, Planning, and Research, World Bank.
9. Hossain, M. M. and Islam, M. M. (2006), Ship Breaking Activities and its Impact on the Coastal Zone of Chittagong, Bangladesh: Towards Sustainable Management, Young Power in Social Action (YPSA), Chittagong, Bangladesh.
10. Islam, K. and Hossain, M. (1986), "Effects of Ship Scrapping Activities on the Soil and Sea Environment in the Coastal area of Chittagong, Bangladesh", *In Marine Pollution Bulletin*, 17 (10), pp. 462-463.
11. Katz, J. M. (1987), *Technology Generation in Latin American manufacturing industries*, Springer.
12. Kumar, R. (2010), Ship Dismantling: A status report on South Asia, India: Euroconsult Mott MacDonald and WWF- India.
13. Lall, S. (1991), *Explaining industrial success in the developing world. In Current issues in development economics*, Macmillan Education, UK.
14. Lall, S. (1992), "Technological Capabilities and Industrialisation", *World Development*, 20(2), pp. 165-186.
15. Lall, S. (1998), "Technological Capabilities in Emerging Asia", *Oxford Development Studies*, 26(2), pp. 213-243.
16. Mikelis, N. (2013), "Ship recycling markets", *General Bulletin*, 108(3), pp. 54-61.
17. Nelson, R. R. (1981), "Research on productivity growth and productivity differences: dead ends and new departures", *Journal of Economic Literature*, 19(3), pp. 1029-1064.
18. Nelson, R. R. (1987), *Innovation and Economic Development Theoretical Retrospect and Prospect. In Technology generation in Latin American manufacturing industries*, Palgrave Macmillan, UK.
19. NGO Shipbreaking Platform - Annual Report (2009), Brussels: NGO Platform on Shipbreaking.
20. NGO Shipbreaking Platform - Annual Report (2010), Brussels: NGO Platform on Shipbreaking.
21. NGO Shipbreaking Platform - Annual Report (2011), Brussels: NGO Platform on Shipbreaking.
22. NGO Shipbreaking Platform - Annual Report (2012), Brussels: NGO Platform on Shipbreaking.
23. NGO Shipbreaking Platform - Annual Report (2013), Brussels: NGO Platform on Shipbreaking.
24. NGO Shipbreaking Platform - Annual Report (2014), Brussels: NGO Platform on Shipbreaking.
25. NGO Shipbreaking Platform - South Asia Quarterly (2015), 10<sup>th</sup> April, Brussels: NGO Platform on Shipbreaking.
26. NGO Shipbreaking Platform - South Asia Quarterly (2015), 16<sup>th</sup> October, Brussels: NGO Platform on Shipbreaking.
27. NGO Shipbreaking Platform - South Asia Quarterly (2015), 30<sup>th</sup> July, Brussels: NGO Platform on Shipbreaking.
28. NGO Shipbreaking Platform - South Asia Quarterly (2016), 21<sup>st</sup> January, Brussels: NGO Platform on Shipbreaking.
29. NGO Shipbreaking Platform (2016), retrieved on May 10, 2016, available at: [http://www.shipbreakingplatform.org/shipbrea\\_wp2011/wp-content/uploads/2016/02/Stats-Graphs\\_2015-List\\_FINAL.pdf](http://www.shipbreakingplatform.org/shipbrea_wp2011/wp-content/uploads/2016/02/Stats-Graphs_2015-List_FINAL.pdf).
30. Pack, H. and Westphal, L. E. (1986), "Industrial strategy and technological change: theory versus reality", *Journal of Development Economics*, 22(1), pp. 87-128.
31. PuthuCherril, T. G. (2010), *From Shipbreaking to Sustainable Ship Recycling*, Boston: Martinus Nijhoff Publishers.
32. Reddy, M. S.; Basha, S.; Kumar, V.; Joshi, H. and Ghosh, P. (2003), "Quantification and Classification of Ship Scrapping Waste at Alang - Sosiya, India", *Marine Pollution Bulletin*, pp. 1609-1614.
33. Ship Recycling Practice and Regulation Today (2011), London: Lloyd's Register, June.
34. Silverberg, G. and Soete, L. (1988), *Technical change and economic theory*, London: Pinter.
35. UNESCO. (2004), Impacts and Challenges of a large Coastal Industry. Alang-Sosiya Ship-Breaking Yard, Gujarat, India. Paris: Coastal region and small island paper 17.
36. Winter, S. G. and Nelson, R. R. (1982), An evolutionary theory of economic change. The University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.

#### **ABOUT THE AUTHOR (S)**

**Stuti Haldar** is research scholar at Centre for Studies in Economics, School of Social Sciences, Central University of Gujarat, Gujarat, India. She is a corresponding author and can be reached at [stuti.haldar@cug.ac.in](mailto:stuti.haldar@cug.ac.in).

**Indira Dutta** is professor & dean at School of Social Sciences, Central University of Gujarat, Gujarat, India.