IIASA is proud to announce *Technological Change and the Environment*, a co-publication with Resources for the Future edited by Arnulf Grüber, Nebojsa Nakicenovic, and William D. Nordhaus.

Technology is a double-edged sword for the environment: it can amplify as well as alleviate the impacts of human activities. The role of technology was largely ignored in the first round of global modeling efforts in the early 1970s, but it has recently moved to the forefront of both science and policy in addressing climate change. The long time span involved in climate change — from decades to centuries — puts technological change "in the driver's seat," because over long time periods technological systems are highly malleable, whereas in the short run they are largely inflexible.

Grübler, Nakicenovic, Nordhaus, and their distinguished contributors offer a unique, single-volume overview of the most contemporary theoretical and empirical work on technological change. Beginning with a survey of existing research, they provide analysis and case studies in contexts such as medicine, agriculture, and power generation, paying particular attention to what technological change means for efficiency, productivity, and reduced environmental impacts, especially in the context of global climate change.

A brief look at the history of technology illustrates the enormous scope for change: a century ago the industrialized countries relied on a coal-fueled steam-engine economy. Current technologies such as instantaneous global electronic communication or heavier-than-air flying machines were at most fantasies in the minds of science fiction writers. They were certainly not a source of inspiration for individuals in the newly founded research and development (R&D) laboratories. While it is easy to describe the enormous changes in technological hardware, software, and "orgware" that have characterized the past, and while it is comparatively easy to speculate about possible future developments, it is much harder to discern the factors that have caused all these changes. Why were certain technological options pursued while others were ignored? Why did some technologies gain widespread social acceptance and diffusion while others never moved beyond the status of a technological curiosity? And finally, what role was played by institutions and policies in triggering and promoting, or in obstructing and slowing down, change?

"Contains the most up-to-date and thorough studies on induced technological change. While its emphasis is on the prospects, the expected magnitudes, and costs of carbon reduction, the principles are applicable to the broader field of induced technological change." - Kenneth J. Arrow, Stanford University, Nobel Laureate in Economics

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