Social issues of new technologies: Case of nanotechnology

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Abstract: Scientific knowledge uses information derived not only from phenomena, but also information about the social context in which it is conducted. The sociology of scientific knowledge emerged in the late 1960s and early 1970s in Britain, France, Germany, and the United States. The new focus of attention in the studies of *science, technology and society* can be seen in several of special interests: a) from what science and technology are in themselves (mainly, epistemic contents) to how science and technology *are made* (largely, social constructions); b) from the language and structure of basic science to the characteristics of *applied science* and the *applications of science*; c) from technology as a feature through which human beings control their natural surroundings (a step beyond "technics" due to the contribution of science) to technology as a *social practice* and an *instrument of power*; and d) from the role of internal values necessary for "mature science" and "innovative technology" to the role of *contextual* or *external values* (cultural, political, economic …) of science and technology (Gonzalez, 2005). It considers the contributions of several disciplines including ethics, policy analyses, legal studies, sociology of science and technology, economics of science and technology, etc. and has become backbone, for good and for evil, of the present globalized society. The technological revolution has experienced both in production and everyday life by promising a lot for mankind by contributing to the solution of basic social problems. But there is a growing awareness of very deep problems arising from this technological growth, which can be seen as "environment bomb", the depletion of some resources, the overall deterioration of the environment, the role of civilizational factors in the growing rate of cancer in industrially developed countries, etc. (Hronszky, 1995).

Nanotechnology, as a new field of scientific endeavor, most of its applications are still speculative, and there is much debate about what positive and negative effects nanotechnology might have. Some observers suggest that nanotechnology will build incrementally, as did the 18-19th century industrial revolution, until it gathers pace to drive a nanotechnological revolution that will radically reshape our economies, our labor markets, international trade, international relations, social structures, civil liberties, our relationship with the natural world and even what we understand to be human. Others suggest that it may be more accurate to describe change driven by nanotechnology as a "technological tsunami". The issues surrounding nanotechnology can be classified into five categories – i) Issues related to ensuring that nanotechnology develops its potential; ii) Issues relating to social awareness of nanotechnology and public involvement in science; iii) Social and economic issues that will be concurrent with, or even intensified by, nanotechnology; iv) Issues associated with any new technology; and v) Issues unique to Nanotechnology.

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