

# Key to the Brighter Future: Green Nanotechnology Opportunities and Legal Challenges in Iran

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## Abstract

The manipulation of atoms and molecules at the scale of Nanometre (1 to 100 nm) provides enormous capacity for environmental improvement. Iran -like many countries rich in natural resources- has used a development approach which has overtaxed its non-renewable resources and under-invested in its renewable ones. With the current management of natural resources, Iran will face a hotter-drier-future, and environmental security has been challenged in this geography. Generally, four environmental threats in Iran, which endanger human security, include water pollution, soil erosion, air pollution and biodiversity loss. Due to the notable Nano development, it is expected that the effectiveness of different methods of water, soil and air purification will be improved. It is also expected that the use of Nanotechnology-based products will reduce the cost of alleviating pollution. Even though Nanoparticles enhance products, recent scientific studies have shown that Nanoparticles present unique and significant health risks. However, the use of Nano-science in the field of the environment faces the challenge of the lack of specific legal rules in the regulating of this technology. In this paper, Iran's environmental challenges are addressed in the key areas of water, soil, air and energy and the use of Nanoscale capacities in improving the environment of Iran in these areas are considered. Finally, the need to enact Nano-specific laws in the legal system of Iran in order to balance the environmental benefits and risks will be substantiated.

**Keywords:** Environment, Challenges, Nanotechnology, Applications, Iran, Specific law

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