

Table of Contents

Preface	7
Introduction	9
What is Nanotechnology?	11
Nanotech’s “miracle molecules”: Carbon nanotubes, buckyballs and quantum dots	15
No Small Matter – Potential Risks of Nanoparticles	16
Nanotech’s Implications for the Global South	20
What Role do Developing Countries Currently Play in Nanotech R&D?	22
The Potential Impacts of Nano-Scale Technologies on Trade and Commodities	24
A First Look to the Potential Impacts of Nano-scale Technologies	24
The Potential Impacts of Nano-scale Technologies on the Market for Rubber	28
The Use of Nano-scale Technologies to Replace Platinum as a Catalyst in Catalytic Converters, Batteries, Fuel Cells and in Electrode Components	30
The Potential Impacts of Replacing or Reducing Markets for Platinum-based Catalysts for Developing Countries	33
Power Cable Made of Carbon Nanotubes Aims to Replace Copper Wiring	35
Potential Impacts of Nanotechnology-Induced Copper Replacement on Developing Countries	37
What Role will Nano-enabled Medicine Play in Addressing Sickness and Poverty in the Global South?	40
Nano-scale Engineering to Produce Anti-malarial Drug	41
VivaGel – Downsizing Microbicides	45

Table of Contents

Nanomonopoly	46
Diamond vs. Chakrabarty Remembered	49
The Chakrabarty “Life Patenting” Timeline	51
Lessons learned from Chakrabarty	53
From Dust to Dust: A concise history of patent monopoly	54
Technologies Converging at the Nano-Scale	55
Synthetic Biology and Nanobiotechnology	56
Conclusion and Policy Recommendations	59
Appendixes	63
Appendix A: ICENT	64
Appendix B: Glossary of Terms	69
Appendix C: A Case Study of Patents on Carbon Nanotubes	75
Appendix D: Resources for learning more about nano-scale technologies	81
Acronyms	83
Endnotes	85
Charts and Tables	
Table 1: Government funding for nanotechnology, 1997-2006 (US\$ billions)	10
Table 2: Global distribution of nanotechnology activity by country and classification	23
Chart 1: Global natural rubber production, 2004	29
Chart 2: Platinum demand by application, 2006	33
Table 3: Employment: Chilean mining/production, 2000-2004	38
Table 4: Zambia's copper production, 2002-2004	39
Table 5: International patents on nanotechnology, 1997-2006	47