



## ROYAL COMMISSION ON ENVIRONMENTAL POLLUTION

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### *Urgent action needed on testing and regulation of nanomaterials*

There is an urgent need for more testing, extending existing governance arrangements and creating new arrangements for the control of the rapidly developing field of nanomaterials, according to a report by the influential *Royal Commission on Environmental Pollution* (RCEP),<sup>1</sup> published on Wednesday 12<sup>th</sup> November.

In its latest study on novel materials<sup>2</sup>, the *Royal Commission on Environmental Pollution* focussed on nanomaterials as an exemplar of a rapidly expanding new technology.

While the Commission found no evidence of harm to health or the environment from nanomaterials, it believes that the pace at which such new nanomaterials are being developed and marketed is beyond the capacity of existing testing and regulatory arrangements to control the potential environmental impacts adequately. In evaluating potential risks, the Commission concluded that it is not the size of nanomaterials per se that is important, but their functionality, what they do and how they behave, that needs to be evaluated.

Nanomaterials are important in improving the performance of existing technologies or making new technologies possible. Many are involved in delivering significant improvements in health care, e.g. through the targeting of drug delivery systems. Many

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<sup>1</sup> The Royal Commission on Environmental Pollution is an independent standing body established in 1970 to advise the Queen, the Government, Parliament and the public on environmental issues. Although funded by the Department for Environment, Food and Rural Affairs, the Royal Commission is independent of government Departments.

<sup>2</sup> *Novel Materials in the Environment: The case of nanotechnology* is the Royal Commission's 27th report. The Commission has also produced a short Summary Report that includes the key recommendations. Both the full report and the summary are available in printed form or can be downloaded from the Commission's website: <http://www.rcep.org.uk>. Copies of the full report are available from The Stationary Office Bookshops (Cm 7468, price £26.60). The Summary can be obtained free of charge from the RCEP Secretariat (tel: 020 7270 8159, fax 020 7270 8303, email: [enquiries@rcep.org.uk](mailto:enquiries@rcep.org.uk))

are important in terms of meeting environmental challenges, e.g. in the development of cheaper or more efficient solar panels.

Sir John Lawton, Chair of the Commission, said “While we welcome action taken by Government and organisations such as the OECD to try to address some of the uncertainties around the environmental and human health impacts of nanomaterials, there is far more to do, not least as the rate of innovation in this sector far outstrips our capacity to respond to the risks. There is an urgent need for more research and testing of nanomaterials. It will be necessary to extend the coverage within the European Union of the existing regulatory regime for chemicals (REACH). This must be taken forward as a matter of urgency.

“We are also concerned that more sophisticated later generation nanoproducts will raise issues which cannot be dealt with by treating them as chemicals or mixtures of chemicals. Current testing arrangements and existing regulations are inadequate. The Commission strongly believes that new governance arrangements are vital to deal with the challenges posed by current and future innovation in this sector.”

In the Royal Commission study we looked hard for evidence of nanomaterials causing harm to human health or to the environment, and found no such evidence. However, it is very early in the development of this technology, and the amount of testing has been relatively limited. We are aware that laboratory tests on some nanomaterials suggest that they have properties which could cause concern. This strengthens our case for an increase in the amount and type of testing to assess whether these theoretical risks are real, and to monitor their behaviour in the environment. On balance, the Commission concluded that there were no grounds for a blanket ban or moratorium on nanomaterials.

The Commission’s recommendations reflect three main priorities:

- **Functionality:** we need to focus on the properties and functionalities of specific nanomaterials as the key driver for understanding their behaviour in organisms and the environment, rather than treating all materials in the size range as one single class.
- **Information:** a directed and substantial research programme on the properties and functionalities of nanomaterials must be established as a matter of urgency, in order to inform risk assessment and risk management strategies. One essential part of such a directed programme will be the development of techniques that allow the presence of particular nanomaterials to be detected in the environment.
- **Adaptive management:** Government urgently needs to recognise the degree of ignorance and uncertainty in this area, and the time it will take to address these. Government needs to develop flexible and resilient forms of management that allow appropriate control of emergent technologies in general, and for nanomaterials in particular.