ETC Group
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ETC Group releases *Down on the Farm*: *The Impact of Nano-Scale Technologies on Food and Agriculture*

The ETC Group, an international research and advocacy organisation based in Ottawa, Canada, today announces the publication of *Down on the Farm*, the first comprehensive look at how nano-scale technologies will affect farmers, food and agriculture. Nanotechnology refers to the manipulation of matter at the scale of atoms and molecules, where size is measured in billionths of metres and quantum physics determines how a substance behaves. According to Hope Shand, ETC Group's Research Director, "Over the next two decades, technologies converging at the nano-scale will have a greater impact on farmers and food than farm mechanisation or the Green Revolution."

***Down on the Farm* dishes out some big surprises:** A handful of food and nutrition products containing invisible and un-labeled nano-scale additives are already on supermarket shelves. In addition, a number of pesticides containing nano-scale materials have been released in the environment and are commercially available. Nano-scale materials exhibit different properties than the same materials at larger scales – and scientists are now finding out that nano-scale materials are generally more reactive and mobile if they enter the body. Only a handful of toxicological studies exist. Because of these concerns, the use of new, nano-scale materials must be guided by the Precautionary Principle. "By allowing nanotech food and agricultural products to come to market in the absence of public debate and regulatory oversight, governments and industry may be igniting a new and more intense debate – this time over 'atomically-modified' foods," adds Jim Thomas, ETC Group Programme Manager based in Oxford, UK.

Global Outreach: ETC Group is taking its new nanotech report to farm organisations, social movements and governments worldwide. In Bangladesh, ETC Group Executive Director, Pat Mooney, is attending the Asia-Pacific Conference on Food Sovereignty where representatives from 30 countries will hear about the impacts of nano-scale technologies on food and farming; in Brazil, Silvia Ribeiro of ETC Group is meeting with Movimento dos Trabalhadores Rurais Sem Terra (Landless Workers Movement), one of the largest social movements in Latin America. Last week ETC's Jim Thomas presented *Down on the Farm* to government representatives attending the FAO Commission on Genetic Resources for Food and Agriculture and Hope Shand addressed the annual convention of the National Farmers Union in Saskatchewan, Canada.

Most of the world's largest food and beverage corporations – including Unilever, Nestlé and Kraft – are conducting research and development (R&D) on nano-scale technologies to engineer, process, package and deliver food and nutrients. Major agribusiness firms, such as Syngenta, BASF, Bayer and Monsanto are reformulating their pesticides at the nano-scale to make them more biologically active and to win new monopoly patents. *Down on the Farm* examines a wide range of current R&D, ranging from atomically-modified seeds, nano-sensors for precision agriculture, plants engineered to produce metal nanoparticles, nano-vaccines for farmed fish, nano-barcodes for tracking and controlling food products, and more.

Last month the US Patent and Trademark Office established a new classification for nanotechnology patents, notes ETC Group. "It's ironic that a company can win a monopoly patent because their nano-scale product is recognised as novel, but food and safety regulators have yet to acknowledge the novelty of the nano-scale," notes ETC Researcher, Kathy Jo Wetter in North Carolina.

Commodity Roulette: Industry expects nano-scale technologies to create dramatic shifts in supply and value chains, turning commodity markets upside-down. ETC Group finds that small farmers and agricultural workers in the developing world will be among the first and most adversely affected by nanotech's new designer materials. Poor farmers are seldom in a position to respond quickly to abrupt economic changes. Particularly at risk are farm communities and countries in the global South that depend on primary export commodities such as rubber and cotton – products that could be displaced by new nanotech materials. "Even if there might be environmental benefits to replacing some natural commodities with materials designed at the nano-scale, that won't prevent market disruptions from causing real harm in the global South," explains Jim Thomas.

ETC Group recommends that society – including farmers, civil society organisations and social movements – engage in a wide debate about nano-scale technologies and their multiple economic, health and environmental implications. "Any efforts by governments or industry to confine the discussion to meetings of experts or to focus the debate solely on health and safety aspects will be a mistake. The broader social and ethical issues must be addressed," warns ETC's Silvia Ribeiro, Programme Manager in Mexico City.

In 2002, ETC called for a moratorium on the commercialisation of new nano-scale materials until laboratory protocols and regulatory regimes are in place that take into account the special characteristics of these materials, and until they are shown to be safe. Accordingly, in *Down of the Farm*, ETC Group recommends that all food, feed and beverage products incorporating manufactured nanoparticles be removed from the shelves and new ones be prohibited from commercialisation until companies and regulators have shown that they have taken nano-scale property changes into account. Similarly, nano-scale formulations of agricultural products such as pesticides and fertilisers should be prohibited from environmental release until a regulatory regime specifically designed to examine these nano-scale products finds them safe.

Goo Plate Special: ETC's report also puts the spotlight on the rapidly emerging field of synthetic biology – the construction of new living systems in the laboratory that can be programmed to do things that no natural organism can. "Living machines" frequently involve the integration of living and non-living parts at the nano-scale – also known as nanobiotechnology. "What if new life forms, especially those that are designed to function autonomously in the environment, prove difficult to control or contain?" asks ETC Group. Given the extreme risks (that even mainstream scientists are beginning to acknowledge), *Down on the Farm* calls for an immediate moratorium on laboratory experimentation and environmental release of synthetic biology materials until society can engage in a thorough analysis of the health, environmental and socio-economic implications.

Down on the Farm: *The Impact of Nano-Scale Technologies on Food and Agriculture* is available on the ETC Group web site: http://www.etcgroup.org

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The Action Group on Erosion, Technology and Concentration, formerly RAFI, is an international civil society organization headquartered in Canada. The ETC Group is dedicated to the advancement of cultural and ecological diversity and human rights. www.etcgroup.org. The ETC Group is also a member of the Community Biodiversity Development and Conservation Programme (CBDC). The CBDC is a collaborative experimental initiative involving civil society organizations and public research institutions in 14 countries. The CBDC is dedicated to the exploration of community-directed programmes to strengthen the conservation and enhancement of agricultural biodiversity. The CBDC website is www.cbdcprogram.org