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**For immediate release**

## ***Hydrogen Fuelled Dreams. How close are we to emissions-free transport and what does this mean for the world's technological divide?***

**News Release**

Are we on the brink of the greatest technological explosion in the transport sector since the invention of the internal combustion engine? European Commission President Romano Prodi certainly seems to think so, and has very publicly committed himself to a “hydrogen vision,” effectively staking his political career on a successful transition to pollution free fuels in Europe.

The announcement by a number of governments in Europe, as well as the United States, Canada and Japan that they will inject substantial funds into research and development of fuel cell vehicles has revitalized the efforts of various consortia working to develop cleaner energy sources for the transport sector. Already, Iceland has commissioned the first large-scale trial of converting to a hydrogen fuelled infrastructure for the capital, Reykjavik (scheduled to be completed in 2005). But are we anywhere near abandoning conventional fuels? And if hydrogen fueled transport does really take off, where will this leave the world's technological laggards? Will this technological seismic shift provide them with yet another opportunity to ‘leapfrog’ the daunting technological barriers they already face, or, as many believe, will it merely deepen the inequalities between North and South?

These are among the important questions to be addressed by Professor Lynn Mytelka, Director of the United Nations University Institute for New Technologies (UNU/INTECH) based in Maastricht, during her Inaugural Lecture at the University of Maastricht on Friday 27<sup>th</sup> June, 2003, at 16.30 hrs.

In her paper titled: “New Wave Technologies: Their Emergence, Diffusion and Impact,” Prof. Mytelka will focus on the emergence of the proton exchange membrane (PEM) fuel cell and its diffusion within the motor industry. As one author put it, fuel cells, which can convert hydrogen directly into electricity without combustion or moving parts will bring “energy conversion out of the ‘age of fire’ into the ‘age of electrochemistry’.”<sup>1</sup> The emergence of fuel cells, involving nano-materials and hydrogen as an energy source, is the latest in a series of

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<sup>1</sup> Williams, R.H. (1994) “The Clean Machine,” *Technology Review*, April, pp.21-30

developments loosely referred to as ‘new wave technologies.’ The other members of this club, also emerging in the last quarter of the twentieth century, are information and communication technologies and biotechnology (and its application to pharmaceuticals and agriculture).

In light of the very significant progress already made, Prof. Mytelka argues that the world, and especially developing countries, should not wait but should start to make a number of important choices now to position themselves to benefit from fuel cell technology. With a number of the biggest car manufacturers racing to launch various hybrid versions of fuel cell cars many critical questions need to be asked at this juncture. Can two of the foremost solutions – methanol and hydrogen – co-exist without wasteful investment? Would investment in ‘cleaning up’ conventional fuels keep the market for petroleum buoyant and reduce incentives for change, by slowing down the pace of realizing the ultimate goal of a hydrogen economy?

And where do developing countries stand in all this? Prof. Mytelka draws on the lessons learned from the two most recent major technological breakthroughs, namely Information and Communication Technologies (ICTs) and biotechnology, in order to understand the possible impacts of new wave technologies. An important lesson was that effective use and diffusion of the new technologies was as much dependent on the presence of knowledge resources as the technical ‘hardware’ infrastructure. The new wave technologies are particularly distinguished by their high level of systems integration and ‘embeddedness’ within the social and economic fabric. Countries that want to ‘catch up’ with these technologies will need new strategies, therefore. The incremental process of learning new skills, product adaptation and modification that was adopted with traditional, engineering-based industries cannot be replicated in the rapidly changing environment of today. The science-based, patent intensive and systems embedded new wave technologies will require more attention to global collaboration to harness the complex skills and resources required. Moreover, the success of these technologies depends not only on the development of an entire technical infrastructure to support their diffusion, but also a change in a variety of habits and practices of both consumers and producers. Even in the most technologically advanced countries, there will be need expand research and training capacities for a successful transition.

Given these daunting challenges Prof. Mytelka questions whether it is in the interests of developing countries to continue moving down an older technological path based on conventional fuels and the internal combustion engine, namely traditional auto repair services, fuel distribution networks and fuel stations. She argues that this will merely accelerate the process of turning the South into a dumping ground for used cars, and strengthen a fossil fuel-based system. In the interests of global environmental health, all countries need to work together to share knowledge on cleaner energy sources. But it is also crucial for developing countries to immediately invest in tertiary education and research to enable them identify opportunities for entry into new productive activities and provide the base for a more holistic, systems-oriented approach to policymaking.

### **About UNU/INTECH**

The Institute for New Technologies of the [United Nations University](#) (UNU/INTECH) was set up in Maastricht, The Netherlands by the Council of the United Nations University in 1990. UNU is an international community of scholars engaged in research, postgraduate training and the dissemination of knowledge aimed at furthering the purposes and principles of the Charter of the United Nations.

Within the UNU family, INTECH conducts research and policy-oriented analyses and undertakes capacity building in the area of new technologies: the opportunities they present, the vectors for their generation and diffusion and the nature of their economic and social impact, especially in relation to the developing countries.

UNU/INTECH's mission is to stimulate dialogue and to develop and diffuse quality information in the area of its mandate. In addition to its research, the Institute provides advanced academic training through a [PhD programme](#) and undertakes capacity building through its [PhD internship programme](#), workshops and joint research projects with institutes and individuals in the developing world. Results of its research are published in peer reviewed journals, as books and as INTECH discussion papers.

*Prof. Mytelka will be available for press interviews after the lecture.*

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