

Analyse, anticipate and exchange
**ACTIVITY
REPORT
2007 / 2008**

INSTITUT

Veolia Environnement

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ANALYSE, ANTICIPATE
AND EXCHANGE

INSTITUT

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"Where the expectations of society meet the demands of the environment, the Institut Veolia Environnement aims to shed light on possible futures."

Gaston Berger defined the concept of "Prospective", as the study of possible futures. Where the expectations of society meet the demands of the environment, the Institut Veolia Environnement aims to shed light on these possible futures, to identify the threats and promises they hold and to suggest frameworks for public and private agents to make informed and responsible choices.

Today there are three relevant dimensions, depending on the nature of the questions addressed:

- > The first is local. It relates to the capacity of the public power to define and implement economically and socially effective solutions that are acceptable to the population concerned. Clearly, there is never a single answer but one that varies according to countries, their traditions, culture and level of economic development: the models adopted in Germany, the USA, the UK, China or France are all different approaches, guided by the need for widespread acceptance of public decisions and by the ways in which environmental services are organised. Research in these areas (such as the work of the Institut d'Economie Industrielle (IDEI) on public-private partnerships, or the work of Esther Duflo, MIT, on the health and economic impact of improving indoor air quality in 40 Indian villages) is based on the best academic contributions available matched against experience in the field.
- > The second embraces complex and international issues, for which answers can only be found at a global level. Managing climate change and its many implications in the fields of energy, transport, building, industry and agriculture is at the forefront of these issues. Here, the need to consider (sustainable) development

is primordial when seeking hard-won international consensus, and especially agreement between industrialised and emerging economies. Comparing the ecological footprints of different models of energy consumption in the urban areas of developing countries (a study carried out in partnership with The Energy and Resources Institute - TERI), exploring issues raised by the Stern Review Report on the Economics of Climate Change and studying "factor 4" scenarios in the most advanced economies are all pieces of the puzzle.

- > The third and final dimension is regional. It encompasses issues like the consequences of climate disruption and adaptive responses whose imperatives do not stop at national borders: protection of biodiversity and the management of water resources in increasingly arid zones, soil rehabilitation experiments carried out on a vast regional scale in Asia or Africa. Equally, the Institut contributes to studying the impact on public health of outbreak diseases such as malaria or dengue fever (collaboration is under way between the World Health Organization and the Institut).

The Institut aims to act as a catalyst for reflection and dialogue, to assist Institut members in anticipating the emergence of new questions more accurately and thereby fulfilling their responsibilities more effectively. This Activity Report is nothing less than the illustration of this forward-looking approach.

Jean-Pierre TARDIEU
President, Institut Veolia Environnement



"...Sharing ideas with the leading international experts and seeking to identify major trends emerging on the horizon..."

Six years ago now, the Institut Veolia Environnement was founded to anticipate the trends that will mark the interaction between society and the environment.

In a fast-changing and increasingly complex world, there is all the more need to project into the future and seek to conceive and develop new and different codes of understanding that will help us to unravel the emerging dimensions of contemporary humanity. It is a huge and exciting endeavour. Matter for reflection is over-abundant, and challenges us to remain pertinent and lucid, to avoid becoming entangled in irrelevancies on the margins of history. It is vital to apply a simultaneous process of broad active intelligence and strict selectivity. The fields opening up to foresight exploration are increasing in number and, at the same time, deepening. We thus need to set our priorities with great care and synthesise information and data to identify what is essential. In this context, the role and the critical insight of the Institut's two pillars, the Board of Directors and the Foresight Committee, is primordial.

In addition, we have developed our own brand of pragmatism for fulfilling the task we have set ourselves. It is based on sharing ideas with the leading international experts and seeking to identify major trends emerging on the horizon by calling on the most significant sources of knowledge in every field of study. We use three tools to identify and attract the world's most competent experts: conferences, publications and research partnerships. Each conference covers a different theme and exerts a primarily regional influence: energy, development and poverty in India, for example, or climate in 2050 in North America. Our publications target the widest possible participation and circulation within academic circles dealing with environmental issues: the journal S.A.P.I.E.N.S. was designed with this particular end in view. Research partnerships operate at the cutting edge to explore key issues in greater depth and build up a network of competencies that can be easily accessed and called upon.

Such are the actions this report seeks to illustrate.

Georges VALENTIS

Managing Director, Institut Veolia Environnement

HIGHLIGHTS 2007

From 24 to 26 October 2007 in Montreal, the Institut Veolia Environnement staged its fourth international conference, "Climate 2050: Technology and policy solutions", organised jointly with the Pew Center on Global Climate Change (USA) and the National Round Table on the Economy and the Environment (Canada).

In addition to an eminent panel of North American experts from the scientific world and the public and private sectors, some 400 delegates from 12 countries came together for the Climate 2050 conference. Exchanges of views ranged freely and fruitfully over questions of technological innovation in the fields of carbon capture, transport, green buildings and biofuels, as well as on progress and expectations regarding climate change policies.

Jean CHAREST, Prime Minister of Quebec, and Thierry VANDAL, CEO of Hydro-Quebec, opened the Climate 2050 conference.

Guest of honour at the opening ceremony Sheila WATT-CLOUTIER, former Chair of the Inuit Circumpolar Conference and Nobel Peace Prize nominee, shared her views on the human dimensions of climate change.

The Board of Directors of the Institut Veolia Environnement, made up of the founding members, opened its ranks in 2007.

- Alain GRIOT, Head of the Asia and Americas Bureau, Directorate General of Companies, French Ministry for Industry
- Claude MANDIL, former Executive Director, International Energy Agency (IEA)
- Laurence TUBIANA, Director General, Institute for Sustainable Development and International Relations (IDDRI)

The Nobel Peace Prize was awarded jointly to the the Intergovernmental Panel on Climate Change (IPCC) chaired by Dr. Rajendra K. PACHAURI since April 2002.

The laureates were honoured "for their efforts to build up and disseminate greater knowledge about man-made climate change".

Rajendra K. PACHAURI is also Director General of The Energy and Resources Institute of India (TERI), which has for several years maintained a dynamic partnership with the Institut Veolia Environnement.

The two institutes have collaborated on an "ecological footprint" study and jointly organised the 2006 Bangalore conference, at which Dr. PACHAURI gave the opening address.

Sheila WATT-CLOUTIER at the Climate 2050 conference & Rajendra K. PACHAURI at the Bangalore conference in 2006.





MISSIONS AND PARTNERS

FORESIGHT:
at the heart of the
Institut Veolia Environnement
approach

Developing environmental foresight and promoting dialogue and exchanges between all those studying the issues of environmental management and sustainable development are the main orientations pursued by the Institut Veolia Environnement.

Mankind's management of his environment is a major issue in the 21st century.

It is an issue that is inseparable from that of globalisation, and it demands the deployment of all our energies, the commitment of all stakeholders, at local, national and international levels. It was this profoundly-held belief that prompted Veolia Environnement in 2001 to set up the Institut Veolia Environnement as a non-profit organisation.

In the six years since its founding, the Institut has consolidated its research programme, adding to its academic network a series of new partnerships forged through a series of international conferences, targeted studies and a top-notch scientific editorial policy.

Sharing reflection on strategic issues

Through the work of the experts carrying out the studies, and through its Foresight Committee of eminent figures, the Institut is dedicated to promoting long-term thinking on selected core themes: economic dimensions of the environment, the links between health and the environment, climate change and lifestyles, urban growth imperatives, society and environmental issues.

The Institut's programme of scientific conferences, launched with the first Future Environmental Trends Conference in 2004, organised in association with the Institut Pasteur, marked the first step in a cycle of events of international reach, underscoring the Institut's

determination to ground its actions and its future plans in ongoing fruitful dialogue with academic circles.

Exploiting the promises offered by scientific advances

In the years ahead, the Institut Veolia Environnement intends to strengthen its policy of scientific research by seeking the opinions and advice of leading specialists in its areas of concern, by associating them closely with its various projects and by disseminating findings widely through publications and the Institut website.

The Institut is also keen to take part in the dialogue and exchange of ideas between researchers and academics with the launch in 2008 of two scientific journals, one aimed at circulating multidisciplinary expertise in the environmental field and the other devoted to sharing and capitalising on the knowledge and experience of field actors.

Foresight reflection with a future

As a result of these initiatives, the Institut is establishing itself firmly as a recognised partner for international academic networks. The action it undertakes, upstream from applied research and innovation, makes a contribution to preparing the future at Veolia Environnement. Its work offers Group collaborators a long-term vision of the major challenges that the environmental services industry will be likely to face in the coming decades.

The FORESIGHT COMMITTEE: mainspring and benchmark of the Institut

The six members of the Foresight Committee bring the weight of their experience and international reputation to bear on the debates initiated by the Institut Veolia Environnement. The enlightenment and new directions they contribute, each in their own specialist field of knowledge, nourish and enhance the long-term view the Institut brings to the fields of the environment and sustainable development. The diversity of knowledge and competencies so combined opens a perspective on the outside world that is essential in order to envisage and grasp the future more clearly. Meetings of the Foresight Committee, held twice a year, are an opportunity to define and approve forthcoming studies and projects.

Hélène Ahrweiler

Historian, President of the University of Europe,
Former Rector of the Paris Academy,
UNESCO social and human sciences expert.

Mamphela Ramphela

Doctor and anthropologist,
Former Managing Director, World Bank
Former Vice-Chancellor, University of Cape Town.

Harvey Fineberg

President of the United-States Institute of Medicine,
Former Dean of the Harvard School
of Public Health (USA),
Advisor to the World Health Organization (WHO).

Philippe Kourilsky

Biologist, Professor at the Collège de France,
Honorary Director-General of the Institut Pasteur,
Member of the French Academy of Sciences.

Pierre Marc Johnson

Lawyer and physician, Former Prime Minister
of Quebec, Advisor to leading international
organisations on environmental issues.

Amartya Sen

Economist, Nobel laureate (1998), Professor of
Economics and Philosophy at Harvard University
(USA), Former Master of Trinity College, Cambridge
(UK), Lamont University Professor, Harvard University.



1 | Mamphela Ramphela. | 2 | Georges Valentin (Managing Director of the Institut), Harvey Fineberg, John Holdren (President of the American Association for the Advancement of Science) and Philippe Kourilsky at the "Climate 2050" conference in Montreal on 24 October 2007. | 3 | Pierre Marc Johnson at the plenary session of the "Climate 2050" conference in Montreal on 24 October 2007. | 4 | Amartya Sen at the plenary session of the Bangalore conference on 16 December 2006. | 5 | Hélène Ahrweiler.

The NETWORK of international EXPERTS

The academic partners of the Institut Veolia Environnement are drawn from a broad range of disciplines including economics, health, sociology, demographics, geography, history, etc. This breadth of competencies is instrumental in enabling the Institut to address and explore a range of diverse and even complementary themes around its core orientations. Foresight studies carried out by members of the network of experts over periods ranging from one to three years offer new lines of thought and reveal new knowledge relating to the main environmental trends.

This constantly evolving network was developed first in France and Europe from the Institut's inception. Since then, existing relationships have been consolidated while new contacts have been made in North America and Asia in order to diversify potential fields for investigation.

SOME EXPERTS OF THE NETWORK

Asia

Rajendra K. Pachauri

Chairman, Intergovernmental Panel on Climate Change (IPCC), Director General, The Energy and Resources Institute (TERI), India

Zhou Hongchun

Professor and Director of the Development Research Centre of the State Council (DRC), China

USA

Albert Bressand

Director of the Center for Energy, Marine Transportation and Public Policy, and Professor of Practice in International Relations at Columbia University

Elliot Diringer

Director of International Strategies, Pew Center on Global Climate Change

Esther Duflo

Professor of Economics, Massachusetts Institute of Technology (MIT)

Clive Jones

Ecologist, Senior Scientist, Institute of Ecosystem Studies

Erwann Michel Kerjan

Director of the Risk Management and Decision Processes Center, Wharton Business School

Europe

Francis Beaucire

Professor of geography, University of Paris I, Panthéon-Sorbonne, France

Harry Dimitriou

University College London, Bartlett School of Planning, United-Kingdom

Jean-Paul Fitoussi

President of the Observatoire Français des Conjonctures Economiques (OFCE), Professor of Economics at the Institut d'Etudes Politiques (Sciences Po), France

Erhard Friedberg

Professor of sociology at the Institut d'Etudes Politiques (Sciences Po) Paris, Director of Research, CNRS, France

Olivier Godard

Professor, Ecole Polytechnique, Director of Research, CNRS, France

Eric Godelier

Professor of Management Science, Ecole Polytechnique, France

Jean-Charles Hourcade

Head of the Centre International de Recherche sur l'Environnement et le Développement (CIRED), Director of Research, CNRS, France

Gilles Kepel

Professor of Political Science and Head of the Middle East and Mediterranean Studies at the Institut d'Etudes Politiques de Paris (Sciences Po), France

Mohamed Larbi Bouguerra

Research Officer at the French Institut de la Santé et de la Recherche Médicale (INSERM), Former Professor at the University of Tunis, Tunisia, consultant to the WHO and UNESCO, France

Ragnar E. Lofstedt

School of Social Science and Public Policy, King's College, King's Centre for Risk Management, United-Kingdom

David Martimort

Researcher, Institut d'Economie Industrielle (IDEI) and Professor of Economics, University of Toulouse 1, France

Francesco Saraceno

Senior Economist attached to the Presidency of the Observatoire Français des Conjonctures Economiques (OFCE), France



FORESIGHT RESEARCH PROGRAMME

Economic dimensions of the ENVIRONMENT

The concept of global governance that seeks to balance economics and the environment is characterised by the desire for a better and different model of production, incorporating respect for the environment and assuming the risks inherent in human activities. Through an analysis of economic models, forms of collaboration between public and private agents, and the behaviour of socially responsible citizens, the Institut Veolia Environnement explores new lines of thinking to reconcile environmental policy with economic development.

2007 STUDIES

- > **THE DEGREES OF CONTESTABILITY OF A FIRM:
FROM THEORETICAL FRAMEWORK TO STRATEGIC ANALYSIS**
Olivier Godard and Ignace Adant, Ecole Polytechnique
- > **MEASURES OF PUBLIC PERFORMANCE**
Jean-Paul Fitoussi and Francesco Saraceno, OFCE
- > **ECONOMIC REFLECTION ON THE THEMES OF DELEGATED MANAGEMENT
AND PUBLIC-PRIVATE PARTNERSHIPS**
David Martimort and Daniel Coublucq, IDEI

The adoption of a forward-looking and proactive approach to the threats of contestation that might affect its business led the firm to expand its reference base for analysis of the risks to which it is exposed and, up to a point, to transform itself into an agent/regulator of the sector to which it belongs. Based on the example of a scrap metal recycling company, the study attempts to understand how a firm faced with the twofold demands of economic performance and coexistence with the local community deals with these demands and with collective issues such as environmental quality or safety. (Olivier Godard and Ignace Adant)

A public utility firm seeking to assess its performance must take into account both environmental aspects and technical innovation, both of which form part of a long-term dynamic. If a firm is to measure the quantified

external effects of its activity against an assessment of its responses to these effects, it will need long-term sustainability indicators, but the usual performance indicators relate solely to short-term objectives. (Jean-Paul Fitoussi and Francesco Saraceno)

Delegated management of public service as it is practised in France has been studied primarily from the legal standpoint, particularly as regards the relations between the regulator and the concession-holder. The team from the Institut d'Economie Industrielle (IDEI) is developing a new model which explains delegated management in classic economic terms in order to illustrate the social utility of this form of management. (David Martimort and Daniel Coublucq)

> See also the workshops by David Martimort, IDEI, on delegated management (see page 18)

OUTLOOK FOR 2008

Following on from its 3rd conference, organised in 2006 on the theme of "The Environment and Poverty", the Institut aims to study ecological rehabilitation on a large scale (Loess Plateau in China) and its results in terms of economic development. The project focuses on regions suffering from highly degraded ecosystems leading to a significant loss in biodiversity, and involves analysis of how the authorities and local populations can interact effectively with, and even restore, such depleted environments.

The Links between HEALTH *and the* ENVIRONMENT

Preserving the quality of the environment is a key factor in public health, particularly in less-developed countries. Given the fact that 33% of the diseases affecting children under five are caused by environmental exposure, linking health and the environment can help to protect the lives of millions of human beings. This is a major issue on a global scale, and a central concern for the Institut Veolia.

2007 STUDIES

> ADDRESSING INDOOR AIR POLLUTION THROUGH THE USE OF CLEAN STOVES: A RANDOMIZED FIELD EXPERIMENT

Esther Duflo and Michael Greenstone, MIT - Rema Hanna, New York University

Understanding the complexity of the relationship between health and the environment requires solid scientific evidence. The Institut focuses on analysing the creeping threats to human health that result from a degraded environment. This forward-looking approach is conducted on both theoretical and empirical grounds and also includes cultural factors.

Worldwide, over three billion people still rely on traditional solid fuels (wood, crop and livestock waste, coal) for heating and cooking. The indoor air pollution (IAP) that results from the burning of these fuels is considered a major cause of early mortality. According to the World Health Organization, IAP is the second most common cause of infant death from environment-related causes in developing countries, second only to unsafe water.

In response, non-governmental organisations (NGOs) and governments have distributed tens of millions of improved cooking stoves in developing countries, 35 million in China alone, in an attempt to reduce concentrations of pollutants and evacuate smoke by

means of a closed hearth system or chimney. There are contradictory views, however, on the advantages of these improved stoves, partly because of the absence of any large-scale statistical study.

In India, the government has introduced a policy of providing subsidies for the purchase of less polluting stoves to 2,500 households in 40 villages in Orissa, India's poorest state. Through the programme, a great deal of detailed information has also been gathered on oven use, health, employment and income among the families concerned.



OUTLOOK FOR 2008

Over the next two years, the data will be used to: measure the impact of the improved stoves in terms of exposure to indoor air pollution; study the impact on respiratory function and health; evaluate the cost-effectiveness of the subsidy programme and provide other researchers with a valuable body of data on health and well-being in India. (Duflo, Greenstone and Hanna)

Climate change and LIFESTYLES

Given the scientific consensus on the reality of coming climate change, policies are being introduced in many parts of the world to curb growth in greenhouse gas emissions and extend the range of technical solutions available. Through its activities, the Institut Veolia Environnement contributes to nurturing the international debate on this crucial challenge to the equilibrium of human societies.

> The Institut's 4th conference addressed the theme of "Climate 2050: Technology and policy solutions" (see page 16)

2007 STUDIES

> RISKS LINKED TO CLIMATE CHANGE: FACTOR 4

IDDRi and Entreprise pour l'Environnement (EpE)

> THE STERN REVIEW REPORT ON THE ECONOMICS OF CLIMATE CHANGE: CONTENTS, INSIGHTS AND ASSESSMENT OF THE CRITICAL DEBATE

Olivier Godard, Ecole Polytechnique

> THE STERN REVIEW REPORT ON THE ECONOMICS OF CLIMATE CHANGE: FROM SCIENTIFIC CONTROVERSY TO ISSUES FOR PUBLIC AND PRIVATE DECISION-MAKING

Jean-Charles Hourcade and Stéphane Hallegatte, CIRED and Météo France

To arrive at a better evaluation of policies to reduce greenhouse gases (GHG) emissions, hybrid modelling combining a macroeconomic and a sector (energy) model can be used to develop two scenarios for 2050: one, the "reference" scenario, involving low carbon constraints and the other, "factor 4", involving high carbon constraints. Analysis of this linkage focuses on technological and sociological likelihood and on transitional difficulties. This in turn supports reflection on world governance of climate change and may offer a response to attenuating the risks of severe upheaval. (IDDRi and EpE)

The Stern Review sparked intense debate among decision-makers. The report seeks to evaluate the costs and economic losses that might result from climate change. The calculations are based on estimates and

include the impact of measures taken (now and in the future) to limit GHG emissions. In response to criticisms of the report, the authors admitted that certain technical points could have been addressed differently, but maintain that their approach is sound, that it is scientifically and ethically well-founded, and that their conclusions are robust. (Olivier Godard)

It is symptomatic that the controversies had been confined to the assessment of the damages, when questions of the cost of preventive action, of international coordination and of decarbonisation are just as important. In view of the media coverage of the Stern Review, analysis of the substance of the report cannot be separated from that of its context in order to grasp the implications for decision-makers. (Jean-Charles Hourcade and Stéphane Hallegatte)

OUTLOOK FOR 2008

- > The Institut is working with TERI on developing an **Internet portal** dedicated to sharing good practices in the fight against climate change. This interactive platform will be available for consultation but, more importantly, will also enable visitors to exchange information, experiences and solutions relating to this key issue.
- > To meet the challenges posed by environmental problems, academic and scientific circles are actively developing appropriate state of the art teaching resources. The Collège de France is to set up a Sustainable Development Chair to be held by climate specialist Edouard Bard. This type of initiative will create **new opportunities for collaboration** between the Institut and the education and research community.

URBAN GROWTH

imperatives

By next century, almost all of the world's population will live in urban areas. The urban population is growing faster than world population as a whole and faster than ever before in the past.

This trend applies particularly to developing countries in Asia and Africa. By 2030 the urban population will double and towns and cities, small and large, of these regions will be home to 81% of the world's urban population. Given the inevitable environmental impacts of these urban transformations, the Institut Veolia Environnement has chosen to concentrate its research on Asia.

2007 STUDIES

> RESEARCH REPORT ON CHINA'S URBAN ENVIRONMENTAL SERVICE INDUSTRY

Zhou Hongchun and Lu Zhongyuan, Development Research Centre of the State Council (DRC)

> ECOLOGICAL FOOTPRINT - ESTABLISHING A TOOL TO MEASURE AND MANAGE URBAN ENERGY USE IN INDIA AND CHINA

The Energy and Resources Institute (TERI)

Cities, including the megacities, with extremely high growth rates are and will continue to be faced with a multitude of problems that will require answers that should include quality of life.

Managing natural resources, ensuring economic and social development, controlling the construction of infrastructure, protecting health and hygiene, devising non-polluting urban and intercity transport systems, are just some of the major challenges to be met. China is facing degradation of its environment (air, water and soil pollution, etc.) along with soaring demand for essential utilities (water, waste management, energy, etc.). Based on a sample of ten major Chinese cities, environmental service needs for the coming decades were identified in both quantitative and qualitative terms. (Zhou Hongchun and Lu Zhongyuan)

Evaluating the energy consumption of urban households and its impact on the environment calls for an in-depth analysis of the context and characteristics of this urban growth and of energy demand. The "ecological footprint" is a sustainability index that has the advantage of providing a single-figure evaluation of the environmental impacts. As a response to the demands and imperatives of decision-makers, however, the method appears somewhat too simplistic in both its method of calculation and its analytical framework.

A fuller and more dynamic methodology therefore needs to be redefined to include the many and complex interactions that come into play, and to offer a more exhaustive review of the pertinent factors, the foreseeable impacts and the levers for possible intervention. (TERI)

> See also the workshop on the city of the future and the Hypergreen tower (page 18)

OUTLOOK FOR 2008

The Institut and TERI are pursuing their collaboration through the **ecological footprint** study. After an initial phase that focused on defining the concept and on the characteristics and trends in household energy consumption in India and China, the second phase will concentrate on the study method. Improving the method, by the inclusion of complementary techniques for example, is an essential step before proceeding to the measurement of the ecological footprint and the determination of the associated data for a city in China and another in India.

SOCIETY and ENVIRONMENTAL issues

Protecting natural resources, providing the most efficient management on behalf of populations, promoting good practices, developing a concrete policy of raising awareness of environmental issues while taking into account specific behavioural, educational, sociological, historical and even philosophical factors are all key to understanding the links that exist between society and the environment. The complexity of today's challenges is such that these questions must be studied globally.

2007 STUDIES

> DISSEMINATION OF MANAGEMENT MODELS AND TOOLS BETWEEN NORTH AND SOUTH: THE EXAMPLE OF WATER SUPPLY IN INDIA

Eric Godelier and Akil Amiraly, CRG, Ecole Polytechnique

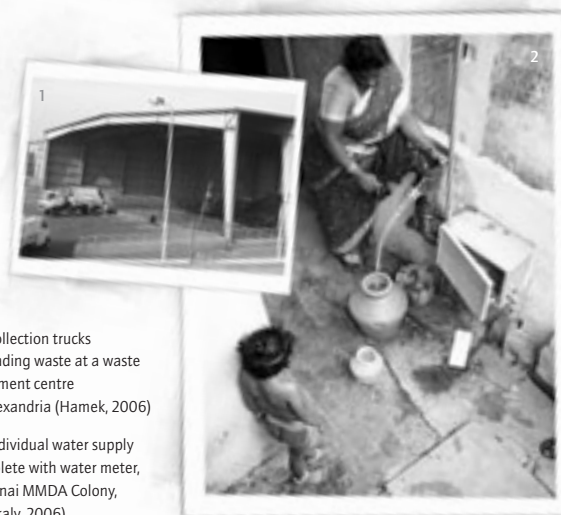
> WASTE TREATMENT IN CITIES OF THE DEVELOPING WORLD: THE CASE OF ALEXANDRIA, EGYPT

Gilles Kepel, Ehrard Friedberg and Samir Hamek, Sciences-Po

The deployment of Western-style management and utility models in emerging countries requires an analysis of the political, social and cultural components of the country concerned. As was illustrated by these two practical examples, one studying the introduction of water metering in an Indian city (Godelier and Amiraly) and the other the deployment of a waste management system in an Arabo-Muslim country (Kepel, Friedberg and Hamek), it is of primordial importance to understand how such components determine local practices, tools, and the operating methods under development.

Observation and study of the cultural frameworks and the logic underpinning the action and management of the actors concerned make it possible to measure and analyse the attitude of beneficiaries, be they the users of the service or the public authority responsible for its management, with respect to the technology transferred or the service provided. The greater the knowledge and

inclusion of actors' customs, practices and interplay, the better the conditions for capitalising upon and exploiting the experiences of development.



1 | Collection trucks unloading waste at a waste treatment centre in Alexandria (Hamek, 2006)

2 | Individual water supply complete with water meter, Chennai MMDA Colony, (Amiraly, 2006)

OUTLOOK FOR 2008

- > In the light of the interactions between society, population and the environment, the Mediterranean can be seen as a large-scale laboratory prefiguring major environmental challenges and impacts: urban growth, development of coastal regions, habitat pollution and protection of biodiversity, demographic pressure, etc. **The Institut and the Plan Bleu will be engaging in joint studies of the interactions between society and the environment in this region.**
- > The Institut and the *University of Columbia Center for Energy, Marine Transportation and Public Policy* will be cooperating in 2008 on the analysis of institutional measures and market organisation in areas such as environmental services, carbon emissions and biodiversity.
- > The Institut is joining the Collège International de Philosophie in exploring new areas of reflection such as environmental ethics (see page 18).



CONFERENCES, WORKSHOPS AND SEMINARS

Opening
DISCUSSION FORUMS
through international conferences

Since 2004, the Institut Veolia Environnement has scheduled a series of conferences on future environmental trends both in France and internationally. Organised jointly with scientific and institutional partners, these events are designed to promote debate and dialogue on the issues of the future. Each conference forges a new partnership in a different region of the world, on a selected theme. These discussion forums, whether they take the form of a conference, workshop or seminar, enrich the ongoing dialogue between the Institut, academics, NGO representatives and civil society.

4th Future Environmental Trends Conference

The “Climate 2050: Technology and policy solutions” conference, organised jointly by the Institut Veolia Environnement, the Pew Center on Global Climate Change and the National Round Table on the Economy and the Environment, was held in Montreal in October 2007 and brought together leading government, private sector and academic figures from 12 countries to explore new technology options and innovative national and international policies that could produce concrete results in combating the threat of global warming over the next 50 years.

Given the current trends, the concentration of greenhouse gases (GHG) in the atmosphere is expected to increase over the course of the century and beyond, leading to hazardous climate disruptions. To avoid this outcome, global emissions will need to be cut by 60% to 80% by 2050, merely in order to stabilise the concentrations of GHG in the atmosphere at between 450 and 550 parts per million (ppm).

All over the world, countries and companies are implementing a wide range of strategies designed to curb their GHG emissions while maintaining or reinforcing economic growth. Attaining these objectives



John Holdren, President of the American Association for the Advancement of Science and Director of the Program on Science, Technology and Public Policy at Harvard University presenting changes in CO₂ emissions.

will demand radical technological advances supported by effective government policies and leadership from the private sector.

“CONCERNS OVER CLIMATE CHANGE HAVE REACHED A PEAK
AND FORCED THEMSELVES TO THE TOP OF THE INTERNATIONAL COMMUNITY’S AGENDA”

Pierre Marc Johnson, former Prime Minister of Quebec
and member of the Institut Veolia Environnement Foresight Committee

The purpose of the conference was to provoke fundamental, multidisciplinary and cross-sector discussions aimed at increasing understanding of long-term strategies for dealing with climate change in order to meet the 2050 targets. The conference programme was designed in such a way as to build links between the scientific community, the private sector and decision makers, with the goal of defining solutions to the various sector and regional challenges posed by climate change.

The Climate 2050 conference provided an opportunity for 400 delegates, including some 60 speakers from government, private sector and academic circles, to examine together the main technological and political challenges.

Organised into sessions devoted to key sectors such as transport, renewable energy, green buildings and carbon capture and storage (see box), the conference highlighted

both the potential and the shortcomings of technology, innovative measures introduced by the public and private sectors, and the pressing need for policies. Cross-cutting sessions addressed policies and strategies on a larger scale, needed at both national and international level. The importance of introducing policies to support and promote the development of green technology over the decades ahead was stressed, paving the way for future financing, infrastructure provision and changes in behaviour.

With preparations for the Bali climate change conference under way, the situation of North America was much discussed at the conference and attracted considerable interest from all participants. By presenting local, regional or even State initiatives to mitigate climate change, the conference was also able to reiterate the call for every actor and every country to engage in international dialogue on climate.

AN ENVIRONMENTALLY RESPONSIBLE EVENT

The organisers paid special attention to emerging standards for environmentally-responsible events. The choice of socially responsible suppliers committed to sustainable development was one example, and carbon offsetting through Planetair another.

THEMES ADDRESSED AT CLIMATE 2050

Carbon capture and storage

- > Large-scale deployment of technologies to capture and store emissions from coal-fired power stations.

Green buildings

- > Providing environmental management services and innovative design to encourage the emergence of a new generation of "smart buildings".

Biofuels

- > Securing positive benefits without driving up food prices or introducing new environmental risks.

Renewable energy

- > Reducing the costs of renewable energy and providing carbon-free solutions.

Transportation efficiency

- > Designing hybrid vehicles and developing rapid and radical improvements in transportation efficiency.

Forestry

- > Supporting the efforts of tropical forest countries and ensuring real and sustained climate benefits.

Nuclear energy

- > Managing costs, safety, radioactive waste management and the risk of nuclear proliferation.

Urban planning and transportation

- > Formulating innovative strategies for "smart growth" and moving towards integrated planning to meet the challenges of rapid urbanisation.

Adaptation

- > Defining an equitable solution in response to climate change, including stronger international support for adaptation in poor and vulnerable countries.

Climate policy

- > Formulating robust national and regional policies to arrive at favourable global outcomes in terms of combating climate change.

Strengthening multilateral efforts

- > Devising a fair and effective system to allow major economies to contribute equitably to the global climate effort.

SEE ALSO...

The summary of the 2006 Bangalore conference on "Energy, Environment and Development: analysing opportunities for reducing poverty" was published in July 2007.

The summary, speaker presentations and videos are available on the Institut website.

WORKSHOPS

"Economic cycle on delegated management"

In partnership with the University of Toulouse Institut d'Economie Industrielle (IDEI), the Institut Veolia Environnement organised a cycle of four economic seminars on delegated management of public services, presented by David Martimort, IDEI researcher and Professor of Economics. The seminars were on the following topics:

- multiprincipal theory
- contract bidding
- economics of public-private partnerships
- contract renegotiation

"Will the city of the future be Hypergreen?"

On 3 July 2007, Jacques Ferrier, founder of the Jacques Ferrier Architectures agency, spoke to this question at a workshop organised by the Institut.

The Hypergreen Tower is a revolutionary skyscraper born of a determination to build the future today centred on a concept of global architecture. The idea is to combine flexible architectural structures, more environment-friendly materials and provision for climate variations in a high-rise office building, while at the same time creating living areas that are pleasant and welcoming.

SEMINARS

Cycle of environmental ethics seminars

In 2007, Institut Veolia Environnement in partnership with the Collège International de Philosophie (CIPh) launched a cycle of three seminars on environmental and animal ethics. The aim of the seminars is to bring in-depth reflection on the philosophical and political challenges into the public arena.

The first seminar was held in October 2007 on the theme of "ecological pragmatism", and was presented by Bryan

G. Norton, Professor of Philosophy and Political Science at the Georgia Institute of Technology School of Public Policy in Atlanta, USA. Ecological pragmatism seeks to avoid "dualist" formulations of environmental problems, opposing man and nature, humanists and ecocentrists, etc. It promotes the "principle of convergence" which would seem the most competent to protect the interests of both parties by arriving at necessary compromise.

CONFERENCES, WORKSHOPS AND SEMINARS IN PREPARATION

> 5TH FUTURE ENVIRONMENTAL TRENDS CONFERENCE

The conference programme is continuing with plans for a 5th conference in Abu Dhabi, to be held late 2008/early 2009. Decision-makers in the Emirates recently launched a number of sustainable development initiatives such as the Masdar initiative, for example. In view of the pressure on natural resources and the risks of pollution and water shortages in the region, the Institut plans to hold this conference on the theme of the environment in urban areas. Professor Gilles Kepel of Sciences Po will be associated with the project, along with a local partner recognised as an authority on the subject.

> PREPARATORY MEETING ON THE 6TH FUTURE ENVIRONMENTAL TRENDS CONFERENCE

Next in the series, China will host the 6th conference to be held in Autumn 2009. A preparatory meeting with a panel of Chinese experts will be held in October 2008, at the same time as the Foresight Committee meeting.

> SCIENTIFIC BREAKFASTS WITH THE VEOLIA ENVIRONNEMENT RESEARCH DIVISION

The aim of these meetings is to promote and publicise the Group's research programmes by bringing in an external expert to shed an original light on the issues addressed. The first meeting will consider carbon capture and the concept of social acceptability.

> ENVIRONMENTAL ETHICS SEMINARS AND THE "ECOSOPHIES" COLLOQUIUM

Forthcoming environmental ethics seminars in March and April 2008 will address the theme of ecocentrism, a theory which seeks to objectivise natural values, presented by Holmes Rolston III, University Distinguished Professor and Professor of Philosophy at Colorado State University, and animal ethics, presented by Gary Francione, Professor of Law at the University of New Jersey Rutgers School of Law.

As an extension of these dialogues, the Institut, the CIPh and the Cité des Sciences et de l'Industrie are to hold a colloquium on 29 and 30 May 2008 on the theme of "Ecosophies: philosophy put to the proof of ecology".



PUBLICATIONS

INITIATING INNOVATIVE *scientific* *publishing* PROJECTS

To achieve its aims of capitalising on and sharing scientific experience and knowledge, the Institut Veolia Environnement is developing two original publishing projects, S.A.P.I.EN.S. and FACTS, both meeting the stringent standards of scientific publications.

The complexity and global reach of certain research themes call for an approach that transcends the boundaries between academic disciplines. The Institut has therefore created S.A.P.I.EN.S., a multidisciplinary and international scientific journal. The journal will publish articles from experts working in the field of sustainable development.

The Institut is also supporting the creation of FACTS, a tool for the capitalisation and strengthening of knowledge and knowhow gained from field action by NGOs, institutions or international organisations in all the diverse fields in which they operate (health, development, education, environment, etc.).

S.A.P.I.EN.S. - Surveys and Perspectives Integrating Environment and Society

Scientific knowledge today is weakened by the balkanization of expertise. With 2.5 million scientific articles published every year, neither information nor access to information is a limiting factor. The difficulty lies more in critical analysis and integration of multiple strands of knowledge derived from different methodologies and cultures.

The Institut has therefore decided to launch a multi-disciplinary scientific journal known as S.A.P.I.EN.S., with the aim of publishing articles by leading specialists and identifying the most striking advances in terms of future environmental trends. The originality of the initiative lies in addressing subjects globally and in creating dialogue between experts to lay flat the barriers between disciplines.

Content quality is subject to rigorous peer review.

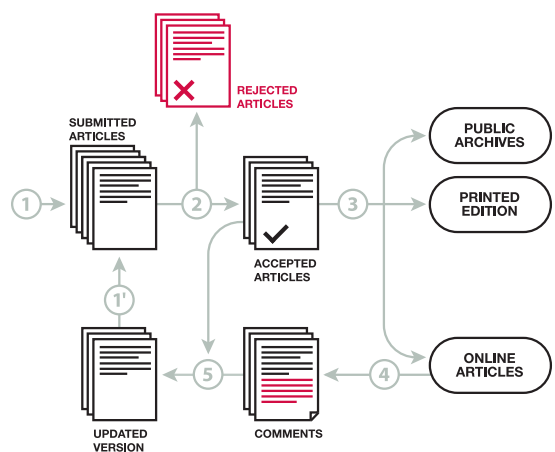
An editorial board composed of eminent figures in their respective academic fields makes an initial selection on the basis of the originality of the subjects covered and the soundness of the arguments presented. Articles are then submitted to other scientists, chosen for their expertise in the field, for critical review. When the final article is judged acceptable, it is published online; subsequent evaluations and comments may also be available for consultation.

Readers may then take part in an online debate, perpetuating the article's currency beyond its date of publication.

This type of debate on subjects of highly topical interest is one of the distinctive features of S.A.P.I.EN.S.

The dissemination model is another original feature. S.A.P.I.EN.S. relies on Open Access, an editorial policy that is in the process of revolutionising the creation and sharing of scientific ideas. Thanks to the Institut's commitment to this principle, all articles will be available free of charge on the S.A.P.I.EN.S. website.

A print on demand service will be available but a charge will be made for hard-copy versions to encourage the environmentally-friendly online option.



Outline of the editorial process from submission of articles to online publication

- 1 | Submission of articles.
- 2 | Peer review.
- 3 | Publication.
- 4 | Online debate.
- 5 | Comments for updated version.

S.A.P.I.E.N.S EDITORIAL BOARD

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OUTLOOK FOR 2008

The Board, currently consisting of 23 members, has already begun its editorial work.

The journal publishes different types of articles: *Surveys* and *Perspectives*. *Surveys* are longer articles reporting on complex interdisciplinary questions. *Perspectives* are shorter articles that describe a striking new idea.

As an illustration, two surveys were published in February 2008: one deals with estimates of the economic and social cost of diseases caused by indoor air pollution in India, the other offers an assessment of the critical debate generated by the Stern Review. In the *Perspectives* section, one of the first papers presents a method of integrating objective and subjective criteria into the definition of quality of life indices, and another deals with the possibility of generalising certain participative methods of forest management by local communities, based on a comparison between Bolivia and Vietnam.

Articles are published on the S.A.P.I.E.N.S. website upon approval.

Field Action Science (FACTS)

Field actors

speak to field actors

The origins of the approach, by Philippe Kourilsky, project initiator

How did this project come into being?

P.K: Some of my work, for the Institut Pasteur in particular, has naturally led me to study field action around the world. It became clear to me that knowledge and knowhow acquired through these field actions is poorly capitalised and that the severely limited resources devoted to promoting access to essential services and protecting the environment are not used optimally or, worse still, are partially wasted. In contrast, good practices are neither recognised nor adequately exploited.

Do you believe that solutions exist to improve efficiency in this area?

P.K: Yes. It seemed obvious to me that there was scope for the introduction of an ambitious initiative, based on the fact that field action is a science that has as yet failed to recognise itself as such. At best, it is in the pre-scientific stage, as is shown by the lack of communication between

practitioners and the lack of evaluation of their actions. As in the field of science, it is around the twin pillars of communication and evaluation that communities of field actors could come together to create a more formal structure. Hence the FACTS initiative.

What does FACTS represent?

FACTS is an original journal dedicated to field actions. These are carried out by a large number of actors operating in the poorest zones of developing (and sometimes developed) countries, confronting issues related to health, the environment, education, the economy, etc.

It was with this end in view that the Institut Veolia Environnement decided in 2007 to launch the international journal FACTS.

The Honorary Board is composed of eminent individuals who support the initiative in their own name, not on behalf of any institution.

FACTS HONORARY BOARD

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Nobel laureate in Economics

Ismail Serageldin

Director, Library of Alexandria
Former Vice President, Special Programmes, World Bank

Elie Wiesel

Writer, Nobel Peace Prize laureate

How does FACTS work?

The journal adopts the model of scientific journals with a system of peer review of articles prior to publication. The editorial board and rapporteurs are themselves field operators. The journal is entirely free of charge. Dedicated Editorial Boards are gradually being constituted. Each has an associated Writing Assistance Desk made up of scientists who have volunteered their services to help field actors write up their articles in accordance with scientific standards. At the end of 2007, two Editorial Boards were operational, one on Health and another on Economy. Their respective Chief Editors are:

Bradford D. GESSNER, MD, Director of the Maternal and Child Health Epidemiology Unit of the Alaska Division of Public Health and Scientific Director of the Agence de Médecine Préventive (AMP), France

Jean-Claude BERTHELEMY, Economist, Professor at the University of Paris I Panthéon - Sorbonne.

An example of an issue addressed by FACTS

Epidemics of meningitis are still fairly frequent in Africa. In Burkina Faso, the fight against the disease takes the form of producing vaccines based on references supplied by hospital pathology laboratories. To provide more detailed information on infectious agents, the Agence de Médecine Préventive (AMP) in association with the Burkina Faso Ministry of Health developed a vehicle to carry a mobile laboratory (see photos) capable of testing specimens in the field. The experience is recounted in the first article received by FACTS, not in terms of epidemiological results, which were published in a conventional academic review, but in terms of practical and technical considerations relating to the design of the mobile laboratory.

What benefits will FACTS offer?

FACTS should lead to a positive and fundamental change in the sphere of field action.



The mobile laboratory | interior and exterior
 From "Mobile Laboratory to Improve Response to Meningitis Epidemics, Burkina Faso Epidemic Season 2004"
 R. T. OUEDRAOGO & al., to be published in *FACTS*

OUTLOOK FOR 2008

- > Obtaining UNESCO patronage.
- > Official launch ceremony with press conference at UNESCO headquarters.
- > Sponsorship by Médecins Sans Frontières (MSF) France to be announced by its President, Jean-Hervé Bradol.
- > Circulation of FACTS through the "Global Development Network" will promote the initiative and the journal to thousands of readers and field actors around the world.

KEY EVENTS

in 2008

FIRST HALF

- February** 2nd seminar on Environmental and Animal Ethics, Paris
2nd field mission for doctoral student Samir Hamek in Alexandria (6 months)
Finalisation of the partnership with the Plan Bleu, Centre for Mediterranean regional environmental and development activities
- March** Meeting of the Board of Directors
Publication of the 2007/2008 Activity Report
First scientific breakfast organised in partnership with the Veolia Environnement Research Division on the subject of carbon capture
- April** 3rd seminar on Environmental and Animal Ethics
Launch of the journal S.A.P.I.E N.S.
- May** Foresight Committee meeting in Delphi on the theme of health and the environment
Ecosophies Colloquium with the Collège International de Philosophie and the Cité des Sciences et de l'Industrie
Publication of the proceedings of the Montreal conference

SECOND HALF

- September** Thesis submission by doctoral student Akil Amiraly for presentation in December
- October** Foresight Committee meeting in Beijing
Preparatory meeting for the 6th conference scheduled for Autumn 2009 in China
- November** Launch of the FACTS journal

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PERMANENT Staff

Georges Valentis

Managing Director
georges.valentis@institut.veolia.org



Nadia Caid

Development Director
nadia.caid@institut.veolia.org



Gaëll Mainguy

Director of Scientific Publications
gaell.mainguy@institut.veolia.org



Ludivine Houssin

Project Manager
ludivine.houssin@institut.veolia.org



Dany Martin

Personal Assistant
dany.martin@institut.veolia.org



Monique Fourdrignier

Personal Assistant
monique.fourdrignier@institut.veolia.org



As part of its project sponsorship activity, the Institut Veolia Environnement also welcomes doctoral students under CIFRE industry research agreements.

Akil Amiraly

Doctoral Student, Centre de Recherche en Gestion (CRG), Ecole Polytechnique
akil.amiraly@institut.veolia.org



Samir Hamek

Doctoral Student, Institut d'Etudes Politiques (Sciences Po), Paris
samir.hamek@institut.veolia.org



INSTITUT

Veolia Environnement

L'INSTITUT VEOLIA ENVIRONNEMENT

15, rue des SABLONS | 75016 Paris

Tél. +33 1 53 43 22 50 | Fax +33 1 53 43 22 86

www.institut.veolia.org/en