

Analysis, anticipation and dialogue

ACTIVITY REPORT 2009 / 2010

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THREE TOOLS IN THE SERVICE OF THREE AMBITIONS: ANALYSIS, ANTICIPATION AND DIALOGUE

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Editorial dialogue

between

Jean Pierre Tardieu, President



Institut Veolia Environnement sees itself as a structure dedicated to reflection and exchange on environmental foresight. How would you define this approach?

Traditionally, foresight consists in focusing on the long term in order to identify tomorrow's challenges and throw light on today's decisions. This time-related dimension is paired with a thematic dimension: the Institut Veolia Environnement takes an interest in global and therefore complex subjects, requiring a broad diversity of knowledge and this multidisciplinary concern is complemented by a third characteristic, i.e. centring on the mutual influence between mankind and the

natural world, not just the environment as such. The societal aspect is a fundamental concern.

What is the main objective?

Faced with the sum of knowledge available today, the Institut Veolia Environnement's ambition is to detect the primary signs pointing to the major outlines of society's emerging needs, in general terms. To achieve this goal, the Institute develops tools of its own to single out the most pertinent ideas, analyse them and construct a dialogue with the help of the foremost international experts, with a preference for those drawn from academic circles and both public and private players involved in sustainable development.

and Georges Valentis, Managing Director



Foresight and the environment: what are the challenges?

Environmental issues require that the patterns which govern human activities and their interaction with the environment be reviewed: economic models, lifestyles, forms of governance. Fighting climate change is one example of this dramatic revision.

Other concerns are emerging, to name but a few: how can poverty be finally eradicated? How can sustainable development actions be evaluated and benchmark indicators defined? How should local and global roles be distributed? How should management of ecosystems be approached globally?

By offering an opportunity for formulating theories on these multidimensional subjects, with their constantly fluctuating developments and uncertainties,

environmental foresight offers an original template which can be very useful as a tool for anticipating possible future solutions.

To conclude, how would you sum up the Institut Veolia Environnement's main missions?

Be an active connection between the international scientific community, civil society and the economy so as to contribute to making available to each of these three worlds the information which they need to reflect on their activity. Serve as a sentinel so that the main points of substance emerge from the background noise of passing fads, those which will determine interaction between society and the environment, and so stimulate awareness. Propose independent scientific expertise and provide a platform for reflection in the field of sustainable development.

Institut Veolia Environnement's Identity

Date of creation: 2001

Mission: to highlight the major changes currently occurring at the interface between society and the environment

Funding: Veolia Environnement

Location: Paris, France

Permanent team: 6 persons

Organisation

- > A Board of Directors composed of representatives of Veolia Environnement and academic or institutional experts involved in public decision making.
- > A Foresight Committee, both mainspring and high level scientific benchmark, which supports the Institute in the determination of major research avenues, the enlargement of its network of experts, and the implementation of its programme of activities.

MEMBERS OF THE FORESIGHT COMMITTEE



HÉLÈNE AHRWEILER Historian, President of the University of Europe, Former Rector of the Paris Academy, UNESCO Human and

Social Sciences expert.

France



HARVEY FINEBERG
President of the United
States Institute of
Medicine,
Advisor to the World
Health Organisation,
Former Dean of the
Harvard School of
Public Health.
USA



PIERRE MARC JOHNSON Lawyer and Physician, Former Prime Minister of Quebec, Quebec's Chief Negotiator in Canada-European trade talks. Canada

Composed of seven of the most prominent academic and institutional figures on the international scene, the Foresight Committee's role is to participate in the definition of the Institute's focal points of interest. The diversity of knowledge and expertise of its members so combined extends the essentially multidisciplinary and external perspective of the Institute's outlook. Just as important as the guidance it provides, the Foresight Committee's presence is a guarantee of intellectual independence, a sine qua non condition for attracting the most qualified scientific experts. Through its members' international reputation, the Foresight Committee also contributes to expanding the network of partners who support the work of the Institut Veolia Environnement.

In 2009, Rajendra K. Pachauri, Chairman of the IPCC (Intergovernmental Panel on Climate Change), Nobel Peace Prize Laureate for 2007, joined the Foresight Committee's membership. At the Foresight Committee meeting in Paris in June 2009, he spoke through videoconferencing to detail the latest scientific and political developments in the field of climate

change, in preparation for the Copenhagen Summit in December 2009. Other speakers were Professors Amartya Sen (on economic performance and social progress) and Philippe Kourilsky (on the FACTS Reports Initiative and actions for development). The second meeting of the Foresight Committee in 2009 was held in Beijing in October and focused on a presentation by Dr. Guang Xia, Director of Political Research Center on the Environment and the Economy, from the Chinese Ministry for the Protection of the Environment. As a follow up to the discussions at the international conference organised in China by the Institute (see page 16), Dr. Xia gave a broad description of the Chinese Government's environmental legislation.

> With the support of the Foresight Committee, the Institut Veolia Environnement's executive team, led by Georges Valentis, is tasked with identifying priority themes, the best scientific experts worldwide on each of the themes and then disseminating the most advanced body of knowledge for each of the subjects.



PHILIPPE KOURILSKY

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



RAJENDRA K. PACHAURI

Director-General of the Energy and Resources Institute, Chairman of the Intergovernmental Panel on Climate Change (Nobel Peace Prize 2007). India



MAMPHELA RAMPHELE

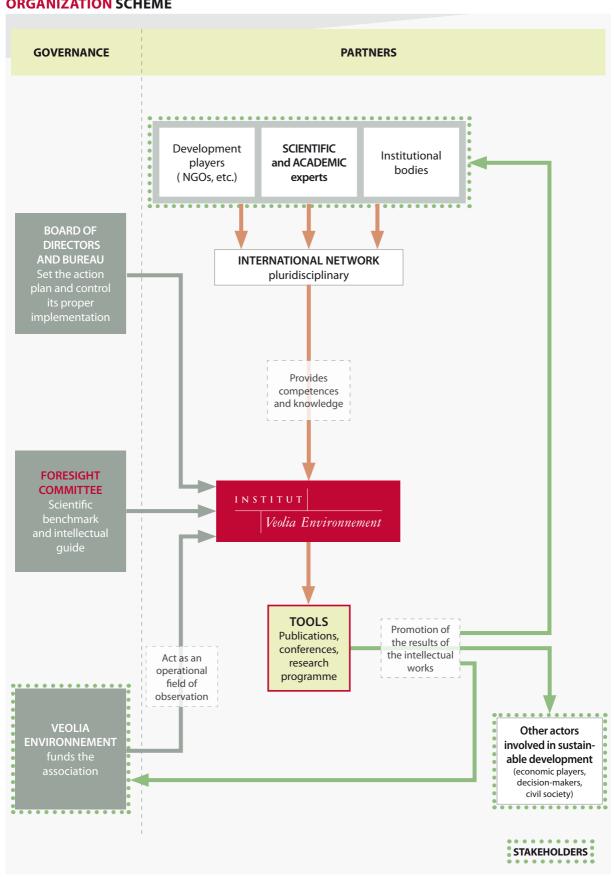
Physician and anthropologist, Former Managing Director of the World Bank, Former Vice-Chancellor of Cape Town University. South Africa



AMARTYA SEN

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

ORGANIZATION SCHEME



Major areas of research

Since its creation, five orientations ¹ are recurrent in the work of the Institut Veolia Environnement. Early in 2010, they were regrouped into three themes identified as **priorities** for anticipating future challenges.

> Sustainable development approach: evaluating performance and indicators.

This theme involves cities and corporations as well as the other players in civil society. It is founded on two sets of priority issues: how can a sustainable city be defined and how can its performance be measured? In this context, how can a private company integrate objectives of general interest and how does it measure them?

> Global management of the environment.

Solving increasingly complex environmental issues requires multidisciplinary scientific competencies and, in the final analysis, a comprehensive approach. Three themes are more specifically central to the investigations of the Institute: energy in all of its environmental dimensions; the management of ecosystems; the economic value of biodiversity.

> The expectations of the public, the end-clients of sustainable development.

Sustainable development will require new economic models not yet invented through a process which will involve not just the authorities, but also economic actors, members of the public (with their expectations) and corporations (with their solutions). This theme raises

a major issue: what economic models will accommodate harmoniously societal, economic and financial motivations and how should they be constructed?

Serving as a platform

To carry out its task, the Institut Veolia Environnement works in close cooperation with an international network of **academic partners** drawn from a broad range of disciplines (sociology, geography, health, economics, etc.), so that it is also able to explore themes which are complementary to its core orientations and diversify its fields of investigation.

Its network is an exceptional asset which the Institute seeks to build on by diversifying still further the disciplines included and extending its geographic reach.

This constantly developing selection of competencies nourishes each of the Institute's activities. To identify and attract the best experts, the Institute uses three instruments: an innovative editorial policy represented by the S.A.P.I.EN.S journal and FACTS Reports, a series of international conferences and a programme of foresight studies.

In this way, the Institut Veolia Environnement operates as a platform for collecting and capitalising on reliable scientific ideas which can then be disseminated to public and private stakeholders concerned by developments occurring at the interface between society and the environment.

1. Since 2001, the five foresight orientations are: the economic dimensions of the environment, the links between health and the environment, climate change and lifestyles, the challenges of urban growth, and the links between society and the environment.

Highlights of 2009

February 2009

- > 10th Annual conference of the Global Development Network, in Kuwait City: special session on the FACTS Reports journal. (see page 14)
- > Plan for promoting the S.A.P.I.EN.S journal internationally: mailing to 6,000 academic and institutional experts.
- > Delhi Sustainable Development Summit "Towards Copenhagen: an equitable and ethical approach": the Institut Veolia Environnement made a presentation entitled "From green technology to green services".

March 2009

BioVision Forum "Word Life Sciences Forum" in Lyons: one-day conference specifically on the subject of the FACTS Reports journal convening senior representatives of major international NGOs. (see page 14)

May 2009

- > European Commission Joint Research Center workshop on "Methodologies for Sustainable Energy Action Plans" as part of the Covenant of Mayors in Ispra (Italy): presentation of the results of a study on "The Carbon Inventories of European Cities" and of the Institut Veolia Environnement and the S.A.P.I.EN.S journal.
- > Conference on "Climate change and challenges for the future generations" organised in Athens by the Foundation for the Child and Family and the IPCC, sponsored by UNESCO. Presentation on the theme: "From green technologies to environmental services".

June 2009

- > 5th World Bank Urban Research Symposium "Cities and climate change: responding to an urgent agenda" in Marseilles. Presentation on the study of the carbon inventories at a workshop organised by Veolia Environnement.
- > Half-yearly Foresight Committee meeting in Paris.
- > Completion of the study on the standardisation of carbon accounting methods in European cities. Initiated with European Institutions, the College of Europe (Belgium) and the Wuppertal Institute (Germany). (see page 20)
- > IDDRI Conference on "Global City Indicators" - Indicators for the cities of the world: presentation by the Institut Veolia Environnement.

September 2009

- > World Bank workshop on "Dialogue on cities and climate change" in Washington: presentation on a comparative analysis of carbon footprints, by Institut Veolia Environnement and presentation of the S.A.P.I.EN.S journal.
- > Plan for the international promotion of the journal FACTS Reports. Mailing to 600 contacts in the major international organisations, NGOs and national development agencies.

October 2009

> The Institut Veolia Environment's Future Environmental Trends Conference, held in Beijing, China, on the subject of "Trade, Urbanization and the Environment". 62 speakers, some 400 participants. (see page 16)



- > Elinor Ostrom, Member of the S.A.P.I.EN.S journal's Editorial Board, is awarded the Nobel Prize in Economics in recognition for her work on economic governance of common goods.
- > Partnership with the "World Sustainable Development Forum" (WSDF/India) for extended distribution of the S.A.P.I.EN.S journal to 6000 contacts across the whole Asian continent.
- > Participation in the "Cities, territories and combating climate change in preparation for Copenhagen" working group of the French Ministry for Ecology, Energy, Sustainable Development and Maritime Affairs.
- > Task Force of the "Center for European Policy studies". Presentation in Brussels on the results of carbon measurement methods at the "EU, and Global Climate Change policy and the Increasing Role of Cities" seminar.
- > Half-yearly Foresight Committee meeting in Beijing, China.

November 2009

- > "World Science Forum 2009" from the Hungarian Academy of Sciences in Budapest: presentation of the Institut Veolia Environnement and of the S.A.P.I.EN.S journal.
- > Presentation of the results of the study on the "Standardisation of carbon measurement methods in Europe" to the World Bank's "Urban Environment and Climate Change Thematic Group". (see page 20)
- > Participation in the "SMART Summit 2009", in Ann Arbor (USA), convening scientists and operators in a discussion on the future of transport infrastructure. The SMART Center is a University of Michigan (USA) research centre on sustainable mobility.
- > Parliamentary mission on carbon accounting directed by Michel Havard, MP for the Rhône area, France: hearing and presentation of results of the study on the carbon inventories.
- > Submission of his thesis by Akil Amiraly, doctoral student at the Institute, under the tutorship of Eric Godelier, Professor, Centre de Recherche en Gestion, Ecole Polytechnique (France). Subject: "The transfer of management models and tools between the North and the South. The managerial and societal implications of the implementation by Veolia Water of individual water meters in Chennai (India)". (see page 21)

December 2009

> Completion of the study on the comparison of carbon footprints linked to household energy use in two medium-sized towns in India and China. In partnership with the TERI research centre (India), Tsinghua University (China), and the Energy Research Institute (China). (see page 21)

Analysis, anticipation and dialogue.

To carry out its task and build up cutting-edge scientific expertise, the Institute has entered into partnership with some of the most competent scientific players in each field of study. Its ambition is to enlist their assistance in achieving three objectives: analysis, anticipation and dialogue. For this purpose, the Institute uses a three-dimensional approach: an innovative editorial policy, a series of international conferences and a foresight research programme.

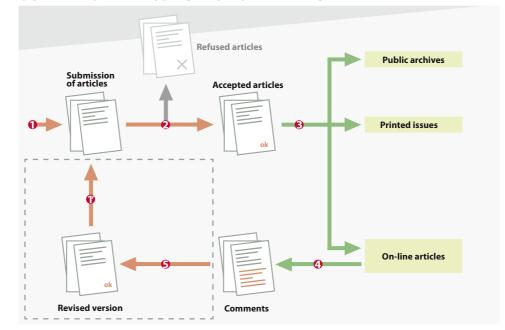
An innovative editorial policy

The proliferation of environmental information available is such that understanding the challenges is made all the more difficult by their increasing complexity. This exponential trend is linked in particular to the development of environmental knowledge in the last twenty years, the multiplication of players involved and the dispersion of study sites.

To deal with this problem, the Institut Veolia Environnement has created two journals with the object of ensuring the circulation of the most pertinent information, giving emerging ideas a hearing and maintaining a network of high-level experts. S.A.P.I.EN.S is a multidisciplinary journal which publishes synthesis articles summarising reflection on sustainable development. FACTS Reports aims to collect, disseminate, and capitalise on the knowledge base and best practices of actors who work on the field (NGOs, international organisations, etc.).

In order to meet academic standards, both these journals operate according to the peer-review system preferred by scientific publications.

OUTLINE FOR THE PUBLICATION OF AN ARTICLE



- Submission of the articles
 Peer review
 Publications
 On-line debate
 Comments for a new version
- Process under

The S.A.P.I.EN.S journal (Surveys and Perspectives Integrating Environment and Society)

Launched in 2008, this open-access electronic publication offers a synthesis of multidisciplinary cutting-edge scientific knowledge on all subjects relating to the interface between society and the environment. S.A.P.I.EN.S' main added value compared to many existing scientific journals is: to approach subjects comprehensively so that cross-cutting environmental issues can be addressed and to present their major outlines with clarity in order to arrive at the summing up from which priorities can emerge. The challenge is a double one in the face of the traditional compartmentalisation of the scientific community and a degree of saturation with information which is sometimes only partly validated, so that quality is difficult to evaluate.

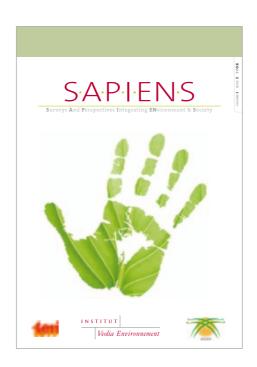
Two years on from launch, the initiative is a success:

- > A sign of distinction, S.A.P.I.EN.S has the support of an international **Editorial Board**, whose task is, as is the case for any other scientific journal, to evaluate the quality of articles which are submitted to it. In 2009, one of its members, Elinor Ostrom, professor at the University of Michigan, was awarded the Nobel Prize in Economics for her work on the management of common goods. Her contributions have placed economic governance in the forefront of scientific awareness.
- > Another sign of recognition, the number and quality of synthesis articles published in 2009. Among the articles most widely read and downloaded from the S.A.P.I.EN.S website:
 - "Mercury cycling and human health concerns in remote ecosystems in the Americas", by René Canuel 1, Marc Lucotte and Sylvie Boucher de Grosbois. An article which sets out little known data on the role of mercury and coal pollutants besides carbon, and prospects for legislation.

- "Options for Managing a Systemic Bank Crisis", by Bernard Lietaer², Robert Ulanowicz and Sally Goerner. Authors outside the conventional schools of thought.
- "Sustainable energy for developing countries", by Dilip Ahuja³ and Marika Tatsurani.
- "What is the Price of Carbon? Five definitions", by Minh Ha-Duong 4.
- "Climate Change and Urban Planning in Southeast Asia", by Belinda Yuen⁵ and Leon Kong.

Also to be noted, **Internet** consultation tripled in 2009. The monthly score of page hits has crossed the 10,000 mark and 2,500 for single visits. The figures have progressed further since the beginning of 2010. The first visitors were French, but are now in the majority American. A clear measure of the success of the internationalization effort.

- 1. University of Quebec
- 2. University of California, Berkelev
- 3. National Institute for Advanced Sciences, Bangalore
 - 4. CNRS, France
 - 5. National University of Singapore



To consult and download all S.A.P.I.EN.S articles and special issues: www.sapiens-journal.org

To improve still further the dissemination of this advanced scientific data, the Institut Veolia Environnement publishes special issues, the first of which dealt with "Visualizing the World". A second one is under preparation, on the subject of cities and climate change. With the same aim, the first two electronic issues were also published in hard copy.

> A third positive sign is the growing number of promotion opportunities for the S.A.P.I.EN.S journal. International scientific conferences, specialised forums, partnerships with leading scientific editors (see The highlights of 2009 pages 8 and 9): all occasions for informing the world's scientific communities concerned with sustainable development, track the best experts and federate a proximity network around the Institut Veolia Environnement's activities.

SPECIAL ISSUE: VISUALIZING THE WORLD (EDITED BY SÉBASTIEN GADAL)

- 1. Lithuanian University of Agriculture
- 2. Vienna University of Technology
- 3. CNRS, France
- 4. Institut national des sciences appliquées de Lyon, France
- 5. Université de Versailles Saint-Quentin-en-Yvelines, France
- **6.** Lund University, Sweden
- 7. Université de Lausanne, Switzerland

> The continuous field view of representing forest geographically: from cartographic representation towards improved management planning

Gintautas Mozgeris¹.

- > Methods for visual quality assessment of a digital terrain model
 Tomaz Podobnikar².
- > Geoarchaeology: where human, social and earth sciences meet with technology

Matthieu Ghilardi ³ et Stéphane Desruelles ³.

> Computer-generated Visual Summaries of Spatial Databases: Chorems or not Chorems?

Robert Laurini, et al.4

> 3D Dynamic Representation for Urban Sprawl Modelling: Example of India's Delhi-Mumbai corridor

Sébastien Gadal ⁵, Stéphane Fournier et Emeric Prouteau.

- > Integration of Geomatics in Research & Development
 Petter Pilesjö ⁶ et Ulrik Mårtensson.
- > Walter Christaller From "exquisite corpse" to "corpse resuscitated" Georges Nicolas⁷.

EDITORIAL BOARD OF S.A.P.I.EN.S

- > Weber Amaral | Brasil Université de Sao Paulo
- > Bruce Beck | USA University of Georgia, IIASA
- > Paul-Marie Boulanger | Belgium Institute for Sustainable Development
- > Marie-Lise Chanin | France Académie des sciences, CNRS
- > Robert Costanza | USA Gund Institute for Ecological Economics
- > Maarten de Wit | South Africa University of Cape Town, Africa Earth Observatory Network (AEON)
- > Harry Dimitriou | United Kingdom University College London, Bartlett School of Planning, The OMEGA Centre and the OMEGA Partnership Network
- > Eric Duchemin | Canada Université du Québec à Montréal, VertigO
- > Howard Frumkin | USA National Center for Environmental Health & Centers for Disease Control and Prevention (CDC)
- > **Sébastien Gadal** | France Université de Versailles Saint-Quentin-en-Yvelines
- > Olivier Godard | France École Polytechnique, CNRS
- > Axel Gosserie | Belgium University of Louvain, Fund for Scientific Research, Hoover Chair in Economic and Social Ethics
- > Minh Ha-Duong | France Centre national de la recherche scientifique (CNRS), Centre international de recherche sur l'environnement et le développement (CIRED)
- > James K. Hammitt | USA Economics and Decision Sciences Harvard University, School of Public Health

- > Clive Jones | USA Clary Institute of Ecosystem Studies
- > **Philippe Kourilsky** | France Académie des sciences, Collège de France
- > Ragnar E. Lofstedt | United Kingdom School of Social Science and Public Policy King's College, King's Centre for Risk Management
- > Tim Lynam | Australia CSIRO Sustainable Ecosystems
- > Erwann Michel-Kerjean | USA Wharton School, Risk Management and Decision Processes Center
- > Elinor Ostrom | USA Center for the Study of Institutions, Population, and Environmental Change (CIPEC)
- > Rajendra K. Pachauri | India The Energy and Resources Institute (TERI)
- > Daniel Schaffer | Italy Abdus Salam International Centre for Theoretical Physics (ICTP) and Academy of Sciences for the Developing World (TWAS), Public Information Office
- > Michael Thompson | Austria International Institute for Applied Systems Analysis (IIASA)
- > Guy Trébuil | France UPR GREEN, département Environnements & Sociétés, CIRAD
- > Ernst Ulrich Von Weizsäcker | Germany International Panel for Sustainable Resource Management
- > **John C. Warner** | USA University of Massachusetts, Center for Green Chemistry
- > Stephen Zebiak | USA Lamont Doherty Earth Observatory

STRATEGIC ORIENTATIONS FOR 2010: REINFORCING S.A.P.I.EN.S' SCIENTIFIC REPUTATION

- **Develop strategic editorial partnerships** to increase international distribution, following the partnership model signed in Asia with TERI Research center in October 2009, and in fine change the journal's impact and reputation.
- Complement electronic publication with more hard copy: two further paper publications are in the pipeline.

The FACTS Reports journal

Launched in 2008 following Philippe Kourilsky's report to the French Government in 2007, the FACTS (Field Actions Science) Initiative seeks to create an international forum for both governmental and non governmental players in the field of development.

The FACTS Reports journal is the pillar of this Initiative. Its **ambitions** are worthy of the political and economic value of the target, which is to bring together players who are increasingly in evidence in discussions and international decision-making processes, but who do not communicate with each other. What is required: structuring a community of concerns and activity; bringing to attention the most efficient and easily repeatable practices; drawing up an inventory of the signals provided by the field itself and the experience of most of the world's population.

To attract key players in the field, two thematic **Editorial Boards**, one on Health and the other on Economy, with a membership made up of recognised experts from both the academic world and non governmental organisations. Following the same model as S.A.P.I.EN.S, they consider articles submitted to them for publication in the FACTS Reports journal. This peer review system, which has proved its worth in the scientific community, not only provides an evaluation but also peer recognition.

Similarly to S.A.P.I.EN.S, **2009** has mainly been devoted to **promoting** FACTS Reports among target players on the occasion of international forums and the Institut Veolia Environnement's international conference in Beijing last October (see pages 8, 9 and 16).

Particularly worthy of attention, the special session organised in **February** at the "Global Development Network" meeting in Kuwait City. This network, created inter alia by Joseph Stiglitz to create a bridge between science and politics, is made up of multidisciplinary academic groups, researchers and political decision makers. It has an annual audience of 700 participants. The session on the Institut Veolia Environnement's publication gave the opportu-

nity to emphasise the important issues in connection with the theme on "Natural Resources and Development" mentioned in some of the articles already published electronically.

In March, the FACTS Reports session at the Biovision Forum in Lyons was attended by some twenty representatives from NGOs, such as the Fondation Mérieux, Save the Children, Ashoka, Raks Thai Foundation and Helen Keller International, to communicate on the importance of field action and share exemplary and effective achievements on various development problems (water shortages, AIDS, food crisis, poverty). Subsequently, the meeting gave rise to the publication of nine articles in the FACTS Reports journal.

In **September**, the first paper edition, a collection of the year's top articles, was part of a vast mailing operation presenting the FACTS Initiative to the main international organisations, NGOs and national development agencies. The campaign was successful since it gave rise to a threefold increase in the number of the journal's dedicated website monthly hits (over 6,200 pages seen and 1,700 visitors) and to an increased exposure for the journal (USA, India, Germany, UK, South Africa, Ivory Coast, etc.).



To consult the articles published in FACTS Reports:

www.factsreports.org

Strategic orientations

SELECTION OF ARTICLES PUBLISHED IN 2009

- Using climate information in the health sector
 T. A. Ghebreyesus ¹, Z. Tadesse ², D. Jima, E. Bekele, A. Mihretie, Y. Y. Yihdego,
 T. Dinku, S. J. Connor and D. P. Rogers.
- > Drinking water: a need met for the people of the commune of Bantè, Benin T. R. Fousseni³.
- > Living City: community mobilization to build active transport policies and programs in Santiago, Chile

 L. Sagaris⁴.
- > Making eyeglasses accessible to the very poor: Creating a market in rural India

Patrick Cherrier⁵ and Bhuvaraghan Jayanth⁵.

> Thinking and acting strategically: promoting integrated solid waste management and corporate responsibility through a public private partnership; the case of Altamira, Tamaulipas, Mexico
Alejandro von Bertrab⁶, Juan David Hernández, Axel Macht and Bernhard Bösl.

1. Ministry of Health (Ethiopia)

2. National Meteorological Agency (Ethiopia)

3. NGO Racines (Benin)

4. ONG Living City (Chile)

5. Essilor (France)

6. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) (Germany)

The quality of the Editorial Boards and the diversity of articles published in this first year have confirmed the need for the FACTS Initiative. For the Institut Veolia Environnement, it has turned out to be a decisive lever to identify the main development actors worldwide. FACTS Reports is also a unique instrument to watch for development needs. Now that the concept has been proven, the next objective is to encourage players to claim ownership of this tool for sharing good practices more extensively and systematically.

STRATEGIC ORIENTATIONS FOR 2010: EXTEND THE PARTNERSHIP NETWORK

- **Enhance** the distribution of FACTS Reports to increase visibility.
- Foster a culture of written scientific communication and peer evaluation for the governmental and non-governmental community in the field of development.
- **Broaden the network of strategic partners** to substantiate the journal's legitimacy as an essential instrument for the sharing and communication of data for the development community, such as for example, the Agence Française de Développement.

A series of International Conferences

When sustainable development challenges are examined, all their dimensions – economic, environmental and societal – must be considered simultaneously with reference to local, regional and global markers.

In response to these challenges, the Institut Veolia Environnement organises international conferences at 12 to 24 month intervals, in a different geographical area on each occasion. They are designed as opportunities to encourage discussion on the various emerging issues, between the scientific community and an extensive audience composed of public and private decision-makers.

The objectives are:

- > to anchor the analysis of interaction between society and the environment in a specific territorial context;
- to disseminate cutting-edge multidisciplinary learning beyond the boundaries of academic circles;
- > to extend its experts' network by inviting new specialists on each occasion;
- > to consolidate the Institute's role as an international platform.

Chair and Keynote speakers at the Opening ceremony on October 28, 2009. (From left to right: Wen Hai, Peking University - Amartya Sen, Harvard University - Sen Peng, National Development and Reform Commission - Jorge Mora, Veolia Environnement China)

In 2009, China hosted the 5th Future Environmental Trends Conference of the Institute, focusing on a subject central to China's prospects for economic and social development: "Trade, urbanization and the environment". The theme was chosen after lengthy preparatory work based on discussions with the Foresight Committee at their half-yearly meetings. The intention was to consider the coexistence between development and environmental protection objectives from the viewpoint of the highly accelerated transition experienced in China. It is estimated that more than 200 new towns will see the light of day in China by 2020, in a context of rapid economic growth under the threat of unevenly distributed environmental resources.

The Foresight Committee also contributed to identifying the institutional and academic partners essential for co-organising the conference and bolstering its legitimacy. The main operational partner was the "Center for Human and Economic Development Studies" from Peking University, which is pioneering research on human development in China. The conference also benefited from the support of four other official partners (see the programme of conferences page 18).

The conference was held from October 28th to October 30th and was attended by some **400 participants**, from China and other countries, drawn to the event by a certain number of assets which we consider to be **keys for success**:

> A generous programme, offering the opportunity to broach the multiple

dimensions of a theme identified as a national priority. The two plenary sessions, bearing on "Trade and the Environment" and "Urbanization and the Environment" were followed by a Panel Discussion on the subject of European and Asian cooperation on environmental issues. Six parallel workshops discussed specific themes in more depth: Trade and Climate Change; Green Cities; Urban Environment and Health; Green Trade Policy; Mobility; Environment and Human Development.

> The diversity of perspective expressed by the 62 speakers provided an insight into international challenges seen from a Chinese viewpoint. The conference brought together academic experts, representatives of international organisations and political decision-makers, 28 coming from the North American continent and Europe. Worthy of particular attention were the presentations by Amartya Sen (Nobel Prize



Speakers and organizers after the Opening ceremony on October 28, 2009.

Laureate in Economics), Baoxing Qiu (Vice-Minister for Construction, China), Rajendra Pachauri (Chairman of the IPCC), Jin-Goo Ra (First Vice-Mayor of Seoul), François Moisan (Scientific Director, French Environment and Energy Management Agency-ADEME), Jorge Mora (CEO of Veolia Environnement China), and Sen Peng (Vice-Chairman, National Development and Reform Commission).

THE MAIN URBANISATION CHALLENGES IN CHINA

- 1. A shortage of available land and water, to which are added the usual conflicts between various competing needs (agriculture, urbanisation, reforestation, etc.). Chinese towns are unevenly distributed across the country: one third of the Chinese population lives in the North, but only has 6% of the country's water resources, whereas only one fifth of the population is settled in southern China where 46% of water resources are to be found.
- **2. Vast migration flows of workers and the imbalances they generate.** From 1989 to 2003, the number of migrant workers trebled and rose to 140 million people.
- **3. Imbalances in energy reserves,** in particular excessively rapid increases in energy consumption from built-up areas.
- **4. Growing urban sprawl** and, in parallel, increasing urbanisation and motorisation.
- 5. Imbalance in factors driving urbanisation and pollution out of control.
- 6. Natural, historic and cultural heritage being threatened.
- Income differential between urban and rural areas rising and growing social conflict.
- **8. More severe competition** between urban economic centres.

Source: presentation by Mr. Baoxing Qiu, Vice-Minister for Construction, China, on October 29, 2009.

For further information on the conference and post-conference Workshops

www.institut.veolia.org/en

> A strategy for gaining **media exposure**, based on the visibility of local partners, drawing 42 journalists to the conference's opening ceremony: a dedicated website **www.tradeurbanizationenvironment.com**; contact with the partners' networks (research institutes, political and private decision-makers, international organisations); the support of a well established press relations agency.



Experts attending international conferences are also potential authors for the Institute's publications. About ten articles written by speakers were also submitted to the S.A.P.I.EN.S journal. Soon available for reading on www.sapiens-journal.org.

In its 5th occurrence, this Future Environmental Trends Conference has reinforced the Institut Veolia Environnement's international reputation. The event clearly established itself as an opportunity for liaising with political, scientific and intellectual circles in a major emerging geographic area.

To create long-standing partnerships, not confined to one single event, and create a lasting nucleus of readily available experts, the Institute decided to continue this policy in **2010** and has scheduled a series of **Workshops** with the participation of the principal Chinese experts who attended the October 2009 conference.

The first of these, held in March **2010** on the subject of the **carbon tax**, was an occasion for comparing the situation in China and in Europe and for discussing carbon pricing policies and their impact on international trade.

PROGRAMME OF INTERNATIONAL CONFERENCES SINCE 2001

- 2004: Education, Environment and Health, Paris, France
 Partner: Institut Pasteur (France)
- 2006: Public Services and Management, Toulouse, France Partner: Institut d'économie industrielle of Toulouse (France)
- 2006: Energy, Environment and Development, Bangalore, India Partners: The Energy and Resources Institute (India) and the Institut du développement durable et des relations internationales (IDDRI, France)
- 2007: Climate 2050: Technology and Policy Solutions, Montreal, Canada Partners: Pew Center on Global Climate Change (USA) and the National Round Table on the Economy and the Environment (Canada)
- 2009: Trade, Urbanization and the Environment, Beijing, China
 Partners: Center for Human and Economic Development Studies, Peking University;
 School of Economics, Peking University; Institute for International Economic Research,
 National Development and Reform Commission; Policy Research Center for Environment and Economy, Ministry of Environmental Protection; China Society for World Trade Organization Studies (China)

SELECTIVE LIST OF SPEAKERS

Chinese speakers

Chen Aimin | Vice-President, Sichuan University

Dong Suocheng | Director of Regional Eco-economic Research and Planning Center, Institute of Geographic Sciences and Natural Resources Research, Academy of Sciences

Gu Chaolin | Professor, Department of Urban Planning, School of Architecture, Tsinghua University

Gu Yongjiang | Chairman, China Society for World Trade Organization Studies

Ma Zhong | Dean, School of Environment and natural resources, Renmin University

Niu Shaoyao | Former Vice-Chairman of Yun Nan Province National People's Committee Standing Committee, Head of Dianchi Lake Water Pollution Control Experts Governmental Surveillance team

Pan Jiahua | Director, Urban Development & Environment Research Center, Academy of Social Sciences

Peng Sen | Vice-Chairman, National Development and Reform Commission

Qiu Baoxing | Vice-Minister, Ministry of Construction

Shi Yonghai | Chairman, China Association of International Trade

Wang Kai | Deputy Chief Planner, China Academy of Urban Planning and Design

Wu Jiahuang | Vice-Chairman, China Society for World Trade Organization Studies, Ministry of Commerce Xia Guang | Director, Policy Research Center for Environment and Economy, Ministry of Environmental Protection

Xia Youfu | Director, China Institute for Open Economy, University of International Business and Economics

Zhang Shiqiu | Deputy Dean, College of environmental science and engineering, Peking University

Zhang Xiangchen | Deputy Permanent representative of the Chinese WTO mission in Geneva

Zhang Yansheng | Director, Institute for International Economic Research, National Development and Reform Commission

Zhou Qifeng | President of Peking University

International speakers

Mikael Skou Andersen | Professor, Dept. of Policy Analysis, National Environmental Research Institute, University of Aarhus,

Bharat Dahiya | Human Settlements Officer, United Nations Human Settlements Programme, Regional Office for Asia & the Pacific, Fukuoka, Japan

Judith M. Dean | Senior International Economist, Research Division, Office of Economics, US International Trade Commission

Harvey Fineberg | President, National Institute of Medicine, USA

Manfred Fischedick | Vice-President and Director, Wuppertal Institute for Climate, Environment, Energy, Germany

Jennifer Holdaway | Program Director, Social Science Research Council, USA

Pierre Marc Johnson | Former Prime Minister of Quebec, Chief Negotiator for Quebec in Canada-European trade talks, Counsel, Heenan Blaikie, Canada

François Moisan | Scientific Director, ADEME, France

Jorge Mora | CEO, Veolia Environnement,

Adil Najam | Frederick S. Pardee Professor of Global Public Policy - Director, Pardee Center, Professor, International Relations, Boston University, USA

Rajendra K. Pachauri Chairman IPCC and Director General of TERI, India

Jin-Goo Ra | First Vice-Mayor of Seoul, Republic of Korea

Saskia Sassen | Robert S. Lynd Professor of Sociology, Department of Sociology, and Committee on Global Thought, Columbia University, USA

Amartya Sen | Economist, Nobel Prize 1998, Thomas W. Lamont University Professor, and Professor of Economics and Philosophy, Harvard University, USA

Laurence Tubiana | Director IDDRI, France and Head of Dpt. of global public goods, Direction of Globalization, Development and Partnerships, Ministry for Foreign Affairs

STRATEGIC ORIENTATIONS FOR 2010: STRENGTHENING DIALOGUE SUSTAINABILITY BETWEEN ACADEMIC AND PUBLIC AND PRIVATE DECISION-MAKERS

- **Preparation of the 6th international conference in Paris** on the theme: "Poverty and the Environment", in partnership with AFD (French Development Agency).
- Oncoming post-conference Workshops in China on the following themes: "Poverty and the Environment (in cooperation with the International Poverty Reduction Center in China) and "Sustainable cities".
- **Preparation of the 7th international conference in Washington** on the subject of "Ecosystem Management".

Foresight research programme

Publications with widespread distribution in the communities involved with environmental issues and thematic international conferences focusing on regional priorities are two tools which support each other and also make a contribution to a third, more specialised but just as important, course of action, **study partnerships**.

Confronted with complex themes – because they are multidimensional in terms of subjects, scale and players – in-depth research is essential if we are to distinguish between long term trends and temporary tremors and in so doing discover the most plausible future scenarios.

This was why, from the outset, the Institut Veolia Environnement chose a course of systematic association with recognised international academic organisations to conduct research programmes over a period of 1 to 3 years, each of which was an avenue for reflection on the major developments occurring at the interface between society and the environment. Our partners include such renowned centres of excellence as the Massachusetts Institute of Technology (MIT), Sciences Po in Paris and the Indian research organisation TERI (The Energy and Resources Institute). Objectives: gain in-depth knowledge of all the complex dimensions of the issues and create a network of readily available expertise.

In 2009, three major research programmes, bearing on the environmental challenges arising out of urban dynamics in Europe and in Asia, were completed. Their results were widely disseminated in international academic and scientific circles to give them maximum visibility.

The study on "Comparing the carbon inventories of European cities" was finalised in June. It was completed in partnership with

the College of Europe (Belgium) and the Wuppertal Institute (Germany). Considering that the coexistence of several methods of carbon measurement hinders standardization and comparability at the European level, this study identified the variables at stake and discussed the conditions of existence of a unified methodological framework to measure the emissions of greenhouse gas in European cities. Despite their preponderant role in the fight against climate change, cities are currently not subjected to any constraint from the European Community. (see the 6 compared methods in page 23)

The study was presented to the European Commission at the time of a workshop in May 2009 and on two occasions at the Headquarters of the World Bank in Washington (see the Highlights of 2009 in pages 8 and 9). Following these meetings, the Institut Veolia Environnement was invited to participate in an international working group composed of experts from the Institut du Développement Durable et des Relations Internationales (IDDRI), the World Bank, UNEP and UN HABITAT with the objective to formulate recommendations in order to make the carbon measurement methods converge.

The aim is thereby to help define best practices in order to encourage the authorities to put into practice the principles of sustainable development.

Reports are

www.institut.veolia.org/en

A COMPARISON OF 6 CARBON FOOTPRINT MEASUREMENT METHODS

> "CO, Grobbilanz" et "EMSIG"

Klimabündnis Österreich, Energieagentur der Regionen

> "ECO, Region"

Ecospeed, Climate Alliance, European Energy Award

> GRIP – The Greenhouse Gas Regional Inventory Project

Tyndall Centre, UK Environment Agency

> "Bilan Carbone"

ADEME

> The CO, Calculator

Danish National Environmental Research Institute, Local Government Denmark and COWI

> Project 2 Degrees

Clinton Climate Initiative, ICLEI, Microsoft Corporation

Source: study on the Comparison of Carbon Inventories of European Cities.



Akil Amiraly, doctoral student at the Institute, under the tutorship of Prof. Eric Godelier, Centre de Recherche en Gestion, Ecole Polytechnique,

France, submitted his thesis in November. Veolia Water was a particularly well chosen observation post for this research programme whose subject was "The transfer of management models and tools between the North and the South - The managerial and societal implications of the implementation by Veolia Water of individual water meters in Chennai (India)". In return, his conclusions served to arrive at a sharper definition of the social and economic context in which the company is active and to better anticipate clients' and end-users' expectations.

Among his principal conclusions: the installation of an individual water meter equipped with a system for invoicing the service in proportion to consumption, could disrupt technical and social conditions of equilibrium. It highlights the opposition between the management model Veolia Water subscribes to and the rationale followed by local players, evidencing the importance of a trustful relationship between users and managers, private or public, of water distribution systems.

The study on "A Comparison of Carbon Footprints in Asian Cities", researched jointly with "The Energy and Resources Institute" (TERI, India), the "Energy Research Institute" from NDRC1 and Tsinghua University in Beijing, was finalised in December. Its purpose was to compare the carbon footprint linked to household energy use in two medium-sized towns (population: 2 million in each town) in India and China, two countries where statistical data may be scarce. A qualitative field survey of 1500 households, in Jaipur (capital city of the State of Rajasthan) and in Shijiazhuang (Hebei Province), was conducted to estimate the type of fuels used and the quantities of greenhouse gases emitted. In a second step, the research demonstrated that accelerated urbanisation on the Asian continent, which already houses over half of the world's urban population, is generating changes in lifestyles which in turn lead to rising demands for energy, but very differentiated according to social categories.

This project led to developing a method for recording the energy footprint of an urban area in development. Following this test run in India and China, it should serve to measure the impact of changing consumption habits in the wake of urbanisation. This could be a step in the direction of responding to the expectations of sustainable development, of combating climate change and securing energy supplies in urban contexts where tools developed in the West are not applicable.

1. National Development and Reform Commission (China) The study was presented to a workshop held in conjunction with the "Delhi Sustainable Development Summit" (DSDS) organised in New Delhi in February 2010 by TERI, with which other research partnership projects may be conducted in 2010.

In particular, some exploratory work is in progress on the mechanisms for a reduction in the emission of Greenhouse Gases in the transport sector. A case study is under discussion, bearing on an analysis of impediments to reducing direct and indirect emissions by a transport network and an evaluation of its negative externalities, in a developing township. An analysis of the energy footprint of a town and a model of its development could help to recalibrate certain carbon finance mechanisms and thus attenuate the constraints which currently limit the applicability of such systems to the transport sector.

To continue on its path of exploring new themes, the Institut Veolia Environnement team regularly refers to the bibliographic and ground-clearing work undertaken by **doctoral** – and other – students.

In 2009/2010, the Institute's research programmes was thus enhanced by:

> Clément Guyot 1 on the management of major ecosystems. This work gave rise to iden-

- tifying and analysing large scale ecosystem restoration programmes, such as the Loess Plateau in China, the Panama Canal and the Las Gaviotas project in Colombia. Such programmes frequently require the combined contributions of a number of players, involving the authorities, private funders and operators, NGOs and the local population, who is of course the first to be concerned, so that complex preservation and restoration objectives can be met and environmental, economic and social concerns can all be satisfied.
- > Julien Dumond² on land use in 2050. Taking as a starting point three constraints bearing on the distribution of the various uses (available space size of global population and percentage of urban dweller combating climate change), he performed a crossover study of prospective land use scenarios. Julien Dumond also contributed to preparations for the first post-Beijing conference Workshop on Carbon Tax.
- > Angelos Katsikas³ on the socio-economic BOP "Bottom of the Pyramid" model. The mission now under way aims to establish state of the art knowledge on the "Bottom of the Pyramid" economic model, according to which the most poverty-stricken socio-economic groups could be considered for market opportunities so as to evaluate the degree to which this economic model can contribute to development and eradicating poverty.

- 1. Master's degree in Environmental Sciences, University of Quebec in Montreal
- 2. École normale supérieure de Paris, France
- 3. Master's degree in European studies and international affairs, Cergy-Pontoise University, France

THE PANAMA CANAL RESTORATION PROJECT

Description

The banks of the Panama Canal catchment area have suffered considerable deforestation (the country has lost 25% of its forests since 1947) mainly due to agriculture practices. As a result, there is a great deal of soil erosion which in turn leads to sedimentation of the canal. Sediments delay or block maritime traffic (4% of world shipping uses the canal) and stimulates the growth of undesirable aquatic vegetation. Furthermore, the catchment area is the source of water for neighbouring large cities. Water supply is disturbed and flows are irregular (alternating episodes of drought and flood).

Reforestation programmes were preferred to costly dredging projects.

The objectives are environmental, social and economic

- Maintaining ecosystems services (water, biodiversity, carbon)
- Raising the population's awareness and education
- Preserving habitats
- Maintaining maritime activity and employment.

Key date

The 1990s, growing awareness by the Panama government and legislation (Law 21).

Budget

A total of \$200 million for the reforestation project outlined in Law 21.

Key Players

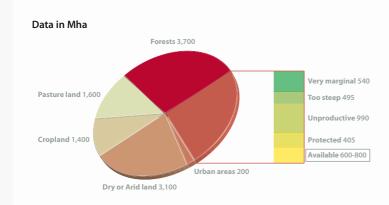
- The Panama government, via specialized structures: INRENARE, ANAM (Autoridad del Ambiante)
- Panama Canal Authority
- Smithsonian Institute, ForestRe

Some examples of identified multipartner projects

The Panama Canal Watershed Restoration (Smithsonian Institute), Panama Canal Watershed Management Project (World Bank), Panama Canal Watershed Programme (USaid)

Source: Bibliographic work of Clément Guyot on large-scale ecosystem management, 2009. (Panama Canal Authority, World Bank, Smithsonian Tropical Research Institute)

USE AND CHARACTERISTICS OF THE PLANET'S LANDS



Source: Study of Julien Dumond on land use in 2050.

Globally, surfaces which could be used for agriculture are known and in limited quantity. They cover some 600 to 800 Mha. If futures scenarios are combined, it would appear structurally impossible to satisfy all needs in 2050: agriculture, carbon storage, urban space and biofuels. Furthermore, these requirements are largely incompatible in so far as some of them lead to massive deforestation (agriculture. biofuels and urbanisation) whereas others encourage conservation, or even extension, of surfaces under forest canopy (carbon storage and biodiversity protection).

STRATEGIC ORIENTATIONS FOR 2010: IDENTIFY AND EXPLORE MAJOR DEVELOPMENTS IN THREE PRIORITY FIELDS OF STUDY

- Sustainable development approach: evaluating performance and indicators.
- Global management of the environment.
- The expectations of the public, the end-clients of sustainable development.

Key events in 2010

February 2010

> Side event at the "Delhi Sustainable Development Summit" (DSDS), organised by TERI research centre in Delhi. Presentation of the comparison of carbon footprints linked to household energy use in two Chinese and Indian towns. Presentation of the S.A.P.I.EN.S journal.

March 2010

> First post-Beijing conference Workshop on "Carbon Tax" with, in particular, speeches by Su Ming, Ministry for Finance, China; Wei Yiming, Beijing Institute of Technology, China; Wen Gang, China CDM Fund Management; Harry Clarke, La Trobe University, Australia; Béatrice Deshayes, Veolia Environnement, France; Guillaume Sainteny, Ecole Polytechnique, France.

April 2010

> Biovision Alexandria 2010 "Paths and hurdles towards Open Science" in Egypt, address on Open Access scientific journals and presentation of S.A.P.I.EN.S.

June 2010

- > Meeting of the Institut Veolia Environnement Board of Directors.
- > Half-yearly Foresight Committee meeting in Delphi, Greece.

Invited speakers are:

- Andreas Papandreou, Institute for Climate and Energy Security and Athens University, Greece,
- Gilles Kepel, Middle East Chair of Sciences Po, France,
- Niki Goulandris, Goulandris Natural History Museum, Greece.

July 2010

> Post-Beijing conference Workshop on "Poverty and the Environment", with the participation of the International Poverty Reduction Center in China (IPRCC), in Beijing, China.

October 2010

- > Half-yearly Foresight Committee meeting in Paris.
- > Post-Beijing conference Workshop on "Sustainable cities" in Beijing, China.

November 2010

> Preparatory meeting for the Conference on "Ecosystem Management".

THE BEIJING CONFERENCE IN PICTURES































Veolia Environnement

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