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**Forum on Stakeholder Confidence (FSC)**

**Canadian Site Visit and Workshop - Summary and International Perspective**

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## SUMMARY OF SITE VISIT AND WORKSHOP

### *Introduction*

The third workshop of the OECD/NEA Forum on Stakeholder Confidence (FSC) was hosted by Natural Resources Canada (NRCan) for three days in Ottawa, following a one-day visit of the Port Hope area which included meetings with community representatives and project managers and a tour of low-level waste management facilities. The Ottawa workshop examined social concerns regarding radioactive waste management: what the concerns are, how they are identified, and how they can be addressed.

Sixty-nine people attended the workshop from fourteen countries and forty-five organizations. They ranged from representatives of municipal governments, non-governmental organizations and private citizens to government policy makers, regulators, implementers, consultants and university, social and media researchers. The participants included stakeholders in large-scale industrial projects (both nuclear and non-nuclear) and stakeholders directly affected by nuclear projects. About one half came from FSC member organisations; the remainder were Canadian stakeholders.

The workshop was structured with five half-day sessions. The opening half-day described Canadian policy and the regulatory environment for radioactive waste management and the two central case studies for the workshop: the Port Hope Area Initiative and the *Nuclear Fuel Waste Act*.

Three sessions addressed the topics “What are the social concerns?”, “How to address social concerns?” and “Development opportunities for communities”. Each of the sessions began with plenary presentations by five stakeholders. These “stakeholder voices” were followed by roundtable discussions. The participants were divided into eight tables, each including a mix of Canadian and other attendees. Each table discussed a set of pre-defined questions under the direction of a facilitator/rapporteur. The discussions from each round table were reported in a follow-up plenary.

The final half-day of the workshop was devoted to feedback from four thematic rapporteurs invited by the NEA. The thematic reports addressed the topics of radiological risk assessment, economics of local development, ethical inquiry, and stakeholder involvement.

This document gives an executive summary of the presentations and discussions that took place at the workshop. It also provides the Secretariat's report of answers to audience questions and comments not found in speakers' official proceedings texts. The structure of the document follows the structure of the workshop itself (the workshop programme is provided in annex to the full proceedings).

The NEA Secretariat also provides, in a separate section of the proceedings, a reflection placing the main lessons of the workshop in an international perspective.

## *Description of the Two Case Studies*

### *The Port Hope Area Initiative on local, historic waste*

The first case study concerned the Port Hope Area Initiative, which arose following the failure of several initiatives to relocate low-level radioactive waste from past industrial practices out of the Port Hope area, which included the Port Hope, Clarington and Welcome municipalities. At present Welcome and Port Hope have been combined into one municipality.

The processing of radium and then uranium in Port Hope began in 1935. Over the years low-level radioactive wastes were deposited in various sites in the town and eventually in two waste management areas close by – at Welcome and Port Granby. Up to 12,000 m<sup>3</sup> of what would later be called "tainted" soil had been used for landfill by private homebuilders, and some houses included construction materials that had been slightly contaminated within the factory confines. In the mid-1970s contamination in the town was recognized as a problem. A clean-up of the worst contamination was done by a Task Force established by the regulator: the majority of the more contaminated materials was moved off site to the waste management area at the Atomic Energy Canada Ltd. (AECL) Chalk River Laboratories. In 1982 the government established the Low-Level Radioactive Waste Management Office (LLRWMO) to take over from the Task Force and manage both the remaining waste in the Port Hope area and other historic wastes across Canada.

In the mid 1980s the operator of the Welcome and Port Granby (Clarington) waste management areas faced strong local opposition when it tried to site a new consolidation facility. The government intervened, establishing the Siting Process Task Force that in 1987 recommended a co-operative voluntary siting process. Adopting this recommendation, the government set up the Siting Task Force on Low-Level Radioactive Waste Management (STF), which sought voluntary communities across Ontario to join the process to find a host for a LLRW disposal facility. Twenty-six of the 850 municipalities expressed an initial interest, but eventually dwindled to one: Deep River (where AECL's Chalk River Laboratory is located). In 1995 the STF recommended that a facility be constructed in Deep River. Subsequent negotiations broke down in 1997 when the federal government did not pursue a property value protection program that had formed part of the proposal worked out by the STF and the town.

Faced with nowhere to relocate the waste, the three Port Hope area municipalities approached the federal government proposing solutions of their own. Assisted by technical consultants, as well as by the federal government, the municipalities developed facility design guidelines reflecting their values and local objectives. A formal agreement was struck between the three municipalities and the federal government in March 2001, leading to the Port Hope Area Initiative managed by the LLRWMO. This partnership involves both technical and economic elements, described below under the site visit account and in workshop presentations. The facility design solutions will now have to be reviewed through an environmental impact assessment process.

### *The Nuclear Fuel Waste Act (NFW Act)*

The second case study focussed on the *Nuclear Fuel Waste Act (NFW Act)*, which arose from the recommendations made by the Nuclear Fuel Waste Management and Disposal Concept Environmental Assessment Panel (known as the Seaborn Panel, for the name of its chairman).

Beginning in 1978, a disposal concept was developed by Atomic Energy of Canada Ltd (AECL) on behalf of the federal government. The Seaborn review Panel was established in 1989, and held public meetings

through 1991 to establish the scope of the Environmental Impact Statement (EIS) guidelines, issued in 1992. In 1994 AECL submitted its EIS, and the Panel held open houses for 10 months to examine the EIS. At the end of 1995 the Panel requested more information from AECL, who replied in May 1996. The Panel held three phases of public hearings from March 1996 through March 1997.

The Panel's report was published in February 1998. The Panel recommended that a management agency be established "at arms' length" from the waste producers. Its role would be to develop appropriate nuclear fuel waste management options, consult the general public, and finally, make a recommendation to the government. The Panel's observations on the need for broad societal acceptance of the nuclear fuel waste management policy and approach shape the *NFW Act*, which came into force shortly after the workshop on November 15, 2002. The Waste Management Organization created by the *Act* must render its recommendation on the preferred management option by November 2005.

### *Site Visit to the Port Hope Area*

Located one hour east of Toronto on Lake Ontario, Port Hope is one of Ontario's best-preserved Victorian towns. It is also home to the only uranium conversion facility in Canada (one of only four in the western world), which began its production of radium and uranium in 1935.

The FSC site visit preceding the workshop began with a traditional Canadian Thanksgiving dinner and a comfortable overnight stay in bed & breakfast hotels in the Heritage District. The converted Victorian dwellings are patronized year round both by Toronto tourists and by professionals involved with the waste management activities. This first contact with the town was very much appreciated by the FSC visitors. It allowed direct conversation with a few local people and helped place the next day's discussions in context.

FSC delegates visited areas of low-level radioactive waste contamination, including historic waste management facilities that are targeted for cleanup and consolidation under Canada's Port Hope Area Initiative. These sites contain approximately 1 million m<sup>3</sup> of historic low-level radioactive waste and associated contaminated soil, and will be cleaned up and managed in new, local long-term facilities. Staff from both the LLRWMO and from Cameco, owner-operator of the facilities, accompanied and informed the delegates. Together they visited the Welcome waste mound and water collection/treatment installation (an open area surrounded by light woodland and bordered by a highway), the Pine Street Facility in residential Port Hope, and the Port Granby lakefront storage site in neighbouring Clarington. Delegates also caught sight of the Cameco refinery buildings and the waterfront and river areas targeted for clean-up and leisure development (sailing and fishing).

Port Hope Mayor **Rick Austin**, his predecessor **Ron Smith**, and **Ian Angus**, former Reeve (Mayor) of Hope Township, along with municipal administrators and the Senior Planner from Clarington, lunched with the delegates and spoke of the process through which the Port Hope Area Initiative came to be. As children the town officers had played in areas where LLW from the refinery had been dumped—"no one knew it might be dangerous. The first anyone heard of it was in the 1970's when trees at the bottom of St. Mary's school yard died and families began to wonder" what health consequences might be in store for residents themselves. The presence of toxic industrial waste in the community also became visible in a cow found "belly up" downstream from the Welcome site, where arsenic (used in the uranium refining process) had leached into the stream.

Clean-up activities and siting efforts were carried out (as described above). When the federal effort to find an outside host community failed, the elected officers felt that a 20-year period of concern was dragging on too long. It was important to "just get on with it and clean it up", and thereby address potential stigma issues that had long been with the community. As Port Hope had earlier refused the operator's project to

consolidate the wastes at Welcome, the municipality "had to become a problem solver". Working groups were formed, actively building relationships with the owner-operators and federal ministries. The working groups attempted to interest and consult residents, who mainly agreed that the municipality should resolve the problem. According to the municipal officers, the townspeople felt little fear because the wastes have very low levels of radioactivity. Still, they found, it was important to take the time—sometimes "8-hour days and 7-day weeks" for the mayor—to listen to residents' concerns and, throughout the process, slowly become an educated community. Peer-reviewed epidemiological studies reassured the elected officers, showing that the local population's health record cannot be differentiated from the provincial average.

The future facility concepts reflect local values. Among the most important goals for the Port Hope municipality was to see any waste management area fully compatible with future recreational use. The "never-ending cycle" of wastes trickling down from the Welcome hilltop into settling ponds, only to be placed again at the top of the mound, had to be interrupted. "If citizens can walk and play there, it shows everyone it is safe." Along with the gain in safety, officers sought the added value of a positive image carried away by tourist visitors—"turning lemons into lemonade". This socio-technical concept implies, *inter alia*, full encapsulation of wastes, an aboveground storage facility and long-term monitoring.

The municipality of Clarington, in contrast, judged that a primary goal was to avoid moving or disturbing the wastes currently deposited in Port Granby. This resulted in a design for bolstering, monitoring and maintaining the lakefront site over the years. The municipal representatives were keen to point out that this is not a disposal project, but rather a long-term waste management project. The period of 500 years was evoked. At one point the federal nuclear regulator suggested that the wastes could be disposed in nearby underwater limestone caverns. Monitoring would be possible, but if it failed over time the disposal would be passively safe. From this point of view, the aboveground solutions chosen by the municipalities could be called technically sub-optimal. Ian Angus pointed out, however, that the limestone cavern solution was socially sub-optimal in that *residents didn't trust that solution*. They preferred that the wastes be recoverable such that new detoxification techniques, if any are discovered, may be applied in future. On another level, the caverns solution could not be preferred because the federal government proposed an unacceptably small amount of accompanying compensation. Ron Smith (who had been "intrigued" by the solution) said that the process "was not a bidding war" and that the "community couldn't be bought", but that the undervalued compensation package "couldn't be put to the public".

Under the present agreement, economic concerns are met by a Property Value Protection Programme and by a \$10 million (Canadian) grant to each municipality, free of lien when each future facility will have been completed and licensed. The municipal officers view the federal government's taking responsibility for historic wastes as "only fair", given the national benefit derived from uranium over generations in both wartime and peaceful contexts. They view the negotiated grants to the communities, which recognize their new contribution to the nation, as modest in regard to the immense sums involved in the energy industry.

Delegates noted that the agreed solutions might not be feasible in a smaller country with fewer resources. However, reasonable expenditures requested by a community where feasible can be seen as an investment, justifiable in that they offset potential increases in waste management costs over the long term. The Port Hope Initiative appears to reflect the availability of resources, the determination of the municipalities, and the resolution by the federal government to find solutions satisfactory to local stakeholders.

The formal Legal Agreement signed in March 2001 is a contractual guarantee of the municipalities' requirements and objectives, and they draw confidence from their ability to withdraw from the process if these are not honoured. Officers also state that redrawing an agreement if the current guarantee fails would require elaboration by the full community in public hearings, and for the sake of credibility could not be worked out by a closed committee.

The identified solutions for managing the relevant waste have still to be reviewed through an environmental assessment process. The latter is regarded with confidence as the opportunity to address any remaining technical questions and social impacts. The municipalities consider that if the environmental assessment process points to outcomes not foreseen in the original agreement, e.g., moving certain wastes, then the formal Agreement between the government and the municipalities will need to be re-negotiated.

### ***Workshop Opening Session on National Policy and Port Hope Case***

**T. Seppälä**, Head of Communication of POSIVA, Finland, opened the Ottawa workshop. He recalled the experience of the previous workshop in Turku (Finland), and referred to the defining period in Canada with the entering into force of Bill-C27 known as the *Nuclear Fuel Waste Act (NFW Act)*.

**P. Brown**, Director of the Uranium and Radioactive Waste Division of NRCan, stated that nuclear energy is an important part of Canada's diversified energy mix and falls within both federal and provincial jurisdiction. Uranium mining and fuel production also represent a great stake for the nation. Canada is the world's third resource base for uranium after Australia and Kazakhstan, and is the leading producer of uranium. At present rates of extraction, Canadian uranium could fuel the western world's reactors for 20 years, and meet North American demand for sixty. Canada is also a world leader in reactor design and sales. All aspects of the nuclear fuel cycle are represented in Canadian industry.

The Government of Canada wants to ensure that the public has confidence that operations at each step of the nuclear fuel cycle are carried out in the best interest of Canadians. Federal policy is to manage radioactive wastes to protect human health and the environment, and ensure that those who benefit from the waste-producing activity bear the costs of long-term management. The "polluter pays" principle is central to Canadian law and tradition: owners are responsible for establishing, funding and carrying out acceptable waste management plans. Where no owner can be identified, or held responsible, the federal government recognizes its residual responsibility. Here the LLRWMO takes over remedial management duties.

Regarding low-level waste, Government will respect the community-driven process and municipal interest in the Port Hope area, with a view to building confidence not only between the parties themselves, but broad public confidence in the final solution.

High-level nuclear fuel waste, produced in volumes of less than 2000 tonnes annually, is currently stored at the reactor sites. Canada has no plans to reprocess or recycle it. With the Seaborn Panel's 1998 recommendations in mind, and after further consultations with stakeholders, the Government of Canada developed the 2002 *Nuclear Fuel Waste Act*. This law opens the search for a long-term management solution.

**R. Ferch**, Director, Wastes and Geosciences Division of the Canadian Nuclear Safety Commission (CNSC), outlined stakeholder input to facility licensing. The CNSC is a 7-member independent public tribunal supported by 400 staff. Its authority extends over the development, production, and use of nuclear energy, and the regulation of all uses (possession, transport...) of nuclear materials and is founded on the 2000 *Nuclear Safety and Control Act*. The CNSC also implements international controls, e.g., in the area of disarmament. New to the CNSC mandate is the active dissemination of knowledge.

Regulatory philosophy is based on two principles: (i) licensees are directly responsible for ensuring that health, safety, security, and the environment are protected and that international commitments are respected; and (ii) the CNSC is responsible to the Canadian public to assure that licensees are properly discharging these obligations. Regulations are performance-based rather than prescriptive, giving thus

more freedom to the proponent to produce solutions and to the regulator in forming its judgements. Regulatory action is based on risk level. The CNSC views that the notion of risk covers also public perceptions and social concerns. Its mission is to act on behalf of "the public, i.e., all citizens" in Canada to ensure that requirements are met.

The first step in licensing any nuclear facility is an environmental assessment. Public consultation may include written comments on reports, or public hearings by the CNSC or an appointed review panel. Once determined that there will not be significant adverse environmental effects, the Commission holds two public hearings (full transcripts are published within days on the CNSC website). In the first hearing, the proponent presents a case to support its licensing application, and the CNSC staff presents its recommendations. Applicants are required in particular to present their public outreach programme (although the CNSC does not have formal evaluation criteria for outreach programmes at this time). In the second hearing (some 60 days later), Commission questions are answered, and other interested parties may intervene. The Commission then deliberates and its decision is recorded in a formal document. Technical requirements placed on the operator are contained in the license, which generally must be renewed after two to five years.

Generally there is no funding to bring interveners to Ottawa and the Commission's hearings are rarely held outside the federal capital. Despite this, the CNSC has achieved considerable public participation in licensing processes. This participation has contributed to the credibility of the nuclear regulatory process in Canada—seen as a key element in enhancing public acceptance of the nuclear industry and its activities, including waste management. The CNSC seeks to increase community awareness of its existence and role, in order to favour increased public participation when the opportunity is available.

The outcome of CNSC deliberations can be overthrown in court on the basis of failed process (and not on the basis of content). For this reason, Commissioners retain their independence by minimizing contact with waste owners and implementers; most contact takes place through the secretariat or, on technical issues, through staff.

**C. Létourneau**, Senior Policy Advisor, Uranium and Radioactive Waste Division, NRCan, presented the new *Nuclear Fuel Waste Act*. The respective roles of the Government and waste owners were defined by the 1996 Policy Framework for Radioactive Waste. The goal is to implement long-term solutions in a safe, environmentally sound, comprehensive, cost-effective, and integrated manner. Health, environment, safety and security requirements are legislated by the 2000 *Nuclear Safety and Control Act*. The *Nuclear Fuel Waste Act (NFW Act)*, set in force on November 15, 2002, deals essentially with financial and socio-economic considerations.

The *NFW Act* legislates these measures:

- Nuclear energy corporations must set up a waste management organization (WMO) as a separate legal entity to manage the full range of long-term activities;
- Nuclear energy corporations must establish trust funds to finance long-term waste management responsibilities;
- The WMO must submit long-term waste management options to Government (a substantial fine is levied for delay beyond the November 2005 deadline); and,
- The Governor in Council will select an option from those proposed by the WMO.

Three options at least must be examined: geological disposal, centralised surface storage, and non-centralized storage at reactor sites. The WMO is not barred from presenting other options (including the do-nothing option); the Government must select one of the options submitted by the WMO.

At issue is increasing and maintaining public confidence in a long-term solution; this is founded, according to the Act, upon technical safety, financial aspects, and social considerations. Requirements on the WMO therefore include an analysis of ethical and social as well as economic and safety considerations associated with any option, as well as comprehensive Aboriginal and other public consultation. Embedding ethical requirements at the legislative level as Canada has done appears to be unique, to date, in the environmental field.

NRCan has created a new Nuclear Fuel Waste Bureau web site (<http://www.nfwbureau.gc.ca/>) dedicated to informing all stakeholders, particularly the public, on planned and current nuclear fuel waste management activities. It was developed in accordance with the principles of openness and transparency. It is meant to be interactive and public input is welcome. The FSC viewed "A Canadian Solution", a video visible at the website and presenting fuel waste management issues, Canadian values, the *NFW Act* and the Bureau's mandate.

The current Government of Canada is committed to addressing WM needs in this generation. Waste producers want a long-term, permanent solution. Finally, the towns hosting nuclear facilities today wish to know whether they will remain de facto storage sites or whether other solutions will be brought to bear. These three sets of actors applied the pressure and demand that resulted in the passage of the *NFW Act*.

**D. McCauley**, Senior Policy Advisor, Uranium and Radioactive Waste Division, NRCan, reviewed the Port Hope Area Initiative history. He recalled the key principles of the Cooperative Siting Process recommended by the Governmental "Siting Process Task Force" in 1987: (i) communities would volunteer to host the waste management facilities, (ii) the community should be a partner in the process, (iii) the community should have the right to select a preferred technical solution, and (iv) the community should be compensated for impacts associated with the facility and be provided with equity compensation to enhance its position in view of its willingness to assist society.

Respect for the Task Force recommendations can be seen in Government negotiations with the Port Hope area municipalities. The Government has accepted these requirements and responsibilities laid out by the municipalities:

The community-based proposals would be documented in the legal agreement and would form its technical basis;

A Property Value Protection Program would be established;

Municipal compensation would be granted, for staff time spent, for mitigating any future impacts, and as an economic benefit;

The municipalities control the final project solution retained after environmental assessment, to ensure that it continues to represent a community-based solution;

The Government of Canada will be the owner of the long-term management facilities and the wastes therein and have the responsibility for monitoring and maintenance.

The environmental assessment phase of the Initiative is now underway.

**Workshop Session I: What are the social concerns?**

**C. Kessler**, Deputy Director of the OECD NEA, welcomed the delegates. The NEA has a significant set of stakeholder-centred programmes, and is happy to facilitate encounters like the Ottawa workshop bringing people together on a national and international level. **P. Brown** welcomed the participants on behalf of the Canadian Deputy Minister of Natural Resources. **Y. LeBars**, Chairman of the FSC and of France's Andra, recalled the workshop goals: to provide a review of the Canadian situation by and for stakeholders, but also to stimulate improvements in delegates' home programmes.

**K. Storey**, of the Memorial University of Newfoundland, defined Social Impact Assessment (SIA) as the advance analysis of "all social and cultural consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs, and generally cope as members of society"<sup>1</sup>. Taking the example of the construction yard created at Trinity Bay to assemble the Hibernia offshore oil platform, Prof. Storey explained how the concerns and values of local area residents were identified and a management strategy designed to minimize social disruption associated with the huge project.

A formal public consultation process identified potential negative impacts linked to the large influx of workers expected for the project. Current residents of the small, established communities feared increased crime, increased cost of living, and disruption of their fishery. They preferred to forego economic benefits if social disruption could not be avoided. In response the proponent designed a high-quality work camp situated outside town. This was a major, and successful, component of the impact management strategy.

Lessons learnt indicate that:

Previous community experience with large projects and positive anticipation of employment opportunities, combined with the proponent's community consultation process, helped develop trust and cooperation;

The consultation provided a realistic picture of potential impacts, oriented mitigation strategies, and served as an opportunity for feedback and education;

Contingency planning allowed the proponent to respond to events that could have produced negative social impacts (e.g., the actual number of workers rose sharply from estimates but could be accommodated);

The work camp was a simple solution but it might not have been found without the joint identification of concerns and agreement on the objectives of impact management.

Monitoring is vital to provide feedback to both proponent and community on how the project impacts evolve. In the Trinity Bay case, independent, "before, during and after" surveys document the success of the chosen impact management strategy and suggest a format for follow-up that could be adopted for other projects.

**B. Seaborn** spoke as Chairman of the former Canadian Environmental Assessment Panel on Nuclear Fuel Waste Management and Disposal Concept. Panel hearings revealed that RWM concerns were often linked with concerns over nuclear armament and large accidents like that of Chernobyl. The Panel spelled out

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<sup>1</sup> Pr. Storey quoted this definition found in a 1994 U.S. Department of Commerce guidelines document; see his bibliography in proceedings.

conditions for the “broad public support” and “required level of acceptability” that they believed Canada's concept should demonstrate in order to be adopted. In many instances these highlight knowledge issues and information needs:

The Canadian public must be well informed if it is to make decisions about the long-term management of nuclear fuel wastes;

The agency responsible for management must conduct a sustained information and communications program and the communication must flow both to and from the public;

The public must be aware of, and have participated in developing the decision-making process;

The public must know the key points at which safety and acceptability are assessed, who makes the decisions, how disputes are resolved and how the needs of significant minorities are to be addressed.

At the outcome of their review of the AECL concept, the Panel considered that these conditions did not yet exist and thus no judgement of acceptability could be made.

Among the elements deemed essential by the Panel for gaining broad public support, Mr. Seaborn highlighted:

An adequately funded process of consultation to ensure the participation of Aboriginal people, whose views, stakes, traditions and rights differ from those of other Canadians;

The creation of a nuclear fuel waste management agency to overcome the lack of trust to which the proponent was currently subject;

Development by the agency of at least three practicable options for long-term management so that the public and Government could weigh options rather than choose or refuse one;

An ongoing and interactive consultative process, comprehensive of social, ethical and economic considerations, with broad representation and public involvement in the decision-making process.

Although all these recommendations have not been incorporated into the new law, the Chairman expressed satisfaction that action is being taken four years after the Panel report. Social concerns, he said, are no less daunting and are just as important as technical factors to developing good public policy. He hopes that the Parliament will be summoned to deliberate on NFWM choices despite the absence of this requirement in the *NFW Act*.

Mr. Seaborn pointed to two upcoming milestones when stakeholder discussion and involvement will be paramount. The first, in three years, is when the Waste Management Organization now created by the *NFW Act* presents options for long-term management and recommends its preferred option. The second is the selection of a site or sites for the waste management facility(ies). Mr. Seaborn noted that it is difficult to stimulate persons to join discussion of a "concept" and that NFWM does not have the visibility of, e.g., Medicaid. Both milestones imply the need to have national, and Aboriginal, public deliberation and consultation programmes in working order. Acceptance and support could be checked by polling and by focus group interviews.

**P. Larcombe**, Senior Manager, Winds and Voices Environmental Services, outlined specific social concerns, consultation requirements, and best practices for involving Aboriginal peoples in waste management decisions. Aboriginal communities as self-governing entities require recognition of the

unique rights that they enjoy under Canadian legislation. Assimilating them to other stakeholder groups, they state, loses sight of their specific situation and sovereignty.

Aboriginal peoples share many concerns with other segments of the population. However, large-scale developments have the potential to impact on Aboriginal communities in an unusually broad and adverse way. This is because these communities are heavily reliant upon healthy environments and healthy natural resources in order to preserve and maintain their lifestyles, cultures, and economies. Specific Aboriginal concerns include:

Maintaining safe travel and ease of access by water and land to, from, and within traditional territories;

Protection of the quality and quantity of natural resources (water, land, plants and animals) important to lifestyle, culture and economy;

Protection of important historic, cultural and ecological sites;

Preserving the natural balance and health of the environment for the current and future generations;

Sustaining and enhancing social, cultural and economic opportunities for community members;

Protecting legislated and court-upheld Treaty and Aboriginal rights now and on behalf of future generations (i.e., to seven “cycles” or generations into the future, a traditional horizon of responsibility).

The Aboriginal communities see themselves as direct counterparts of the federal government. Consulting bodies must be sensitive to self-government practices in Aboriginal communities. Extra time—related to the possible lack of trained or mandated liaison personnel and to the self-government rights of Aboriginal communities—early involvement in planning, early effort to design a culturally appropriate consultation process, and adequate financial and technical resources are all required to do justice to the Aboriginal participation in waste management decisions.

**T. Włodarczyk**, Senior Consultant with Gartner Lee Limited, presented sociological traits that influence how a community views and handles a large infrastructure project. No two communities are alike, but such traits provide one source of SIA criteria.

One set of traits relates to the demographic properties of the community. This is meaningful for analysing potential project impacts because perceptions of *fairness* are related to who bears the impact. Consulting the different demographic groups uncovers different concerns. Older residents may focus concern on changes in community or way of life. Young people may be more concerned over cost of living changes. Men emphasize economic concerns, while women express concern for effects on their families, friends and future generations. Women also experience different effects than men, such as isolation in a rapidly changing or a new community.

Labour capacity is another significant trait. If the local labour force can fill the employment needs created by a project, the community may be more welcoming. If a community is isolated from other urban settlements, public concerns focus on the effects of worker influx. Communities with more diversified economies may be comparatively less affected by a single project, and thus may show comparatively lower concern regarding economic benefits, losses and other secondary effects.

Some major projects increase demand on local facilities or social services. If these prove insufficient, people come to feel that their quality of life is at risk. This points attention to municipal administrative capacity and economic traits. Communities with skilled staff and experience in negotiation, and those free of significant economic decline, manage changes most successfully.

If community beliefs, norms, values and aesthetics are not properly taken into account by project proponents this will create conflicts, as e.g., between Aboriginal and mainstream groups who place widely disparate social values on the natural resource base.

A past environmental incident will heighten public concern and the potential for community mobilization. A negative experience and accompanying social stigma create psychological duress, but in the best cases may also increase community efficacy in dealing with environmental management problems.

Delegates raised the issue of whether it is fair for industry proponents to develop such detailed knowledge of local communities, when these may not have the opportunity and the means to analyse and anticipate nuclear industry or RW managers' behaviour. Such scrutiny of the community does not appear to be an optimal way of building waste management relationships. Should not such sociological methods be applied to analyse institutions that are supposed to own or solve the RW problem? Although every member of an affected community does make an informal assessment of proponents, Mr. Włodarczyk agreed that it is important for local stakeholders to have access to information on the role of each player.

**Robert Zelman**, Director, Low-Level Radioactive Waste Management Office, detailed the Property Value Protection (PVP) Program in the Port Hope Area. The PVP programme maintains desirable real estate market stability in the host community. It compensates owners of local residential, commercial or industrial properties who suffer financial loss as a direct result of the Port Hope Initiative (diminished sale price or rental income, or difficulty renewing a mortgage). Municipalities will also receive compensation for lost tax revenue resulting from any diminished market value assessments. The PVP Program will function throughout the duration of the Initiative and into the first two years of long-term monitoring and surveillance of the planned waste management facilities (12 years expected in all). It concerns an area of approximately 90 km<sup>2</sup>, comprising a total of 5,128 properties at an assessed value of \$586 million (Canadian) as of 2000. Claim assessments will draw on a real estate database including a neighbouring reference area.

More than 40 claims forms were given out over the first 12 months by the PVP office located in downtown Port Hope. The majority of the public who inquired about the PVP Program seemed satisfied to learn that compensation was available should they ever need it. Two claims have been submitted to date (one was partially validated and one rejected). The majority of claims are expected to occur once facility construction begins.

The **workshop round tables** then discussed Session I presentations. Delegates reflected that social concerns may be widely shared, but are always specific to a site and context. Community liaison groups were pointed to as valuable tools for uncovering social concerns and bringing them to the attention of authorities in a problem-solving setting. As not all members of the community may share the same concerns, consultations must seek out a range of voices, including accountable representation of the "silent majority".

At the workshop, the outstanding local concerns involved: long term viability of the community, land uses, economic development, project timetables, corporate memory of the facility, long term responsibility and record keeping. Broader societal concerns, like health for future generations, may surface in national debate. Participants found that in contrast with local communities, who feel the need to solve a problem, national populations may be less motivated to join in debate over RWM solutions. Contacts with various

groups in society, especially Aboriginal peoples, may need time to develop and bear fruit. Institutional frameworks therefore should foresee sufficient time and resources for collective learning about the need for management, the choices that are open, their potential impacts, and which criteria should be used to choose among options. In Canada, existing experience with large-scale consultation under Environmental Assessment legislation will form a valuable basis for meeting the challenges of consultation mandated by the *NFW Act*.

The round tables recognized that confidence in RWM is affected by the trust among partners. In situations—whether national or local—marked by a legacy of low trust, there may be a need to start over with new actors and partnerships. All must commit to listening to each other.

In the same way that institutions investigate attitudes and concerns in affected populations, society should investigate and discuss the values underlying decisions and behaviours in the central stakeholder organizations (e.g., regulators, implementers, NGOs, pressure groups and local decision makers).

### ***Workshop Session II: How to address social concerns?***

**D. McFarlane**, Director, Site Public Affairs, Ontario Power Generation, described the communities hosting some of Canada's nuclear and coal-burning power plants, and outlined corporate-community relations objectives. These include building trust, garnering support for ongoing operations, and being—as well as being viewed as—a good corporate citizen. Meeting these objectives implies knowing and caring for the community and the issues raised by residents—not just issues of interest to the company. Through case studies, Ms. McFarlane described efforts to reach out to the communities, by providing information, engaging in dialogue, and contributing resources and time to community priorities.

Specific projects or events offer the opportunity to improve corporate awareness of community needs and upgrade interactions. The Point Lepreau plant refurbishment was prepared by extensive employee and public consultation, open houses, and media relations. Stakeholder workshops have provided guidance on valued environmental features. A Community Liaison Group will be established and a newsletter will provide regular public information.

Managers at the Pickering plant became pro-active to combat their bad community image and bad press. They set up an early-warning mechanism to keep the municipality and citizens informed of any major or minor occurrences—including positive ones. In an innovative home-visiting programme plant workers—community members themselves—went to see their neighbours and offered to answer their questions. New arrivals in the community also receive an informative visit. One hundred and sixty issues of concern (including technical issues) have been identified and staff is working through them—some concrete changes have been made in plant operations.

Community relations staff recognise the difficulty of drawing out opinion and interest from the silent majority. They are exploring new channels for information exchange like web-based tools and visitors' centres.

**B. Holton**, of Holton Flowers, Port Hope, gave a personal account of growing from an “Eldorado kid” whose father worked at the local plant, to a small businessman concerned by the stigma attached nationally to his home place. Starting in 1976, nightly news reports of contaminated houses, schools and ravines transformed the sleepy tourist town into “the radioactive hotbed of the country”. Trust was destroyed by an apparent conflict of interest: the same government that operated the plant sent employees to reassure the population. Health risks were said to be negligible yet still a cancer study was conducted; extensive clean-up efforts sparked the question: “if it's not a major health risk than why are they spending so much money

cleaning it up?”. Homeowners faced authorizations before altering their property. One or two business prospects each month ceased inquiries when informed of the waste by the Town Hall.

Mr. Holton recalled the multi-phased process of resolving the waste issue. In particular, when the federal Siting Task Force was set up in 1988 to find a community within Ontario willing to host a storage facility, Port Hope formed a local Citizens Liaison Group (CLC) to examine potential solutions from a source community’s point of view. This group of volunteers restored local confidence, digesting information and representing the community at the table. Municipal elected officers worked actively to find and impose a “community-driven” solution, in tune with the local desire to “get on with it” and see economic development comparable to that in the neighbouring town. The issue was felt to represent a stigma problem more than a health problem.

Ten years later, after the failure of other siting efforts, the municipality came forward to volunteer a solution. The community was divided about where exactly to site a long-term management facility, and it was not easy to involve citizens (for instance, engineers discussed the issues in open houses but these were not very well attended). However, the municipal proposal came to be viewed by many as apt to solve the environmental problems plaguing Port Hope.

Renewed involvement of experienced and respected CLC members in the 1998-2001 negotiations increased confidence that residents’ concerns would be taken into account. Subsequent to the 2001 signature of the formal agreement, public input and consultation will again play an important role during the environmental assessment in determining final outcomes.

**L. Oates**, Project Manager for the City of Toronto's Integrated Solid Waste Resource Management Process, commented on lessons learned in regard to the proposed siting of the Adams Mine Landfill in North East Ontario. He reviewed stakeholder concerns aroused by the proposal. Several Aboriginal First Nations have identified the Adams Mine within their land claims area. Local farmers as well as politicians feared potential ground water contamination. Groups felt recycling and composting should reduce landfill needs. Wilderness advocates saw a clash with the development of eco-tourism. Despite attention to these concerns in the project design, negative media coverage fuelled opposition to the proposal, creating North-South polarization across the Ontario province.

The Toronto experience points to ways to build confidence in a project proposal:

- Long-term commitment by one or more governments;
- Assessing the status quo ("do nothing") option;
- Reviewing all components of an EA in a hearing;
- Including a role for local interests in long-term monitoring;
- Listening to the project opposition and encouraging co-operative problem solving;
- Demonstrating sustainable development and project safety;
- Funding third-party research and critical review;
- Utilizing mediation and other conflict resolution techniques;
- Identifying a project spokesperson for the public and media;

Linking national goals to local concerns.

**G. MacDonald**, representing the Township of the North Shore and the Standing Environmental Committee (SEC) of the Serpent River Watershed, stated that she is a stakeholder living downstream from 175 million tonnes of acid-generating and radioactive uranium mine tailings. Public confidence in the Elliot Lake region is influenced by past mining issues: worker health concerns and difficulties in obtaining compensation; myriad observations of radium uptake; drinking water contamination issues and inequitable quality standards adverse to the Serpent River First Nation; loss of land use. Government failed to set aside funds for local monitoring of the decommissioned mining region, or to involve citizens in decisions as recommended by the Kirkwood Panel. These failures represent betrayals of trust and furthermore give public confidence little chance to improve.

In these circumstances, the affected community has given attention on their own to mid- and long-term issues. At issue is not the current funding or management of the waste storage sites, but rather, creating and maintaining local knowledge and competence to monitor their management over the coming decades and generations. Concerned members of the community note that the federal government "has done nothing long-lasting to ensure confidence" on this level. They highlight the importance of questions like: "Do I have the knowledge to act in my best interest?" and "Who can I trust to protect my interest?"— and have set out to answer them.

The Standing Environmental Committee has worked for one year to develop a pro-active approach to tailings management with emphasis on sustained public awareness and involvement, in the goal of protecting human and environmental health over the long term. The following advice was offered to a community wishing to set up a similar monitoring group:

Plan how to deal with the waste before it is produced;

Make sure everyone fully understands important issues like financial assurances;

Appreciate the integrity of individuals – no matter what their label says: staff, politicians, environmentalist, government bureaucrats, scientist or industry workers;

Know why you're at the table, know who is paying (and who should be), and know what resources you have;

Be prepared to commit significant personal time to the effort.

**K. O'Hara**, Associate Professor, School of Journalism and Communication, Carleton University, examined the negative associations with which the words "nuclear waste" are loaded.

She quoted research about the dimensions people may use when they informally assess risk: is the risk in question involuntary or voluntary? inequitably distributed? unfamiliar? poorly understood by science? threatening to children or to future generations? etc. Such evaluations influence the acceptability of perceived risk. Ms. O'Hara observed that scientists in dealing with the public have in the past not trusted the public to have valuable opinions about science and technology. Such an attitude may be related in part to the low science awareness and sophistication that some surveys have found in the general public.

Nonetheless, other surveys show that people tend to trust scientists (and doctors, especially) and are interested in knowing more about science, especially when it relates to health.

Traditions in journalism and publishing sometimes lead to oversimplified stories or overdramatic portrayals of scientific controversy. The public can deal with controversial issues, Ms. O'Hara stated; one of their primary concerns may be to know whether an acceptable "Plan B" is in place to manage technology gone wrong.

The **workshop round tables** then discussed ways to address social concerns. Tools include information sharing and compensation programmes. However, the source of concern and underlying issues must first be brought to light in order to create proper response. The round tables viewed that in a good number of cases—inside or outside Canada—some social concerns stem from eroded trust in operating or managing institutions. A deficit of trust may arise from lack of familiarity, misinformation or missing information, changing sensibilities of society over time, specific past failures of particular institutions, or inadequate general education. In some cases media treatment of the issues may accentuate distrust. Building confidence will require committing substantial resources to: safety, monitoring, consultation and information exchange with affected communities, appropriate compensation, and effective long term institutional involvement with the project and with the community. Institutions must fulfil their commitments and honour legal agreements.

Among the suggestions generated by the round tables were:

Those in authority must be accessible, and top management must meet with local communities regularly;

Organizations must demonstrate long-term commitment to safety, and provide balanced information;

Involved organizations should take responsibility for informing actively, and not let the sole media take over this job;

Communities typically want to have independent counsel and build their own expertise, even if they accept that the government regulator provides a source of expertise independent from the proponent. Funding is thus needed for these purposes;

A formal but flexible structure should bind the implementer and the community, allowing community leaders to participate in formulating and implementing solutions;

Both local and national solutions should be explored on a stepwise basis with the public.

Discussion of the use of financial compensation led to the following observations: Economic solutions work for many of the social concerns identified, but safety is not to be bought. If they come too early in the process, discussions of economic arrangements may affect the credibility of assertions about safety, environmental and even economic impacts. A sound, accountable infrastructure should be set up under the control of a neutral party to administer funding and compensation. The target geographic region for compensation should not be drawn too narrowly, so as to ensure that neighbouring communities who may have legitimate rights are not excluded from consideration. The overall aim should be an enduring development plan for the host community that includes, but is not limited to, the RWM facility.

### ***Workshop Session III: Development opportunities for communities***

**R. Austin**, Mayor, Municipality of Port Hope, spoke of his interest to ensure that his hometown remains a thriving, friendly, and beautiful community. An environmental problem has been transformed into a development opportunity for Port Hope with lasting benefits for its citizens even beyond cleanup.

On signing the legal agreement with the Government of Canada, the three municipalities each received a \$10 million host community fee. In Port Hope's case these funds are earning interest, which the Council may use in the community. The principal will remain in trust until the regulators license the future facility.

The current planning stage has already brought new investment and expenditures (including office space, and business traveller lodging and meals). Once moving the half-a-million cubic metres of material actually begins, Port Hope will enjoy new employment and income. It is expected that \$250 million (Canadian) will be spent in the community. Land restoration, new roads and buildings, and technical support tasks will benefit local residents and business. These benefits are expected to outweigh the nuisances that cannot be mitigated by the proponent. Accommodating these works will require renewed infrastructure (e.g., new roads and access). Synergies between the Project and the municipal works agenda will be exploited.

In the long term, properties, including certain non-radioactive historic industrial sites, will be available for unrestricted foreseeable uses. Major spin-offs are expected, like waterfront development of the lakeshore. Like the land itself, local confidence is also restored by the image gained as a forward-looking community that solved its problem and built opportunity.

Mayor Austin recognized the need to bring local residents "on board", as they bring ideas to the process. He observed that federal players did not enjoy community trust a priori, making the active role of local elected officers that much more important in finding a solution acceptable to the local public. Federal negotiators had to accept that they were working side by side with the local authorities to create the right solution. Compatible "chemistry" or the right individuals at the table were needed as well.

**L. Kraemer**, Chairperson, Canadian Association for Nuclear Host Communities (CANHC), and Mayor of Kincardine, the host community of the Bruce nuclear power station, brought forward some "grass roots ideals" of elected officials. The CANHC was recently created in recognition of the need for nuclear host communities to come together to engage not only the nuclear industry, but provincial and federal government as well, in a public dialogue. This association will champion host community needs as the new option-weighting process goes forward. It was a disappointment that the association did not receive a seat on the WMO board.

With the new *NFW Act*, geological disposal of spent fuel waste is no longer a foregone conclusion, and the communities woke up to the possibility that waste now cooling within the nuclear power station area may potentially remain there for a much longer term. Even if these wastes are one day transported away from reactor sites, long-term storage on site needs attention.

Mayor Kraemer views that a community not currently hosting a nuclear installation would volunteer to receive waste only on economic motives. Current host communities concentrate knowledge of nuclear operations and issues.

Mayor Kraemer then recounted his own constituents' perceptions of the ongoing siting process for a low- and intermediate-level nuclear waste storage facility in Kincardine. He highlighted the importance of mutual co-operation between the nuclear industry and the municipality to "debunk public hysteria", characterizing "fear" as "False Expectations Appearing Real". A Memorandum of Understanding has been developed between his municipal government and the local nuclear station, foreseeing elements of public

education, safety and management methodology. In Mayor Kraemer's view, making an active investment in waste management solutions at the local level can realize the economic aspirations of both the community and the nuclear sector.

**L. Simpson**, Mayor, Local Government District of Pinawa, Manitoba, described the impacts and public concerns produced by a hastily planned and executed withdrawal of the primary employer from a dependent company town. The Whiteshell Laboratories of the Crown corporation Atomic Energy of Canada Limited (AECL) were established in Eastern Manitoba in 1963, and Pinawa was created 15 kilometres away. Located in a provincial park region, Pinawa has also become a popular holiday cottage area with 20,000 residents inside a 30-minute radius. In 1995, the AECL Reactor Safety Research Program was moved to Chalk River, and the Nuclear Waste Management Program (NWMP) was left in limbo. Commercial negotiations to go on operating business on the site broke down. The town of Pinawa, the major stakeholder, was kept at arm's length from all discussions.

The local Councils and the Province of Manitoba view that AECL should take responsibility and start decommissioning the site immediately. However, the current outlook is that AECL will be allowed to defer commissioning and the site will be left under monitoring and surveillance until such time as disposal facilities for the various types of radioactive materials are available in Canada. This poses problems, according to the municipality, of competence maintenance ("what competent person would want a job babysitting a dead facility?") with the nearest active nuclear site distant by 2000 km. Furthermore, this sole viable industrial site within Pinawa will be immobilized and non productive for 60 to 100 years. The municipality requires that it be freed up. Detailed submissions by Pinawa and eighteen neighbouring Municipal Councils to the regulating authorities have evoked no response. Aside from the safety implications (for example, a fire in the non-decommissioned nuclear facility would be handled by unspecialised local firemen), the morality of expecting future generations to bear the high cost of decommissioning is seen as questionable.

"Our issue is not what industry is doing in our community, but what it's *not* doing". AECL and the federal government should facilitate the diversification of the local economy, and federal land should be released to the community. Pinawa suggests that the decommissioning of the Whiteshell Laboratories should be treated as a national demonstration project. AECL could construct a disposal facility for the resulting low-level waste (this facility could receive LLW from all of Western Canada, perhaps). High level waste, currently on the site, should be dug up from surface burial, containerised and stored in canisters until the final disposal concept is identified.

Several communities in Northern Manitoba are in dire straits because of mine closures. Although a law prohibiting NFW disposal was passed in their province years ago, Mayor Simpson has indicated that elected officials in the depressed areas might possibly welcome an opportunity to host a repository. "When your entire town is decommissioned, this causes you to think." Manitoban decision makers might be willing to deliberate and negotiate with persons outside the nuclear industry. Siting a repository in Northern Manitoba would provide a strong incentive for keeping the NWMP in Pinawa. Working out all these issues, Mayor Simpson concluded, will depend on cooperation amongst the stakeholders, AECL and the governments, and they all must be empowered to succeed.

**A. Richards**, a public relations specialist from Cogema Resources Inc., discussed the programmes for human resource and community development in northern Saskatchewan. This region has the world's largest known high-grade deposits of uranium as well as a high level of provincial, public and northern community support. A mainly Aboriginal population of around 35,000 with a very high proportion of young persons entering the work force, lives in small, dispersed communities in a landscape of forest and lakes.

All of the uranium mines are in remote locations with “local impact” communities often several hundred kilometres away. In the late 1970’s a public board of enquiry set mine operating conditions that included maximizing opportunities for northern business and employment. Dozens of joint initiatives have since been developed and resulted in innovative hiring, training and transportation programmes, as well as support programmes to improve health, education, professional and business development and quality of life in the communities.

Residents of northern Saskatchewan, like all other Canadians, are not prepared to accept environmental risks in return for economic opportunities. Three regional Environmental Quality Committees, with representatives from all of the northern communities, work with Provincial agencies and the uranium mining industry to ensure community concerns are included in decisions. Northern hunters and fishermen, whose close links with the land are respected, provide relevant data to the Environmental Monitoring Program. Mutual trust is developed through constant interaction and dialogue in one-to-one relationships. Traditional activities like trapping are given their full importance. A Community Vitality Project jointly monitors social well being as defined by northern interests and culture. Compensations and company donations in some cases provide resources for community activities.

"Sustainable mining" means that diminishing mineral resources are offset by the creation of other economic opportunities. Successful northern-owned as well as joint-owned service industries have taken root. Creating a flexible and competent work force in the north is a multi-year process. Specialized academic and technical training is needed in order for greater numbers of northern people to join the mining management ranks. Cogema and the uranium industry have committed to these long-term goals.

**M. Simard**, University of Quebec at Chicoutimi, studied the social impacts arising from the Alcan industrial megacomplex in Alma (30,126 inhabitants). The Alma aluminium smelter began operation in 2001. It employs 865 people and has a production capacity of 407,000 MT of aluminium ingots. The three-part study, conducted during the smelter planning, construction and operation phases, tracks community perceptions and satisfaction with quality of life. Residents were found over time to be generally satisfied despite an increase in nuisance impacts during the construction phase.

Quality of life—a state of physical, psychological, and social well-being—is made up of environment, work, family and health dimensions. We may come to recognize that this concept is as important as that of sustainable development in assessing industrial projects. Perfect quality of life is perhaps never attainable but any project should give consideration to maintaining or enhancing life conditions. In this way, for instance, even short-lived construction-phase nuisances could be anticipated and mitigated.

Collecting data in the community about impacts on quality of life can help adapt projects and make policies responsive to the needs of residents. By ensuring the social acceptability of private and public action, impact assessment processes contribute to the well being of stakeholders and the general population. They also serve organizational goals of reducing conflict.

Mr. Simard discussed the importance of creating structures to monitor project evolution and to provide a link between the developer and stakeholders. Such local follow-up can also identify the quality of life indicators that were absent from original assessments, and provide guidance for future SIA.

The **workshop round tables** pointed to the EIA process as a valuable opportunity to bring decision making close to the community and involve the persons who are affected. It was recognized that equity is not achieved only by economic arrangements, but moreover by the ability of the community to influence the project.

Communities want to protect their employment, sustainability and quality of life, and they may be willing to make trade offs (to accept otherwise "undesirable" facilities) in order to preserve those factors. However, the round tables recognized that some things will not be traded away. These are: reasonable health, quality of life, safety and security. In the same vein, nothing can acceptably compensate for deliberate pollution or other negative environmental impacts, or for abandonment of a situation by an industrial organization. If the important basics are assured (protection of health, safety and the environment), then most communities can become quite flexible and innovative in negotiating opportunities and trade offs. The round tables observed that open communication is needed for communities to be able to analyse the situation properly and make valid decisions about what they are getting and what they are willing to trade. This requires that the technical project proponents learn to communicate more freely and understandably.

Development packages often include jobs, business opportunities, training, environmental improvement, and decision-making and involvement guarantees for the communities. As potential host communities increase their own contact and exchange, development packages may become even more similar. Some discussants felt that all aspects of a given package should be developed through consultation and negotiated with the community, while others think that the process for negotiating the specifics can be a pre-set common denominator. Mechanisms are needed for reviewing and updating the package in light of events and community changes, but safeguards are needed as well so that funding institutions can plan their long term commitment rather than "sign a blank cheque". To make a development solution stand up over time, participants suggested: transforming liabilities into benefits (a very-LLW facility could become a community recreation area); setting up penalties for breach of commitment; securing formal parliamentary accords so that solutions will outlast the current political power balance; creating permanent community liaison groups with rotating membership; creating partnerships to last throughout the full life cycle of the project; and setting up financial reserves to guarantee project completion.

Delegates felt the partnerships set up in Port Hope had worked well. They viewed the enduring relationship and shared responsibility set up by the formal agreement to be more important than e.g., the financial benefits accrued to the community.

Overall, development opportunities were viewed not as creating trust, but as possibly contributing to confidence and trust. These are staked not on economic opportunity but on the guarantee of openness and listening and long term commitment by the industrial organization or other proponents.

#### ***Session IV: Thematic Reports***

**D. Bard** M.D., Professor, National School of Public Health (Rennes, France) reflected that social acceptance of a radiological situation may depend on a demonstration that the public health impact is negligible. It is necessary to communicate the scientific bases of such an assessment to stakeholders who may not be familiar with scientific methods. This involves, in particular, communicating the margin of uncertainty associated with very small risks, whose impact by definition is extremely difficult to evaluate. Dr. Bard addressed these communication challenges by presenting the fundamental concepts underlying radiological risk assessment, as well as the types of data (including exposure data) that should be available to members of the concerned public to allow them to check claims.

**J. Hetherington**, Community, Economy and Environment Department of the Cumbria County Council (UK) recounted the unfolding of events after his area, a nuclear host region, was pre-selected in the 1990's to receive a national deep repository for intermediate-level waste. Concerns about process fairness, and about scientific confidence in regard to the Sellafield Rock Characterisation Facility, led to a stalemate. In the aftermath, nuclear waste policy itself is currently being redefined in the UK through a series of

consultation processes. Dr. Hetherington identified two lessons from the Canadian experience that he wished to bring home. First, the west Cumbrian communities must be central to the debate in the UK – the bulk of the UK waste legacy is there – and agreed, long term, secure management must be jointly developed. Second, an effective and locally engaged Liabilities Management Authority must be ensured in the UK's forthcoming Act and be fully integrated with the overall approach to waste management.

**P. Fleming**, Ph.D, Senior Associate Dean and Associate Professor of Philosophy, Creighton University (USA), explored the ambiguity associated with Canada's requirement of an "ethical assessment" of nuclear waste management solutions. Such an assessment could target finding out what Canada "ought" to do (normative ethics), or, alternatively, could be used to determine simply if Canadians' current values are reflected or expressed in proposed solutions. Canadians need to determine which meaning is intended by that requirement. Prof. Fleming suggested that these two levels could each be addressed in a "stepwise ethics" process, as seen for example in Port Hope.

Prof. Fleming observed that the FSC was engaged in an ethical deliberation on the role of stakeholders by asking questions like: what should be the role of stakeholders in RWM? On which ethical principles does stakeholder involvement rest? Are there competing ethical principles? She encouraged delegates to reflect in ethical terms on four ideas: 1) seeking stakeholder confidence may be aligned with political expediency rather than with ethical duty; 2) interest in process reflects an interest in ethical *means*; in ethics, as in policy, the focus is on observable means *and ends* (never on intention); 3) beliefs about the moral significance of different entities guide the desire to ensure that all "relevant" interests are accounted for; and 4) differences among nations need not conflict with the world-wide interest in finding a common moral wisdom regarding best ethical practices in nuclear waste management. She suggested that those involved in RWM should amplify their search for "best practice" with reflection on "ethically preferable" means.

**M. O'Connor**, Professor of Economics, C3ED, Université de Versailles-St. Quentin en Yvelines (France), constructed three observations about components needed in RWM process from the Port Hope case study and site visit. 1) There is a "scientific side of the story"—i.e., the need to measure and manage the radioactive dose that could be received now or in the future by exposed populations. 2) There is a social dimension—concerned with building relationships with the wastes that will allow relevant communities to interact with the sites and what is stored there. 3) There is a need to build political and economic partnerships that can effectively implement agreed solutions.

Prof. O'Connor pointed out that in Port Hope, the solution found for handling the legacy wastes grew out of the relationship that the community was *willing* to establish with those wastes. He argued that long-term RWM will depend on establishing many such relationships between communities and waste. Waste management strategies may differ considerably as regards the relationships (in social, economic, cultural and symbolic terms) that they establish between the people — individuals, classes, interest groups, succeeding generations, whole nations — implicated in the situations of production, storage and monitoring of the wastes. Choosing solutions will imply examining which relationships are wanted.

Prof. O'Connor also noted that part of the "community side of the story" was resentment that for forty years, experts had omitted to form partnerships to choose and implement solutions. Only deliberate policies to maintain social structures giving meaning to waste management, he warned, will ensure that the scientific and technical side will continue to receive funding.

*Concluding remarks and participant reactions*

**P. Brown** of NRCan confessed that when starting to plan for the workshop, his organization had felt some trepidation in exposing policy-in-progress to open scrutiny. As planning progressed, however, all came to feel that the workshop was exactly what was needed. It contributed to building relations among Canadian stakeholder communities at the outset of the new phase in Canada's RWM programme. Feedback on the Canadian context was gained along with thoughtful insight generated by interactions among the diverse group of participants. Mr. Brown was confident that the experience would reinforce the fabric of the Canadian programme.

**C. Pescatore** of the NEA recalled the FSC mandate to provide member countries opportunities to learn from one another, to come to a shared understanding of commonalities and differences and, ultimately, to grow together. The range of presentations and the rich discussions contributed to those goals. The workshop was an efficient learning process: along with the interesting Port Hope story, the whole national programme was showcased. In a few days, delegates came to see the size and shape of the problems, the actors at play, the solutions brought to bear, and the major issues. He agreed with feedback from a rapporteur that the international workshop was a context for building shared moral wisdom about how society should manage radioactive waste. Mr. Pescatore expressed the participants' satisfaction in witnessing a defining moment in Canada's search for long-term solutions for radioactive waste management.

FSC members and first-time participants found the workshop to be "useful" and "valuable" with a very "high quality of presentations". It brought together Canadian stakeholders from across contexts and from across the huge territory - some of whom knew each other well, and others who otherwise may never have met. Participants "thoroughly enjoyed meeting international delegates with whom we all share a common bond" and "sharing ideas around our table". The next workshop is looked forward to as a new opportunity to reinforce "the progress we are collectively making".

## INTERNATIONAL PERSPECTIVE

### NEA Secretariat

The workshop dealt with two distinct cases:

- In Port Hope - an existing situation impacting a set of communities affected by the nuclear fuel industry since the 1930's. This situation concerns the remediation of soil "tainted" by a low level of radioactivity resulting from the processing of uranium. The facility that produced those wastes is still in town but it has changed ownership and it no longer stores or disposes of the waste in the area.
- The issuance and upcoming implementation of the *Nuclear Fuel Waste Act (NWF Act)* charting a path towards the identification of a national, long-term management solution for nuclear fuel (high level) waste in Canada. The *NWF Act* restarts a process that was interrupted a few years ago, after the Seaborn Environmental Assessment Panel concluded that the solution proposed by proponent Atomic Energy Canada Ltd. had not been demonstrated to have broad public support.

From an international perspective, numerous observations can be made and lessons can be drawn both from the individual and the combined cases. Some of the most prominent observations, in the view of the NEA Secretariat, are presented hereafter.

#### *Driving the process requires both determination and framework*

The Port Hope case study gave insight into a highly successful process of solving the low-level waste issue affecting local communities. A coherent, community-driven approach gradually emerged out of a twenty-year history. Municipalities came to the realisation that they had to take the waste problem into hand, and reached out to form a collaborative dialogue with the federal government. Strong municipal leadership set up processes to identify preferred technical solutions, and negotiated accompanying measures that satisfied the communities. Outstanding aspects of this experience include:

- the engagement by local players to solve their problem,
- the determination of local and federal players to come to a mutually agreed resolution,
- the attention given to developing a comprehensive solution (including both technical features and property value protection or development features)
- the willingness to take the time needed to discuss and learn.

This case study demonstrates that siting and management solutions can be worked out in partnership and that affected communities can elaborate desired options. The determination of the local and federal players and drivers of the process emerge as paramount to the success of the initiative. The process, however, could not have developed if effective *frameworks* for decision making had not been constructed. Among the first framework elements structuring the Port Hope dialogue was the Government's decision to follow a

Cooperative Siting Process recommended in 1987. Key in this process were the respect for the host communities' interests, the Government's willingness to accept the community-driven process, and the right given to the municipalities to decide eventually not to proceed with the project if they judge that their concerns cannot be alleviated. The second framework resulted from the ensuing dialogue among the local and federal partners; a formal Legal Agreement was signed that established the terms under which the project, the Port Hope Area initiative, would proceed. Finally, the EIA framework will provide structure for the further evolution of the conceptual technical approaches defined in the Legal Agreement.

Thus, driving any process requires both determination and a framework within which organisations and individuals know their roles and through which commitments can be taken. Additionally, a wider finding is confirmed: community veto power, even informal, helps win local players to the dialogue.

#### *Risk and safety are evaluated at several levels*

The Port Hope community has been living with nuclear industry activities since the 30's. "Tainted soil" was not identified, nor seen as a potential health problem, until the 1970's.

After the more dangerous residues were removed from the community, the latter, through discussion, has come to see the residual waste as posing few health risks, and health and safety have receded as primary concerns. Concerns rose however to a more important level regarding impacts on the economic viability of the town. Stigma arose from more distant communities' perception (largely amplified by the media) that Port Hope was an unhealthy living environment. Ultimately, the proposed solution developed in Port Hope is meant to improve the image of the community and remove the stigma, while preserving safety. The community's conceptual solution rests on building a readily accessible and monitored surface facility.

The Secretariat observes that assessments of risk can be very dynamic in time, location and factors of influence. More than the actual radiological risk comes into consideration. In particular, feelings of being in control of the waste and of being active in formulating the solution each seemed to play an important role in allaying risk in the Port Hope community.

One important issue in any national solution is the long-term sustainability of active control. The Environmental Impact Assessment (EIA) can be a critical platform for discussing and addressing the conflicting aspirations of active control and long-term passive safety, as seen already in e.g., Finland.

#### *Develop solutions that make communities grow*

The Port Hope Agreement provides for growth on a number of levels: the physical activities leading to new management facilities bring infrastructure benefits and reinforce the local service economy. The form chosen for the facility will allow attractive leisure activities to be developed for residents and for a significant regional market. A host fee, placed in trust until such time as the facility will be licensed, was provided in recognition of the communities' service to the nation and to mitigate any future impacts resulting from the clean-up programme. This fee will cushion the long-term municipal economy, and the interest earned today on the principal provides available moneys for community development.

In all urban development situations it is necessary to find a management solution that not only reduces unwanted impacts but also lets the community grow as it sees fit. It is now an important acquired principle in radioactive waste management world-wide to accompany siting efforts with cogent local and regional

development schemes taking into account the views of the affected communities. The AkEnd siting process recommendations in Germany, and the siting programme undertaken by NUMO in Japan, are two strong examples seen in 2002.

### *Special role of the nuclear host communities*

Nuclear host communities—where the waste is stored already in a semi-permanent way or where waste is being produced—tend to be the communities most interested in having a permanent, safe solution brought to bear. They have also a level of familiarity with industry, knowledge of the dangers and control of radioactivity, as well as an interest for continued partnership with industry and government with a view to long-term community development. A dialogue can develop more easily with these communities than with non-nuclear communities, and experience worldwide shows that it is with nuclear host communities that progress in facility siting has been made quickest. This trend is also confirmed in Canada as shown by the Port Hope Initiative and as suggested by the positive attitude to dialogue expressed by the President of the Canadian Association of Nuclear Host Communities (CANHC).

At the same time, the recent founding of the CANHC provides confirmation that nuclear host communities are starting to federate with one another thereby becoming even more important and more knowledgeable players. This trend is clearly visible in Europe through the activities of the association of European nuclear host communities (GMF).

### *A combined technical and societal focus*

The Canadian nuclear fuel waste policy embodied in the *NFW Act* represents a combined technical and societal focus on both process and outcome. This combined focus is also visible in the dealing with the Port Hope waste issue. Overall these examples are in line with world trends towards putting greater effort into integrating societal considerations that influence public confidence in RWM activities.

The Secretariat observes that succeeding in a risk governance endeavour of such magnitude implies a strong capacity for broad public information and involvement. That represents a challenge in every national context. Advances are being made in many countries through, *inter alia*, initiatives under the umbrella of EIA requirements.