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Congress 2008 – Gallery

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PRESIDENT'S COMMENTS

Bernard Forteath

It is both an honour and a privilege to be elected to the position of President of the International Federation of Environmental Health. When the Federation was formed back in 1986 our first President was Roy Emerson from England. He was followed by Ron Spratt from Australia, Eric Foskett from England, Haji Ungku Bakar from Malaysia, Mike Halls from Scotland, Kia Regnér from Sweden, Lars Olsen from Norway, Diane Evans from the USA, Jerry Chaka from South Africa and Colm Smyth from Ireland. Every President brought new ideas, enthusiasm and drive to the post. Each has made a significant contribution to environmental health, not only in their own country, but internationally. So I am very well aware of the responsibility that is now mine following my election as your President. I would, therefore, like to thank the members of the Federation for giving me the opportunity to lead this important environmental health organisation and I look forward, over the next two years, to working closely with members throughout the world.

May I also take this opportunity to thank the outgoing President, Colm Smyth, not only for his friendship and good humour over the past few years, but also for his hard work on behalf of the Federation, particularly in the area of Environmental Health in Disasters and Emergencies (EHiDE). In June 2006, at the Council meeting in Dublin, the IFEH agreed to promote this initiative set up to support international relief and development aid agencies. The initial group of environmental health officers involved in setting up EHiDE included Colm and our Treasurer, Steve Cooper. We all hope that the services of EHiDE will not be required but, realistically, we know that sometime in the future the services of properly trained environmental health professionals will be called upon following the declaration of an emergency somewhere in the world. The Federation is happy to support this work.

Twenty years after the inaugural World Congress held in Sydney we returned to Australia for the 10th World Congress on Environmental Health in May this year. The Congress took place in the Brisbane Convention and Conference Centre and was organised by the Australian Institute of Environmental Health. The 2008 World Congress Organising Committee, under the Chairmanship of Dr Peter Davey, produced a very successful programme of topical environmental health issues with speakers coming from all around the globe. So interesting was the Congress programme that it was often difficult, with so many concurrent sessions, to decide which session to attend. Our congratulations and thanks are therefore due to President Dr Jim Smith, Peter Davey, Waikay Lau and many others for a job well done. During the Congress our hosts, the Australian Institute of Environmental Health, changed their name to Environmental Health Australia and the Federation take this opportunity to wish the 'new' organisation continued success in the future. This was my first visit to Australia and I left with many happy memories, not only of a beautiful country, but of the genuine warmth shown to the visitors from overseas.

In the months leading up to the Congress I was asked on a number of occasions what I hoped to achieve during my term of office. Like every President before me I would like to see the number of member organisations grow and see the Federations' sphere of influence increase, particularly through the working of our Regional Groups. It is also essential that the senior office bearers of the Federation keep in touch with the membership so I am very happy that the Council agreed to my proposal to start a quarterly e-newsletter to be made available to members through our excellent web site. Although some of the preparatory work to start off the Newsletter is ongoing I hope that in the next few months the first edition will be available to complement our twice yearly Federation magazine. Of all the issues that involve environmental health professionals all over the world climate change must rank as the most important. It would be gratifying to think that the Federation could influence national governments to become serious about climate change, and by that I mean to tackle the major causes of climate change and not the easy headline grabbing issues. Clearly if we stayed at home and did not travel by air, road or sea we would reduce pollution but while we agonise over our addiction with travel we tend to overlook one of the main causes of climate change for at least half a century, forest destruction. One report I read recently warned that rainforest destruction alone would, in the next four years, release more carbon into the atmosphere than every flight from the dawn of aviation until 2025.

The unnecessary burning of forests, apart from putting large quantities of greenhouse gases into the atmosphere, also removes the ability for the trees to soak up carbon from cars, factories and power plants. It is estimated that a fifth of the entire Amazon has now been cleared. According to one report something like the area covered by six football fields a minute is destroyed. As long as the land covered by forests is more valuable as farm land the destruction of the rainforest will continue with the inevitable adverse effect on the world's climate. What can we do? Well the Federation must take every opportunity to influence national governments about the importance of protecting endangered rainforest so that they in turn can put pressure on countries who allow this to happen. And as individuals we can become involved with charities such as *coolearth*. *Coolearth* is a charity that protects endangered rainforest by investing donations to secure threatened rainforest and to put it into a local trust. This is a simple but nevertheless effective way of helping to take rainforests out of the hands of loggers and keeping them safe for future generations.

Finally, this is the last magazine to be produced by the Federation's Honorary Editor, John Stirling. John, who is a member of REHIS, has decided to step down from the post which he has held for ten years. John and I were students together in the mid 60s, the 1960s and not the 1860s as some would have it, and it has been a privilege to work with him again. In recognition of the significant contribution made by John to the work of the Federation he was recently awarded the Eric Foskett Award. On behalf of the Federation I would like to thank John for his hard work and dedication over such a long period …. not many national newspaper editors last this long in the job! Well done John. Hadrian Bonello, from the Malta Association of Environmental Health Officers, will take over as Honorary Editor.

Deadline for submission of articles for the next issue is 1st January 2009

The Hon. Editor, Hadrian Bonello, can be contacted at:

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OUT WITH THE OLD AND IN WITH THE NEW

by John Stirling, Honorary Editor

In 1998 when I proposed that I publish a Magazine on behalf of the Federation I did not know that ten years later I would be saying *au revoir* to the members and office bearers without whom I could not have achieved the success that the Magazine has been and I am please to say I have developed excellent friendships with many of them..

In the beginning I envisaged publishing Environment and Health International twice a year and over the last ten years I have achieved this aim, with the exception of the current year when three issues have been published. I was unsure when I made the offer if it would be accepted, how wrong I was. I am indebted to Eric Foskett and Mike Halls who immediately seized on the idea and over the ensuing years provided all the support, advice and assistance any editor could want.

Unfortunately Eric was taken from us, however not before he could see the Magazine develop into what it is today. Mike Halls, however, is still around and has over these ten years provided me with a proof reading service second to none.

The job of an editor is always easier when the material comes rolling in and articles I have had in abundance and I take this opportunity of asking contributors to support my successor in similar fashion.

I have enjoyed myself and have been allowed to indulge my passion for anything to do with

Environment Health and at the same time provide cover photographs from a variety of sources that I found to be pleasing. This issue is not an exception, as I have been fortunate in securing a photograph from my good friend Victor Partridge of hills very near my home hear in Edinburgh, Scotland. Friendships have been developed via email, and whilst I may never meet these new friends I am pleased to be able to call them my friends.

In thanking those who have given me assistance and advice I include all the Presidents, Secretaries, Treasurers, contributors and, of course, our Company Secretary Graham Jukes who have served or made contributions during the past ten years. Special mention must be made of Mike Halls who has assisted me and was always there to encourage me throughout the ten years of my term as Editor and beyond in my career in Environmental Health, Henning Hansen one of the webmaster who, like Mike, has been an excellent sounding board for me and has ensured that the Magazine appeared on the Federation's website, Honorary Vice President Fred O'Brien who has been a regular contributor to and supporter of the Magazine, Diane Evans, Past President, and last, but by no means least, Jerry Chakka, without whose help and assistance I would not have been able to get so many good articles from Africa and, in my opinion, ensured that the magazine grew in status. I cannot finish my thanks without a special mention to our current President Bernard Forteath. I trained with Bernard and have always valued his opinions on Environmental health and we have maintained a friendship that has endured more than 40 years.

The one thing that has always amazed me with the Federation is the wealth of talent we have within our ranks and it came as no surprise to me that we readily filled the vacancy of Honorary Editor with Hadrian Bonello. Hadrian is presently Principal Health Inspector at West Region, Zebbug, Malta, and is a Member of the Executive Committee of the Malta Association of Environmental Health Officers and is currently Vice President of the Malta Association of Environmental Health Officers. As a Member of the Executive Council of the MAEHO he had direct responsibilities for their Website and Magazine. I have been fortunate in seeing what Hadrian plans for his first edition of E&HI to be published in 2009 and I like it. He will be able to take the Magazine to another level and I wish him well.

To each and every member and associate member of the Federation I thank you for sharing your enthusiasm of Environmental Health with me and for your friendship. Good luck and good health, John

FINAL COMMENT

Mike Halls, Past President of IFEH, Honorary Vice President and Past Secretary of IFEH

As I sit at my computer to compose what is intended as my final contribution to this excellent magazine, I can see from the window the rolling hills and valleys of my native Scottish Borders and, as is often the case, I remember to count my blessings, one of which is to have been born and raised in this beautiful environment.

There are other blessings that I count whenever I feel in the mood and one is to remember to be glad that I chose Environmental Health as my profession. Being an Environmental Health Officer (EHO) has enabled me to be in a position to try to make a difference to peoples' lives and few can cavil at the idea that EHOs do change the lives of those whom they serve.

When I first joined the local authority in my home town as an Apprentice Burgh Surveyor & Sanitary Inspector (!), little did I know that I would be quite so privileged but, at a very early stage, I knew that I was cut out for the work that was to come my way over succeeding years. At that same early stage, I was "encouraged" to join the body which looked after the interests of the Environmental Health profession and one did not disagree to "encouragement" from the boss!

Thus I commenced a journey into a career and a profession that has left me grateful, satisfied and very humble. In those early days I joined the Royal Sanitary Association of Scotland, which was the body which awarded the Certificate in Sanitary Science etc, which was the qualification necessary to practise as a Sanitary Inspector; but I was also persuaded to join the Sanitary Inspectors' Association of Scotland, which acted more as a quasi-Trade Union for such Inspectors.

In due course, these two venerable organisations (which trace their origins back to 1875) merged to form the Royal Environmental Health Institute of Scotland (REHIS) and it is a matter of some personal pride that I was, with others, instrumental in ensuring that the merger was implemented.

A few years after the new organisation was formed, an approach was made to REHIS to meet with colleagues in other parts of the British Isles to discuss the possibility of setting up an international organisation. The impetus for the proposal had come from the then Institution of Environmental Health Officers (now the Chartered Institute of Environmental Health or CIEH) which had as its principal aim the interests of EHOs based in England, Wales & Northern Ireland, and the preliminary discussions were also attended by representatives of the Environmental Health Officers Association of Ireland.

There has always been a sort of crusader spirit amongst the peoples of the British Isles, and that spirit was manifested in agreement being reached very quickly on the principle of founding an international organisation and, in the fullness of time, that organisation was formed and took as its title The International Federation of Environmental Health (IFEH). By the time of its birth, the concept had also been embraced by the Australian Institute.

Because I had been involved in the initial meetings, I continued, with other colleagues from Scotland, to represent REHIS in the discussions and these were to lead to a period in which I had the very great pleasure of travelling to many parts of the World and, more importantly, of meeting some amazing, innovative, sincere and dedicated persons whose interests coincided with the aims of IFEH.

In the years between 1988 and 2006, I was fortunate enough to attend every one of the nine World Congresses held in places as far away as Australia and South Africa and as close to home as Aberdeen, Brighton and Dublin. These visits were all memorable, in their own way and without exception reflected the culture of the countries hosting the events. Each brought to its audience thought-provoking and topical debate and discussion on environmental and health problems and solutions. I count myself as privileged to have been present at all these events but it is that World Congress in Aberdeen in 1996 which stays in my memory as the most memorable.

It was at that Congress that I took over the role of President of IFEH, a post I held until the succeeding Congress in Stockholm in 1998 and I will always treasure the opportunity that that appointment gave me to continue to attempt to make a difference to the lives of people, not only in my homeland but in other parts of the World. The position of President is mainly symbolic but gives the holder a certain status and I hope that I used the status thus gained for the good of Environmental Health Professionals and their Associations across the globe.

It was in 1998, however, that I had the opportunity to do even more for IFEH when I was fortunate to be elected as its Honorary Secretary, a post I held until 2006. During that time, I worked with so many good and loyal friends and will not try to identify everyone who falls into that group. It would be remiss of me however, in looking back at the last 20+ years, not to mention two persons who affected me - first in an inspirational way and second in a supportive role.

My inspiration during all the years that I worked for IFEH was motivated by the regard and fondness that I had (and still have) for the late Eric Foskett. It was he who had the original idea of forming the organisation that is now IFEH and his enthusiasm rubbed off on me "big time". Eric was a kind and generous man with an intellect to match his physical size and he never wavered from his aim of trying to make IFEH a power in global heath & environmental protection. He is remembered as the father of IFEH and is commemorated biennually in the handing over to a worthy recipient of the Award that bears his name.

It is fitting that in this my last year as a contributor to "Environment & Health International" ("EH&I") that I pay tribute to the latest recipient of that Award,

John R Stirling, whose last edition this is. I have known John for more years than I care to remember, first because of our common interest in REHIS but more recently (from 1998 until now) because of his work as Editor of "EH&I". John has brought to the post of Editor an enthusiasm and a dedication that have ensured that the quality of the magazine or of its contents has never been compromised.

Being the Editor of such a journal can be quite difficult, particularly when one is approaching the publication deadline and one doesn't have enough to fill the requisite space. It is a testament to John's performance as Editor that on very few occasions during his tenure did he fail to fill the magazine with topical and interesting articles and news. I think that one of the great strengths of "EH&I", apart from its content, is John's use of photographs, particularly those that have adorned the front page – sometimes awe-inspiring, sometimes intensely personal but never dull.

During all his time as Editor, John has used me as a sounding-board and as a proof-reader and I am proud to have been involved with him in achieving for the magazine the position it now holds. John has always given unwaveringly of his support to me during my many years working for IFEH and my gratitude is due to him for all the assistance he has rendered.

Now, as I complete this article, I note that the view I referred to at the start is somewhat obscured by drizzle and low cloud but I know that it is still there and I still count myself as blessed in so many ways. So, I think again, how lucky I have been to serve the World environmental health community and, although I will now be out of the mainstream, I will watch from afar the progress of IFEH. I wish earnestly that the Federation continues to grow and to make a difference to the health & environment of the global village.

To all the many friends that I have made over the last 22 years, I say "thanks for the memories"!

Michael Halls
September 2008

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The Hon. Editor, Hadrian Bonello, can be contacted at:

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INTERNAL DISPLACEMENT: A GLOBAL ENVIRONMENTAL HEALTH CHALLENGE

By Fred O'Brien

Honorary Vice President IFEH

Fred O'Brien, Chairman, IFEH, delivers paper: *Networking, Technology Centres and Environmental Health: Towards a Science of the Heart* at the European Conference on Cooperation in Environmental Technology, Cologne, Germany 1991

Introduction

Displacement, in the words of UN Secretary-General Ban Ki-moon, is "arguably the most significant humanitarian challenge that we face". In 2007, the total number of conflict-induced internally displaced persons (IDPs) worldwide increased by 3.7 million from the previous year to a staggering total of 26 million, the highest number ever recorded. These people were seeking shelter after being forced from their homes. Some 9.3 million live in 10 countries whose governments are indifferent or hostile to their protection needs. The fact that a great many of them have been denied physical security and integrity, the basic necessities of life, economic, social and cultural needs and live under environmental conditions inimical to human health, cries out for redress.

The findings outlined above are to be found in the report: *Internal Displacement: Global Overview of Trends and Developments in 2007*, released in April 2008 by the Internal Displacement Monitoring Centre (iDMC) of the Norwegian Refugee Council. The full report (98 pages) can be accessed at: http://www.internal-displacement.org/

A brief overview of the global findings in the report and of the IDP numbers in the European Region has been compiled for this article in the following two tables. Note that numbers for Georgia, the Russian Republic and Turkey have been interpolated. Figures for the other constituent regions of the IFEH body

can readily be compiled from the iDMC document.

Denial of Environmental Health Conditions Supportive of Life is a Crime against Humanity

Recent developments in the UN family of organisations has opened the door for NGOs to become committed champions and willing collaborators with UN agencies and national Governments in redressing wrongs that imperil peoples' safety. The International Federation of Environmental Health (IFEH) is strategically placed to marshal its resources and exert an important responsibility-to-protect influence in areas of the world where environmental health rights are trampled upon. It is important to note that a 'responsibility to protect' approach has been enshrined in the objectives and policies of the International Federation of Environmental Health from its earliest days (cf. Policy 1/ Alma-Ata IV; and Policy 8, bullit 2). IFEH Policy Statements can be accessed at www.ifeh.org - go to Activities & Projects.

In September 2005, Heads of State and Governments from 170 countries at the UN World Summit gave unanimous approval for the adoption of "A Responsibility to Protect" doctrine which required UN intervention for crimes against humanity. Environmental health matters figured prominently in the discussions. At the world summit all states acknowledged not only their obligation to protect their own people, but more crucially, that the international community has a duty to step in on behalf of civilians at risk of crimes against humanity, whenever a government is either directly responsible for these crimes or incapable of stopping them.

In March, 2006, the UN General Assembly (GA) established the new Human Rights Council as a subsidiary body of the GA to replace the Commission on Human Rights. A procedure to lodge complaints has been agreed and the submission of reports on environmental health circumstances affecting displacement victims, and falling within the complaints procedure criteria may be submitted to:
Human Rights Council and Treaties Division
Complaint Procedure
OHCHR-UNOG
1211 Geneva 10, Switzerland

The holding of persons accountable for environmental health crimes against humanity under international law is governed by the International Court of Justice and the International Criminal Court.

Role of the IFEH

The International Federation of Environmental Health is a non-governmental organization of national organizations representing some 50,000 environmental health professionals in 37 member countries world-wide. Since its incorporation in 1986 it has actively promoted care for the environment in the interest of human health through a variety of means, including, among other things, the holding of ten world congresses and publication of the proceedings; the adoption, publication and dissemination of global position papers, the establishment of a comprehensive webpage - http://www.ifeh.org , and the wide circulation of its publication *Environment and Health International*.

The Federation, in addition, is active in the field through its members, and benefits from the accumulated knowledge, experience and expertise of Environmental Health Professionals working around the world, including in areas of great deprivation and in disaster struck communities. Through *Environmental Health in Disasters & Emergencies* (EHiDE) it is working to make available environmental health personnel to international aid agencies and to enhance environmental health disaster preparedness worldwide.

The Federation promotes a holistic approach to environmental sustainability and encourages inter-sectoral collaboration, multidisciplinary and community-participative activities, and the utilization of meaningful sustainability indicators to inform good environmental health management practices at local, regional and international levels.

IFEH has an important responsibility and significant opportunity to promote improved environmental health services to internally displaced persons worldwide. Through its regional groups (Africa, The Americas, Europe (EFEH), Asia & Pacific, and the Middle East) it can more effectively address this most significant humanitarian challenge on both a regional and global front.

Reach for the Skies

In conclusion I would like to quote Louise Arbour, recently replaced UN High Commissioner for Human Rights, and a champion of social justice:

Far from being a leap into wishful thinking, the responsibility to protect norm is a practical response to today's human security challenges. .Instead of ritually claiming the status of impotent bystanders in the face of sovereign power's abuse or force majeure, all States should clearly assess and act upon the scope of the responsibility that they willingly accepted as their own. Louise Arbour (23 November 2007)

Internal Displacement Global Overview of Trends and Developments in 2007

Conflict-related IDPs Dec 2007	26 million
Countries affected	At least 52
Most affected continent	Africa - 12.7 million in 19 countries
Countries where most IDPs were exposed to serious threats to security and integrity	10 countries
Countries where most IDPs faced obstacles to access the basic necessities of life	10 countries
Countries with govs or occupation forces involved in deliberately displacing people	21 countries
IDPs without any significant humanitarian assistance from their governments	11.3 in at least 13 countries
IDPs faced with governments indifferent or hostile to their protection needs	9.3 million in at least 10 countries

Source: Norwegian Refugee Council Internal Displacement Monitoring Centre

Internal Displacement in Europe in 2007

Conflict Related IDPs in Europe	Total: 2,691,390
Armenia	11,000
Azerbaijan	690,000
Bosnia and Herzegovina	132,000
Croatia	3,200
Cyprus	210,000
Georgia[1]	233,000
Macedonia	790
Russian Federation[2]	89,000
Serbia	247,000
Turkey[3]	1,075,000

[1] *222,000-247,000 page 91 From Norwegian Refugee Council IDMC 2008 Report:*

[2] *19,000-159,000 page 93 Internal Displacement: Global Overview of Trends & Development 2007*

[3] *950,000-1,200,000 page 94*

10TH WORLD CONGRESS ON ENVIRONMENTAL HEALTH, BRISBANE, AUSTRALIA

Jim Smith, DrPH, LFEHA National President, Environmental Health, Australia

The Federation's 10th World Congress on Environmental Health was conducted in Brisbane, Australia, from 11th-16th May this year. The Congress also marked the Australian Institute of Environmental Health's 34th National Conference and the 68th Queensland Branch Conference.

The Congress was particularly significant for Australia in that 20 years ago the Inaugural World Congress was held in Sydney and it was fitting that Mr. Ron Spratt, Mr. Vic Andrich and Dr Peter Tyler, three veterans who were instrumental in the development of both the Australian Institute of Environmental Health and the Federation was present at the Opening Ceremony.

The Congress was six years in the making and the broad theme of "*Environmental Health, a Sustainable Future - 20 years on…*" was adopted for the Congress and this was supported by the following key sub-themes:

- Climate Change and Environmental Health;
- Urbanisation and Governance for Sustainable Development;
- Environmental Health Crisis Management and Risk Communication; and
- Capacity Building: Smart technology and tools.

The diligent planning undertaken by the Organising Committee, chaired by Dr Peter Davey, was reflected in the lead up to and as part of Day 1 of the Congress, when the Queensland Government and the City of Brisbane hosted a State and Civic Reception, respectively. Both receptions were full house affairs. The results of the planning for the Congress were further reflected in the opening activities commencing with the flag bearing ceremony and serenading by the MacGregor Primary School Senior Choir. On seeing the pivotal participation of the school children, Aunty Velda Coolwell, who was representing the Brisbane Council of Aboriginal Elders, remarked that this is what environmental health is all about, the children and the future generations.

Traditional dances were also performed by two Aboriginal and Torres Strait Island dancing troupes reminding delegates of the strong and sustainable relationship between aboriginal peoples and the land. One particular highlight was the making of fire from rubbing two pieces of wood together. In a direct way this symbolized promethean fire and the bringing of gift of life and enlightenment to the Congress by aboriginal people.

The Opening Ceremony included also a welcome by His Excellency Major General Michael Jeffery, Governor General of the Commonwealth of Australia, and Aunty Velda Coolwell, Brisbane Council of Aboriginal Elders, and was officially opened by Karen Struthers MP, Parliamentary Secretary to the Minister for Health. The Governor General clearly spelt out the importance of environmental health to the community in its reliance on practitioners to undertake critical public health protection roles, however, it was equally important that the mantle of environmental health leadership be taken up at both global and local levels. This is the role he expected of the Federation and its members.

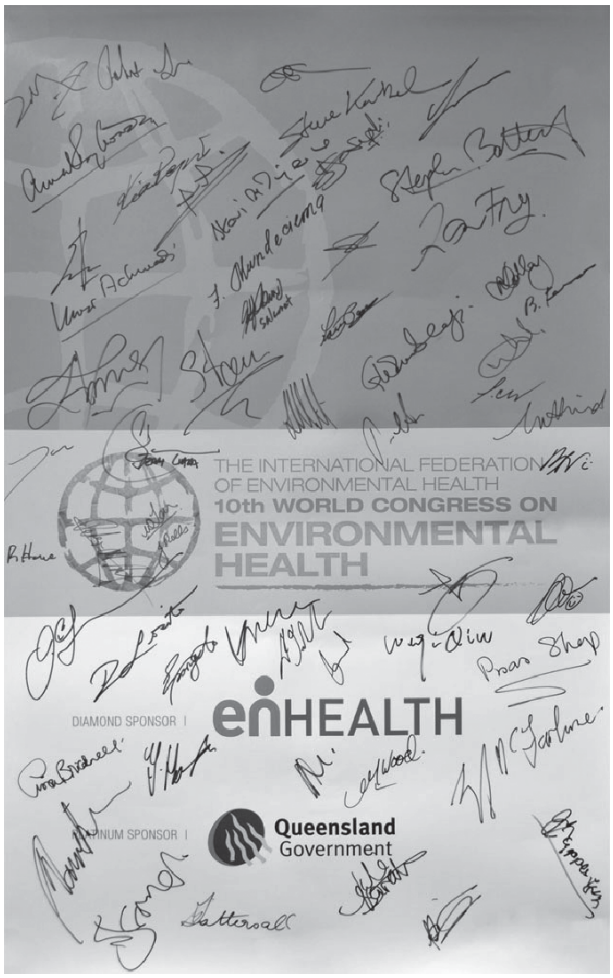
Over the course of the Congress, over 100 concurrent sessions were held with more than 120 keynote and co-presenters on stage presenting to delegates. Keynote speakers and presenters included Professor Ian Lowe who addressed sustainability and climate change, Emeritus Professor Valerie Brown who addressed environmental health…*Hope for the Future*, and Gary McFarlane from the Chartered Institute of Environmental Health in the UK who called for urgent action from all Environmental Health Professionals to address climate change and its impacts on the global and local communities.

The underlying message coming out of the presentations and discussions at the Congress was that that public and environmental health is becoming increasingly complex. This complexity was a result of a complicated and dynamic mix of interdependent social and environmental determinants which have a direct public health and economic impact within local communities. Distance is no longer a defence or barrier to these impacts and what happens in one country will directly impact on other countries. Climate change impacts are forcing further changes in how environmental health is viewed and, importantly, increasing the demands for ever improving skills and knowledge which means that Environmental Health Officers and Practitioners need to ensure that they undertake continuous professional development.

A total of five technical tours were conducted on Day 5 of the Congress with many delegates expressing their enjoyment and satisfaction on the linkages between the technical tours and the Congress Themes.

The main outcome of the Congress was the development of a draft ***Brisbane Environmental Health Charter***. This draft Charter documented the principal environmental health issues and solutions that as environmental health leaders we needed to prioritize and address for the benefit of future generations. The emphasis is on action including the development of new approaches to the impacts of climate change, engagement of communities, integrating planning efforts to address environmental health issues, supporting disadvantaged communities, developing educational competencies in environmental health, building emergency management capacity, and continuing professional development.

At the Closing Ceremony the delegates from each IFEH member on behalf of their membership showed their commitment to the outcomes of the Congress by the symbolic signing of the draft Brisbane Environmental Health Charter in front of over 550 delegates attending from over 50 countries. The draft Charter is now undergoing a consultation process as agreed at the Congress, and, after the feedback has been collated and the draft revised, the final draft documents will be presented at the 2009 IFEH Council meeting in Singapore.



…supported and signed by Congress participants in the 10th IFEH World Congress Closing Ceremony on 15 May 2008…

ROLE OF WOMEN IN SANITATION: A MULTIFACETED REVIEW

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Abstract
In most cultures, women have the primary responsibility for water, sanitation and hygiene at the household level. Women play a crucial role in influencing the hygiene behaviour of young children. The effective use of sanitation facilities will therefore depend on the involvement of both women and men in selecting the location and technology of such facilities. It is also essential that facilities are designed to accommodate the special needs of children. The availability of water and sanitary facilities in schools can reduce the likelihood of girls dropping out. The design of the latrine and the location of water points and toilet facilities close to the home can increase women's health and dignity – and ultimately reduce violence against them. All too often, however, decisions about the design and location of water and sanitary facilities are made without the involvement of users – especially female users. So the women are the key to the success of sanitation programmes, as they are more likely than men to take care of household duties such as collecting water for their families, washing clothes and dishes, cooking and handling food, and ensuring that children wash their hands and bathe. Because of these factors, women play a central role in efforts to create hygienic conditions in the home and to halt the transmission of disease.

Introduction
Sanitation is the hygienic means of preventing human contact from the hazards of wastes thus promoting health. Hazards can be physical, microbiological, biological or chemical agents of disease. Wastes that can cause health problems are human and animal faeces, solid wastes, domestic wastewater (sewage, urine, sullage, and greywater), industrial wastes, and agricultural wastes. Hygienic means of prevention can be by using engineering solutions (e.g. sewerage and wastewater treatment), simple technologies (e.g. latrines, septic tanks), or even by personal hygiene practices (e.g. simple hand washing with soap).

The term "sanitation" can be applied to a specific aspect, concept, location, or strategy, such as:

Basic sanitation - refers to the management of human faeces at the household level. This terminology is the indicator used to describe the target of the Millennium Development Goal on sanitation.

On-site sanitation - the collection and treatment of waste is done where it is deposited. Examples are the use of pit latrines, septic tanks, and imhoff tanks.

Food sanitation - refers to the hygienic measures for ensuring food safety.

Environmental sanitation - the control of environmental factors that form links in disease transmission. Subsets of this category are solid waste management, water and wastewater treatment, industrial waste treatment and noise and pollution control.

Ecological sanitation - a concept and an approach of recycling to nature the nutrients from human and animal wastes. (Pacey, 1978)

Sanitation is a basic, as well as a long-standing, public health issue. When early peoples settled in communities and started to cultivate crops and raise animals, sanitation became a primary concern for society. *(Morgan, 1997)*.

The United Nations Millennium Development Goals (MDGs) include a target to reduce by half the proportion of people without access to basic sanitation by 2015. In December 2006, the United Nations General Assembly declared 2008 'The International Year of Sanitation', in recognition of the poor progress that has been made towards the MDGs sanitation target. The year aims to develop awareness and action to meet the target. Particular concerns are:

- Removing the stigma around sanitation, so that the importance of sanitation can be more easily and publicly discussed.
- Highlighting the poverty reduction, health and other benefits that flow from better hygiene, household sanitation arrangements and wastewater treatment.

Research from the Overseas Development Institute suggests that sanitation and hygiene promotion need to be better 'mainstreamed' in development, if the MDG on sanitation is to be met. At present, promotion of sanitation and hygiene is mainly carried out through water institutions. The research argues that there are, in fact, many institutions that should carry out activities to develop better sanitation and hygiene in developing countries. For example, educational institutions can teach on hygiene, and health institutions can dedicate resources to

preventative works to avoid, for example, outbreaks of cholera. *(ODI, 2006)*

Poor sanitation is a major source of disease and mortality. Globally less than half the population had access to adequate sanitation facilities such as a connection to a sewer or septic tank system, a pour-flush latrine, a simple pit latrine or a ventilated improved pit latrine. Sanitation is the most important medical advance since 1840, according to a reader survey in the British Medical Journal. Improved sanitation reduces cholera, worms, diarrhoea, pneumonia and malnutrition, among other maladies, that cause disease and death in millions of people. Today 2.6 billion people, including almost one billion children, live without even basic sanitation. Every 20 seconds, a child dies as a result of poor sanitation. That equates to1.5 million preventable deaths each year. . Sanitation was championed by Prof. Johan Mackenbach, of Erasmus University Medical Centre in Rotterdam. "The general lesson which still holds is that passive protection against health hazards is often the best way to improve population health", he said. Sanitation has "probably saved the most lives of all medical interventions that have ever been developed". (*WHO, 1996; Afonso, 1998)*

After Nepal (with 30 percent coverage), India has the poorest sanitation figures in south Asia with approximately 33 percent sanitation coverage as compared to Sri Lanka (the highest in the region) with over 85 percent coverage. Only 20 percent of rural households in India have access to a toilet. The lack of adequate sanitation coverage and water supply coupled with low hygiene awareness levels in villages results in 500,000 children below the age of five dying each year; a colossal and completely avoidable loss of life. The annual burden on the economy due to the lack of sanitation results in a loss of 180 million person days or Rs. 1200 crores (US$ 26 million). The investment required on the other hand to ensure adequate coverage is only Rs. 700 crores (US$155 million). Improved disposal of human waste protects the quality of drinking water sources. Re-use of composted waste for agriculture is an environmental, as well as economic, gain. At present, each year more than 200 million tonnes of human waste – and vast quantities of waste water and solid waste – go uncollected and untreated around the world, fouling the environment and exposing millions of people to disease and squalor. (Regmi, 1999

In 1983, the World Bank formed a Technical Advisory Group, with its members and also funds drawn from the Government of India, UNICEF and the United Nations Development Programme (UNDP). The Technical Advisory Group supported a variety of sanitation studies and demonstration projects. The Government launched the Centrally Sponsored Rural Sanitation Programme (CSRSP) in 1985. Through this key programme, the Government allocated funds and prepared guidelines for a sanitation programme focused on rural areas under a wider housing programme. In 1986, the Technical Advisory Group completed its work and recommended adoption of locally built twin-pit pour flush (TPPF) latrines as the most cost-effective option for both rural and urban areas. The Government accepted this recommendation as the standardized latrine design for the country. In 1986, the Government approached UNICEF for funding support and invited the organization to become a full-fledged CRSP partner. UNICEF launched a series of area-based micro-projects in rural sanitation in 1986-1987, as an instrument of advocacy and a way to learn from the field. As the results began to emerge, informal dialogues continued between UNICEF and the Government about alternative approaches to the TPPF. *(UNDP, 2002; Manikutty, 1998)*

Particularly in deep rural areas, women still carry almost sole responsibility for productive tasks. These include household tasks such as cooking, cleaning and washing. Women raise and nurture the children and show them how to look after themselves and women carry most of the responsibility for caring for the elderly and the sick. For these reasons, women tend to be the most direct beneficiaries of improved knowledge on sanitation and hygiene related issues. Moreover, when women's raised awareness is translated into better hygiene practice, there will be obvious benefits all round for their children, the elderly, their families, and the wider community. Therefore, the first targets of health and hygiene messages should be women. . *(Zwarteveen, 1994)*

In many societies, discrimination and traditional practices relating to sanitation have undermined women's health and well-being. For instance, where sanitary facilities do not exist, are of poor quality or are not in working order, women in many societies habitually wait until nightfall to relieve themselves, a practice that can cause ill health and discomfort. Lack of sanitation facilities, especially separate ones for girls, is also one of many barriers to girls attending school. For these and other reasons, the sanitation programme has increasingly incorporated a gender perspective: looking at the roles of women and men as users and managers of water and sanitary facilities at the community and household level and making adjustments to suit their needs. *(WHO, 1996; Afonso, 1998)*

Women's participation in the utilization and management of sanitation must be looked at in the broader context of the social construction of gender roles in different regions, and their access to productive assets and resources. Conceptually, researchers are still trying to develop methodologies, frameworks, toolkits and indicators to understand the multiples uses and values of sanitation in developing countries. Some analysts have placed gender at the centre of their framework. Others put economics or the environment at the centre. *(Chalinder, 194)* It is clear that there is no single construct that facilitates an understanding of the complex relationships among women, men, natural resources and sanitation.

Approaches must be developed through situation-specific contexts and acknowled. Most importantly, it should be recognized that although women have often been disadvantaged and have lost rights and status as agricultural systems became increasingly technology-based and commercialized, there also have been instances where they have benefited from changes, sometimes as a result of their own negotiations to ensure that they received benefits or rights. Unfortunately, when gender is integrated into development projects, women frequently are seen as a "marginalized" or a disadvantaged group (and often put into a category with children). This tends to reinforce the idea that women are victims rather than strong partners in development. *(Roark, 1984; Zwarteveen, 1994)*

Gender Based Solutions

- National governments can frame national policies in a way that enshrines the idea of gender and equity at the centre of sanitation and hygiene promotion; invest in training or retraining front-line staff to work effectively with women, men and children; earmark funds for school sanitation; and commission research to identify where social or economic groups are persistently excluded from access to sanitation. National governments can ensure that the overall sanitation framework is gender sensitive, by enabling the participation of women in the development of sanitation policy.
- District/local governments can hire front-line staff with skills to work with women, men and children, reorganise public sector institutions to remove internal gender biases and discrimination; invest in school sanitation; and design and implement formative research and capacity building to ensure that the needs and aspiration of all groups are considered in the design of sanitation and hygiene promotion programmes.
- Communities and civil society can lobby for better services targeted towards women, men and children; support public sector efforts to improve gender and social development skills; provide information about what all groups in society want; and encourage and build capacity of community-based organisations to engage effectively with public sector programmes.
- Households can keep their girl children in school; select user-friendly sanitation facilities for all members of the household (for example, including women and children); and give responsibility for sanitation and hygiene practices to all members of the household.
- Entrepreneurs can employ and train female workers to construct products and provide sanitation and hygiene services; and design products that are user-friendly to all members of the household.
- International organisations can support and advocate for more gender-sensitive approaches; and compile and disseminate information about how things could be done better.

Conclusion

A brief survey of these issues gives mixed answers, but the trend overall is not positive. In some regions, both women and men play active roles in community sanitation programmes – and both women and men have access to the paying jobs in projects. In most of the country, though, the picture is less positive. While women often take the initiative for getting sanitation projects underway in their communities, it seems men tend to take over as soon as there are big decisions to take, project funds to manage, and paid jobs to allocate. One feature that is common is the perception that women should be involved in the 'soft' sanitation issues, notably health and hygiene promotion, while men should be involved in the technical issues, notably construction. Not only does this mean that the paid jobs are almost exclusively for men, it also means that women are still very much marginalised in decision-making processes. Household sanitation is everyone's responsibility, and everyone benefits from good sanitation. Yet the reality is that women make a disproportionate contribution to good household sanitation, and stand to benefit the most from better sanitation.

Community involvement in sanitation for health and hygiene was built through a sustained campaign that broadly addressed three major areas – health issues that arose as a result of poor sanitation, the gender impact of poor sanitation with women suffering from lack of privacy and also being burdened with additional tasks, and the economic costs imposed by poor sanitation in terms of increased disease and mortality.

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EXPOSURE ASSESSMENT OF TRAFFIC-RELATED PM_{10} POLLUTION IN OUTDOOR PLAY AREAS OF EARLY CHILDHOOD CENTRES

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Key words: air pollution, children, particulates, motor vehicle emissions, respiratory illness, early childhood centres.

ABSTRACT

Objective:
To assess the exposure of children in outdoor play areas of early childhood centres in Auckland, New Zealand to traffic-related PM_{10} pollution.

Methods:
Levels of PM_{10} in the outdoor play areas of early childhood centres were measured in five centres located adjacent to busy roads and in three centres located adjacent to quiet roads for comparison.

Results:
Two of the five early childhood centres located alongside busy roads showed PM_{10} levels that exceeded the World Health Organization (WHO) guideline value. While PM_{10} levels monitored at the other three centres also located alongside busy roads did not exceed the guideline value, results were only marginally within it. In contrast, PM_{10} levels monitored at the three centres located adjacent to quiet roads were well within the WHO guideline value.

Conclusions:
Children attending early childhood centres located alongside busy roads have greater exposure to traffic-related PM_{10} pollution than those attending early childhood centres adjacent to quiet roads.

Implications:
If the link between PM_{10} exposure and health effects is causal as suggested by epidemiological studies, then children attending early childhood centres proximal to busy roads are at a greater risk of respiratory illness than those children attending early childhood centres which are adjacent to quiet roads.

INTRODUCTION

An estimated 400 premature deaths occur each year in New Zealand due to motor vehicle emissions. This compares with approximately 500 people dying from road accidents.[1] On a regional basis most of the increased mortality due to vehicle emissions (64%) occurs in the Auckland region.[1] Acute and chronic health effects including asthma, chronic obstructive pulmonary disease (COPD), heart disease and bronchitis, as well as increased hospitalisations and restricted activity days (sick days) are also associated with exposure to vehicle emissions. In Auckland in 2003, there were an estimated 280 hospitalisations per year and 750,000 restricted activity days resulting from air pollution caused by motor vehicles.[2]

There is good epidemiological evidence that respiratory diseases such as asthma can be exacerbated by increases in the concentration of particulates of less than 10 microns in diameter (PM_{10}) from motor vehicle emissions. Research in the United States has found an increase in respiratory illnesses and illness-related school absenteeism in school children to be associated with increases in PM_{10} pollution.[i] Other overseas studies have found significant positive associations between proximity to heavily travelled roads and increased childhood respiratory disease symptoms including hospitalisations for childhood asthma.[ii, iii, iv, v]

In spite of this evidence, many early childhood centres in Auckland are located adjacent to busy roads. Children at these early childhood centres spend much of their time playing outdoors with the potential for particulates from motor vehicle emissions to exacerbate symptoms in those children already suffering from respiratory disease and asthma.[4, 5, 6, 7, 8, 9]

In this paper we describe a research project undertaken to assess the exposure of children to traffic-related PM_{10} pollution in outdoor play areas of a sample of early childhood centres in Auckland City, New Zealand's largest metropolitan city (population 404,658 in 2006).[vi]

METHODS

A convenience sample was selected based upon the average traffic flow for the road nearest to each centre. Traffic flow data, reporting the average traffic volume over the working week were obtained from Auckland City Council. We defined *busy* roads to be those roads with more than 17,000 vehicles per day.[vii] By contrast, those roads with less than 3,000 vehicles per day were defined as *quiet* roads.[11]
MiniVol portable air samplers were installed at four of the eight early childhood centres for the first time analysis period of 4 weeks. Weekly samples were collected over this period. The MiniVols were then installed at the other four early childhood centres for the second time analysis period of 4 weeks and weekly samples collected once again.

For the first time analysis, two centres located alongside busy roads, and two centres located alongside quiet roads were monitored simultaneously. For the second time analysis, 3 centres located alongside busy roads and one centre located alongside a quiet road were monitored simultaneously. Monitoring data collected was analysed using Microsoft Excel 2002.

RESULTS

Table 1 shows the results of the monitoring carried out at the eight early childhood centres. Weekly concentrations of PM_{10} and their ranges over the 4-week period are given.

Table 1: Weekly measured PM_{10} levels ($\mu g/m^3$)

Centre	Site Type	Week								Range
		1	2	3	4	5	6	7	8	($\mu g/m^3$)
A	Busy main road	13	26	12	12					12-26
B	Busy urban route road					11	15	19	17	11-19
C	Busy inner city main road					19	16	19	19	16-19
D	Busy urban route road					19	18	19	19	18-19
E	Busy inner city main road	22	25	14	17					14-25
F	Quiet residential road	14	15	8	10					8-15
G	Quiet residential road					9	14	10	10	9-14
H	Quiet residential road	13	15	10	11					10-15

Measurement error +/- 10%[viii]

Figures 1 and 2 present the results of monitoring at each of the centres as two separate time analyses, (weeks 1-4 and 5-8). They identify those centres which are adjacent to busy roads for comparison to those centres which are adjacent to quiet roads. PM_{10} levels at those centres located adjacent to busy roads (A, B, C, D and E) are higher than those centres located adjacent to quiet roads (F, H and G).

Figure 1: Weekly measured PM_{10} levels at centres - first time analysis

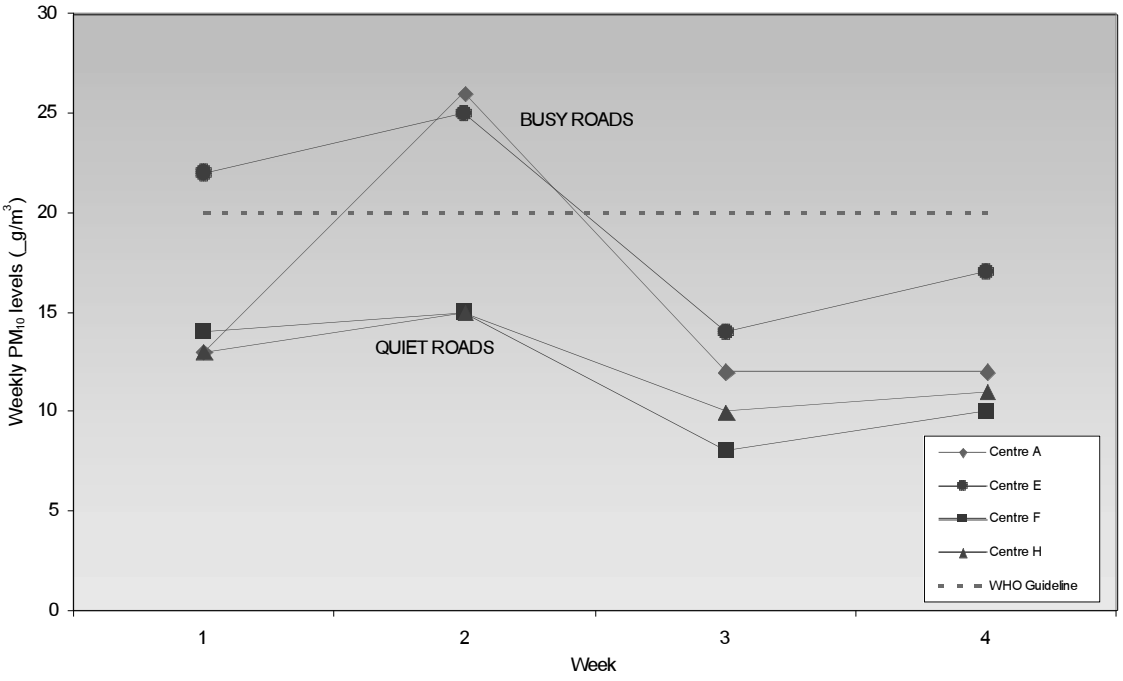
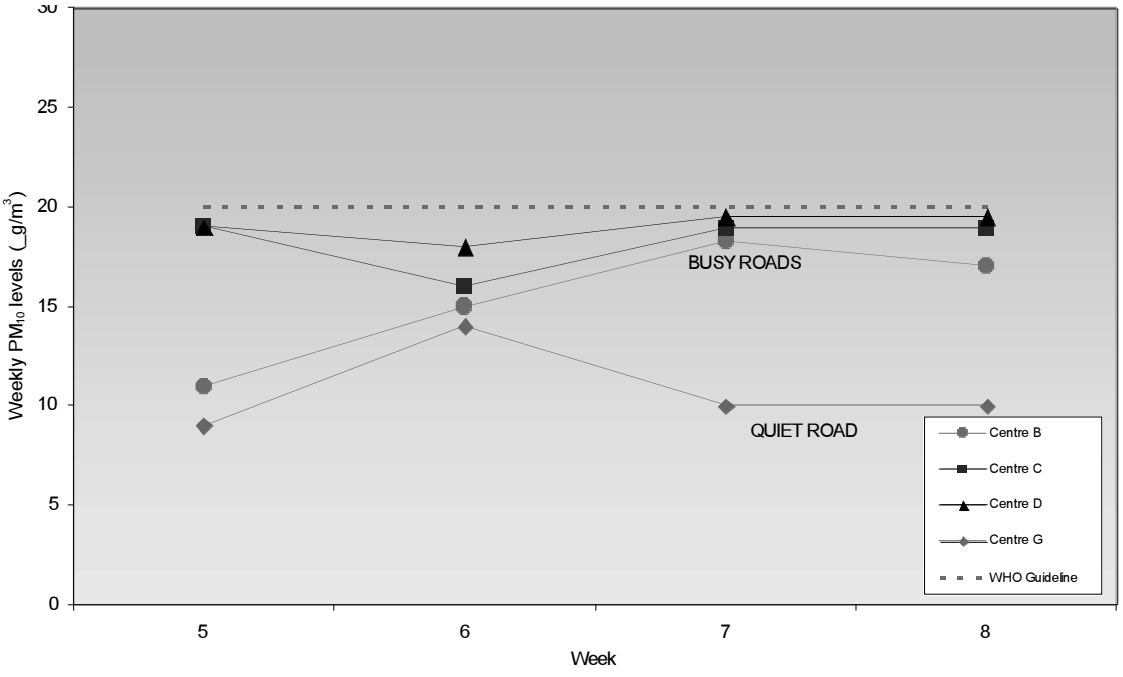


Figure 2: Weekly measured PM_{10} levels at centres - second time analysis



DISCUSSION

This small study provides evidence that children attending early childhood centres that are located alongside busy roads are more exposed to traffic-related PM_{10} pollution than those attending early childhood centres that are located adjacent to a quiet road.

Most significantly, the WHO guideline for PM_{10} exposure was exceeded at two of the five early childhood centres that are adjacent to busy roads. While PM_{10} levels at the other three centres located adjacent to busy roads did not exceed the WHO guideline value, results were often only marginally within this guideline value of 20ìg/m³. In comparison, PM_{10} levels monitored at the three centres that are located adjacent to quiet roads were all well within the WHO guideline value.

Unlike previous research, our exposure estimates were based on monitoring of the specific target areas, *i.e.* the outdoor play area of the early childhood centres. It is therefore an improvement on earlier studies, which relied upon ambient (background) air quality results measured across the wider region, or exposure based upon the distance of the residential or school address to major roads, and traffic density data.[4, 5, 6, 7, 9]

In fact, very little research has been carried out either in New Zealand or internationally on the air quality of outdoor play areas of early childhood centres in relation to motor vehicle emissions and childhood respiratory disease. The extent of monitoring is also limited and the amount of exposure data available in New Zealand relatively sparse, particularly in comparison with Europe.[1]

Measurements observed in this study may be affected by wind direction and speed, and the location of the centre in relation to the road. Historically, the prevailing wind at Centre E (busy inner city main road), which produced two results above the WHO guideline value is a southerly, and it is plausible that the mild northerlies experienced at this site during our measurement period have had some protective effect on PM_{10} levels, and therefore is an underestimate of exposure.

This may also be the case at Centre B (busy urban route road, range = 11-19ìg/m³) where the prevailing winds (northerlies) during the second measurement period almost certainly provided the centre protection from the immediate roadside traffic-related pollution.

Health Implications

Air pollution exposure is unequivocally associated with an increased risk of respiratory symptoms, particularly in children.[1, 2, ix, x, xi] Respiratory diseases such as asthma may be exacerbated by increases in PM_{10} emitted from motor vehicles and children are a significant vulnerable population group in this regard: proximity to busy roads is linked epidemiologically to increased childhood respiratory disease symptoms including hospitalisations for childhood asthma, as well as an increase in respiratory illnesses and in illness-related school absenteeism in school children due to increases in PM_{10} pollution.[4, 5, 6, 7, 8, 9] In the context of the present study, our results suggest that children attending early childhood centres that are located alongside busy roads are at greater risk of respiratory illness due to traffic-related pollution than those children attending early childhood centres which are located alongside quiet roads.

Furthermore, the WHO has emphasised the need to reduce exposure to pollutants even where current concentrations are close to or below the proposed guidelines.[xii] The WHO has also stated that it is not currently possible to distinguish whether there is a threshold concentration level for PM_{10} below which there are no adverse health effects for the population as a whole or the individual. It is also important to note that there will always be susceptible populations, *e.g.* children who are adversely affected even when exposed to levels below the WHO air quality guidelines.[16]

There is good evidence that exposure to traffic-related air pollution has deleterious respiratory health effects in children.[1, 2, 13, 14, 15] Environmental factors play an important role in altering host resistance to respiratory diseases in childhood. At a young enough age, exposure to poor air quality can give rise to immediate and late manifestations as a result of the disturbed development and maturation of organ systems and their altered response to environmental stressors.

Policy Implications

The main policy implication arising from this study is that air quality should be a licensing condition within the provisions of the Education (Early Childhood Centres) Regulations 1998. However, the problem with taking this approach is that of the 230 early childhood centres in Auckland City, more than 50% (which provide early childhood education for approximately 5,000 children) are located alongside a busy road and it is therefore likely that many of these centres exceed the WHO guideline value for PM_{10}.

However, it would not be feasible to remove licences from early childhood centres that did not complying with an air quality licensing condition, since this would cease their operation.

The Ministry of Education licenses early childhood centres under the provisions of the Education (Early Childhood Centres) Regulations 1998, and the premises must comply with the requirements of the regulations. Within these regulations there is no consideration made to the air quality of the outdoor play area of an early childhood centre. However, one of the requirements of the regulations is the provision of outdoor play areas for outdoor activities to enhance the learning and development of children attending early childhood centres. In early childhood education, a central tenet is that children learn most through their own free play and discovery, and by experiencing the natural outdoors environment including plants, animals, insects, water and sand, and movement.[xiii, xiv] There would appear to be a major oversight in considering air quality in the outdoor play areas of those policies and standards influencing the development, location, administration and management of early childhood centres.

It may be preferable to impose a licensing condition such that children should not play outdoors when air quality conditions pose a significant health risk. A problem with taking this approach is that outdoor play, so essential to the learning and self-development of the child, could be curtailed in order to maintain licensing requirements. It also calls for ongoing daily monitoring by an independent authority and the capacity to act should there be an exceedence.

An alternative approach would be to utilise the provisions of New Zealand's Resource Management Act 1991 with regard to consented planning permission for the development and location of new early childhood centres. Territorial local authorities, as consenting authorities, could incorporate rules into their District Plans restricting the location of new early childhood centres in areas where air quality is compromised, *e.g.* alongside busy roads.

CONCLUSIONS

This small study provides preliminary evidence that children attending early childhood centres that are located alongside busy roads have greater exposure to traffic-related PM_{10} pollution than those children attending early childhood centres that are located adjacent to quiet roads. Children attending early childhood centres located alongside busy roads are likely to be at risk from adverse health effects caused by traffic-related air pollution. However, these children must play outdoors for learning and self-development.

To reduce the risk to those children, early childhood centre staff should minimise outdoor activities in these centres. To prevent future risk, prudent territorial local authorities should introduce regulations ensuring that any new early childhood centres are located at a specified distance from major roads. Information for parents about the risks, ongoing PM_{10} monitoring and processes for issuing PM_{10} advisories when limits are exceeded, should also be available in existing early childhood centres that are adjacent to busy roads.

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INTEGRATED POLLUTION PREVENTION

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The main principle of the IPPC Directive is to elaborate integrated permits for companies tackling all environmental issues in one single permit and to establish emission limit values based on Best Available Technique (BAT) performances. The BAT system may also be considered as a part of an economic strategy through environmental regulations. The implementation of BATs should lead to equal standards or demands for competing companies within the European Union.

The BAT system is also developed with the support of international economic aid programs. In this case, BATs focus especially on countries and their companies in transition periods. Many of the illustrations in this paper are generated from a project in Pitesti region in Romania where the IPPC directive should be implemented.

The IPPC directive has led to the elaboration of more than 30 BAT reference documents, the so-called BREF Notes. There are two different kinds of BREF Notes:

- Cross-sector BREF Notes concerning matters across the various sectors, such as energy efficiency, self-monitoring, etc.
- Sector specific BREF Notes concerning requirements and standards for specific industrial sectors.

However, most EU countries pay much more attention on the implementation of the sector specific BREF Notes. The sector specific BREF Notes are also supposed to secure the equal competing conditions.

The experience from the field has identified some advantages and drawbacks of the BAT system. There are various ways to implement the BREF recommendations and sometimes there are problems in interpreting the overall purpose of a given BREF note and its relevance in trying to equalize the competition conditions.

Further more in non-transition countries were BATs are introduced and used, BATs are sometimes criticized for prohibiting some innovations or environmental improvements. In these cases, BATs may for example focus too much on equal costs and too little on win-win situations where economy and environmental improvements go hand in hand.

Keywords: Permits, Inspections, Integrated Pollution Prevention, IPPC Directive

1. The BAT History

The main concept of the IPPC directive is the integration across Europe however there are many ways to understand and interpret what it means. The BREF notes are only one way to interpret the directive but other systems are equally effective. The following will focus on the BAT concept as contained in the EU official announcement of how the IPPC

directive should be interpreted and implemented in the different EU Member States.

The BAT concept can be traced back to the 1860's in England where the pollution of the rivers was caused by the growing textile industry. It was clear that the most polluted part of the rivers were in the lower reaches therefore in the beginning the authorities only demanded treatment from industries located there. Some companies moved away or closed down however the river quality did not improve and the companies complained. This resulted in equal standards for some industries rather than standards based on the quality of the receiving watercourse. These regulations have now been superseded.

The rebirth of the BAT concept can be traced back to the wastewater act in USA in 1949. This concerned urban wastewater and wastewater from industries with organic matters and stipulated requirements concerning treatment. The basic idea was to create equal environmental standards for competing companies so that the environment did not become an object for skewing competition in favour of the sources of pollution located in some of the states with low or no standards. It is basically constructed in the same way as the later EU Urban Wastewater Directive.

After the Second World War the industries in Western Europe were reconstructed by bilateral aid from USA, the so called Marshall Aid. Some US industries complained, not over the aid program but because European industries did not have to comply with the same restrictive BAT standards used in the US. Through the Organization of Economic Co-operation and Development, OECD the USA concept of BAT was recommended for the European industries even though it was not fully developed in the USA.

In the beginning of the seventies the US Environmental Protection Agency (EPA) started implementing a systematic approach to BAT work but dealt with wastewater, waste and air pollution separately. Even today authorisations consist of separate permits for wastewater, waste and air pollution. The BAT system has thus developed completely independently and with no regard to the concept integration. Furthermore is BAT now basically an economic (omit bilateral) tool in aid programs, international treaties and regimes more than an environmental regulation tool.

2. The Competition

The concept behind the BAT is that:

- Environmental issues always cost, and
- Do not impose cost on one company without imposing it on its competitors.

Companies which compete on the same goods have a sale price with variation around the average price for the goods. The sale price consists of the cost price and the profit. This is illustrated in the first line in figure 1. The second line is the average company.

If the company wants to increase the profit it can be done by increasing the sale price, line three. The customers might then choose the goods from a competitor because they are cheaper and then our company will lose in the competition.

On the other hand the company could also reduce their sale price by reducing the profit and hope that all the costumers will buy their goods, line four. This will only work for a while because the company will need to maintain profitability in order to continue to operate. This is known as a price war and such action can be risky.

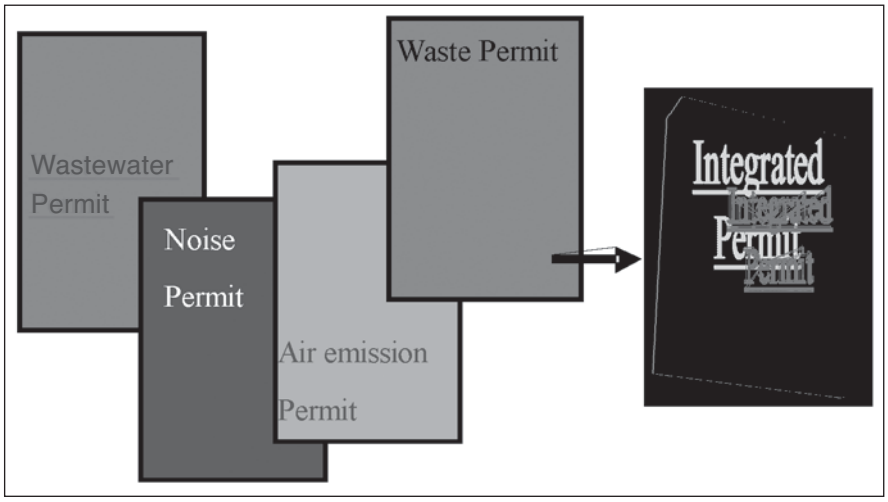
Figure 1: Illustration of the competition in the branch, the BAT strategy and the cleaner Production approach [2]

The fifth line illustrates the concept of BAT where the sale price has increased due to the increase in cost price brought about by the environmental regulation. It is clear that if industries in one country have a lower standard imposed upon them, they will probably have a competitive advantage over companies in states with higher environmental standards. National authorities can obviate such a situation by entering into bilateral agreements or similar.

The only safe focus for increasing the profitability of a company is to focus on cost price reductions. The sixth line, in blue at the bottom in figure 1 illustrates the cost price reduction concept. This can be combined with a cleaner production approach from the environmental authorities however this has absolutely nothing to do with the original BAT concept.

At the home in Denmark environmental regulation was very decentralized and the authorities in the counties and the municipalities were being reorganised. As the regulation developed it was clear that standards based on what industries could manage weren't sufficient enough to secure the environment.

Figure 2: Illustration of simple integration [2].



3. The Integration

In the beginning of the seventies the Social Democrats formed the government in Denmark and found out that they needed to rationalise environmental regulations. The first focus was on the system in the USA however the Social Democrats disliked the US involvement in Vietnam so they looked elsewhere. In the former Eastern German Republic and Poland they found a system based on recipient and spatial planning which they liked very much because it was based on the needs of the environment rather than the standards which suited the companies.

With some modifications this system was introduced and implemented in Denmark in 1974 and at that time it was held to be the best environmental regulation in the world. One of the modifications negotiated by The Danish Industry Organization was to gather all authorisations into one environmental permit which later was named The Integrated Permit, see for illustration in figure 2.

During the eighties Denmark and the UK opposed proposals for changes to the BAT regime as suggested by the EEC. Internally in Denmark the arguments were founded on the premise that surface waters could act as excellent recipients for the wastewater from Danish industries so as to maintain competitive advancement and to preserve jobs at a time of high unemployment. The same arguments were put forward by the UK government.

Instead of focusing on implementing BAT systems which were being considered at international level both in EU and in other regimes such as OECD, HELCOM and PARCOM, the local Danish environmental authorities developed different preventive permit and inspection methods. The authorities also focused on a more comprehensive approach to take account of other factors like matters in the productions chain, consumption and disposal, commuting and transport, in addition to optimizing a single plant on the specific site. These methods are understood as the integrated parts of the permit.

Hereunder is a short presentation of the different tools used by the permitting and inspection authority in order to illustrate the understanding of the integrated permit:

- Optimizing of site activities
- Transport
- Life Cycle Assessment (LCA)
- Environmental Management Systems (EMS)

4. Optimizing of Site Activities

In order to facilitate dialogue with the companies and change their attitude, an evaluation has been made of the traditional enforcement and compliance approach from the authorities when dealing with a company either in the permit phase or in the inspection period. The evaluation is presented in figure 3 in brief:

Figure 3: Evaluation of the traditional approach compared with the new integrated approach [2].

Compliance & Enforcement or Cleaner Production	
• **BAT Side**	• **GOOD Side**
• Static System	• Dynamic System
• Focus on the past	• Focus on the future
• Focus on what can be punished	• Focus on profits
• Averages	• Variations
• Faked dialogue	• Consensus
• Expensive solutions	• Increased profitability
• Treatment solutions	• Cleaner production

It is clear that the traditional focus is very static, focusing on the past and what can be punished. It leads to a faked dialogue, treatment solutions, compliance with standards fitted to expensive treatment solutions. The authorities wanted a dynamic system with focus on the future and what could be gained in cleaner production and increased profitability. Instead of looking at standards and averages the focus would be on consensus and variations.

In the mid-eighties a cleaner production strategy was developed in Denmark. The strategy was based on the fact that all companies have to reduce costs in order to survive in a competitive environment. There are many ways of reducing costs and because of the variations in the markets there will always be new options to exploit, see figure 1, the blue line.

The following optimizing tools were developed for the permit maker and the inspector can be mentioned:

- Timing of demands to the economic climate
- Win-Win benchmarking
- Variations benchmarking
- Accounting waste as a saleable commodity, see figure 4 for illustrations.

Demands on companies have to have regard to the fact that they have at times to invest large sums of money in actions such as investing in new machinery or developing new products. It is very important that the authorities are in dialogue at such times because the new machinery may have to last some time. It is not possible to seek up new environmental demands which require a large investment when a company just has made one. In the period between bigger investments the focus for the authorities has to be on the optimisation of the company.

In order for the authorities to survey the options for optimizing, they can exploit the situation whereby companies have developed systems which have regard to economic variations especially increasing costs. A variation is a range between a good situation and a bad one and within that range is the potential for cost savings.

The material flows in a company will also have variations. The outer points will also represent a good and a bad situation so the distance in between will be the potential for cleaner production, see figure 4 for illustration. By listing the potentials in permits or inspection reports it is possible for the authorities to highlight what the company has to work with in the future in order to improve.

Authorities should try not to interfere in the assessment of solutions. It is the companies who have the sole responsibility for coming up with solutions.

There is considerable scope for having a cleaner production method and it may be necessary for the authority to guide the companies in order that they take account of environmental factors. In this case the authorities can use a benchmarking concept especially developed for the purpose of combining the different interests.

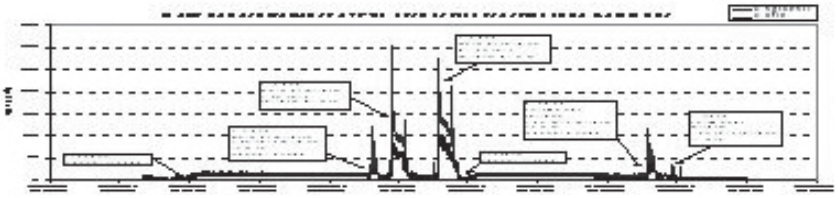
The benchmarking concept relies on a sheet incorporating the production flow sheet of the

Figure 4: Illustrations of optimizing tools [2].

Skills & Methods

Valuing of Waste

Cost of Raw Materials:	3.000.000 Kr.
Sale Price:	12.000.000 Kr.
Waste Percent:	3%
Potential Annual Savings:	**450.000 Kr.**



company. Then two copies of the sheet are produced; one for the company, one for the authority. The company fills out the sheet with a benchmarking of where the company can reduce its costs and the authority benchmarks their version with their requirements from an environmental standpoint.

The two versions are then compared and if there is a common benchmarking by both parties, this results in a win-win situation. In this way it is possible to ensure that economic factors can result in environmental improvements. The responsibility for starting the dialogue rests with the company and early success can result in overcoming costly environmental solutions.

4. Transport

The debate concerning transport is mainly focused on energy consumption and green house gas emissions. The biggest contribution of green house gas emissions from a company may not derive from the processes but from transport.

For that reason in Denmark different campaigns and accounting systems have been developed for companies in accounting for transport. The impact of transport on a company's emissions should be taken into account in the permit systems both in the BREF notes and in the single permit.

5. Life Cycle Assessment (LCA) Input and Output

The LCA approach can be addressed both from an input and from an output approach. There are some general statements which can be of varying importance. Concerning LCA inputs companies have to assess whether they use new or renewable resources and whether it is a limited resource or not. Resource consumption and waste percentage up stream in the vertical production flow are accumulated in the production of the final goods (in the manufacturing phase).

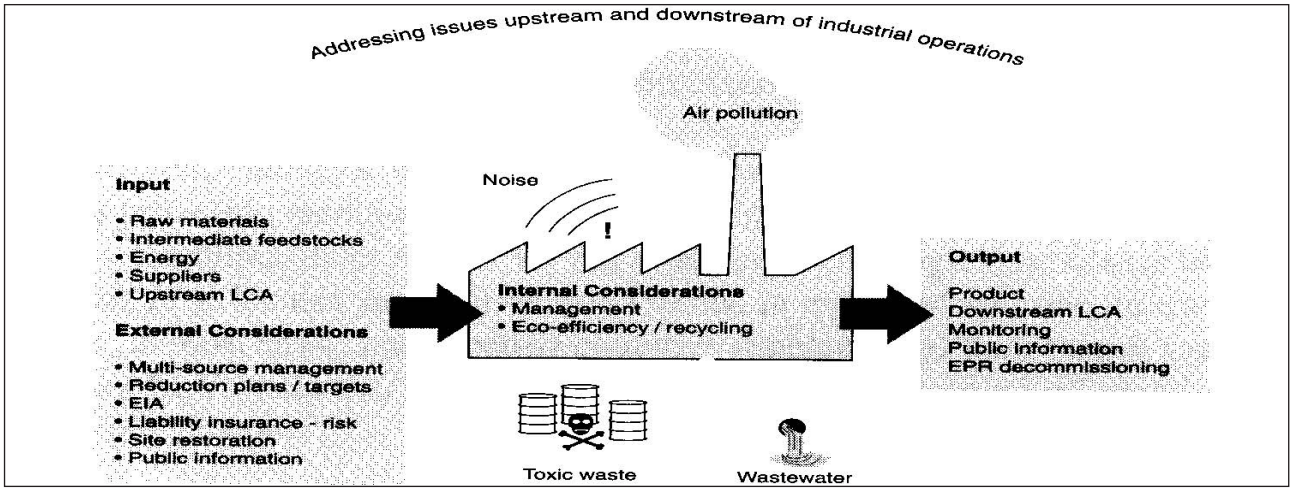
The company can choose between different suppliers and different goods. A supplier can have environmental friendly goods but the production site can be very bad and *vice versa*, so it is not an easy task for company to handle these problems alone. Such a company will often need to have a very good dialogue with the authorities in different levels and regions.

In so far as LCA outputs are concerned the focus should be partly on consumption and partly on the disposal afterwards. Resource consumption in the manufacturing phase is often greater than in the production phase. One example of this from the Romanian project is the production of the Dacia car. The development department at the Dacia factory knows this and are working hard on developing an engine which can run on bio fuel.

Wastage of goods is very bad for the performance. If products are manufactured and not used then all the resources and the accumulated waste are wasted. If there is a doubling of the wastage in the final products there will be a doubling of resource consumption and waste in the entire production phase. A doubling of the product life time will result in the halving of resource consumption and the accumulated waste in the entire production phase however this has to be assessed with the resource consumption in the consumption phase.

Finally it is important to look at the disposal phase and to see what can be done in order to recycle. This is not a Danish concept but one from the OECD concept. Figure 5 is an illustration taken from an OECD report from 1999 concerning the IPPC directive. The BREF notes do not contain these kinds of considerations and do not fulfil this part of the directive.

Figure 5: The LCA approach suggested by the OECD [1].



6. Environmental Management Systems (EMS)

In many of the BREF notes references can be found for the companies to use Environmental Management Systems (EMS). EMS is a systematic tool to set up goals and to follow them up, and can be used in so many different ways.

EMS was introduced first in Denmark and later in the Netherlands and made it easier to carry out inspections and to issue permits. These systems are still used in Denmark but seem not to be used now in the Netherlands.

Critics of EMS say that EMS causes no problems for the people in production. The environmental manager can work as a buffer between the authorities and the company in such a way that the production people can focus on production in peace. This can become a hindrance for development of improvements and innovations.

Another problem that is embedded in the EMS is that it does not present any improvements tools like the ones presented in this paper. This means that the improvements are focused on "what would have been done anyway?" and "what can we easily do?" instead on what is needed. EMS needs involvement from the authorities!

Environmental Management systems do not solve problems or develop environmental improvements. The systems, to be effective in the single company need to provide more than setting goals and can lead to closer relationship with connection to the executing authority.

The BREF notes do refer to the environmental management systems however they do not provide answers into how and what can be improved and do not refer to the role of the permit maker or inspector.

7. BREF Notes

Implementation of the IPPC Directive should be provided through the development of the BREF notes (BAT reference notes) and these should contain the full concept of the IPPC Directive. However when one looks more closely it is clear that the BREF notes focus more on BAT than on the part which should be played by integrated pollution prevention, which is glossed over.

Except for sporadic and somewhat unclear description of some optimizing options in some of the BREF notes they contain only traditional BAT descriptions known from the previous environmental regimes such as PARCOM and HELCOM.

BREF notes are developed by the EU Office in Seville, Spain that develops the BREF notes and it is expected that after the development phase all EU member states have to incorporate BREF notes in to their national legislations. This implementation can be done in several ways and there is a big variation on how this is done between the different EU member states.

There exist two types of BREF notes:

- Sector specific
- Cross sector notes

The sector specific BREF notes are based on BAT with little reference to the integrated approach although the authors of some of the BREF notes have included reference to some cleaner production considerations.

The standards in the BREF Notes should be seen as setting concrete emission values to copy but should also be regarded more as a guideline for laying down emission levels for specific processes.

8. Implementation of the BREF Notes

The BREF notes are produced in three languages: English, French and German where the total text is translated. For the rest of the countries the national environmental bodies have to decide whether the BREF notes have to be:

- Translated in the full
- Translated in a summary
- Not translated at all

Most member states choose not to translate the intersectional BREF notes in order to focus on the sectional BREF notes. BREF notes of fewer than 400 pages of technical English cause fewer problems than the more extensive BREF Notes. These larger BREF notes often only exist in the local language in a summary form, if at all. If this is the case it is debateable whether or not the IPPC Directive is being fully implemented.

There are different experiences in the member states according the existing regulation and the implementation of the IPPC Directive. It is more difficult when

- National legislation is based on concepts other than BAT
- National legislation is already based on BAT before the IPPC directive was issued

Some of the implementation tasks and problems are as follows:

- Documents are often of more than 600 pages
- They are written in technical English
- Poor translation

- Sometimes contain conflicting advice
- One company can be covered by several BREF notes
- BREF notes sometimes conflict with other directives
- BREF notes often conflict with national legislation.

Larger documents are often only translated in summaries and this can create other new problems and questions like:

- What should be included and excluded?
- Cleaner production or treatment technology approach?
- Which monitoring approach should be used: Stack and point source monitoring, mass balances, on-line monitoring, total volumes, concentration values, variations?
- How should specific national matters not mentioned in the BREF notes be treated?
- What about up-dates when the BREF notes are up-dated?

Twinning projects have to deal with all these questions and the following methods have been used:

- Support for the finalisation of permits: Twinning of expert and local permit maker
- Production of sector specific Guidelines consisting of:
  1. Summary
  2. Appendixes with additional information
- Translation of full documents: In the Twinning project in Pitesti, Romania, Two sectors:
  1. Surface Treatment of Metal & Plastic
  2. Tiles & Bricks
- National seminars: In the twinning project in Pitesti, Romania, one seminar specifically on monitoring.

In Romania there are several ongoing twinning projects also concerning the implementation of the IPPC Directive. The project in Pitesti is only supplementary to the others and does not stand alone. It is also the case that these projects do not necessitate reference to all the of the BREF notes.

The work has been focused on the traditional BAT approach presented in the BREF notes. The integrated part has been discussed and debated but with a lower focus. The Romanian tradition concerning regulation – that is sticking strict to the standards - is a hindrance for more innovative forms of regulation however it seems to work.

There are differences in approach between France and Denmark but there is an agreement on how it should proceed although the means and methods are very different. The discussions in this field with the Romanians have been very fruitful to both the French and the Danish partners.

9. Supportive Cleaner Production monitoring

Monitoring is important and a large part of the BREF notes focuses purely on monitoring programs relating to emission standards however these notes are general in nature and not specific other than for a few examples concerning on-line monitoring.

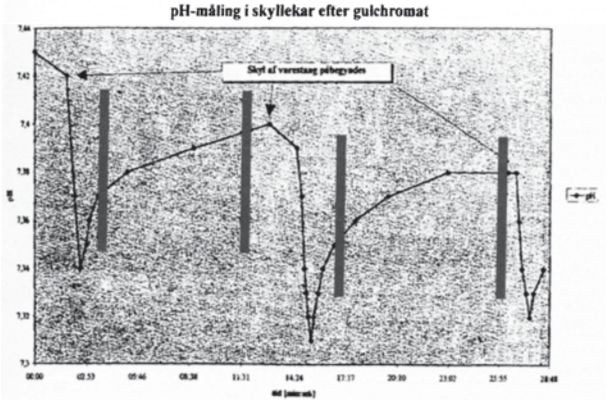
The BREF note concerning monitoring allows for monitoring for different purposes and this means that monitoring is not only for documenting compliance to a standard limit but can be used to measure improvements.

Trying to state total emission and discharge volumes often jeopardizes the focus on variations. Sampling over longer production periods does not give any clues as to what improvements are possible it only determines what might have been wrong. If the authorities want development of cleaner production and innovations the focus and the content of the inspections must be changed as does the monitoring. Monitoring can uncover variations which are not apparent to the naked eye or to other senses.

In figure 6 there is an example taken from an electroplating workshop, a brush vat after a chromatin vat. It illustrates a variation in the content of chromium brushed off the item. The period between the dark lines where the item is brushed could be brushed by recycled water and in the end brushed with pure water. If the company has taken steps to save the water consumption it is always possible to recycle water whenever there are rinsing, cleaning, brushing or washing processes going on. It is not necessary to repeat the monitoring and the inspector can go directly to the point.

Figure 6: Illustration of variations from a brush vat after chromatin

Supportive Cleaner Production Monitoring: 60-80% Savings



An inspector's approach to identifying and benchmarking cleaning, rinsing, washing and brushing activities without any water saving modification have led a ten-fold reduction in both water and content in several concerns such as the paint industry and candy industry, but not in the electroplating industry.

Most electroplating companies in Eastern Europe have a flocculent treatment plants. If the water consumption is reduced the concentration of heavy metals in the wastewater will increase. Then the flocculent treatment plant will work much more efficiently and the side effect is an increased volume of metal hydroxide sludge. In many countries it is much more expensive to get rid of this sludge than maintaining the water consumption and the dilution. In Denmark there is only one electroplating company out of hundred who have installed water saving devices.

The wastewater discharge standards or emission levels in the BREF notes are based on the outcome of an ordinary flocculent treatment plant treating wastewater from electroplating companies. It is not certain that the electroplating companies who save water can comply with the BREF note standards so together with the increased costs the BREF note perpetuates a poor environmental situation and works as a hindrance to the development of cleaner production (omit which already is well known.)

10. Example of Comparing Fixed Situations

Variations can also be determined by co-operation between the inspector and operator. For instance the operator agrees to run the equipment in his "normal" way under continuous monitoring and then later still under continuous monitoring operate the equipment in an alternative manner. This has been done in a dry cleaner's workshop in Frederikssund. A site map is shown in figure 7 and photos are in figure 8.

Figure 7: The location of the dry cleaner machine is marked in gray.

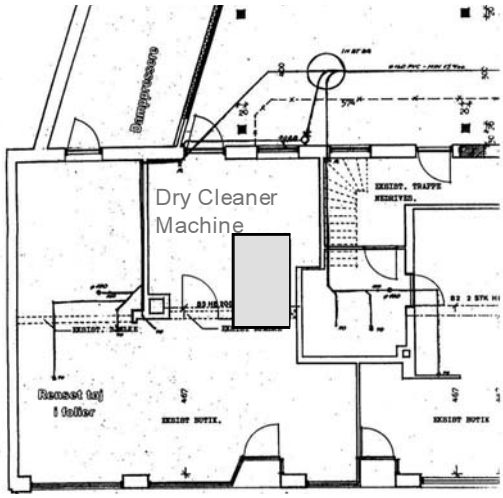


Figure 8: Photos of the back and front of the dry cleaner machine.

The front of the dry cleaner machine, the note list and the monitor for PCE.

The back of the dry cleaner.

Two PCE monitors were installed, see photos in figure 8. Before monitoring a schedule for a normal working day was created. A journal where the operator could note what he was doing was hung on the dry cleaner machine just beside the door. He was asked to do what he usually does when cleaning clothes on the first day and on the day after he was told to optimize as much as possible by, for example extending the drying period so that more of the PCE could be recycled, putting as many clothes as possible in the machine, etc

Figure 9: Production journal for two production days.

Rensning af tøj; forskellige driftsformer				
		Tid, Min	Miljøoptimeret drift	Tid, min
Dag	**Torsdag den 6. Sep. 2001**		**Fredag den 7. Sep. 2001**	
	Ilægning af tøj (traditionel drift 7-8 kg tøj)		Mindre tøjmængde (<7 kg tøj)	
	Væskepåfyldning	3		
	Rensning	10		
	Afløb af rensevæske	2		
	Centrifugering	3		
	Nedtagning af fart	3		
	Tørring	50	Forlængelse af tørretid (10-20 min)	
	Udluftning	2		
	Udtagning af tøj			

Registrering af drifttidspunkter				
Dag	**Torsdag den 6. Sep. 2001**		**Fredag den 7. Sep. 2001**	
	1. Rens		**1. Rens**	
	Tøjmængde (vægt i Kg)	6	Tøjmængde (vægt i Kg)	6
	Starttidspunkt (væskepåfyldning) Kl.	9.50	Starttidspunkt (væskepåfyldning) Kl.	9.40
	Tørretid, min	50	Tørretid, min	60
	Sluttidspunkt (udtagning af tøj) Kl.	10.50	Sluttidspunkt (udtagning af tøj) Kl.	10.50
	2. Rens		**2. Rens**	
	Tøjmængde (vægt i Kg)	6	Tøjmængde (vægt i Kg)	5
	Starttidspunkt (væskepåfyldning) Kl.	11.10	Starttidspunkt (væskepåfyldning) Kl.	11.00
	Tørretid, min	45	Tørretid, min	55
	Sluttidspunkt (udtagning af tøj) Kl.	12.05	Sluttidspunkt (udtagning af tøj) Kl.	12.10
	3. Rens		**3. Rens**	
	Tøjmængde (vægt i Kg)	4,5	Tøjmængde (vægt i Kg)	
	Starttidspunkt (væskepåfyldning) Kl.	15.45	Starttidspunkt (væskepåfyldning) Kl.	
	Tørretid, min	45	Tørretid, min	
	Sluttidspunkt (udtagning af tøj) Kl.	16.40	Sluttidspunkt (udtagning af tøj) Kl.	

Figur 3: Produktionsforløb for rensemaskinen samt foretagne registreringer under målingerne.

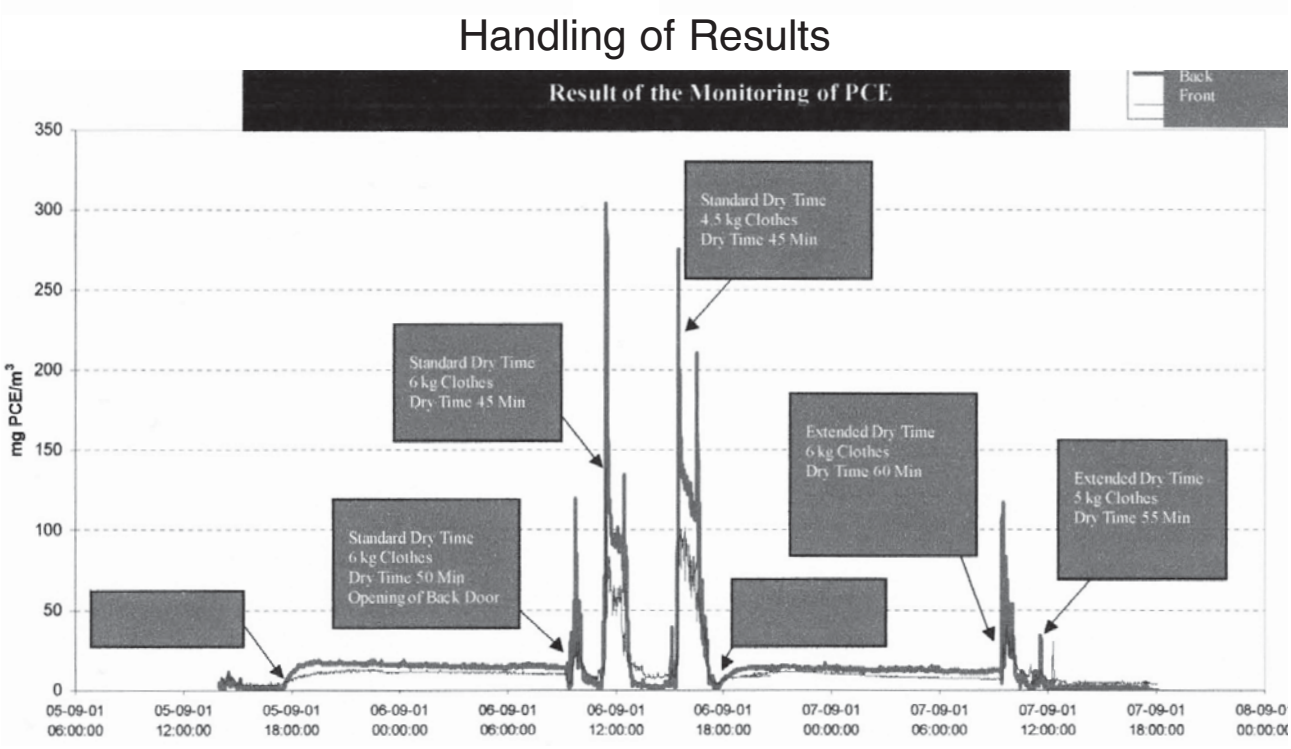
The results of the monitoring are shown in figure 10 and these indicate that there are some variations which can be exploited in different cleaning regimes. Even although it was the authority which carried out and managed the monitoring, it was the operator's responsibility to find out how to optimize his operations! The findings are listed in the following:

Figure 10: Results of the monitoring.

- When Frederikssund Municipality compared the graphs with the operator's records, it appeared as if nothing had been done during the first afternoon. Confronted with the curves the operator of the dry cleaner at first denied any activities at that specific time but eventually he admitted that he had forgotten that he had carried out an urgent cleaning for a costumer who did not show up at the agreed pick up time. The clothes were still there and this example shows that it is not always the case that the operators know what they are doing or have done even though they know they are under surveillance.

- Another interesting result which can be noticed when studying the graphs from this type of monitoring and the operator's competed records is that the emissions of PCE are not dependant on the amount of clothes but on how many times the machinery runs. The more the machine is filled up with clothes per time, the less emission per produced unit. Such action will result in fewer effects in the apartments located in the same buildings.

- The third result is that when using an extra five or ten minutes of drying time per process together with a two minutes pre-drying before each operation a reduction of up to ninety per cent can be achieved. The two minutes pre-drying was an innovation of the operator and not a part of the original agreement concerning the procedure he should perform. It came to the light during the same discussion about forgotten afternoon job.



- A fourth result which can be seen from these graphs is that if the same volume of PCE can be made to last ten times longer, then the number of times the machinery is filled is also reduced ten fold. From other experiences it is often found that it is at the start and finish of cleaning operations that the emissions are at their greatest. How much this will contribute to the reduction is still to be researched but will probably disappear in the overall reductions.

11. Lessons to learn and what can be done
The BREF notes are mainly cover the old BAT regulations well known from bilateral aid programs, international treaties and regimes. The integrated concept is poorly dealt with and is not contained within one specific BREF note.

For this reason it is felt that new EU member states will have difficulty in implementing the IPPC Directive if it has to be done without reference to the BREF notes. Many of the new member states are implementing the IPPC Directive literately according to the BREF notes however this is not the case for some of the old member states such as Denmark and the UK. Also some of the other member states like Holland are seeking alternatives to BAT for regulating industries.

BAT is often blamed from stifling innovation but that is not necessarily the case. Compliance and enforcement nearly always focus on the past and on what can be punished and this is not conducive to allowing the dialogue about the improvements in the future.

The EU commission could help a lot by not measuring the different member states compliance with the IPPC Directive according to the BREF notes but by trying to develop some methods for making more use of permits and inspections. It should also emphasize that they are a part of the same regulation and it should be tested by the executing authorities prior to using the BAT approach.

Using monitoring for controlling compliance with emission standards or emission level values is a waste of resources because it takes the resources away from monitoring in support of cleaner production. Monitoring does not prevent pollution but cleaner production might do so, therefore resources for monitoring should be used more wisely.

Perhaps the EU Commission could produce cleaner production reference notes (CREF notes). And use these as the basis of educational programs for training permit makers and inspectors. The majority of permit makers and inspectors want to work with improvements and find it depressing to work with standards that are worse than those to be found in countries like Romania.

Literature:
[1] OECD: Environmental Requirements for Industrial Permitting. Vol. 1: Approaches and Instruments. Vol. 2: OECD Workshop on the Use of Best Available Technologies and Environmental Quality Objectives, Paris, 9-11 May 1996. Vol. 3: Regulatory Approaches in OECD Countries, OECD 1999.
[2] Presentations from national seminars in the Twinning Project RO2004/IB/EN-05, REPA Piteflti "Implementation and Enforcement of the Environmental Acquis Focused on IPPC and Risk Management" Joint Romanian/French/Danish/Polish Project, Region 3 South Muntenia

Correction to table 5 on page 17, Volume 10 No. 2 of the article "A Preliminary Analysis of the Scotland-Chikwawa Health Initiative Project on Morbidity" in the Magazine of the International Federation of Environmental Health.

The amended table 5 appears on next page.

JOB EXCHANGE BETWEEN MEMBERS OF IFEH

The IFEH Council, recommends that you, as an individual member of a National Association in membership of the International Federation of Environmental Health (IFEH), should take the chance to see for your self how the work you are normally doing, is carried out somewhere else in the World.

There is now an agreement between the most national associations within the IFEH, presenting an opportunity for members of these associations to swap jobs and places of work for a period of two or three weeks.

The agreement is meant to permit exchanges of experience and knowledge about environmental protection, the protection of nature and environmental health and food safety, so encompassing environmental health in the broadest perspective. Now you have a chance to see and personally

Table 5: Relative risk ratios (95% confidence interval) for the multinomial logistic regression fitted for the choice of treatments at household level

Variable		Adult malaria (years) (Reference Category is home)				Child malaria (years) (Reference Category is home)			
		Other vs. home		Hospital vs. home		Other vs. home		Hospital vs. home	
		RRR	**(95% CI)**	***RRR***	**(CI 95) %**	***RRR***	**95% CI**	***RRR***	**(95% CI)**
Village	Namila	1.93	(0.98,4.18)*	0.73	(0.41,1.29)	1.08	(0.43,2.72)	0.72	(0.39,1.33)
	Sekeni	1.22	(0.61,2.46)	0.31	(0.19,0.53)**	0.44	(0.20,0.97)**	0.19	(0.11,0.32****
	Mwanayaya	0.75	(0.33,1.66)	0.61	(0.35,1.04)*	0.57	(0.23,1.41)	0.45	(0.25,0.80)***
	Mwalija	1.00		1.00		1.00			
Window	No windows	1.08	(0.60,1.94)	0.64	(0.39,1.06)	0.77	(0.39,1.53)	0.52	(0.32,0.84)***
	Open	0.78	(0.45,1.36)	0.86	(0.54,1.37)	0.58	(0.31,1.12)	0.58	(0.37,0.91)**
	Glass/screen	1.00		1.00		1.00		1.00	
Radio	Yes	0.87	(0.52,1.45)	1.26	(0.85,1.87)	0.69	(0.37,1.30)	1.21	(0.83,1.75)
	No	1.00		1.00		1.00		1.00	
Songs	Yes	0.49	(0.11,2.14)	0.22	(0.06,0.77)**	0.33	(0.03,3.01)	0.31	(0.10,0.99)**
	No	1.00		1.00		1.00		1.00	
IHO	Yes	0.58	(0.36,0.93)**	1.21	(0.81,1.80)	0.45	(0.27,0.74)***	1.33	(0.91,1.93)
	No	1.00		1.00		1.00		1.00	
Waiting long	Yes	0.54	(0.35,0.83)***	0.91	(0.63,1.33)	0.52	(0.31,0.85)***	0.98	0.69,1.38)
	No	1.00		1.00		1.00		1.00	
NHO	Yes	0.52	(0.31,0.89)**	0.52	(0.36,0.77)****	0.49	(0.25,0.97)**	0.63	(0.43,0.93)**
	No	1.00		1.00		1.00			1.00
No drugs	Yes	0.57	(0.35,0.94)**	0.71	(0.49,1.03)*	0.50	(0.27,0.91)	0.74	(0.51,1.06)
	No	1.00		1.00		1.00			

* p<0.10, ** p<0.05, *** p<0.01, **** p<0.001

RRR = Relative risk ratio, CI = Confidence interval, IHO = Information health officer, NHO = No health officer, Other = traditional or other treatments

experience, how professionals in other countries are working, trying to deal with the same problems that you are facing in your daily work.

There is a possibility for you to be placed at national, regional or local level, depending on what your own preference is, and what may be the structure of organisation in the visiting country.

Accommodation is expected to be based on staying with colleagues, families, friends or in private accommodation, perhaps more than one over the period of up to two or three weeks.

Your National Association may try to (partly) cover for travelling costs, but cannot provide any help or assistance in making agreements with your employer about exemption from daily work. Arrangements for leave or other arrangements needed for this exchange program are at your own responsibility.

Don't expect to go for a holiday.

You will be placed in an office or team, and you will be expected to do a proper job.

Of course you need to learn from it and be able to communicate with your hosts.

To be able to work abroad you must:

- Describe between three and five areas of environmental protection, nature protection, environmental health or food safety that you want to work with when you are abroad
- Agree to work seriously with the subjects you are presented with
- Agree to stay in private homes or similar and perhaps more than one
- Present a written report in English which may be to be published in the IFEH magazine or on the IFEH website, and/or in your national association magazine or website
- Deliver the report to the IFEH secretary no later than one month after your return from the exchange
- Agree to host colleagues from other countries at your office and in your home, reciprocating the hospitality to a similar standard

What to do:
When you decide to apply for an exchange visit, contact the national coordinator, representing your association (you will find the person at the IFEH website link), and describe the ideas you have for the exchange visit. Your national coordinator will then get in contact with the national coordinator of the receiving country, and see what is possible and when the visit could take place. If an agreement can be made, you will be connected directly by the office that has agreed to host your visit.

As well as gaining professional experience it will also be possible to see and experience the natural and cultural attractions of the area where you will stay.

Presidents Past and Present, Colm Smyth and Bernard Forteath at the Faculty Forum meeting

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2008 CONGRESS GALLERY

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OPENING CEREMONY

STATE RECEPTION

CIVIC RECEPTION

CANADIAN NIGHT