

E&HI

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A word from the IFEH President

Bernard Forteath



Welcome to the first edition of Environment and Health International, produced by our new Editor Hadrian Bonello. Hadrian will be well known to some members as he is currently the Honorary Secretary of the Malta Association of Environmental Health Officers. I know that Hadrian will build on the excellent work of his predecessor John Stirling. Hadrian is no stranger to the post of Honorary Editor having successfully edited the Malta Association's excellent Tas-Sanita magazine for many years. To produce and publish a technical magazine twice a year is nearly impossible without a steady supply of good material and the active support of the membership. So if you have recently written an article for your own association, or carried out some research then why not submit an article to Hadrian?

Since becoming President last year I have had the opportunity to attend the annual conference of two of our members, Sweden and Cyprus. At the end of May last year I was asked to speak at the Annual Conference of the Swedish Association of Environmental Health Professionals held in beautiful city of Stockholm. The Swedish Association was one of the first to take up membership of the Federation and it was nice to meet up again with many old friends. I was particularly fortunate to be provided with an instant translation, from Swedish into English, for all the excellent papers presented by our PRO Kia Regner. In November I attended the 20th Anniversary Conference of the Association of Public Health Inspectors' Cyprus which was held in Pissouri, Limassol. On this occasion I was asked to speak twice, about the Federation and to present a paper on Tobacco Control in Scotland. This conference, which was held to mark the 20th anniversary of the formation of an association in Cyprus, was attended by senior politicians and government officials. The Federation was well represented at this conference with papers presented by Ray Ellard, Jan Homma, and Gerry McDermot. Both conferences were particularly well organised and I was pleasantly surprised, from the number of questions I was asked, by the interest shown in the work carried out by the Federation. A recruitment campaign in the Gulf region is underway, with help from members in the Royal Commission for Jubail and Yanub. A personal letter from the President, together with material about the Federation, has been sent to a number of agencies in the Gulf region with the aim of developing closer links between environmental health professionals living and working there. However, the Federation is keen to contact

environmental health professionals worldwide so if anyone reading this article has a contact in a country not in membership of the Federation please pass on their contact details to me.

The next Council meeting and AGM will be held in Singapore on the 18 and 19 July at the invitation of the Society of Environmental Health-Singapore and I hope that there will be a good attendance at this meeting, particularly from members in the Asia/Pacific area. Our colleagues in Singapore are at present working on the final arrangements for these meetings and further details will appear in the quarterly Newsletter.

At the time of writing this article the media is full of news about a worldwide recession and how this will affect business and trade. Inevitably those who provide environmental and public health services, much needed in many communities, will be affected and some of the significant improvements in human health seen over the last decade could be put at risk. Equally any real chance that we have of tackling climate change could be put on hold by

governments in an attempt to control public spending. Economist Lord Stern, who compiled the Stern Review into the Economics of Climate Change for the UK government in 2006, said in an interview at the end of last year, that he is optimistic that a global deal to reduce carbon dioxide emissions will be struck under the US presidency of Barak Obama. There is now a much deeper global understanding of climate change and its impact, and many countries have made clear commitment to reducing greenhouse gases. Having got this far in raising the profile and understanding of climate change it would be devastating and there would be serious economic consequences if we were to reduce our commitment now. As it happens the cost of tackling climate change is a lot less than some governments are spending at present to shore up the banking system.

I hope that 2009 will bring success to all who work in the field of environment and health and, as always, my wish is that your government appreciate what is done in their name by so many dedicated and enthusiastic professionals.

IFEH Declaration on Climate Change

Dublin, Ireland June, 2006

Declaration on Climate Change

The expected impact of climate change on human health and nature itself is worrying, if the enhanced green house effect develops as current science predicts. It is crucial that action is taken now. The International Federation of Environmental Health (IFEH) emphasizes prevention and mitigation strategies over adaptation.

IFEH believes that the impact of climate change on human health as well on nature itself should be central to any prevention or mitigation strategy developed by nations.

Therefore, IFEH calls upon every level of government, every governmental body, every company, enterprise and individual all over the world to pay serious attention to the causes, effects and impact of climate change, and to develop and implement strategies that minimize or cease the use or production of gases that contribute to the green house effect.



www.ifeh.org

About IFEH

INTERNATIONAL FEDERATION OF ENVIRONMENTAL HEALTH

The Federation works to disseminate knowledge concerning environmental health and promote co-operation between countries where environmental health issues are trans-boundary. It promotes the interchange of people working in this sector and the exchange of Member's publications of a scientific and technical nature.

Amongst other things, the Federation seeks to provide means of exchanging information and experience on environmental health, to hold Congresses and meetings to discuss subjects relevant to environmental health science and administration, to represent the interests of environmental health to state agencies, national governments and international organisations and to promote field studies of environmental health control.

Front Cover Photo



Feature:

Photo taken by Hadrian Bonello, MAEHO Malta

LAM PAO DAM Amphoe Yang Talang, Thailand

Measuring 33 m high, 7800 m long and 8 m wide, construction of the earthen dike was begun in 1963 and completed in 1968.

The dam was built across both the Pao and Huay



Yang Rivers at Ban Nong song Hong in Tambon Lam Pao, Amphoe Muang, Kalasin, creating a reservoir on the northern side of each river. A ditch was then built to connect the two reservoirs, which have a total impounding capacity of 1430 cubic metres. The dam helps inflood prevention and provides irrigation water for agriculture and a source for fish breeding.

The reservoir is a tourist attraction, and Dok Ked Beach has become an especially popular resort with the northeastern locals.

The views expressed in this magazine are not necessarily the views of the International Federation of Environmental Health.

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Editorial

Hadrian Bonello

This is my first edition as editor of E&HI after taking over from John Stirling. John has really done a marvelous job throughout the past and I hope that I can follow in his footsteps.

This issue was a big challenge for me. After being editor of my association's magazine for a number of years I knew that this was not going to be some easy task. I still recall Bernard Forteath calling me and asking me if I was interested to take the post. I accepted right away. Challenges have never hindered me from doing something that may prove difficult from a certain perspective, so I took this post knowing all very well that John Stirling's hard work had to keep on going.

Well, struggle I did but the result is here for all to see and I hope that it will be taken in positively.

I have taken note of a lot of what my colleagues in IFEH have suggested. The articles are concise and written by people who have environmental health at their heart. So it is a must that I say a big Thank You to all of those of you who have assisted me in taking on this job and also to all those persons who have

forwarded a number of contributions to have them inserted in E&HI.

In this issue we look at Food Quality as changes in lifestyle have given an impact on our eating habits and expectations.

The article on The DelPHE African Academy of Environmental Health (AAEH) project is very interesting as we see how the long term goal of the Academy to establish a body of African academic institutes under the auspices of the AAEH will instigate, develop and advance training in the science and practice of environmental health throughout the continent.

Tom Bell's Personal Perspective followed by the article on 'Developing an International Competence-Based Curriculum for Environmental Health' will surely be taken in quite well by everyone. I could not leave the latter for the following issue so apologies to all those I had promised that their article would feature in this edition.

On a final note, I welcome any negative feedback which I then hope I would be able to transform it into something positive. Enjoy your read.

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The Value of Meetings

Nelson Fabian

Nelson Fabian is the Executive Director and CEO of The National Environmental Health Association



The economy is down. Travel costs are up. The boss won't pay for continuing education. I may not have a job tomorrow. In view of considerations like these, *how in the world can I possibly justify attending a meeting?*

Believe me, I've asked the same question and from two different positions. In the first instance, I attend meetings and am often asking myself beforehand, is this meeting worth it? I also approve the meeting attendance of our employees – and I ask the same question then.

In the second instance, I manage an association that puts on meetings - for which we seek your attendance. Accordingly, I have to ask, are our meetings and especially our annual conference, worth your attendance?

To gain a better sense for how to answer this question – are meetings worth your attendance – please join me for a deeper discussion on the value of meetings. I hope this brief exercise proves helpful to you when you are wondering about attending some meeting or conference.

For starters, there is a huge debate currently raging in the world of meetings. Driven in no small measure by the hard economic times that we are in, this debate pits those who have vested interests in meeting venues (and who strongly favor in person meetings) against those who are strictly focused on the bottom line (and who strongly favor virtual meetings – that have little cost). From NEHA's standpoint, this debate presents a false choice as we don't see the conflict in terms of a selection between these two different means of education. Rather we see that the two are integrated and that there is a place for each. This is why we have evolved an e Learning program at the same time that we continue to enhance and upgrade our annual educational conference (AEC).

For example, I can't imagine ever wanting to attend a conference to learn about what an RSS feed means when a webinar will easily do the trick. However, if the desire were to hear about how a best practice can be used in my program, the wiser choice would probably be to attend an event in person where I can ask questions and interact with the expertise that is immediately available to me.

As NEHA continues to evolve how we provide our educational offerings to you, we will continue to try to deliver our education in the most appropriate manner – sometimes choosing to use live conferences, sometimes choosing a webinar and sometimes choosing even other means for getting the education out, such as through our web site, our E Newsletters, our new Radio NEHA program and our e Learning series, etc.

It is also our thinking to merge (or tie together) on line education with in person edu-

cation where we can. For example, for this year's AEC, we devised an on line blog that enabled people to discuss the major conference topic of who are we and where do we want to go, before and after the AEC. We're also making available ways for attendees to plan coordinated activities at the conference long before it is held – just as we are making available ways for attendees to electronically continue their conference discussions long after the conference ends.

Moving on then from the relationship between online education and in-person education, let's take a deeper look at the in-person meetings. To help you to assess the value of these meetings, I would suggest that if you can answer yes to the majority of the questions below, the meeting that you are considering attending is probably worth going to – even in these tough economic times. If you can't honestly answer most of these questions with a yes – even if it is the NEHA AEC that you are evaluating – then you should probably save your money for something else. (I can tell you that the idea of “return on investment” is a major factor for us in our conference design and that we test our AEC against these kinds of questions all the time.)



For the conference that you are considering attending -

1. Could it be beneficial for you to be introduced to some of the people who will be attending the meeting?

2. Can you imagine “crucial conversations” taking place at this meeting that you would want to be a part of – even if only to listen?

3. Is the emotional connection that you could be making with some of the conference attendees of value to you?

4. Is high-level interaction available to you at this meeting and would it be beneficial to you to have such an experience?

5. Is the education that is being made available at the conference relevant to your work responsibilities?

6. Could this education enable you to do your job better and/or more cost effectively?

7. Could this education help you to explain and present your work to others more impressively?

8. Are there topics being covered at this conference that you feel a personal connection to and are these discussions open to your contribution?

9. Are there opportunities being provided to learn best practices?

10. Would some of the conference offerings enable you to return to your workplace as an effective change agent?

11. Could some of the offerings help you to build a better team spirit within your program?

12. Does the meeting take time to recognize its leaders and achievers with awards so that you might better understand what excellence in your line of work looks like?

13. Are there opportunities at the conference to either mentor or be mentored?

14. Does the conference provide important updates on where the profession is?

15. Are there motivational opportunities

available at the meeting?

16. Is the conference set up in a way that makes it easy to continue discussions after the conference concludes?

17. Is there a measure of hands on training that is available at the conference?

18. Are enough interesting people attending to give you reason to believe that you will have important and meaningful “chance conversations”?

19. Can you see within the conference agenda and organization the opportunity to build mini communities of friends and colleagues – even if only for the conference itself?

20. Can you get the bulk of your ce credits taken care of through the conference course offerings?



Are there memorable moments suggested within the conference that would have you think back fondly on your attendance at this event?

Among the many things that I do, I serve on a board for an organization that provides meeting support. At our last board meeting, we pondered the state of the economy and asked tough questions about the future of meetings. The points that I’ve listed above came out of a discussion about the value of meetings. A sub current that ran through that discussion addressed what happens if we don’t meet.

What was interesting to me was that I went into this discussion with a leaning more to-

ward e Learning than on in-person meetings – despite the fact that NEHA puts on an AEC that means the world to us! I came out of this discussion, however, more convinced than ever about the importance of in-person meetings. If a conference event can affirm the kinds of experiences that these questions point to, then it is hard to imagine a more worthwhile investment of time and money. In addition, educators have understood for years that people learn best when the learning takes place in group settings. That fact only adds to the case for meetings that reflect yes answers to the questions above.

I close by posing an honest question. In offering the above list of questions, I obviously had NEHA’s AEC in mind. However, I urge you to put any meeting that you are considering to this test – including ours. If you can’t answer yes to the majority of these questions, then you probably shouldn’t spend your precious time and money to attend the event you are considering. In today’s world, it is all about getting something back on your investment. Meetings are no longer just occasions to get together. They have to produce value or they are increasingly difficult to justify. If you can answer yes to these kinds of questions, then good for the meeting designers and good for you. You need to be there. What awaits are professional gains and even personal fulfillment – two treasures in any kind of economy.

PULL QUOTE: In today’s world, it is all about getting something back on your investment.



Food Quality, Safety, and Health Quo Vadis?

Dr. Anna Mcelhatton

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Change in lifestyle has an impact on consumer eating habits and expectations (“food trends”); this is an issue that needs both recognition and understanding.... what do we want, what do we need and best of all, can we tell the difference? To explore these issues it is necessary to briefly review recent and present trends. Food trends, composition, and concerns.



Food quality is a major issue in many parts of Europe, North America and other countries. The specifics may vary regionally, but basic quality issues such as composition and taste are recognised by most, not just the food and health care professionals. Another cause of concern is a group of materials broadly termed food contaminants; these materials may find their way into foods in both deliberate and accidental routes. The pesticides and their residues in or on crops have led to cases of foodborne illness that were, acute, fatal, chronic and or debilitating.

In general, people in the developed world tend to consume far too many ‘convenience’

foods and snacks including sweets, confectionary, crisps and cakes (cookies). Many of these food products have added salt (often used to generate thirst) and extra sugar. These materials are often added to conventional canned and prepared foodstuffs as preservatives, to extend shelf life. Similarly, the market is loaded with a large range of pre-cooked and frozen convenience meals that require little or no further processing other than a short period of time in the ubiquitous microwave oven. These products contain additives, used to enhance flavour etc., but often the actual nutritive value is difficult to assess. (Hill, 2003).

In Europe, many people take insufficient exercise, and this, together with a diet lacking in fibre, can lead to chronic constipation and even bowel cancer – an ever-increasing urban complaint. Another alarming current tendency is for a large part of the population to be overweight, sometimes grossly so, and this is often attributable to an unbalanced diet combined with lack of exercise. Obesity has increased dramatically over the past three decades and a significant portion of both the adult and child population are overweight. (French, Story, & Jeffery, 2001) In Europe, the 2007 WHO document on obesity states that overweight affects between 30% and 80% of adults in the WHO European Region and up to one third of children. The rates of obesity are rising in virtually all parts of the Region. The costs to the health services of treating the resulting ill health – such as type 2 diabetes, certain types of cancer and cardiovascular diseases – are estimated to be up to 6% of total health care expenditure, and indirect costs in lost productivity add as much again. The rise in childhood obesity is perhaps even more alarming. Over 60% of chil-

dren who are overweight before puberty will be overweight in early adulthood, reducing the average age at which non-communicable diseases become apparent and greatly increasing the burden on health services, which have to provide treatment during much of their adult lives. (Branca, Nikogosian, & Lobstein, 2007) The current epidemic of obesity is caused largely by an environment that promotes excessive food intake and discourages physical activity. (French, Story, & Jeffery, 2001) Through the years there have been fluctuations in healthy shopping and eating trends. The worldwide prevalence of obesity continues to increase, with devastating implications for overall health. Epidemiological trends indicate the primary contributors are environmental (e.g., increased caloric intake, lack of exercise). Increased body mass index (BMI) is associated with an increase in all-cause mortality and in diseases related to this increasing mortality rate, such as diabetes mellitus, cardiovascular disease, and cancer, including those of the gastrointestinal system. Some of these associations are even more pronounced when obesity is measured by waist-to-hip ratio, a marker of visceral adipose tissue, versus BMI. Higher BMI is related to increased risk of developing gall stones, and obese patients experience GI symptoms, such as vomiting and diarrhoea, more often compared with those of normal body mass. Although the exact cause remains uncertain, these symptoms may be connected to eating habits or to changes in gastrointestinal motility. (Moayyedi, 2008) .

A recent study that examined the long-term



effect of habitual diet on risks of incident diabetes, coronary heart disease, and mortality has shown that a healthy eating pattern that included fruit, vegetables, whole-meal bread, low-fat dairy, and little alcohol reduced risks of diabetes and major coronary events.

Such dietary patterns offer considerable health benefits to individuals and contribute to public health. (Brunner, et al., 2008)

Nutrition and lifestyle

Nutrition and lifestyle are well-defined modulators of chronic diseases. Poor dietary habits and a sedentary lifestyle clearly contribute to increasingly compromised quality of life. It is becoming

increasingly clear that nutrition can modulate the toxicity of environmental pollutants. Certain diets can contribute to compromised health by being a source of exposure to environmental toxic pollutants. Many of these pollutants are fat soluble, and thus fatty foods often contain higher levels of persistent organics than vegetable matter. Nutrition can dictate the lipid content, oxidative stress, and antioxidant status within cells. The modulation of these parameters by an individual's nutritional status may have profound effects on biological processes, and in turn influence the effects of environmental pollutants to cause disease or dysfunction. It is recommended that future directions in environmental health research explore this nutritional paradigm that incorporates a consideration of the relationships between nutrition and lifestyle, exposure to environmental toxicants, and disease. Nutritional interventions may provide the most sensible means to develop primary prevention strategies of diseases associated with many environmental toxic insults. (Hennig, et al., 2007)

Allergy and lifestyle

A considerable part of the Western population suffers from some form of allergy, and the incidence is still rising with no sign of an

end to this trend. Reduced exposure to microbial allergens as a result of our hygienic lifestyle has been suggested as one of the possible causes. It has also been suggested that probiotics may provide safe alternative microbial stimulation needed for the developing immune system in infants. This idea is supported by the fact that allergic infants have been observed to have an aberrant intestinal microbiota. They were shown to have more *Clostridia* spp. and fewer *Bifidobacteria* and, in addition, to have an adult-like *Bifidobacterium* microbiota... (Ouwehand, 2007)

Lifestyle and Food-drug interactions

In the past, food-drug interactions (drug-nutrient interactions) were limited to determine whether meal intake would impair drug absorption and therefore influence the bioavailability of a drug. Later, it was shown that parenteral feeding could also affect the pharmacokinetics of drugs. Until recently, these interactions were not clearly defined and characterized in the literature. Properly designed studies on the epidemiology of food-drug interactions and standardized management approaches and consensus toward specific drug-nutrient interactions are missing.

Drug-nutrient interactions are now defined as alterations of pharmacokinetics or pharmacodynamics of a drug or nutritional element or a compromise in nutritional status as a result of the addition of a drug..

Increase in at-risk populations

Adverse reactions to food that result in gastrointestinal symptoms are common in the general population; while only a minority of such individuals will have symptoms due to immunologic reactions to foods, gastrointestinal food allergies do exist in both children and adults. Knowledge of the spectrum of adverse reactions to foods that affect the digestive system, including gastrointestinal food allergy, is essential to manage reactions to foods. (Bischoff & Crowe, 2005)

The older population is the single largest demographic group at disproportionate risk of

inadequate diet and malnutrition. Ageing is associated with a decline in a number of physiological functions that can impact nutritional status, including reduced lean body mass and a resultant decrease in basal metabolic rate, decreased gastric secretion of digestive juices and changes in the oral cavity, sensory function deficits, changes in fluid and electrolyte regulation and chronic illness.



Elderly patients are particularly at risk because more than 30% of all the prescription drugs are taken by this cohort. There are often multiple underlying chronic diseases require long-term nutritional and pharmacotherapeutic interventions. The practice of polypharmacy increases patients' risk of drug-nutrient interactions. In addition, elderly patients are more likely to experience adverse events because age related debilitation of physiologic processes. Pharmacokinetic peculiarities associated with aging are absorption, distribution and elimination. Therefore, drug bioavailability, volume of distribution, clearance and half-life of drugs are modified in the elderly. Water-soluble drugs become more concentrated and fat-soluble drugs may have longer half-lives because of a slower release of the drug from fatty tissues. As many of these age-related factors are difficult to predict, the ideal prescription of a drug is complex. (Genser, 2008).

Shopping habits, do shoppers make the Health Connection?

Shoppers do see a connection between food, nutrition and their health. They believe foods can offer benefits that reach beyond basic nutrition to functional nutrition for disease prevention and health enhancement. Although diet is very important to a significant number of shoppers this attitude does not always translate into careful eating. Most shoppers see

room for improvement and continue to aspire to eat healthily more often. (Gilbert, 2000) A study that looked at the time patterns of compliance with nutrient goals recommended by the World Health Organization (WHO) has shown that adherence to healthy eating guidelines depends on economic development. Diets are improving and converging in advanced economies, but developing and especially least developed countries are still far from meeting WHO nutrition goals. This suggests that economic drivers are more relevant than socio-cultural factors in determining the healthiness of diets. (Mazzocchi, Brasili, & Sandri, 2008).

Quo vadis!

Indeed! As regards health and quality of life in our environment, do we know what we want and are we ready to go get it! Do we want to enjoy a long and healthy life in a healthy environment and are we prepared to take the steps needed to ensure this. Each



new year we tend to make a tonne of resolutions but do we ever keep any of them? Do we want to make changes and if so what, where, how and when? We tend to overcompartmentalise the sciences and we also tend to grossly overcompartmentalise public services associated with the provision of health.

As a parting thought, might I dare suggest that we take a critical look at food science

and engineering, nutrition and dietetics, and environmental health education currently available and ask the question *quo vadis?* Followed by, can I make a difference? Do I want to contribute? Could I turn this into a career?... The Environmental Health Division at IHC strives to seek and implement new ideas to refresh itself and yes, periodically reinvent itself. Come join us ... it's good to talk!

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The DelpHE African Academy of Environmental Health (AAEH) project

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“Success in tackling environmental health problems depends very much on collaboration between ministries and agencies. Members States, WHO and partners should work together to apply these tried and tested methods and knowledge to make the environment more healthy.”
(African Regional Health Report, 2006)

Introduction

The average life expectancy of someone living in sub-Saharan Africa (SSA) is about half of that of someone living in a developed country (Figures 1 & 2). For the SSA region as a whole life expectancy today is lower than it was three-decades ago. Several countries in the Southern African Development Community (SADC) have suffered catastrophic reversals in life expectancy since the middle of the last century: 20 years in Botswana, 16 years in Swaziland and 13 years in Lesotho and Zambia (HDR, 2007). The reduction in life expectancy over this period may be attributed to may environmental health and socio-economic factors e.g. HIV/AIDS and other communicable and non-communicable diseases associated with urbanisation, overcrowding, insanitary conditions, unwholesome water supplies and industrialisation. Today 25 African countries (including 6 SADC countries) are amongst the 26 low human development countries in the world with some of the lowest human development indi-

cators of development (Table 1; HD Report, 2008).

Environmental risk factors account for 21% of the overall burden of disease worldwide, and more in developing countries. This burden is felt more amongst the poorest in society especially those that reside in remote rural areas or overcrowded urbanised areas as they often have little financial means to address the environmental factors that cause ill-health. Some 1.7 million young children die each year from diarrhoeal diseases associated with inadequate water supplies, sanitation and food hygiene and a further 1.4 million child deaths from respiratory infections are attributable to indoor pollution. A report on children’s environmental health conducted by the WHO Regional Office for Africa (Figure 3) concluded that the main environmental health factors causing morbidity and mortality are related to inadequate access to safe water supplies, unhygienically prepared food, inadequate sanitation, inadequate solid and hazardous waste management and disposal, inadequate vector control, inadequate housing/overcrowding, poor personal hygiene, air pollution, both within and outside home, exposure to various non-communicable diseases etc. (WHO 2005; ARH Report 2006) – all areas which have been successfully tackled and are properly regulated by environmental health authorities in most developed countries. Progress towards the key Millennium Development Goals can be accelerated through improved environmental health conditions, in particular the MDG’s for child health, access to water and sanitation and environmental sustainability. While many other interventions may also accelerate progress, the multi-sectoral

approach to environmental health offers cost effective and sustainable improvements. Environmental improvements are often more cost-effective as health measures than curative health services (Cairncross et. al., 2003).

In 1998, the Africa Region of the WHO announced that it is indispensable to strengthen the capacities of the ministries of health to promote environmental health as a precondition for any sustainable human development. In this respect, it called upon ministries of

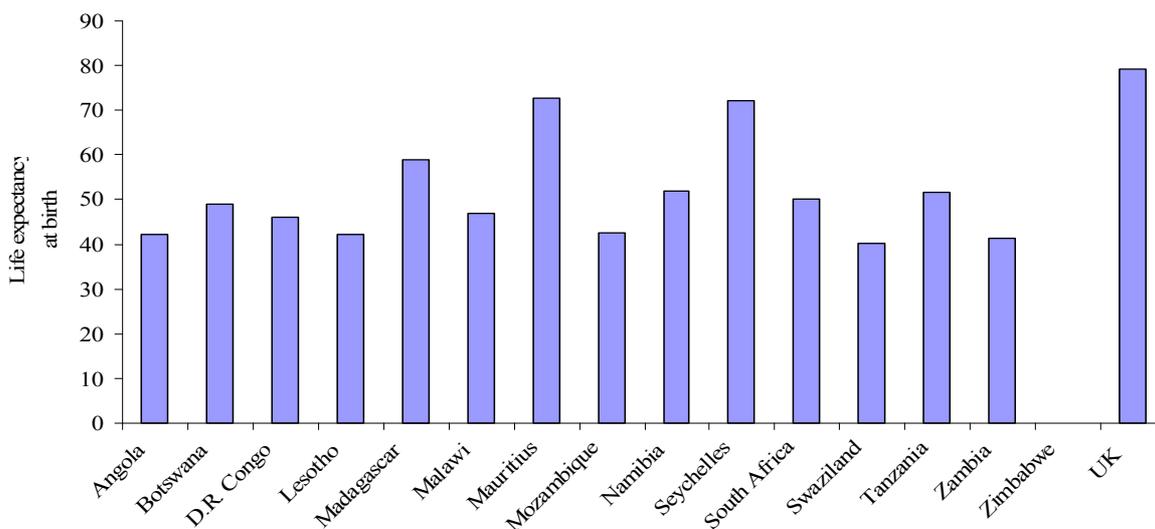
Table 1. Selected Human Development Indicators (2006) for the SADC.

Country	HDI index	HDI Rank	Life expectancy at birth in years (HDI rank)	Adult literacy rate i.e. % ages 15 and above. (HDI rank)	Combined primary, secondary and tertiary gross enrolment ratio expressed as a % (HDI rank)	GDP per capita expressed as PPP US\$ (HDI rank)
High Human Development						
Seychelles	0.836	54	72.0 (81)	91.8 (58)	82.2 (48)	15,105 (49)
Mauritius	0.802	74	72.6 (72)	87.0 (80)	76.9 (75)	10,571 (63)
Medium Human Development						
Botswana	0.664	126	48.9 (165)	82.1 (95)	70.6 (108)	12,744 (57)
Madagascar	0.533	143	58.8 (141)	70.7 (113)	60.0 (137)	878 (164)
Namibia	0.634	129	51.9 (156)	87.6 (77)	67.2 (119)	4,819 (102)
South Africa	0.670	125	50.1 (162)	87.6 (78)	76.8 (76)	9,087 (76)
Swaziland	0.542	141	40.2 (179)	79.6 (97)	60.1 (136)	4,705 (103)
Tanzania	0.503	152	51.6 (158)	72.0 (109)	54.3 (149)	1,126 (156)
Low Human Development						
Lesotho	0.496	155	42.3 (175)	82.2 (94)	61.5 (132)	1,440 (148)
Angola	0.484	157	42.1 (177)	67.4 (116)	25.6 (178)	4,434 (107)
Malawi	0.457	162	47 (167)	70.6 (112)	61.9 (131)	703 (168)
Zambia	0.453	163	41.2 (178)	68.0 (114)	63.3 (125)	1,273 (150)
D.R. Congo	0.361	177	46.1 (169)	67.2 (117)	33.4 (173)	281 (178)
Mozambique	0.366	175	42.4 (174)	43.8 (138)	54.8 (147)	739 (167)
Zimbabwe	-	-	-	-	-	-
UK	0.942	21	79.2 (19)	-	89.2 (32)	32,654 (22)

health to act as catalysts in directing, coordinating and promoting environmental health and hygiene activities, through: (i) the adoption and implementation of policies, strategies and plans of action on environmental health and hygiene and (ii) strengthening of inter-sectoral collaboration between all environmental health actors and stakeholders. It encouraged ministries of health to establish

countries and (iii) access for all to sustainable health systems and services. While not encompassing all the actions investigators have correctly emphasised that environmental health is at the interface between health and development and is therefore critical to the goal of making health central to human development (Thomas et. al., 2002; Cairncross et. al., 2003).

Figure 1. Life expectancy at birth in years in SADC countries v UK (HDR 2006)



an appropriate legal framework for implementing environmental health activities, integrate environmental health into all local and national development programmes and projects, mobilise the resources needed to support and strengthen these activities, promote community-based local initiatives in the area of environmental health and coordinate interventions related to the management of environmental health activities (WHO 1998a).

The SADC Health Protocol reaffirms the importance of improving environment and health conditions of communities especially in rural and under-developed areas (SADC, 1999). The WHO has also committed itself to the Health for All in the 21st Century framework which makes explicit three goals (WHO 1998b): (i) an increase in life expectancy and improvement in the quality of life for all; (ii) improved equity in health between and within

The lack of appropriately qualified professionals in this area inevitably leads to inadequate environmental health practice and enforcement, inappropriate environmental health policy and strategy for action, the lack of sound information for priority setting and planning, the absence of a suitable set of environment and health indicators, and the lack of an appropriate performance indicator system (Emeharole 1993; WHO 1998; Thomas et. al, 2002; Cairncross et. al., 2003; WHO 2005).

Background to the African Academy of Environmental Health

A review of environmental health education in 6 African countries (Angola, Botswana, Cameroon, Kenya, Mali and Zambia) conducted by the Africa Region of the WHO (2005) reported that few countries offered environmental health courses similar to those

offered in developed countries. Only Kenya had an adequate number of environmental health degree programmes in place producing the requisite number of graduates required for the size of the country. In the other five countries the approach to environmental health education and enforcement was fragmented and only specific environmental health areas covered through allied health professionals (i.e. nurses, doctors) e.g. health education, community health or as a module in a Masters in Public Health course. The authors of that report concluded that (i) a more holistic and co-ordinated approach to environmental health education and practice was needed and that (ii) the academic sector could address this problem through the provision of appropriate courses - but at the present time is completely under utilised. Even where degree programmes did exist concern was expressed that the curriculum for training EHO's (in West Africa) lagged behind the skills required to cope with the challenge of environmental monitoring and control (Emeharole, 1993). At the time this investigator reviewed the existing curriculum for the training of EHOs at the diploma and degree levels in the sub-region and concluded that curricula lack sufficient credit weight to impart the desired skills to perform the highly scientific task of environmental monitoring.

At the first, and only, SADC Environmental Health Conference held by the Botswana Environmental Health Officers Association (8-11th November 1993, Gaborone) a number of resolutions was adopted. Under resolution 8, the Department of Environmental Health, University of Malawi (UoM) was challenged with the responsibility of setting up undergraduate, post-graduate and continuous professional development courses for Environmental Health practitioners within the region. To achieve this aim, (Emeritus Associate Professor) Kafwe Tembo, Head of Environmental Health, UoM sought the collaboration of (Emeritus) Professor Michael Jackson of the Division of Environmental Health, University

of Strathclyde. Through a British Council funded Higher Education Link (1997-2000) awarded to Dr. Tony Grimason, the UoM upgraded their Diploma in Public Health to a BSc in Environmental Health in 1998 - the first African country in the SADC region to do so. Since then a number of higher education institutes in the region have developed environmental health degree courses.

The concept of an 'Africa Academy of Environmental Health' was first proposed by Associate Professor Koos Engelbrecht, Tshwane University of Technology, South Africa at the International Faculty Forum on Environmental Health Education (5th World Congress on Environmental Health, Stockholm) in 1998. At this meeting, the International Federation of Environmental Health (IFEH) endorsed this concept. At the first African conference on Environmental Health Education held at Bagomayo, Tanzania in October 2001 held by the Tanzanian Environmental Health Officers Association (CHAMATA), the above concept was moved forward. Participants from a number of African countries came together to discuss many environment and health issues that are specific to Africa. At this meeting, it was unanimously agreed that there was a need for a proactive communication system, using electronic media, to improve the exchange of information among lecturers, technicians and students within African academic institutions. Amongst the many resolutions tabled, the Africa Group of the IFEH gave a mandate to three Universities in Tanzania, Malawi and South Africa to collaborate and establish an African Academy.

At the 1st All Africa Congress on Environmental Health in Nairobi, Kenya (27 – 30 August 2007) the Academy was officially launched after more than 10 years of preparatory work (<http://www.ifeh.org/afa/index.html>). At this meeting a number of executive committee (EXCO) members were preliminary elected with specific duties assigned to each member. Amongst the duties

assigned Associate Professor Koos Engelbrecht, Mr. Kingsley Lungu (University of Malawi) and Dr. Tony Grimason were tasked with the duty of soliciting funding to develop the AAEH and help mobilise and expand its membership. In 2008 a UK Department for International Development (DfID) grant was awarded jointly to the University of Strathclyde (UK) and Tshwane University of Technology (South Africa) through the British Council Development Partnerships in Higher Education (DelPHE) scheme (<http://www.britishcouncil.org/delphe.htm>) (2008 – 2011; £135,000).

Other academic colleagues involved in developing the DelPHE AAEH proposal were Dr. Tracy Morse (Scotland-Chikwawa Health Initiative; <http://www.strath.ac.uk/malawi/projects/chikwawa/>), Mr. Denis Mazali (Muhimbili University of Health and Allied Health Sciences, Tanzania), Dr. Margaret Keraka and/or Mr. Joseph Okwesio (Kenyatta University, Kenya), William Kitagwa (Moi University, Kenya) and Mr. Stanley Nkambule (University of Swaziland).

The objectives of the DelPHE AAEH grant are as follows:

To determine the extent of environmental health diploma/degree provision within each SADC country.

To help establish an environmental health diploma/degree course in each SADC country by the end of the link period.

To raise the profile and advance the discipline of environmental health in SADC countries.

To determine the uptake and gender participation in environmental health diploma / degree programmes in each SADC country.

To promote the national recognition of environmental health education within SADC countries.

To determine the number and ratio of EHO's compared with other allied health profession-

als and the population in each SADC country.

To establish a database of environmental health education expertise in SADC countries.

To establish an electronic network of environmental health academics in SADC countries.

To promote and stimulate environmental health e-learning in SADC countries.

To identify the presence / absence of any professional environmental health institutes/bodies and their role in reviewing / directing environmental health curricula and accrediting diploma / degree courses.

To facilitate contact with other national and international environmental health training institutions and bodies/associations that share values compatible with the aims of the AAEH.

To promote exchange of environmental health academics within SADC, Africa and abroad.

To promote sharing of best practices in environmental health within SADC countries and abroad.

To promote and facilitate collaborative environmental health research in SADC countries.

To improve the exchange and management of information and experience among environmental health academics, technicians, students and institutes in SADC countries.

To promote the harmonisation of standards and practices in environmental health in SADC countries.

To undertake an educational needs assessment of environmental health academics involved in the delivery of environmental health diploma/degree programmes in SADC countries.

Membership.

Although the objectives of the DelPHE project apply specifically to SADC countries, the

overall aim of the AAEH is to encourage all African institutes involved in environmental health education to become active members of the Academy.

Since the launch of the AAEH, the Academy has received applications from a number of African institutions in Nigeria, Rwanda, Uganda, Burundi and others. Membership is confined to any recognized institution responsible for environmental health training and recognized national environmental health professional bodies/associations in Africa. Individual academics and expert professionals within and outwith Africa may become associate members by invitation and approval of the Africa group of IFEH. The most important challenge is to make contact with all environmental health training institutions in Africa recognized by their respective governments (e.g. Ministry of Health). Any assistance to ensure that the Academy is as inclusive as possible would be highly appreciated.

AAEH Planned Workshops

To facilitate this process a series of DelpHE AAEH workshops are scheduled to take place over the following three years (dates to be announced), the outputs of which will be displayed on the IFEH AAEH website. All interested parties and individuals are invited to participate.

Conclusion

The long term goal of the Academy is to establish a body of African academic institutes under the auspices of the AAEH to instigate, develop and advance training, science and practice of environmental health throughout the continent. We envisage that this will lead to a cadre of well qualified environmental graduates and professional EHOs in each SADC country over time. Overall the AAEH aims to promote national, continental and international recognition of African environmental health and develop south – south academic partnerships with universities in Asia,

Australasia and north-south partnerships with European and American universities through the IFEH Faculty Forum network. With support from the IFEH a future aim of the AAEH is to establish active professional bodies/institutes throughout Africa, similar to those in the developed world.

Acknowledgements.

We would like to acknowledge the British Council, South Africa support for this DelpHE project. We acknowledge the recent invitation from the Commonwealth Scholarship Commission to nominate an academic scholar for a potential split-site PhD scholarship as the recipients of a DelpHE grant.

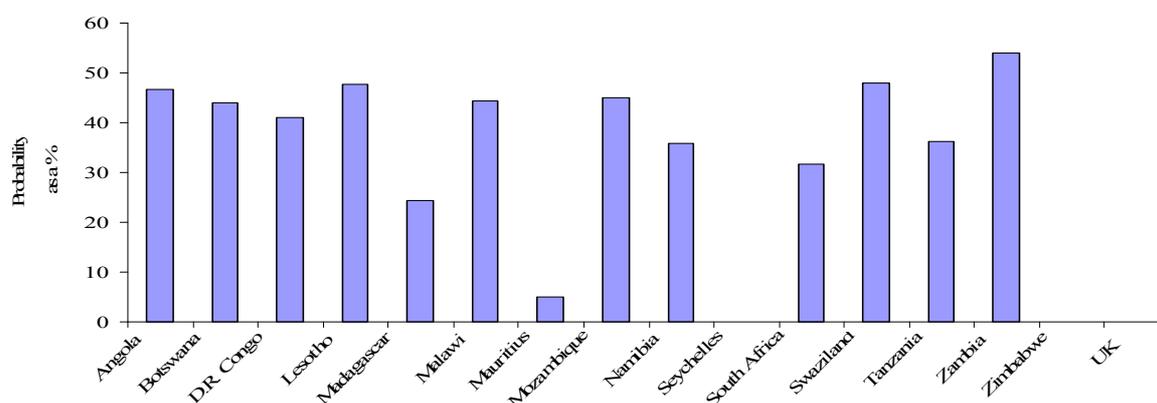
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Table 2. Objectives of the DelPHE AAEH (2008 - 2011) project:

1. To determine the extent of environmental health diploma/degree provision within each SADC country.
2. To help establish an environmental health diploma/degree course in each SADC country by the end of the link period.
3. To raise the profile and advance the discipline of environmental health in SADC countries.
4. To determine the uptake and gender participation in environmental health diploma / degree programmes in each SADC country.
5. To promote the national recognition of environmental health education within SADC countries.
6. To determine the number and ratio of EHO's compared with other allied health professionals and the population in each SADC country.
7. To establish a database of environmental health education expertise in SADC countries.
8. To establish an electronic network of environmental health academics in SADC countries.
9. To promote and stimulate environmental health e-learning in SADC countries.
10. To identify the presence / absence of any professional environmental health institutes/bodies and their role in reviewing / directing environmental health curricula and accrediting diploma / degree courses.
11. To facilitate contact with other national and international environmental health training institutions and bodies/associations that share values compatible with the aims of the AAEH.
12. To promote exchange of environmental health academics within SADC, Africa and abroad.
13. To promote sharing of best practices in environmental health within SADC countries and abroad.
14. To promote and facilitate collaborative environmental health research in SADC countries.
15. To improve the exchange and management of information and experience among environmental health academics, technicians, students and institutes in SADC countries.
16. To promote the harmonisation of standards and practices in environmental health in SADC countries.
17. To undertake a educational needs assessment of environmental health academics involved in the delivery of environmental health diploma/degree programmes in SADC countries.

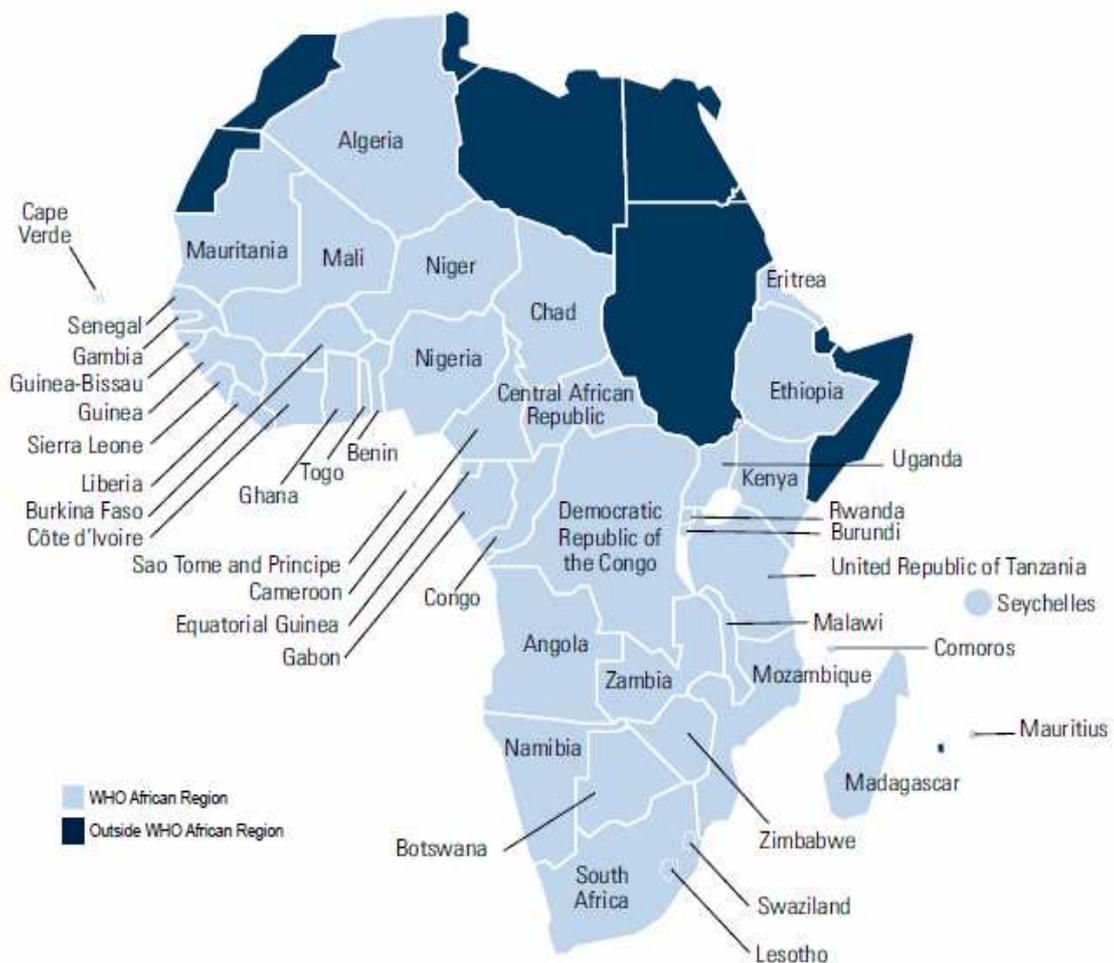
Figure 2. Probability of not surviving past age 40 years as a % (HDR 2006).



Year 1 2009	SOUTH AFRICA (Develop a quality assurance and registration model) Tshwane University, Pretoria	KENYA (Moving quality assurance forward and finalise models) Moi University, Eldoret
Year 2 2010	TANZANIA (Develop and demonstrate an e-learning model) Muhimbili University, Dar Es Salam	MALAWI (Provide an environmental health platform for networking of environmental health academics) University of Malawi, Blantyre.
Year 3 2011	STRATHCLYDE (Constructive inputs and discussion of project and supporting documents) University of Strathclyde, Glasgow	SOUTH AFRICA (Finalise and sign off documents and to identify the way forward) Tshwane University, Pretoria

N.B. The first workshop is scheduled for March 2nd – 6th 2009.

Figure 3. Africa Region of the World Health Organization



A Personal Perspective

Tom Bell

Tom Bell is a Chartered EHO and is the Chief Executive of The Royal Environmental Health Institute of Scotland. The views expressed in this article are not necessarily those of the Royal Environmental Health Institute of Scotland.

I am very honoured to have been invited by Hadrian Bonello, the new Honorary Editor of 'Environment and Health International', to submit a personal perspective on the world of environmental health for publication in this magazine.

My career in environmental health in Scotland began in 1976 when I commenced training as a Student Environmental Health Officer (EHO) with the then City of Edinburgh District Council in 1976. After qualifying in 1980 I continued to work in Edinburgh in all the main disciplines of environmental health until 1998 when I joined the staff of The Royal Environmental Health Institute of Scotland (REHIS) as its Training Adviser. In 1999 I was appointed Director of Professional Development and in 2004 was appointed Acting Chief Executive before being appointed as Chief Executive early in 2005. Over the last 32 years I have been directly involved in the education, training, examination, qualification and professional development of EHOs. In 1991 I was fortunate to be selected as one of the first students to be sponsored by the City of Edinburgh Council to study on the University of Edinburgh's MSc in Public Health programme. The course provided me with an understanding of environmental epidemiology and how it can be used to assess research derived evidence and to quantify the relationship between environmental exposures and adverse health effect in populations. After two years of part-time study I



graduated with an MSc in Environmental Health in 1993 and my views on how environmental epidemiology can contribute to the modern practice of environmental health and to the protection and improvement of public health were reformed and revitalised. The benefit of the post-graduate reflective learning experience as a mature student on the course and latterly as an Honorary Fellow of the university with responsibility for environmental health teaching and research provided an excellent foundation for employment with REHIS and has allowed me to contribute positively to discussions on where the future of the profession lies and on how it can best prepare for the challenges that lie ahead.

In recent years I have been very fortunate to have attended the 2004, 2006 and 2008 World Congresses on Environmental Health in Durban, Dublin and Brisbane. All were fan-

tastically well organised events and unique in their own way and I met many dedicated environmental health professionals and gained valuable perspectives on how the profession in their countries is developing. Visits to Malawi in 2000 (as part of the British Council sponsored academic link between the University of Strathclyde and the University of Malawi) to Cyprus in 2006 (for the signing of a formal twinning agreement between the Association of Public Health Inspectors of Cyprus and REHIS) and a range of meetings with environmental health professionals during their visits to Scotland (EHOs and environmental health academics from Malawi, Nigeria, Tanzania, Ghana, Malta, Denmark, Cyprus, New Zealand and Australia) and during visits to Brussels, Dublin, Belfast, Cardiff and London over many years have provided me with a useful insight into the educational, training and qualification requirements of these member organisations and has highlighted the challenges faced by each.

The world community of environmental health professionals is a relatively small and varied one and it is worth remembering that member organisations represent a wider constituency than EHOs alone. The contribution made by all environmental health professionals is recognised by the WHO, the European Union and by the IFEH and all member organisations should be encouraged to participate to the best of their ability. Some member organisations may represent small memberships and may be relatively new and/or financially poor ... but all have something positive to offer. All member organisations should aim to work, through equitable partnerships, for mutual benefit where neither partner gains in any way at the expense of the other.

There are many examples where member organisations have experienced mutual benefit from such partnerships. Assisting partners to establish short courses and qualifications for businesses in a range of subjects not only promotes environmental health but generates income for the partner organisation. Assisting

partners to develop an educational curriculum, practical training and qualifications for environmental health professionals helps the partner to sustainably develop its profession in a way that will meet the particular needs of the member organisation's country. During my discussions with many environmental health professionals in Brisbane it became very clear that partnerships based on mutual respect are the best way to deal with global environmental health issues. Organisations with a business-first approach and an ethos based on self interest and self promotion have little to contribute.

An issue that I am compelled to raise in this article relates to the development of the worldwide environmental health workforce.

Workforce Development was the main item on the agenda of the last International Faculty Forum (IFF) meeting which was held at the Griffith University in Brisbane on Sunday 11 May the day before the 10th World Congress opened. The IFF is made up of academics who represent educational institutions which deliver the academic education that underpins the practical training of environmental health professionals in the countries of the IFEH's member organisations. The IFF is not formally connected to the IFEH but traditionally meets every two years on the eve of each World Congress. There are no formal mechanisms for joining the IFF; membership is not determined by the IFEH or by the member organisations that are represented on the IFEH Council and members are unelected (Ref: IFEH Procedures Manual, October 2004). In recent years representatives of the IFEH's member organisations (ie the professional bodies) have become more involved in the discussions of the forum and have become increasingly influential in its leadership and direction. Discussions on workforce development have been under consideration by the IFF for some years - I co-presented a paper entitled *Environmental Health Officer Training in Scotland* with Dr Tony Grimason of Strathclyde University in Scotland at the

IFF in Durban in 2004 - and I believe that discussions were initiated in earnest at the 6th World Congress in Oslo back in 2000. However, discussions on the development and introduction of an international competency framework are more recent.

At the IFF meeting in Brisbane presentations entitled *Competences, Competence and Capability* and *A new competency based curriculum for England, Wales and Northern Ireland* introduced the concept of competence frameworks which were followed by two presentations at sessions of the Congress later that week. At the end of one of the sessions delegates gave support to an IFEH task force to produce a draft document outlining the task force's recommendations for consideration by the IFEH later this year. Setting aside my view that (professional) *competence* is gained during professional training and that a *curriculum* relates to the content of an approved or accredited course of teaching at an educational establishment I feel that a number of questions need to be considered by all member organisations.

I am not convinced that there is a need for such a framework and would suggest that there is little evidence that current arrangements to produce effective, informed, motivated and, of course competent, environmental health professionals are not working. When determining what is appropriate for the profession's requirements in the countries they represent member organisations are best positioned to determine their own needs and I believe that it would be irresponsible to encourage member organisations to adopt a model that would not suit the requirements of the countries they represent. The possibility of such a framework to be divisive must also be considered. Some member organisations may not be able to meet the requirements; will they be considered to be lower tier or second rate? The training of environmental health professionals across the world must reflect the culture, traditions and national requirements not only of the member organisation but of the government of the country in question.

Much of what was presented on workforce development and the competence framework



Tom Bell (right) receiving his certificate of Fellowship from Robert Howe, President of REHIS.

in Brisbane was based on the thinking of one or perhaps two member organisations and one issue that concerns me greatly is the substitution of the teaching of life sciences with the teaching of social science. I believe that environmental health professionals must have an in-depth knowledge of the science and technology that under-pin their everyday work. A comprehensive understanding of the effects of environmental exposures on the human body is essential for all environmental health professionals or they will lack credibility especially when working with other public health professionals. Education and professional training which is based on a thin veneer of science and technology will quickly bring the work of environmental health professionals into disrepute.

I believe that there are too many differences in the way each member organisation operates for a workable competency framework to

be agreed by the IFEH and I would recommend that the IFEH seeks agreement for a set of core values based on common goals and aspirations as a more realistic and much less divisive alternative which might actually lead to closer working relationship between member organisations. The energies of the IFEH's member organisations and of the IFF would be better spent celebrating diversity and seeking commonality.

I consider myself fortunate to have met with the late Eric Foskett, the father of the IFEH and a man with a desire to foster a world community of environmental health based on equitable partnership, on a number of occasions the first time being at the REHIS Conference in Inverness in 1994. I believe that the views I have expressed in this article are consistent with Eric's vision for the Federation and for the world community of environmental health.

Eric Foskett Award



John Stirling (left) receiving the Award from Bernard Forteach

John Stirling - IFEH's Eric Foskett Award

The Eric Foskett Award is named after the founder of the IFEH and of this award; it is awarded every two years to an individual or an organisation for notable contribution to the work of the Federation by helping it fulfill its aims and objectives. This year's recipient is John Stirling – well known to many of you! John's contribution as Honorary Editor of the IFEH Magazine for many years and his longstanding support for the IFEH is recognised by the Federation in the presentation of this award.

Developing an International Competence-Based Curriculum for Environmental Health

Maurice Brennan, Steve Konkell & Tony Lewis

Maurice Brennan, Head of Teaching, Division of Environmental Health and Risk Management, University of Birmingham, UK

Steve Konkell; Ph.D., Senior. Researcher, Dublin Institute of Technology, Ireland; Associate Professor, University of Kentucky College of Public Health, Health Services Management & Eastern Kentucky University, USA

Tony Lewis, Principal Education Officer, Chartered Institute of Environmental Health, UK

Abstract

In 1998, the International Federation of Environmental Health (IFEH) commissioned the International Faculty Forum (IFF) of environmental health educators to develop an international curriculum for environmental health. In commissioning such a curriculum, IFEH implicitly recognised and sought to address the ongoing issues of professional identity, status and the transportability of qualifications for Environmental Health Practitioners (EHPs). A draft model for an international curriculum based on competence was proposed by Brennan, Konkell and Lewis and developed and supported by IFF members when they met in May 2008 in Brisbane, Australia. Development of the model and its underpinning concept of 'environmental healthness' ("EHness") is complete. "EHness" is defined as those abilities/skills that are uniquely possessed and focused on in professional practice by EHPs. The draft international curriculum details "EHness" by the specification of core knowledge, skill and competencies to be attained and maintained by EHPs during the initial qualification process and via lifelong professional development and learning. The draft curriculum represents these

elements as a curriculum 'daisy' where knowledge, skills and the resultant competencies ("EHness") sit at the daisy's centre and the additional knowledge, skills and competencies deemed necessary to be held by competent practitioners within each nation, state or region assume the position of the daisy's petals. This model ensures that, irrespective of the location within the world, all EHPs will be educated to the same 'core' curriculum but with divergence taking place via the 'daisy' petals. The authors recognise that the development and approval of an international curriculum for environmental health implies that the development of an international validation process is a future necessity.

2.0 Background

2.1 Environmental Health as a profession is not new; indeed, it emerged in the United Kingdom in 1848 following the enactment of the Public Health Act of 1848 and under the guise of 'Her Majesty's Inspectors of Nuisances'. Whilst the profession grew and evolved within the United Kingdom (UK), the founding principles of the profession namely, the controlling, mitigation and elimination of factors adversely affecting public health, were exported to a myriad of other nations, many of which had colonial links to the UK, but also to many others throughout the globe.

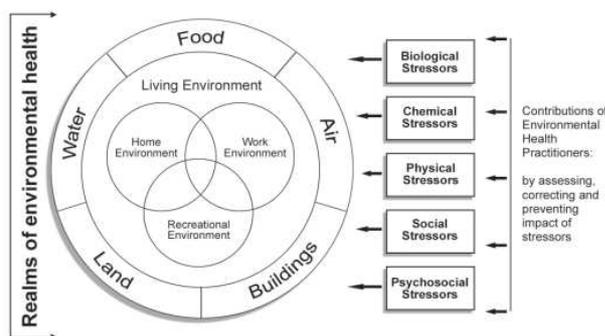
2.2 Over the ensuing 130 years the sphere of influence of environmental health evolved and expanded. Formal international recognition of the key principles of environmental health was provided by the World Health Organization (WHO). In 1972 a WHO Scientific Group developed a definition of environmental health that was subsequently

amended in 1989 and later in 1993. The latest version of the definition expresses the essential nature of environmental health as:

“.....all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviours. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments. This definition excludes behaviour not related to environment, as well as behaviour related to the social and cultural environment, and genetics.”¹

This definition of environmental health was initially represented diagrammatically in Figure 1 by MacArthur and Bonnefoy 1998²

Figure 1Environmental Health....



2.3 Despite the clarity offered by the WHO definition and the associated diagrammatic representation, the education of Environmental Health Practitioners (EHPs) is currently dependent on the requirements for practice within each nation state. Consequently and despite the WHO definition, there is little visible evidence of uniformity surrounding the curricula to be followed by those persons who elect to undergo a period of defined education and training/work-based learning in order to qualify as EHPs. This is evidenced by the difficulties experienced by practitioners who emigrate from their home state to other countries and who are then required to undertake additional study and/or work-based learning prior to being allowed to

practise. Such additional education can be extensive and is designed to support national requirements and environmental health delivery systems and produces practitioners who, despite developing and practising a common core of skills and professional behaviours, operate in very different environments, face different types of problems and generate solutions that, in the main, are consumed by their domestic systems alone.

2.4 Also problematic in terms of the development of international understanding of the identity of the profession is the fact that members are given a variety of titles, such as environmental health professionals, environmental health scientists, industrial hygienists, sanitarians, or environmental public health officials.

3.0 The Globalisation of Environmental Health

3.1 Over the last 20 years, the environmental health profession has come together every two years under the auspices of the International Federation of Environmental Health (IFEH) and its World Congress to share knowledge of good practice and to discuss new and emerging issues of concern. This is a necessary step, one that has led to sharing of cross-cultural insights and has built a network of committed environmental health leaders who seek to advance the profession while demonstrating the value of our critical thinking and problem-solving capabilities.

3.2 Despite this biennial cultural mixing at the international level, the profession's visibility and identity suffers from a lack of a coherent research and publication culture which should support its identity and this is, in turn, compounded by the absence of a common frame of reference that would naturally be afforded by a common curriculum for the education of EHPs. Furthermore, a number of states from which IFEH draws its member organisations are, in 2008, experiencing a

shortage of EHPs; this is certainly true within the UK where there is a shortage of about 1,000 EHPs, but this is also the position within Australia and Canada, and anecdotal evidence of this was provided to the authors by colleagues attending the 2008 World Congress. All of these factors contribute to the many members of the profession being uncertain as to their future direction and purpose and not addressing this in a timely and effective manner is expected to have significant negative consequences for the profession.

Mutual Recognition

3.3 The lack of a common, internationally recognised educational base for environmental health acts as an inhibitor to the transportability of qualifications and mutual recognition of practitioners. However, within the Member States of the European Union (EU), legislation in the form of Directive 2005/36/EC of the European Parliament and of the Council on the Recognition of Professional Qualifications⁴ has sought to address this situation. However, management processes under the Directive have proved to be somewhat cumbersome. The Directive does not apply to professionals from countries outside the European Union

3.4 The problems faced by practitioners wishing to move and practice within IFEH member states are illustrated by considering the case of EH professionals in Australia and England.

3.5 In England, Wales and Northern Ireland (EWNI), the Environmental Health Registration Board (EHRB) registers qualified EHPs. EHRB is a nominally independent company but one that draws a majority of its management board members from Trustees of the Chartered Institute of Environmental Health (CIEH). The Board does, however, also have members who are nominated by key Government departments and agencies. The Board sets the requirements for registration and these not only reflect key influences

brought to bear by the representatives of Government departments but, in turn, also to some extent determine the EHP qualification process that is operational within EWNI. A compounding factor exists in that some UK legislation, including the Food Safety Act 1990 which is substantially enforced by EHPs within the UK, specifies that those authorised to enforce it must *inter alia* be registered with the EHRB.

3.6 This presents a clear problem for Australian qualified EHPs. To work within key areas of environmental health in the UK requires an EHP to hold a valid EHRB registration and the attainment of that registration reflects the qualification process only available within EWNI. The choice for the non-EWNI qualified EHP is to either re-qualify under the EWNI system or to seek recognition by EHRB via the completion of an individual mapping of his/her Australian acquired qualification against the qualification operational in England and the backfilling of any identified shortfalls. This process is cumbersome, time consuming and often deflating to prospective EHPs who could perform well in EWNI posts. In addition, the qualification mapping process does not take into consideration or recognise the core skills and professional behaviours developed via experiential learning by non-EWNI qualified EHPs.

3.7 The key question, therefore, is as follows: Is there an education system for EHPs that focuses on common skills and professional behaviours and which is capable of taking its place on the international stage and being widely, if not universally, adopted amongst those nations that produce EHPs? If one can be developed and there is a consensus about its value, then the EHPs taking advantage of this opportunity will enrich the profession, whilst also increasing the skill base and diversity of the profession, further promoting its visibility and identity. This "system" could also make the profession more attractive to students who would like to work in a profession where travel across continents

is possible or even viewed as highly desirable.

3.8 An educational system based on a common set of skills and professional behaviours could also act as propagator for research and publication within Environmental Health. This would not only grow the evidence base that underpins practice, but would also help cement the often postulated, but largely unsupported claim that Environmental Health is as valid a profession as medicine or law.

4.0 Competence not Qualifications

4.1 The question, posed in paragraph 3.7 above was originally considered by IFEH's governing Council in Sweden in 1998 and the problem was, in turn, handed over to the IFEH academic community (The International Faculty Forum - IFF) with a request for a solution, in the form of an international curriculum, to be generated and vetted so that it could be referred back to IFEH Council for potential adoption.

4.2 Charged with developing an international curriculum, the IFF considered the problem at each subsequent meeting (2000, 2002, 2004 and 2006) and consistently failed to generate a solution because the focus largely remained on the search for commonly held knowledge as being a means to generate a common curriculum.

4.3 2008 saw the IFEH World Congress convene in Brisbane and again the IFF met to consider the common curriculum. Once more the Forum itself was in danger of promoting a process that would likely result in an impenetrable problem. Somewhat fortuitously, circumstances that had been apparent within the UK for some months provided an opportunity for a possible solution to be developed. Since 2006 the Government of the UK had been focussing within its own departments on the concept of 'competence' rather than personally held qualifications as a means of ensuring that civil servants were fit to deliver efficient government services³. Furthermore, following the perceived success of this change

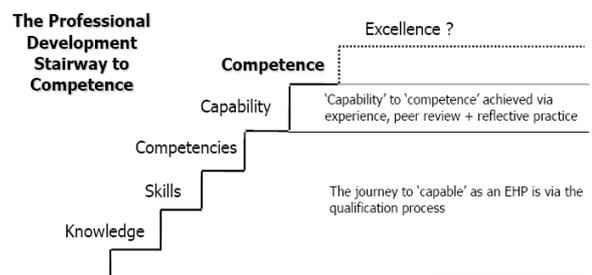
within Government, pressure for a similar approach was being applied to government agencies, some of which, such as the Health and Safety Executive (HSE), are involved in the delivery of key aspects of environmental health.

4.4 'Competence', as a concept, has its roots firmly in American educational reform of the 1920's which began to link educational outputs to industrial/business models that centred on the specification of outcomes in terms of behavioural objectives. The idea was quickly adopted within the medical and associated professions as a means of ensuring reproducible quality.⁹

4.5 Discussions took place at IFF in Brisbane on the possibility of 'competence' providing a solution to the international curriculum issue and it is these discussions that provide the foundations to this paper and the proposal that it in turn generates and which all IFEH members states are asked to consider.

4.6 To fully appreciate the proposal that follows, the 'glossary of competence' needs to be considered. Figure 2 generated by Brennan and Lewis (2006)⁶, is offered as an explanation:

Figure 2 The Professional Development Stairway to Competence



4.7 The model is quite simple and sees the learning process beginning with the attainment of knowledge that is then overlain by the development of key skills. Knowledge and skills applied in practice then develop into

competencies – also known as professional behaviours (not encompassing a code of ethics) which partly frame the way you operate in working life, whereupon practitioners assume a status of being ‘capable’ i.e. they have been set on the road to achieving competence. It is the progression through these stages that is normally delivered via the EHP qualification process. On-going development into a competent practitioner occurs via the addition of work-based experience, reflective learning and peer assessment with further development to a state of ‘excellence’ also being possible.

4.8 The model detailed above was accepted by IFF in Brisbane who additionally saw knowledge, skills and competencies as conferring an ability within practitioners to identify, assess and manage risks to (public) health that arise from the impact of a range of stressors on our world. This ability was regarded as being a unique feature of those who successfully complete the EHP educational process and was subsequently labelled as “EHness” i.e. those abilities/skills uniquely possessed and focussed on in professional practice by EHPs.

4.9 The IFF in Brisbane went on to populate the first three levels of the staircase (‘EHness’) as follows; although it should be noted that IFF renamed ‘Competencies’ as ‘The Method’ for this purpose:

Knowledge

Anatomy physiology and basic toxicology	The built environment
Social, physical and natural sciences	The principles of pollution prevention and control
Communicable and non-communicable diseases – vectors and control mechanisms (surveillance and control)	Health protection measures and methods
Research methods	Inequalities in health
Risk assessment/management principles	Principles of sustainable development
Principles of pest control and management	Legal principles and processes

Skills

Determine and articulate the nature of a hazard and quantify the level of risk associated with that hazard	Determine appropriate courses of action
Plan and execute statistically reliable sampling programmes, analyse and interpret data	Organise self and work within organisations
Plan, execute and report on inspections, investigations and audits	Demonstrate effective communication skills
Obtain admissible evidence and apply due legal processes	Become a reflective practitioner
Design, implement and evaluate a research protocol	Work with and within communities

The Method

Identify and articulate the range of actual and potential biological, chemical, physical, social and psychosocial stressors that may act upon and within the physical, social and human worlds	Identify, communicate and engage with partner organisations, agencies, fellow professionals and others with whom appropriate intervention strategies might need to be formulated
Identify and articulate the points of possible impact of the stressors on and within the worlds	Identify and articulate the most appropriate intervention to exercise, having regard to the factors, be they political, financial and technological that are likely to influence the decision making process
Identify and articulate the mechanism of impact of the stressors on and within the worlds	Design and implement appropriate intervention strategies in collaboration with others
Identify and articulate the potential and actual public health implications that (may) arise from the impact of stressors on and within the worlds	Monitor and review the effectiveness of the intervention strategy; altering or adapting it, where necessary, according to the actual or predicted outcome
Identify and articulate the points at which EHPs may intervene to prevent, control or mitigate the impact of stressors on and within the worlds	

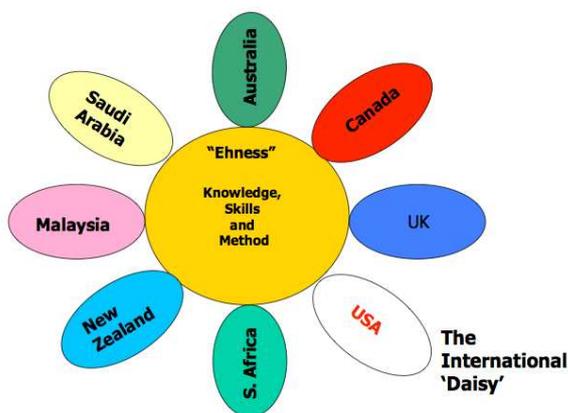
5.0 ‘EHness’ as the international core curriculum

5.1 Having identified ‘EHness’ as the baseline knowledge skills and method that enables EHPs to identify, assess and manage risks to (public) health that arise from the impact of a range of stressors on our world means, IFF accepted that the concept of EHness would

ensure that those who studied the associated curriculum would develop into problem solvers or facilitators for problem solving and would be capable of meeting the requirements of the WHO definition of environmental health; namely, practitioners who could be involved in:

“.....the assessment and control of those environmental factors that can potentially affect health.”

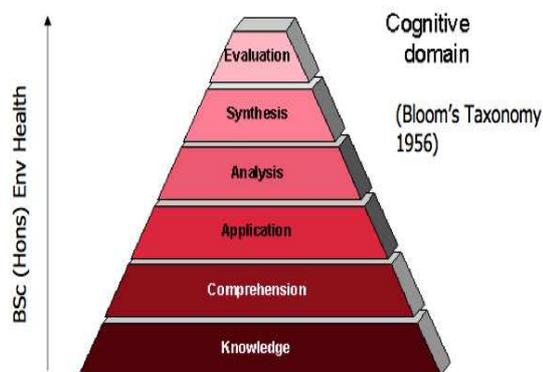
5.2 IFF in Brisbane also went on to consider how the concept and curriculum of ‘EHness’ could conjoin with the additional knowledge, skills and competencies that each country requires of its EHPs in order to deliver a national, ‘fit for purpose’ environmental health service that addresses the specific needs of each nation or region. The answer came in the form of a curriculum model that was termed “The International Daisy”:



5.3 The Daisy model sees all IFEH countries educating their student EHPs by the delivery of the common ‘EHness’ curriculum. The model then allows each state to also develop their own practitioner’s additional knowledge, skills and competencies (contained within the daisy petals) deemed necessary for practice within each member’s state. This model, therefore, ensures that, irrespective of the location within the world, all EHPs will be educated to the same ‘core’ curriculum (‘EHness’); but with divergence taking place via the daisy petals and thus allowing nation states to produce EHPs who are

not only fit for purpose in their own country but are capable of emigration and acceptance within other states on the basis of their ‘core’ learning. This model permits a country or set of countries to ensure that their practitioners are not only recognisable at the international level but also reflect the environmental health realities within their jurisdictions. For example, under Vector Control and Zoonotic Diseases, Africa or China might want to emphasize capability in malaria and avian flu.

5.4 IFF also determined that the level of attainment of EHness should be fixed firmly at a level that envisages cognitive development across all of the key domains within Bloom’s taxonomy ⁷ i.e. a level internationally accepted as being equivalent to a Bachelors degree in Environmental Health. In other words, graduates from environmental health education courses will be expected to not only hold the prescribed knowledge, skills and method, but will be able to demonstrate that they are capable of fully ‘thinking through’ the concepts, issues and actions that are encapsulated within the ‘core’ curriculum.



6.0 The Proposal

6.1 Given the outcomes from the IFF meeting in Brisbane in May 2008 that are outlined above, the IFF community believes that it has now met the brief given to it by IFEH Council in Sweden in 1998 and had developed an realistic and achievable international curriculum for environmental health. That curriculum is embodied within ►[continued on page 32]

Come to Vancouver in 2010

www.ifeh2010.org

In a little over a year the world will come to Vancouver, Canada to participate in and attend the Vancouver Olympic and Paralympic Winter Games. If you're not able to make it to the Olympics (or even if you can) the Canadian Institute of Public Health Inspectors (CIPHI) and the IFEH2010 Conference Committee are inviting you to the 11th World Congress on Environmental Health, running jointly with the 76th CIPHI Annual Educational Conference from September 5th to 10th, 2010.



Our theme is “Global Health Protection - From Sea To Sky”, which will allow us to provide a broad platform from which we can explore universal challenges to environmental health in an era of increasing globalization, menacing environmental concerns and challenging financial times.

Vancouver is located on the west (Pacific) coast of Canada and is often rated among the most livable cities in the world. It is also at the forefront in many areas of environmental responsibility and sustainability. September often brings warm (20° C) weather and beautiful sunsets along with the changing colours of autumn!

The Congress venue is the Westin Bayshore Hotel, set on Vancouver's waterfront with a majestic view of the ocean and the local mountains, within walking distance of world famous Stanley Park.

The Congress will unofficially open on Sunday, September 5th with a Gala Opening of the Exhibits and a Meet and Greet Social with many West Coast delicacies and beverages to enjoy as you get to know the exhibitors and other delegates. The Opening Ceremonies on Monday morning will kick off an exciting, educational, and inspirational week. Each morning (except Wednesday) will feature an interesting and topical Keynote Speaker, expanding on our congress motto of “Educate, Innovate, Advocate!”

Following each morning's keynote address attendees will have a broad selection of presentations to choose from, across 6 daily streams, with over 100 speakers during the course of the congress. While the traditional thematic areas such as food safety, air quality, water quality and climate change will be addressed, we are also planning to touch on some non-traditional environmental health topics and present the information in some innovative ways. We plan on having an Indigenous Peoples' Health stream, a Health Promotion Stream and a Disaster Preparedness and Response stream, as well as ► *[continued on page 33]*



the concept of 'EHness' which is to be delivered at the level of BSc or equivalent and which may be added to at the national level by further knowledge, skills and competencies that may be delivered within 'petals' on the International Daisy model. The IFEH Council is recommended to adopt this curriculum, the concept of EHness and the Daisy model for consideration and consensus building by all member states.

6.2 In addition to the above, IFEH Council is recommended to further consider developing a formal system of qualification 'passporting' within environmental health at the international level. The concept of a "passporting" system for an international qualification is attractive in its simplicity. However, it will not be acceptable unless there is a recognised and robust validation process that is accepted worldwide and IFEH Council is recommended to consider how it might develop such validation and assurance principles and processes.

6.3 Once adopted, the curriculum will need to be disseminated to national professional bodies, who will need to undertake an evaluation of their own accredited courses to determine whether they meet this standard or, if not, to determine the extent of any gap.

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Glossary

Competence- A cluster of related knowledge, skills, and attitudes that affect a major part on one's job (role or responsibility), that can be measured against some accepted standards, and can be improved via training and development

Capability - Describes an individual's potential to develop future competence

Competencies - A range of abilities and skills that support the capability to develop competence

Skills - A skill is the learned capacity or talent to carry out a task or activity to pre-determined results in the most efficient manner

Reflective Practice - a continuous reflective process which involves the learner considering critical incidents in his / her life's experiences with a view to improving future actions and outcomes

"EHness"- The accepted combination of professional knowledge, skills, behaviours and competencies which define the Environmental Health Practitioner

a stream that will be of interest to environmental health managers.

Mid-week we will be offering up to six options for Technical Tours which will include visits to local examples of environmental health best practices, sustainability or new technologies coupled with a taste of local cuisine and some free time to explore Vancouver and Whistler on your own. For those of you not enticed to joint the off-site technical visits we will be offering some on-site day long workshops to choose from. To close the day we are happy to join with our friends from Vilnius to offer you “Lithuanian Night”!

Just in case you’re thinking that this all sounds like a lot of work and not much fun, did I mention the “all inclusive” social program? In addition to a nutritious and refreshing start to each day and luncheons Monday, Tuesday and Thursday, we have planned an exciting social program both within the venue and offsite. The full congress registration includes the full social program for delegates, with extra tickets

available for purchase for companions and friends. Allow us to show you some Canadian hospitality (those of you who were in Brisbane last May already had a taste of our West Coast warmth!)

With the support and assistance of the British Columbia Institute of Technology (BCIT) we will be hosting a Faculty Forum and endeavour to integrate the visiting faculty into the congress program. BCIT has been most generous in also freeing up their environmental health students (during what would normally be their first week of classes) to volunteer and attend this once-in-a-lifetime opportunity.

So, you’re probably wondering what this exciting Congress package will cost you?! While the final registration fee has not been set, we are aiming to keep it between Cdn\$700 and \$800, which translates to the lowest registration fee for any recent World Congress. I hesitate to provide estimates in your local currency, given the idiosyncrasies of the foreign currency.



Nigeria: Environmental Health Delivers (EHSA)

The Environmental Health Student Association (EHSA) is a body setup by lecturers and students of Environmental Health unit of Department of Epidemiology, Medical Statistics and Environmental Health, Faculty of Public Health, University College Hospital, University of Ibadan, Nigeria. Its main objective is to initiate, stimulate and participate in environmental friendly ways to protect, sustain and re-engineer our constantly changing environment. In line with these objectives are several programmes ranging from Youth Environmental Scouts (YES) Club, seminars, EHSA newsletters, EHSA week, editorial board and field trips. These programmes are effectively planned and executed to meet the target audience and they all coalesce in achieving the purpose of enlightening and equipping mankind for an environmental friendly and healthy impact. YES Club (Youth Environmental Scouts) is a bid to catch budding environmental conscious youths at the pri-

mary and secondary level, to educate and nurture them on the need to have a sanitized environment, cultivate sound personal hygiene and cultivate environmental friendly habits in the bid that these scouts will become role models to inspire the drive towards environmental sustainability.

As a tradition, during the World Environmental Day, these scouts are mobilized to participate in debates, essay competition, drama, sketches, poetry, art exhibition and more. Currently, YES Club is actively in 50 schools in Ibadan North Local Government Area. Seminars organized by Environmental Health Student Association are geared towards informing and influencing the attitudes of students and environmental health lovers about current environmental health issues that are of great concern to us.

The intent is to arrive at a communica that will involve participants to take an informed positive approach that will inspire



Picture 1:

YES Club coordinators and students after an enlightenment in Agodi Gardens Ibadan, Nigeria.

others in helping to save our environment. One of such was held in collaboration with the British Council on the 2nd of December 2008 and Professor Shridar was the key note speaker. Also, newsletters to inform the public about recent activities engaged in, current environmental health issues, upcoming environmental health events, tips to cultivate environmental friendly habits and more are published in these newsletters. More so, the Environmental Health Student Association week is a period set aside to synergize our environmental activities into a system that depicts the achievement and evaluate the performance of Environmental Health Student Association members in meeting the specific objectives at the beginning of the session. This is climaxed by the World Environmental Day; a medium to call the attention of policy makers to environmental health issues that requires urgent response.

Outstanding performance by schools and Environmental Health Student Association members in environmental health activities are rewarded. Such was the event that was held on June 5th 2008, tagged “CO₂: Kick the habit towards a low carbon economy”. Meanwhile, sub-projects and environ-

mental health activities are fixed to adequately tackle the challenge with the degree of urgency required. These includes: “The Clean and Green Project” aimed at keeping the University of Ibadan clean and planting trees to increase the rate at which carbon dioxide is removed from the environment.

Well to exhaust the core of Environmental Health Student Association is to say the ways to tackle environmental health issues are limited. Various means to protect, sustain and re-engineer our environment are being revealed continually. Our job is to study the environmental issues affecting our society and innovate ways via which these issues can be tackled, controlled and eradicated. One thing synonymous to environmental health is that the environmental health issues are evolving; today’s challenge will definitely be different from that of tomorrow’s and today’s approach can become obsolete in teaching tomorrow’s challenge.

These keep the Environmental Health Student Association in constant touch with innovative thought to create a healthy and friendly environment.



Picture 2:

Cross section of YES Club students receiving lectures on EHSA week

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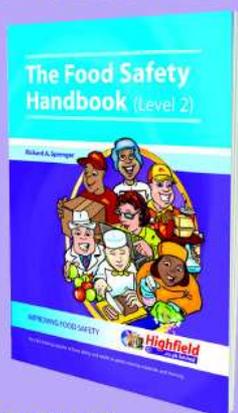
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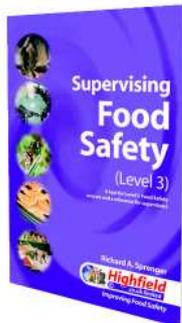
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