
# Medical Ethics and Education

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# First UNESCO Bangkok Bioethics Roundtable (BBRT1) Abstracts

Date: 11-15 September 2005
Venue: Imperial Tara Hotel, Bangkok

**Background**
The purpose of this meeting is to engage in an interactive dialogue over the priorities for bioethics and ethics of science and technology in Asia and the Pacific, with global implications. How can we apply bioethics declarations and international agreements to enhance the realities of communities across a divided and diverse world? As we develop networks of researchers and policymakers we are bringing together persons from over 30 countries and a wide range of specialties for this roundtable as a further step in the reflection and action on ethics of science and technology.

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## Sunday, 11 September

### 1. Opening and UNESCO Ethics Programmes

**Welcome**
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The United Nations Educational, Scientific and Cultural Organization (UNESCO) was founded for the purpose of promoting international peace through its programmes in the fields of Education, Science, Culture, and Communication. This year is the 60th anniversary of UNESCO. An introduction to some of the activities of the Asia-Pacific Regional Bureau for Education, UNESCO Bangkok, will be given.

UNESCO is beginning to celebrate its 60th anniversary this week. This celebration will, in fact, run for the next 60 weeks, from now until 4 November 2006. This 60-week format is designed to allow UNESCO to highlight one of its critical themes each week.

Our newest mandate is the "Decade of Education for Sustainable Development." I like to think of ESD as a framework encompassing all of UNESCO's education work: EFA, Secondary Education, Technical Vocational Education and Higher Education, Citizenship Education, Peace Education, Distance Education, etc. Each of these will be highlighted during one of the 60 weeks of the celebration. Other weeks will focus on UNESCO's work on Human Rights, Cultural Diversity, HIV/AIDS, Bioethics, Human Security, Social Transformations, World Heritage Sites and the Preservation of Intangible Heritage, to name just a few.

UNESCO was officially founded on 16 November 1945 in the aftermath of the "great and terrible war"…the war that could never be allowed to be repeated. It was founded to "create a culture of peace in the minds of men." It has striven, for the last 60 years to accomplish this by exercising, activating and augmenting the educational, scientific and cultural relations of the peoples of the entire world.

For 60 years, UNESCO has sought

- **To Promote** universal literacy and equal access to education;
- **To Promote** the free flow of ideas and universal access to information;
- **To Promote** the expression of pluralism and cultural diversity in the media and in world information networks;

It has striven

- **To Ensure** access for all to information and communication technologies;
- **To Safeguard** cultural diversity and encourage dialogue among cultures and civilizations;
- **To Promote** education as a basic human right;
- **To Improve** the quality of education for all;
- **To Promote** innovation and policy dialogue in education;
- **To Promote** the drafting and implementation of standard-setting instruments regarding cultural heritage;
- **To Promote** principles and ethical norms to guide scientific and technological development, and social transformation;
- **To Improve** human security by better management of the environment and social change;
- **To Enhance** scientific, technical and human capacities to participate in the emerging knowledge societies; and
- **To Enhance** the linkages between culture and development through capacity-building and the sharing of knowledge.

For 60 years, UNESCO's mandate has been broad; it has encompassed many programmes, projects and initiatives. Progress has been made; but there remains a lot to be done; our work is not finished.

I welcome each of you to join us, to follow along and participate in our 60-week long 60th anniversary celebration. We hope that over the course of this jubilee we will be able to put renewed focus on the diverse and important work that UNESCO is, and has been, engaged in for its first 60 years.

The UNESCO Bangkok office is the largest UNESCO branch office in the Asia-Pacific Region, which for UNESCO includes 46 member countries from Turkey in the West to Japan in the East and New Zealand and 17 Pacific Island nations to the South. It is designated as the coordinating office for implementation of the UNESCO programmes on ethics of science. This includes ethics teaching programs, implementing the Decade of Education for Sustainable Development (ESD) and increasing national and regional implementation of UNESCO declarations on bioethics, as well as the activities of the UNESCO International Bioethics Committee (IBC), the UNESCO Intergovernmental Bioethics Committee (IGBC) and the World Commission on Ethics of Science and Technology (COMEST).

**Overview of UNESCO Ethics**

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In pursuit of the UNESCO mandate, the Sector for Social and Human Sciences seeks to advance knowledge, standards and intellectual cooperation in order to facilitate social transformations where the values of justice, freedom and human dignity can be fully realized. The Sector's task is to study what is, to anticipate what could be, and to determine what should be, in order to reduce the gap between what is and what should be.

The Sector's Programme on the Ethics of Science and Technology, being one of UNESCO's five priority areas, is designed to ensure that the world remains secure for everyone by placing the ongoing revolutionary scientific and technological progress within a context of ethical reflection rooted in the cultural, legal, philosophical and religious heritage of the various human communities. This programme covers two primary areas of ethical reflection: bioethics, addressing concerns stemming from advances in life sciences; and ethics of science and technology, addressing other areas of applied ethics in relation to scientific and social developments.

In order to more effectively implement ethics and bioethics activities the networking and partnership building across the region, with global assistance and cooperation, must be improved. This meeting follows up earlier consultations and meetings on these topics in Bangkok, and signals an increase in activities in ethics in the region.

The UNESCO Bioethics Programme was created in 1993 and has been a principal priority of UNESCO since 2002. Its first major success was in 1997, when the General Conference adopted the Universal Declaration on the Human Genome and Human Rights, the only international instrument in the field of bioethics, which was endorsed by the United Nations General Assembly in 1998.

The Bioethics Programme is part of UNESCO's Division of the Ethics of Science and Technology in the Social and Human Sciences Sector. It acts as the Secretariat of two advisory bodies: the International Bioethics Committee (IBC), composed of 36 independent experts, and the Intergovernmental Bioethics Committee (IGBC), composed of representatives of 36 Member States. These Committees cooperate to produce advice, recommendations and proposals that each submits to the Director-General for consideration by UNESCO's governing bodies.

The International Bioethics Committee (IBC) is a body of 36 independent experts that follows progress in the life sciences and its applications in order to ensure respect for human dignity and freedom. It was created in 1993. The IBC provides a global forum for in-depth bioethical reflection by exposing the issues at stake. It does not pass judgment on one position or another. Instead, it is up to each country, particularly lawmakers, to reflect societal choices within the framework of national legislation and to decide between the different positions. The tasks of the IBC include:

1. To promote reflection on the ethical and legal issues raised by research in the life sciences and their applications and to encourage the exchange of ideas and information, particularly through education;
2. To encourage action to heighten awareness among the general public, specialized groups and public and private decision-makers involved in bioethics;
3. To co-operate with the international governmental and non-governmental organizations concerned by the issues raised in the field of bioethics as well as with the national and regional bioethics committees and similar bodies;
4. (i) To contribute to the dissemination of the principles set out in the Universal Declaration on the Human Genome and Human Rights, and to the further examination of issues raised by their applications and by the evolution of the technologies in question;

(ii) to organize appropriate consultations with stakeholders;

(iii) to make recommendations addressed to the General Conference, to give advice concerning the follow-up of the Declaration, and to identify practices that could be contrary to human dignity.

Since 1998, the IBC has had Statutes defining its mandate, composition, etc. The Director-General of UNESCO convenes the IBC at least once a year. Through its sessions and working groups, the Committee produces advice and recommendations on specific issues that are adopted by consensus and are widely disseminated and submitted to the Director-General for transmission to the Member States, the Executive Board and the General Conference. The Director-General appoints the IBC's 36 members to serve in their personal capacities for four-year terms. The selection is made taking into account cultural diversity, balanced geographical representation and nominations from some States of qualified specialists in the life sciences and in the social and human sciences, including law, human rights, philosophy, education and communication.

The Intergovernmental Bioethics Committee (IGBC) was created in 1998, under Article 11 of the Statutes of the IBC (International Bioethics Committee). It is comprised of 36 Member States whose representatives meet at least once every two years to examine the advice and recommendations of the IBC. It informs the IBC of its opinions and submits these opinions along with proposals for follow-up of the IBC's work to the Director-General for transmission to Member States, the Executive Board and the General Conference. The 36 Member States are elected by UNESCO's General Conference taking into account cultural diversity and balanced geographical representation. Members serve for terms of about four years, from the end of the ordinary session of the General Conference in which they are elected until the end of the second subsequent ordinary session.

**Overview on the Global Ethics Observatory**

In order to help Member States to build capacity in applied ethics, a system of databases is being created: the Global Ethics Observatory (GEO). Four databases will make up GEO: 1) a database of experts in applied ethics, 2) a database of ethics institutions and committees, 3) a database of teaching programmes and 4) a database of relevant legislation. The information should be searchable online and available in the six official languages of UNESCO.

The development of the four databases is programmed in order to allow resources to be focused on the establishment of one at a time. The first database, that of ethics experts, will soon be available online via the UNESCO website. Preparatory work has already begun for the second and third databases, covering ethics institutions and ethics teaching programmes, respectively.

*Database 1* 2.

- Data from independent mailing lists of individuals interested and/or involved in applied ethics were combined to form one database with unique entries.
- Criteria for determining what constitutes an expert were drawn up. Based on these criteria, a questionnaire was created in English and French for completion by prospective experts. (If you did not receive this questionnaire please give your name to the secretariat).
- The questionnaire was sent to all individuals in the combined database (approximately 4000) as well as to prospective experts not already in the combined database. This work is ongoing for the region.
- Many responses have been received. Peer review meetings are held at Headquarters to determine whether or not, according to the agreed criteria, the individuals who responded are experts and therefore to be included in the GEO database.
- Pending minor technical modifications, the database should soon be available for the updated/new data to be entered and for viewing/searching online in English and French, followed shortly by the Russian version. Other language versions are planned.

*Database 2*

- A pre-existing database of bioethics institutions (approximately 1000 entries from approximately 70 countries) shall be used as a basis for this second database.
- The structure of the database is in the process of elaboration, taking into account the need for compatibility with the pre-existing database; the look of Database 2 will follow that of Database 1.

*Database 3*

- A form was created to survey ethics teaching programmes.
- This form was distributed to participants in conferences on ethics teaching organized by the Division of Ethics of Science and Technology, UNESCO (Budapest, October 2004; Moscow, January 2005; Zagreb, Spring 2005) and responses have been received. In the coming years mapping of programmes will be actively conducted in Asia and the Pacific region.
- A search is being conducted to find other relevant contact persons for ethics teaching programmes; forms will be sent to these contacts.

**Ethics Around the World Rotating Conferences**

The Division of Ethics of Science and Technology (EST) of UNESCO has organized a series of ethics conferences in various countries. Through these conferences, information about the programme of ethics of science and technology of UNESCO can be disseminated. The conferences can also provide a platform to establish intensive contacts with experts and interested parties in the countries. The series of conferences is usually planned in co-operation with the National Commissions for UNESCO, or another interested organization, so that a joint venture will be established to the benefit of all participating institutions.

A rotating conference has two objectives:

To provide information about the activities of UNESCO in the area of ethics, and to disseminate materials produced;

To interact with professionals and experts from the country in exchanging information, having input into UNESCO activities, and create a network with interested target audiences.

Meetings have been held in the following locations:

18 March 2004: Den Haag, the Netherlands
2 May 2004: Hamedan, Iran
13 September 2004: Vilnius, Lithuania
15 September 2004: Ankara, Turkey
4-5 November 2004: Buenos Aires, Argentina
16 November 2004: Seoul, Korea

24 November 2004: Mexico City, Mexico
2 December 2004: Jakarta, Indonesia
6 January 2005: Lisbon, Portugal
21 January 2005: Moscow, Russian Federation

Some countries have expressed an interest in organizing meetings in 2005; while other countries have planned meetings (Phillipines, Estonia, China and New Zealand)

**Regional Networks and Meetings**

This meeting is an important one in a series of meetings developing in the Asia-Pacific region. In 1997 the UNESCO Asian Bioethics Conference was held in Kobe, Japan, together with the Asian Bioethics Association which was founded at that meeting. In November 2003 a Bioethics Consultation meeting was held in UNESCO Bangkok, and this March the First Bangkok Workshop on Ethics Partnerships for Asia and the Pacific, and the Fourth Session of the COMEST were held here. In December, 2005, we expect the UNESCO IBC to meet in Japan. The future involvement of participants in an expanding international network and activities will be discussed. See the appendices of this abstract book for some UNESCO Declarations that we are aiming to implement.

**The COMEST**

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Within the purview of the ethics of science and technology focus area, the World Commission on Ethics of Scientific Knowledge and Technology (COMEST) was formally created in 1998, and composes of 18 prominent independent personalities (from Brazil, Canada, Chile, Egypt, France, India, Japan, Mali, Morocco, New Zealand, Norway, People's Republic of China, Russian Federation, South Africa, South Korea, Spain, and United States of America) and 11 ex officio members (chairpersons of IBC, IGBC, ICSU, ICPHS, ISSC, Pugwash Conference on Science and World Affairs, IOC, MAB, MOST, IHP, IGCP) from different regions of the world and from various scientific and humanistic disciplines.

COMEST is tasked with formulating, on a scientific basis, ethical principles that can shed light on the various choices and impacts occasioned by new advancements in scientific and technological fields, thus fostering a constructive ethical dialogue on the values at stake.

COMEST is mandated as an advisory body of UNESCO, seeking to provide informed counsel to decision-makers. It functions as an intellectual forum for the exchange of ideas and experience, detecting early signs of risk situations associated with science and technology at the tendency of countries that have developed new technologies at the expense of the global environment to restrict access by developing countries to such technologies. It also provides a platform to promote dialogue between scientific communities, decision-makers, and the public at large.

The first phase of COMEST's work focused on the exploration of ethical issues in water usage, energy, space policy, and information, as well as on the teaching of ethics.

Drawing upon dialogues from the first phase, COMEST has now adopted a new approach for the second phase of its work by supporting Member States in standard-setting action, capacity building, and awareness-raising with regard to ethical issues related to science and technology. COMEST has also expanded its focus, working towards establishing international instruments in the ethics of outer space, ethical code of conduct for scientists, and environmental ethics, as well as addressing issues of science ethics, research ethics, ethics of technology, and ethics teaching.

With regards to an ethical code of conduct for scientists, ongoing COMEST discussions have recognized that a very detailed code would not be acceptable to scientists, but a framework for those who do not yet have guidelines would be useful. It has also been recognized that a distinction should be made between engineers and scientists as they may require different kinds of regulations. It was further pointed out that some codes would not simply constrain scientists and engineers, but would act to protect them as well. The exact scope and application of the code is still under deliberation (see the appendix for a document on this).

## 2. History and Practice of Ethics of Science and Technology

**Confucianism and Its Implications for Bioethics: Tradition and Modernity in China**

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Confucianism is mainly an ancient ethical doctrine but has sustained influence on medicine and other disciplines in China. Confucianism with its core concept *ren* is a care ethics which labelled medicine as an art of *ren* and became the intellectual foundation of Chinese medical ethics. It assumes that physicians have heavy responsibilities for patients, so they should have special virtues to be made a doctor. As the art of *ren* it requires doing no harm, doing good to patients as many as possible, and equal treatment of all patients who pay visit. In traditional medical ethics there are moral maxims not only for physicians to deal with the relationships with patients and with colleagues, but also maxims for patients. The most influential on bioethics is the Confucian concept of personhood, and its implications for the discourses of rights and responsibilities.

**Indian Education and Values**

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Swami Vivekananda says, "Education is the manifestation of perfection in man." The life of an individual was divided into four phases (Ashramas) in ancient India—Brahmacharya (period of learning); Grihastha (period of family life); Vanaprastha (retired life) and Sanyasa (period of renunciation). Students of all classes went to the teacher, stayed with him and learnt. The Gurukula form of education enabled the disciples to get good values as there was personal touch with the teacher. It was not only gaining knowledge, but making oneself a complete person. Every one was educated in his respective sphere. It was an occupation oriented and vale based education. Obedience was the watch word. In modern times every one wants to command not to obey. But in ancient times, whether it was a price or a merchant's son, he had to obey his teacher and even assist his teacher's wife in doing

the household cores. Obedience and dedication made him a perfect student. There was no common examination to test the uniform standard. Individuals were evaluated according to their standards. Perhaps this had kindled the spirit and enthusiasm of the students to exhibit their skill and knowledge. Faithfulness added strength to the success of the students. Religion played an important role in imparting education.

In modern times, there is no doubt the IQ of the students is very high, and they assimilate facts fast. As they know the importance of individual rights and privileges, they are very independent. What is needed is the education by which character is formed, strength of mind is increased, the intellect is expanded and by which one can stand on his feet. Modern education has produced great scholars and researchers, but they lack values. It is necessary to have some hours allotted for the lower classes for moral education so that they may be aware of the basic values. Knowledge is inherent in man. No knowledge comes from outside. It is all inside. One should be given an opportunity to expose his knowledge and skill. Another important thing is that one should use his skill and knowledge for constructive purposes.

The students should be taught to be humble, obedient, helpful, service minded, sacrificing, loving, simple, graceful, and knowledgeable. They should not have jealousy, hatred, arrogance, anger etc towards others. People and some times even teachers may wonder that these are not included in the syllabus. It is the duty of the teacher to make a student a full human being with good values by setting himself a good example. They should be ambitious, with initiative and hard work to achieve their goal. They should be taught to have better human relations. Value based education would prove to be very resourceful and helpful to the students in many ways and not only the parents and teachers but the country could also feel proud of the future citizens.

**Bioethics in a Wider and Probably Original Sense**

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After a short introduction to the history of the health care system, medical ethics, and bioethics in Japan, my own opinions on "Bioethics in a Wider and Probably Original Sense" will be presented. They are:

1. The Pros and cons on modern Artificial Reproductive Technology and Brain Death/Organ-Tissue Transplantation may be called minor issues in bioethics since the number of people involved is relatively small.

2. The most important and primary subjects should be studied and discussed in bioethics in wider sense with the greatest emphasis on peace and the prevention of war and terrorism by the use of nuclear, chemical and biological weapons.

3. Bioethical thinking and conscience are urgently needed not only for medical and co medical professionals, but also for almost all members of society, especially for politicians, bureaucrats, law-makers, bankers, economists, lawyers, educators and philosophers.

**Ethical Dimensions for Sustaining Pacific Island Environments**

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*Understanding of the term ethics and bioethics:* Understanding indicates that it is a moral philosophy prescribing what is right and what is wrong. In other words it states how the world ought to be rather than describe how it is. When applied in the Pacific context this has to take into account the different world views of Pacific peoples that guide them on right and wrong relationships with their environment.

*Ethical dimension of economic and social development:* The current status of Pacific island countries indicates growing disparity in opportunities and wealth distribution accompanied by increasing poverty. Where economic development including tourism development is largely dependent on a natural resource base it is not possible to separate meeting the needs of the poorer segments of society from efforts to ensure environmental sustainability.

*Ethical dimension of governance:* The equal importance of the environment with social and economic considerations in a just and participatory developing society is not seriously considered in development activities to the detriment of society as a whole. Local communities that own most of the resources and are the direct stewards of the environment have little if any input into national policies that direct development activities. There needs to be some re-thinking of the application of resource owners' rights as well as the basic human rights of all citizens of each nation in the formulation of sustainable development policies.

*The role of religions:* Pacific island peoples are generally religious. The potential important role of religion has not been adequately recognized in promoting sustainable development and environmental protection in the Pacific. Major religions including indigenous beliefs provide moral/ ethical guidance for right relationships amongst peoples and between people and nature. Ethics influences resource use and distribution. Religion influences individual's attitudes and behaviour, which can then lead to societal transformation.

**Wither the ELSI program in Korea**

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The Ethical, Legal and Social Implications (ELSI) program has been supported since 2001 by the government-funded functional human genomics project. Faced with the rising bioethical controversies such as genetically modified food and human cloning, the ministry of science and technology (MOST) decided to include the ELSI program as a part of the research funding for biotechnology, modeled after the Human Genome Project in the U.S. The research funding for bioethics program have been spread to other MOST-funded projects such as stem cell, transgenic organ development and brain science, and ministries of health and welfare, and education.

In the mean time, the regulatory framework has been instituted. The Bioethics and Safety Act was legislated effective as of January 1, 2004, and National Bioethics Committee was appointed. The publication of Dr. Hwang's

papers in *Science* consecutively in 2004 and 2005 has led to much more enthusiastic support for human stem cell research on the part of the government and general public. The convergence in genomics and biotechnology, information technology and nano-technology has further complicated the ELSI and bioethics issues with widening information gap between experts and lay citizens.

Given the circumstances, the ELSI and bioethics programs in Korea are at the juncture of re-strategizing the future direction. The issues to be considered include: whether to focus on general concerns at macro level or specific concerns at micro level; how to cope with the old concerns unresolved and further complicated in new technology; and who is the audience and how to communicate and educate? These issues are directly linked to the fundamental question: what is the mission of bioethics and ELSI programs?

**Islamic Codes in Medical Ethics**

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As we know, the revival of genuine ethical merits is a vital requirement for establishing an Islamic state in the society, since Islam relies on fully enlightened hearts and insights of individual Muslims. Islam not only provides guidelines for personal lives of its followers, but also, in order to attain its ultimate truth, has considered various cultural, economic, juridical and governmental aspects, and because of these ethical methods, exerts a great influence as a rule on all aspects of human life. Ethics as a kind of knowledge that deals with human being, its mental and spiritual improvement and inward purification has essential differences with conventional sciences that deal only with material and natural word, and is second to theology, in terms of status, necessity, and rewards.
This is the mission of ethics to identify' various potentials of humankind and help us attain a balance between various desires of self, in order to find the way toward our deserved perfection. Hence, spiritual and moral edification should accompany, or even precede all kinds of education and direct them. Although it seems that there is no connection between the two, material and physical sciences are a necessary prelude to what serves ethics and human perfection, and play a critical role in this regard. Although there is no specific chapter in ethics for medical ethics, considering differences in professions and their social status and that each profession deals with its own problems and concerns, medical ethics can be defined as: the science that concerns with those behaviors and rules that should be observed by all in medical professions. Medical ethics is as inseparable from the world-view as is the ethics itself. Therefore, nearly all peoples have believed in medical ethics since ancient times, although each has justified its necessity in a different way.

## 3. Bioethics Education in Schools across Asia and the Pacific

**Indian Ethics and Contemporary Bio-ethical Issues**

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The holistic nature of Hindu philosophy and the diversity and complexity of the Hindu religio-culture results in the unjust treatment of the subject of ethics in the Indian context. This is the basis of the statements like 'Hindu philosophy furnishes no satisfactory basis for an ethics' and Hindu ethical system as 'world-and-life-negating'. The understanding of Hinduism as world-and-life-negating, soul-centric and / degenerate or amoral is only a misunderstanding or only a partial understanding. The fact is that unlike the unified and creed-like Semitic religion, Hinduism is a complex and composite whole comprising of mutually incomparable religio-philosophical systems, values and practices. The world-and-life-affirming spirit persisted in it right from the beginning and hence the culture of mundane values of both instrumental and intrinsic nature. The positive attitude to life and the world is evident from the recognition of the three human goals (trivarga), the adoption of the science of statecraft (arthasastra) and the scheme of salvation (moksasastra). The dual functions attributed to knowledge namely theoretical and practical or revealing the existence of some object and affording help in the attainment of some purpose in life is peculiar to Indian tradition. The Indian system of thought is specific in the sense of being a theoretical enterprise but with a definite purpose and goal to be achieved. It has a deep and immense practical concern that necessarily calls for suitable planning, program and performance. The applied character of yoga, the vadavidhi as the art of debate to arrive at truth much useful in jurisprudence, the applications of Ayurveda in health and hygiene are all instances of its practical concern. Contemporary issues of abortion, euthanasia, environment etc. demanding a strong theoretical understanding can be meaningfully discussed in the light of the ethical principles of Indian tradition. We are in a world of moral chaos and permissive society where phenomenal advances in science and technology provide growing and bewildering variety of moral dilemmas quite unknown to our fore fathers. The illumination and guidance available in the ancient traditions on these are to be welcomed.

**The Importance of Knowledge Development in Bioethics Education**

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The importance of knowledge development has probably been underestimated in previous studies of learning about bioethical issues. This paper discusses the importance of exploring prior content and procedural knowledge, so that students can extend and develop this knowledge when studying and learning about issues. A case study of a final year high school biology class illustrates aspects of a unit of

work that were designed to enhance student's ability to critically consider bioethical issues related to cancer. This investigation indicates that students' prior knowledge of both content and learning processes influenced the level of achievement in their essays. Pedagogical implications are discussed in relation to the enhancement of knowledge development in bioethics education.

**Teaching Moral Values for High School Students: an Indian Context**

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Respecting the freedom of others is one of the noblest human values that can be imbibed in the hearts of the students by narrating true life incidents known to the students and historical events. To respect the feelings and sentiment of others is one way of safeguarding and honouring one's own freedom and liberty. Every society has its own value system. If the individual is not able to cope up with the value system for one reason or other, the desires of the individual has to be sacrificed for the well being of the society. In this presentation some of the practical methods adopted in the Indian context will be highlighted. Students have their own prejudices against one another. It is the duty of the teacher to make the students realize that fair and equal opportunities should be given to their class-mates in all curricular, co-curricular and extra-curricular activities so that in future they become tolerant citizens of the society, respecting the individual talents of other person. It is well known that no two individuals are alike.

Developing nations face different types of problems based on their social, economical, tropical and political systems. Students should be made to be aware of the evils in the society which cause damage to the growth of their own society and the nation at large. The teacher should kindle in the minds of the students the spirit of patriotism which will burn as a flame to light the nation in the future. Students should know why their parents and teachers curtail some of their desires. The reservation system in education and employment in India is a master plan of our founding fathers of the constitution. They were optimistic in uplifting the standards of living of the so called "Lower Caste" people who are destined so for being born in that caste family. After 57 years of independence the purpose for which reservations were implemented is forgotten and it continues to be a lucrative affair for some of our politicians.

The impact of the mass media has submerged the spirit of innovation in the young minds. Hence they imitate the so called 'Heroes' without knowing that they themselves are a greater hero than the one they admire. The teacher has a very vital role to play in teaching the students about the ill-effects of the mass media especially the cinema and the internet. This presentation will highlight the methods to teach moral values in a meaningful way so that the content reaches the heart first and the brain next.

**Bioethics Education Trials at the Ateneo De Manila High School, in the Philippines**

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The formal inclusion of Bioethics issues in Biology classes at the Ateneo de Manila High School started in school year 2003-2004 through the holding of Bioethics trial classes. As the school participated in the Bioethics Education Project of Dr. Darryl Macer, the Biology teachers handled trial classes on selected Bioethics chapters/modules that were timely and relevant to the Biology curriculum.

In school year 2004-2005, the Science and Technology Department of the AHS mandated the teaching of Bioethics as an integral and formal part of the Biology curriculum. This move is in keeping with the general provisions of the Constitution of the Republic of the Philippines that seek, among others, "to teach the rights and duties of citizenship, strengthen ethical and spiritual values, and develop moral character and personal discipline." Along the same vein, the formal integration of Bioethics into the fabric of the Biology curriculum, implements the school's philosophy and objectives of providing a well-integrated program for the development of the students' ability, among others, "to make relevant judgments and to discriminate among values… as responsible persons and productive members of the community." This development in the Biology curriculum is aided by the availability of Bioethics materials and textbooks through the Bioethics project with Dr. Darryl Macer.

**Internet Self-efficacy and Student-centered Learning in a Thai Secondary Schools**

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Internet self-efficacy, or the belief in one's capabilities to organize and execute courses of Internet actions required to produce given attainments, has been found to influence one's choice, performance and persistence in using the Internet. Apart from accessibility, internet self-efficacy is one of the most important factors determining the extent to which the Internet is used and how equally the Internet will be used by members of a society. As Thailand's new Educational Bill encourages the student-centered pedagogy and self-regulated learning, the Internet has been viewed as a very promising tool for acquiring knowledge in a school environment. However, the investment on the technology might be futile or might even cause negative side effects such as widening the knowledge gaps among students if the Internet is used differentially. This paper examines factors

affecting Internet self-efficacy judgment of students in a sample of secondary schools and universities in Bangkok. The researcher also makes suggestions on appropriate intervention measures to ensure that the use of the Internet in school benefits the learning of students of all social and psychological backgrounds.

**This Year's Flowers Are Redder than Last Year: A Brief Introduction of the Bioethics Project in the High School Affiliated to Beijing Normal University in the Past Two Years**

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The High School Affiliated to Beijing Normal University (BNU) is the first school that offers the bioethics course in the mainland of China. That course has lasted for two consecutive years. Our school identifies the bioethics course as a compulsory subject for the senior II students. Biology teachers take turns to give lectures.

According to the feedbacks from the students last year, we can tell that the students warmly receive the bioethics course. They deem that the course not only enrich their knowledge, but also develop their ways of thinking in face of complex ethics problems. Besides, by getting involved in this international project, every teacher benefits from it. It provides a stage for them to collaborate and communicate with foreign participants. On the basis of the experience last year, we have published several academic theses on bioethics, which has some influence in China.

Since this year, we have made more progress. For an instance, we select those topics linked to the needs of students rather than the topics in which students have no interest (like Palliative Care). We select the topics that are getting more and more concerned by public (like drug abuse). As the scope of topics expands, more teachers are joining in the project. To encourage students to take a more active part in the study, the teachers allow them to spend time thinking and discussing. To make the study more interesting, the teachers display more pictures and video materials. On the basis of the original textbooks, the teachers have compiled the new textbooks, more suitable for the Chinese students. Through the teaching experience last year, the teachers are gradually grasping the quintessence of bioethics. To foster the development of bioethics within the framework of the high schools, we not only offer the bioethics course, but also transmit the thinking of bioethics in the teaching process on purpose. Through the joint efforts of the teachers and students, the teaching system of bioethics in the High School Affiliated to BNU has initially come into being.

**The Actualities and Prospects of Bioethics Education in a Chinese Middle School**

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At present, we have carried the second trials in Chinese middle school from September in 2003. With the development of this project, we have accumulated more and more experience and concluded the lessons from the practice. Does the material *bioethics for informed citizens across cultures* adapt to the Chinese middle school students? What did the students learn in this class? Is this subject beneficial to the students and have influence on their behavior, life view or value view? As the coordinated school, what does this project bring us? And what's the next step of our school are the main topics of this paper.

**To treasure your life, refuse drugs**

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In recent years, the international drug problem is getting more and more serious. Drug abuse has involved more than 200 countries and regions across five continents. It is still spreading. In China, drug abusers have doubled. More worryingly, adolescents are becoming the main drug addicts. Drug abuse has greatly threatened the sound growth of our youngsters; therefore it is urgent to let them know the harm of drugs and to keep them away from them.

This document describes the topic from following aspects:

1 Drug awareness. Students are able to separate drugs from general toxicants and addictive products and can identify by sight / picture several common drugs (e.g. marijuana, dancing outreach, etc.).

2 Harm of drugs. Many young people take drugs due to unawareness of the huge harm of drugs. In this part, it many cases will be provided to elaborate the tremendous disaster to individuals, family and society resulting from drug abuse

3 Drug Prevention. This is the ultimate objective of drug control. It discovers corresponding measures through analyzing the reasons for adolescent drug abuse and helps students build up strong belief in "never taking the first drug".

4 Drug-related ethical issues. Drug addiction is a complex social phenomenon, not only confined to medicine and pharmacology, but also relating to law, sociology, ethics, psychology and so on. There are many complicated ethical and moral issues centered on drugs. This part cites cases for students to consider and discuss, aiming at enabling them to behave with caution and a responsible attitude with similar problems in the future, rather than going with the stream.

With this information, young people will know the harm of drugs, have enhanced drug control awareness and will say "yes" to life and "no" to drugs.

**Teaching About Organ Donation and Organ Transplants**

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Organ transplants are now used around the world. In particular, over the past thirty years with the development of micro-surgery techniques and advanced immune system suppressors, many people have recovered their health and re-commenced active life as a result of receiving organs. Some modern medical techniques have conspicuously broken through ties with ethical ideals though have been given social endorsement. Organ donation still presents many difficult ethical problems though, notably in the sourcing and distribution of body parts. This has led to the need for a new field of ethical discussion and teaching materials: Bio-ethics for informed citizens across cultures. This has been viewed by Macer as consisting of four aspects:

1 Organ Transplants: Development and Actuality
2 Types of Organ Transplant: Complications and Success
3 Organ Donations: Ethical Problems
  3.1 In accord with ethics;
  3.2 Following ethics;
  3.3 Source of Organs and ethical requests;
  3.4 Ethics of Organ donation;
4 Organ Donation: Legal problems

**Environmental Education and Ecoethics-Current Trends in Education**

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Education and awareness are solutions to the evils of ignorance and poverty. Today environmental education has to be coupled with – Ecoethics which has gained importance due to the deterioration in the quality of the environment we live in. To make our Mother Earth livable, we have to create awareness not only of the importance of environment but also the ethical values. In recent judgment, a bench of Judges, Justice Shri. N. Santosh Hegde and Justice Shri. B.P.Singh have asked the NCERT, AICTE and all the State Governments to explain the serious lapse on their part on imparting environmental education. The Court had directed the University Grants Commission to prescribe a course on Environment at the graduation and post graduation level. Thus making the environmental education compulsory subject at every level of higher education is a welcome move to inculcate the value of environment so that the environment we live in will be livable also in the future.

**Value Education: A Treasure of a Nation**

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Nelson Mandela says, "The question of poverty and lack of education, those two combined is the greatest problem facing the world right now". What Mandela meant is the education embedded with noble human values to alleviate poverty. The problems faced by educationists are innumerable. One such problem is the introduction of value education. In many educational institutions value education is taught as a separate optional or compulsory subject. Values of individuals and society change from time to time. But values on the right way of living life never change. Value education text materials are prepared with great care incorporating wonderful examples. Yet students take this course very lightly. Values should not be taught in a formal way. Values are caught rather than taught. A better method to introduce values will be to teach them along with the main subject, e.g., while teaching Newton's third low of motion in physics, after giving proper explanations, the teacher can say "good actions in life bring good rewards and bad actions bring punishments". Thus values could be introduced in each and every subject whenever and wherever possible. An attempt is made in this paper to study the effectiveness of the direct and indirect methods of instructional procedure to teach values at any level of education. A carefully framed value education reading material will mould the pupils into better citizens of the country.

**Can Formal Education Promote Beneficence? [poster]**

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Respecting the freedom of others is one of the noblest human values that can be imbibed in the hearts of the students by narrating true life incidents known to the students and historical events. To respect the feelings and sentiment of others is one way of safeguarding and honouring one's own freedom and liberty. Every society has its own value system. If the individual is not able to cope up with the value system for one reason or other, the desires of the individual has to be sacrificed for the well being of the society. In this presentation some of the practical methods adopted in the Indian context will be highlighted. Students have their own prejudices against one another. It is the duty of the teacher to make the students realize that fair and equal opportunities should be given to their class-mates in all curricular, co-curricular and extra-curricular activities so that in future they become tolerant citizens of the society, respecting the individual talents of other person. It is well known that no two individuals are alike.

Developing nations face different types of problems based on their social, economical, tropical and political systems. Students should be made to be aware of the evils in the society which cause damage to the growth of their own society and the nation at large. The teacher should kindle in the minds of the students the spirit of patriotism which will burn as a flame to light the nation in the future. Students should know why their parents and teachers curtail some of their desires. The reservation system in education and

employment in India is a master plan of our founding fathers of the constitution. They were optimistic in uplifting the standards of living of the so called 'Lower Caste' people who are destined so for being born in that caste family. After 57 years of independence the purpose for which reservations were implemented is forgotten and it continues to be a lucrative affair for some of our politicians.

The impact of the mass media has submerged the spirit of innovation in the young minds. Hence they imitate the so called 'Heroes' without knowing that they themselves are a greater hero than the one they admire. The teacher has a very vital role to play in teaching the students about the ill-effects of the mass media especially the cinema and the internet. This presentation will highlight the methods to teach moral values in a meaningful way so that the content reaches the heart first and the brain next.

**Perspective on the Role of Sex Education in the changing cultural scenario and psyche of Indian Personae in the 21st Century**

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The influence of changing culture on the new generation is alienating the youngsters from traditional values and ethics. There is increased incidence of sexual abuse and aberrant sexual activities in society. The sexually explicit culture and the new terminology like metrosexual man in cosmopolitan cities along with sudden exposure of this hitherto camouflaged but now televised sexuality has baffled the minds of certain orthodox rural Indians. It is juxtaposed to certain rural scenarios say of a village in Kerala with 14 year old brides becoming abandoned wives in their twenties and grandmothers in their thirties. The stories of mass rape of teenagers in cities with unrestricted discussion and debates on such social issues of great moral sensitivity awakens the need for regularizing the mindset of younger generation towards a healthy sexual life in a traditional way. Media reports of role models of westernized Indian youngsters like the Pop star Michael Jackson so called child sexual abuse case of an adult infant seem to light the fire of hormonal passion trying to burn the social fabric of society. Sex education, which is to impart true scientific knowledge as well as social responsibility to all segments of society, sits wrapped waiting for teachers to unravel the mysteries of love and life. Paedophilia the moral scourge that has soiled human sexuality from Belgium to the compound walls of the Church is one such phenomenon, which demonstrates the need for revamping of our sexual and social mores of life. Instead of dissecting and exposing the anatomical anomalies of human sexual act and behaviour, it is relevant to teach forgotten life values particularly to the ever expanding and experimenting minds of our teenagers. The Acquired Immuno Deficiency Syndrome (AIDS), which threatens and challenges the health of our society demands propagating proper preventive measures as well as a protective science of sexuality. The advertisements often screened on the Television for condoms or other sexual matters need to be precise without any ambiguity so as to prevent a false notion that condoms may allow permissive sex. The sexuo-erotic orientation with confounding theories of hetero- and homosexuality even if it is socially or scientifically factual need not be a pathfinder for alternate routes of sexual behaviour. The recent referendum in Italy to change the norms of sexual behaviour with little turnout to vote reemphasizes the fact that the world still holds certain social ethical norms to guide society towards a morally fulfilling life style. The sudden socio cultural shock in the form of a spurt in adverse sexual patterns of behaviour in the teens and the rise in AIDS cases in our country makes us take stock of our social responsibility to impart true sex education with no insinuations or scope for manipulation of developing minds of our youngsters. The report of a married man wanting a second wife to meet his desires at his place of work on the pretext that his first wife has to take care of his parents back at home stirs up another issue of how ignorant or arrogant a male could be towards females. It is exasperating to learn that he asks for a legal opinion whether he could give power of attorney to his brother to marry on his behalf to circumvent the Hindu Law of Divorce. Women need social dignity and equality in society which seems rather printed matter far from reality. It is therefore necessary that sex education must open our views to give dignity to human sexuality and discipline the mind that is bombarded by naked play of human sexuality on and off the screen of human life.

**Consulting the Public in the Setting of Bioethics: Regulatory Framework and Policy in Malaysia**

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To draft a policy without consulting the public opinion is disastrous. As regard to bioethics, communities' values system must be the primary agenda. Since health policies are not an exclusive subject, participation of peoples from diverse background and experience in the decision-making process is significant in tandem with the principles of a pluralistic democracy. Structured paternalism lies coherently on the professionalism within the medical fraternity, yet it is not adequate to advocate the framework of social justice for being ignorant of the public opinion.

While Malaysia is still working on the comprehensive regulatory framework, the existing bioethics policy must diligently consider a tacit guideline on how the public opinion will effectively address the issues according to the proper procedures and findings. It is noteworthy that the standing committee set up for assisted reproductive techniques (ART) drawn up by the Malaysian Medical Association and Obstetrical and Gynaecological Society of Malaysia in 1999 deserves an appraisal. A comprehensive set of administrative, ethical and clinical guidelines was prepared to provide safety and efficacy in the scientific practices. However, the existing proportion of membership in the committee should welcome more participation from the public stakeholders. This participatory model requires higher level of literacy amongst them before the dialogue session is held. Public discourse and collaborative networks amongst the medical regulatory bodies and the non-governmental organisation is another concern. Though Malaysia is still at the infancy stage particularly on the structure of bioethics committee and comprehensive legislation on bioethics, transparency in the decision-making process must be constant. Regulating law under the so-called 'public policy' irrespective of the public criticism is an

irreconcilable paradox. This paper attempts to critically analyse the efforts undertaken by the Malaysian government in the setting up of the bioethics policy and how they deal with the public response on the circular issued pertinent to bioethics. It is learnt that various participation in the setting up of the bioethics policy in Malaysia will enable greater understanding and acceptance of the public on the prevailing issues. International guidelines are the fundamentals to be incorporated, yet they must be situated within the local traditions, religious and cultural sensitivities subsisting in the society.

## Monday, 12 September

## 4. Environmental Ethics

**Land and people as the measure: A Pacific ethic of place and prudence**

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V*anua*, *fenua*, *fanoa, fonua, aba* mean both land and people in various Pacific languages. *Kainga*, *aiga*, '*aina* refer to family as well as 'to that which feeds' (or "that from which one eats"),*1.* and are (viscerally) connected to land. Together they constitute the measure or the foundation by which Pacific societies set their ethical standards. The land (including the ocean) feeds the people, literally and figuratively: it is the source, the foundation, it produces and creates, and it is never an inanimate commodity. Pacific societies have a strong consciousness that going against the path or the way of the land (*salavakavanua* in Fijian) is detrimental. For instance, lying crooked on the land, *davo cala*, as opposed to *davo donu*, lying straight (in Fijian) will lead to the end of *sautu* (well being). *2* The Hawaiian expression *mālama 'aina* which means to take care of the land succinctly sums up the idea of primary responsibility to the land (and to the people it sustains). This Pacific 'land ethic' offers strong parallels with the idea of an ethic of place developed by environmental philosophers and to that of 'ecological' prudence. As such it can and should inform global discussions on bioethics and global environmental governance.

[1] See Lilikalā Kame'eleihiwa, 1992. Native Land and Foreign Desires: *Pehea Lā E Pono Ai*? Honolulu: Bishop Museum Press, cited in Tēvita O Ka'ili, 2005. *Tauhi Vā*: Nurturing Tongan Sociospatial Ties in Maui and Beyond, The Contemporary Pacific, 17 (1), p. 83.
[2] See Ilaitia Tuwere, 2002. *Vanua*: *Towards a Fijian Theology of Place*, Institute of Pacific Studies, University of the South Pacific.

**Anthropocentrism isn't a dirty word: reflections on nature and life at the margins**

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The environmental movement has brought about a wide array of views about nature and the environment ranging from biocentrism to light environmentalism. The common denominator among these is the primacy given to nature in both theory and practice; that is, the construction of "the environment as an ideal" gestalt. The question of whether and how to balance the tenacious relationship between humans and the environment defines where people stand in the environmentalism spectrum. Another definitive point of contention is what should be included, valued as prime subjects, objects and actors of environmental discourse. How people rank animals, species, ecosystem and humans in order of importance reflects what kind of environmentalism they subscribe to. The rhetorical question of "who will you choose-people or trees?" depicts the ontological tension between those who, on a very basic and daily basis, are directly subjected to the capriciousness of Mother Nature and those who are engaged in the creation and implementation of the cultural capital of environmentalism. More often than not, the former becomes transmogrified into "people who need to be assisted and to be educated in the value of the environment for the world". In corollary, the lack of nuance in this worldview that tends to lump "the people" as one whole unit becomes problematic when it comes to finding solutions for "the people", for one, a variety of definitions brings us to the question of are we talking, to begin with, about the same "people". This paper will examine how these various complexities and interrelations are played out concretely among people living in the so-called margins of a marginalized community in a UNESCO Natural World Heritage Site in the Philippines. Basically, it will seek to understand what it means when one's backyard is declared a globally protected area. In doing so, it will hope to address the role environmentalism plays on the prevalent mindset and practices of people who are perceived as living in remote areas that need to be aided by a just, caring, benevolent and altruistic global community.

**From Biosphere to Technosphere to Biotechnosphere: the Indian Scenario in an Eco-Ethical Perspective**

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The biosphere concept, first advanced by Eduard Suess in 1875, propagated by V.I. Vernadsky in the 1920s-'40s, and reiterated as well as reinforced by E.P. Odum in the 1970s, emphasizes the key role of living organisms not only in the evolution of the biosphere itself, but in modifying and shaping the atmosphere, the hydrosphere and the lithosphere as well. The early human societies shared the biosphere's resources with the other organisms in an equitable manner in harmony with the natural processes. However the tremendous development of the brain and the central nervous system of man led many western thinkers to reason that the biosphere has been transformed into a 'noosphere' controlled by the human mind. But as the humans simply used technology to tame nature and to make it subservient to human need and greed instead of acting as a benign steward, the noosphere in reality became a 'technosphere', where not only the non-human entities, but even those human communities lacking access to technology enjoyed few rights or none at all. In fact,

the classification of nations, communities or places into categories such as 'developed', 'developing', 'underdeveloped' or 'backward' is entirely based on their technological status. A similar yardstick based on biotechnology is likely to be used in near future.

In India, urban centers were established in the Indus Valley as early as in *c* 2500 B.C., and starting from *c* 1000 B.C., large forested tracts were cleared, especially in the Ganga valley, by the Vedic people. Nevertheless, these effects were mostly localized, and by and large the Indian society continued to live in harmony with nature, thereby being governed by the principles of the biosphere concept. While trade flourished and cities grew during the successive empires that followed, including those during the Pathan and the Mughal periods, the Indian villagers essentially led a life of 'ecosystem people', living off the resources drawn from a very limited catchment area. In order to ensure sustainable extraction of resources, they evolved an intricate system of taboos in hunting and harvesting, established sacred groves, and took to nature worship, thereby integrating an ecocentric lifestyle into the Indian culture. The impact of the industrial revolution in the 17th century was not felt in India, till it became a part of the British Empire in the mid 18th century. India then gradually moved into the technosphere, a process that was accelerated after independence in 1947. Large development projects were commissioned accompanied by deforestation, loss of biodiversity, and pollution of air and water. Augmented food production using intensive farming contaminated the environment with fertilizers and pesticides with concomitant decline in soil fertility and increasing salinization of soil in large tracts of land. The high-yielding varieties of crops such as rice pushed to the brink the tens of thousands of traditional landraces. Now the emphasis is on the use of biotechnology to rescue the development juggernaut out of this morass, exploiting the strength of the country as a megabiodiversity center, and having two biodiversity hotspots. India now aspires to become a major player in the global economic arena by the application of biotechnology to extract, exploit and manipulate its rich genetic diversity and its equally rich traditional knowledge. Interestingly, neither when it was bolstering its technological capability, nor today when it intends to apply biotechnological solutions to its problems, India has tried sincerely to address the inevitable ecological and ethical issues relating to the time-honoured, intricate and inseparable links between biodiversity and the cultural practices of a large section of its people, and the fact that biodiversity still supports the substantial non-monetized economy of the Indian villages, especially those in the marginal, remote areas. This paper argues that just as its transformation into the technosphere has remained incomplete, so would be that into the biotechnosphere unless these vital issues are resolved along eco-ethical principles.

**Learning from our forefathers: A foundation for bioethics in the Pacific islands – with emphasis on issues relating to agriculture and the environment**

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As a student of agriculture at the University of the South Pacific in the 70s, I realized that a machinery was in place which was working towards destroying and replacing my forefathers' farming systems without even trying to understand these: my father's farming system was being written off as `backward'. As a lecturer at the University of the South Pacific School of Agriculture in the 80's, I made arrangements so that my students could use their Summer holidays to learn about their traditional farming systems so as to balance what the university was teaching them about modern agriculture during the academic year. Students from various countries of the Pacific were involved – including those from Melanesia, Micronesia and Polynesia. While the students learnt some traditional methodologies and techniques, I found that they achieved something of greater importance – they learnt also the non-physical, metaphysical or spiritual foundations that controlled the ethics and behaviours of our forefathers with regards to agriculture, the environment and in fact the whole of life in the islands.

This paper will argue that in this era of rapid globalization"[o]ne of the greatest needs today is to evolve a new ethical system, or systems, better adapted to the present and coming context" (Professor Ron Crocombe, The South Pacific, 2001:231) While `ethics' is essential, some issues of debate include - how shall we decide the standards and, shall ethics be based on factors such as intuition, law, pleasure, evolution, perfection, and/or value? It will be argued that our forefathers pointed the way and prepared the building blocks required to create a solid foundation for bioethics in the Pacific islands. This paper will discuss the foundation for bioethics in the Pacific islands – with emphasis on issues relating to agriculture and the environment.

**Ethical Aspects of Using International Rivers: Some Policy Proposals for Optimal Sharing of Teesta River Water**

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All riparian states have the right to use water of international rivers. This right is equally recognized for all riparian states on the basis of ethical principles and laws on international water sharing. However, sharing of river water has become one of the issues of conflict between neighboring states. Various claims and counter claims are heard of and in order to resolve these issues many cooperative bilateral treaties have also been signed. But treaties that are only politically induced and do not include provisions for economic benefits and do not follow ethical principles on humanitarian grounds of the riparian states are not likely to last for long. Continuity of such treaties is indispensable for the sustenance and development of the riparian states and ethical principles and humanitarian grounds should be the basis for these treaties. Nowadays, it is observed that states situated at the upstream control the water flow of rivers for their own benefits without considering its consequences on the downstream state. As a result inhabitants of the downstream countries suffer untold miseries. Nevertheless, there are some good examples of international water sharing. In this paper, I discuss these principles with special reference

to the case of sharing of the Teesta River water between India and Bangladesh. Some policy proposals are also made in this regard. The paper emphasizes the necessity of upholding morality and ethical principles in formulating and implementing policies regarding sharing of international river water. Riparian states must cooperate and be sympathetic for the causes of one another.

**Theoretical Foundations of Neonaturalistic Environmental Bioethics**

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I take the domain of bioethics to be the moral dimension of actions and intentions affecting vital values, or the attributes and essential conditions of being a living creature. The structure of vital values - both organismic ones (e. g. health) and biotic community ones (e. g. eco-equilibrium) - and moral values (perhaps aesthetic ones as well) constitutes the environmental life-quality (ELQ), the essential state for Life on Earth to self-continue in the process of natural multiplication & selection. As culture is an adaptational system and the multidimensional niche of Homo sapiens (HS), its existence depends on human observation of the standards of ELQ in the course of cultural development.

The environmental perspective, having an influence on traditional bioethics for 30 years, has caused biomedical ethics, hitherto understood as the ethics of clinical practice, to acquire the new dimension of environmental life-quality ethics in the context of a revised value-status of *HS* within the biosphere. The ontological and logical aspects of the is-ought problem, the universalizability of ought-judgments, and the existence/nonexistence of *natural values* seem to be fundamental issues, the solution to which is crucial to the construction of global bioethics. An environmental ethicist looks for a set of transcendental (interspecific) values that can underlie the methodologically proper attribution of rights to nonhumans and specific duties to *HS*. However, in order to construct a verifiable normative ethic that does not commit the naturalistic fallacy, it is necessary both to find the ontological possibility for an empirical fact to be normative and to make a valuer abstract (transcendental).

It is a methodological fallacy both to anthropomorphize natural phenomena by explaining them in terms of cultural sciences and to abuse the 'anthropomorphism' argument. This charge is a common reaction to evolutionary explanations of spiritual phenomena, for humans do not accept the natural origins of their humanity. Anthropomorphism itself, as an inversion of the cause and the result, expresses the non-acceptance of the real origin of *HS*. Hence, the theoretical proposal I want to sketch represents a *neonaturalistic*, which I identify as my standpoint, approach to bioethical dilemmas. By restoring the full bio-cultural dimension to *HS*, neonaturalism opposes both positivistic and humanistic reductionism.

A key category - one focusing on the axiological conflict between nature and culture, and one which humans used to deny to other species - is that of the 'soul'. Neonaturalism expounds the origins of human spiritual abilities in terms of the natural sciences, in accordance with the Darwinian legacy. Especially, I take the subject-matter of *evolutionary ethics/axiology* to be the natural history of moral sensitivity and value-ability (ability to value). Neonaturalistic evolutionary ethics/axiology is an alternative approach to the systems of environmental ethics based on the category of autonomous intrinsic value.

**Can education in environmental ethics alone solve problems of loss of biodiversity in Developing Countries**

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India is one of the twelve mega bio-diversity nations. Besides economic arguments for protection of bio diversity, there are bio ethical arguments too. All species are not only inter-dependent; they all have a right to exist. Humans have no right to reduce the species richness and they must live within the same ecological limitations as other species do. Nature has spiritual and aesthetic values that transcend economic values and rights of all other beings.

Habitat fragmentation, degradation and pollution result in some species being affected, but greatly by only habitat destruction. The most subtle form of habitat degradation is environmental pollution, the most common causes of which is pesticides, industrial chemicals and wastes from factories and automobiles, causing water pollution and air pollution.

Manali, North Madras is one area subjected to all types of pollution. Indian Environmental ethics has been forgotten. Legal mechanisms are powerless and political forces use administrative machinery to safeguard defaulters. Many of the rare species of birds common, only to Indonesia, Malaysia and South India are reduced considerably Poor people are ignorant about the course of actions to be taken. There are no prominent NGOs functioning. Thus the development crisis of Southern countries is not one of resource crisis but political and social will.

Even in Marxist writings one can not see resource crunch, wastage or technology as a constraining factor of growth. Their emphasis was only on rapaciousness of capitalism which survived, changing its forms, never comprehending the need for environmental ethics.

Now the world has come to realize that Nature exists for itself and not for man alone. While it is impossible to follow environmental fundamentalism it is possible to combine, cleaner technology with ethical commitment to environmentalism. This paper pleads for environmentalism to be included in the search for a new social theory, on which societies can be reconstructed.

**Spreading the Wings of Bioethics: Issues of Scale and Priority**

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Human survival is potentially our highest-level priority. The current century on several fronts is likely to be the most hazardous our species has ever faced. Evidence is mounting from ecology, environmental economics and international relations that many collective human systems and behaviours, seemingly adaptive over the short term, are likely to be self-defeating over the long term - a condition known in biology as

an 'evolutionary cul-de-sac'. There is now a window of opportunity, of unknown extent, before certain unpredictable global thresholds may be reached, and beyond which catastrophic consequences become unavoidable. Broadest interacting categories of risk include ecological risks (e.g. resulting from current mass extinction event and instability of ecological life-support services), technological risks (e.g. weapons of mass destruction and convergence of genetics, nanotechnology, robotics and information technology) and socioeconomic risks (e.g. resulting from economic inequity, over-production and over-consumption). The pace of change is accelerating. An all too common psychological response to stressful information is denial, but even risks of apparently low probability are essential subjects for research if their consequences are of high significance (i.e. they would result in irreversible large-scale damage). It would be beneficial to identify and rank components of such risks in a systematic way, using a variety of scientific tools and indicators, by their magnitude, significance and probable likelihood. Bioethics has made fundamental contributions to our understanding of life and ethical behaviour, and can be made even more effective by becoming acquainted with models and tools of environmental science and sustainability theory. New applications of evolving techniques in modelling and information technology (e.g. expert systems, risk analysis, impact assessment, cost-benefit analysis, geographic information systems etc.) will soon be able to more precisely measure human priorities. Central to the solution will be new global socioeconomic models able to synchronize the powerful driving forces of market incentives with the achievement of bioethical outcomes. Historically, ethics has evolved from an anthropocentric and individual-centric viewpoint (concentrating on moral choice of the individual). Considering that bioethics is serious about loving life and saving lives of all kinds, there's now increasing potential for further spread of its wings, with more confidence, to cover behaviours acted out at group or systems level (e.g. national or corporate folly), larger conceptual scales (i.e. generalised rather than specialised problems), larger spatial scales (i.e. integrated global systems), and longer time-frames (prevention better than cure). Bioethics informed by environmental science has greater capacity to use the moral authority it has been given in the medical sciences to address larger-scale issues affecting the future of life and ultimately human survival.

**Inculcation of Environment-friendly Ethics as a Prerequisite for Sustainable Development in Bangladesh**

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Ethics consist of the moral principles that govern or influence one's conduct, and these ethics are usually embedded in the value system of a society. 'Environmental ethics,' therefore can roughly be defined as the "human attitudes and values that influence individual behaviour and government policy toward nature" (Callicott 1995: 676). According to the Brundtland report, sustainable development is the 'development that meets the needs of present without compromising the ability of future generations to meet their own needs.' The report suggested for 'policies that sustain and expand the neutral environmental resource base'. In order to ensure sustenance of the environment in achieving development, inculcation of environment-friendly ethics within the minds of the policy makers, practitioners and general people is required. It is necessary to make sure that people internalize the values, which correspond to the preservation of the environment. The main theme of this paper is that internalization of ethics relevant to protecting the environment and putting them into action by all human beings is indispensable to achieve 'sustainable development'. In this respect, this paper particularly focuses on the different aspects of environment related situation prevailing in Bangladesh, which is impeding sustainable development in this country. The agents, through which environment-friendly ethics can be inculcated within individuals, include the family, the peer group, religion, education, the mass media etc. Using these agents, it is possible to embed pro-environment ethics within the minds of individuals, (as it is the mind that guides our actions) and ultimately achieve sustainable development. This paper reflects on what environmental ethics is; the meaning of sustainable development; major environmental concerns in Bangladesh in her efforts towards development, and the ways in which environmental ethics can be inculcated within the mental set up of the people of Bangladesh so that they always behave in environment friendly ways, ensuring "sustainable" development in the country.

## 5. Ethics of High Technology

**Should the precautionary principle be applied to nanotechnology**

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The precautionary principle (PP) has wide support and is thought by many to be a useful strategy for action, especially in the environmental and health areas. A recent report extends the scope of the principle to include nanotechnology, artificial intelligence and robotics. Here we do not argue that the PP should be applied in any area of nanotechnology, merely that, despite what is often claimed, it is a reasonable principle that makes sense.

We begin by clarifying the principle, giving the general structure as:

If action A has some possibility P of causing harmful effect E then apply remedy R. This is a generic formulation only, and each of A, P, E and R are interpreted in various ways in different actual formulations.

Action A is generally some scientific research or technological or other development, e.g. research into and development of genetically modified crops, or some activity such as discharging waste into a river.

Possibility P must be more than a logical possibility; it must be an empirical probability. There must be some scientific evidence that A does or can cause E, even if this evidence is very weak. Examples are that the GM crops cause harm and that the waste causes the contamination.

Effect E is some serious or perhaps catastrophic or irreversible harm.

Remedy R concerns the measures that should be taken to avoid or minimise E occurring, e.g. halting or never starting the research or the discharge.

Despite its wide acceptance, particular in Europe, and intuitive appeal, the PP is not without its strong critics. Here we will consider four criticisms: problems with making predictions about the consequences of research or developments, the idea that the principle involves a paradox, the seriousness of the predicted threats, and the nature of the predicted harms.

Turning to the situation in nanotechnology we will explore the relationship between the action A and the effect E, and show that it is not to be the same in all discussions of the PP even ignoring problems about the strength of the link. Consider the following:

A. The use of nanoparticles in products will possibly damage health.

B. Developments in nanoelectronics will endanger personal privacy.

C. Nanotechnology research will possibly lead to the development of self-replicating robots and therefore the possibility of the grey goo problem.

Each of these raise different issues and our argument is that it is unhelpful to talk of applying the PP to nanotechnology research and development in general. But it can be helpful if different types of cases are examined.

We next return to the criticisms of the PP raised previously, and examine them in relation to the nanotechnology examples discussed, and argue that while care is needed in its formulation and application, the criticisms are not compelling.

In conclusion, the PP is a principle with content that is reasonable to apply to certain research, development or actions, but even just within nanotechnology itself, different contexts will require different analyses of credible threats and require different remedies

**Advances in Neuroscience and the Precautionary Principle: What Can Bioscience-Bioethics Teach Us?**

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As our knowledge of the brain builds we are increasingly capable of altering its function by correcting, or enhancing, fundamental brain operations that drive human consciousness and behavior. Therefore, it seems appropriate to responsibly integrate neuroscience and neuroethics into the foundations of learning. That is; to consider the ethics now rather than wait until innovative new technologies have been developed and put to use. Because of lack of knowledge, complex technologies are characteristically applied with some level of uncertainty. Uncertainty, however, is only acceptable when all available knowledge is shared in order to promote and foster informed choice. Informed decisions require that both the benefits and risks of any service have been considered fairly and not confused with the worth, or value, attached to any particular outcome. Such a result can only be obtained in collaboration with professionals who are ethically required to assess risk-benefit equations posed by the application of their new science and technology. Neuroscience is an example where the precautionary principle can be applied to advantage because the principle's key element is making health-related decisions in the face of uncertainty (i.e., a lack of evidence of harm does not imply safety). The precautionary principle is, therefore, a most useful tool to flag ignorance and uncertainty about certain eventualities, and to hold policy until overall scientific understanding of the problem has been gained. Before new developments probe at our deepest thoughts, define our complex cognitive behaviors and judge our rational decision-making and consciousness, a precautionary approach should provide sufficient protection to balance what is biologically relevant and adaptive with what is not.

The presentation draws inspiration from recent advances in brain fingerprinting, stem cell research and intracerebral grafting and emphasizes that human health tempered with a precautionary approach provides a practical common framework for informed decision making.

Reference

The Bioscience-Bioethics Friendship Co-operative Web Portal at http://www.bioscience-bioethics.org provides free entry to relevant educational material.

**Sensory Abilities Beyond Human**

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Earthquakes bring vibrational changes on land and in water while storms cause electromagnetic changes in the atmosphere. Some animals have acute sense of hearing and smell that allow them to determine something coming towards them long before humans might know that something is there.

The recent Tsunami has brought destructions of apocalyptic proportions in South Asia. Nearly 150,000 lives are lost. But the observed mortality rates in animals are negligible. The way through which the animals escaped the disaster remains unknown. However, with advanced science and technology to understand the drastic changes in the environment, the observation remains to say that animals escaped the disaster through their sensory abilities developed in them beyond human capacity. Animals are believed to hold a sixth sense and to know in advance when the earth is going to shake, and it has been found true with unusual behavior in the recent Tsunami.

It is possible that geographic upheavals create low frequency sound that are not audible to us, but are detectable to animals which can absorb and hear sound waves. Animals might be highly sensitive to their environment but they also look to other animals for cues that there is a danger.

The different types of unusual behaviors of animals and their sensory abilities to protect them from such disasters and the reception of mechanical and other changes in the environment has given us a new line of thinking on various aspects are discussed.

**Benefits and ethical limits of transgenic animals**

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The major areas of research and development in biotechnology are maturing at a rapid rate. Now we are entering into an era of hyper and self-directed evolution where humanity is positioned to design and create entirely new molecules, biochemical pathways, tissues, organ system and life forms such as transgenic animals and as a result the ethical and societal implications of these technological advances may be staggering. There are undoubted benefits from the use of the transgenic animals, it is important to ensure that such systems do not cause problems of safety to people and the environment or create unacceptable social, moral or ethical issues. Bioethics is concerned with the evaluation of the moral choices arising from man's intervention with life. It assesses the risks and benefits related to biological sciences and pursues to balancing individual autonomy with the duty and justice. Producing transgenic animals throws up novel ethical questions since it represents the human manipulation at the molecular level, of species and in transgenic specially the construction of new species altogether. This may be seen as a fundamental transgression of the integrity of an animal which is not justified by projected and uncertain benefits to humans. Bioethics should not be allowed to strangulate technological research, while at the same time the latter can not be allowed to proceed unscrutinized. Let us not forget that moral goodness of any progress is measured by its benefits to humankind and the benefits of biotechnology must outweigh the burden.

We must go ahead with an involvement in biotechnology provided we are happy to exercise a delegated authority with due reverence for the dignity of man.

**Science, Technology and the Supernatural in Contemporary Thai Novels**

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In the present scientific and technological era there are still lots of superstitious ideas and practices spread widely. Both western developed countries and oriental remote areas seem sharing some thoughts and beliefs about the supernatural. In Thailand, in contemporary Thai novels, many ideas about science, technology and the supernatural are interestingly reflected and show related factors that originate the ideas. Three points are targets to be answered in this research, which are: What are the real causes obstructed scientific thought promotion in Thai society? Can Thai people neglect ideas about the supernatural and accept scientific rules? Does the supernatural have any special function for Thai people, so it is inherited and remains endlessly in Thai society?

From data analysis it is found that all the studied novels promote scientific thoughts / thinking. Many novels negatively criticize ideas and practices concerning the supernatural. Few novels propose neutral thoughts about science, technology and the supernatural that can cause both advantages and disadvantages. In details contemporary Thai novels reflect that educated Thais, university graduated, think scientifically and neglect ideas or beliefs about the supernatural.

However, some people, both educated and uneducated - especially upcountry, still practice some activities dealing with the supernatural. The main reason of those practices is for securing some hopes which mostly are uncontrollable by the practitioners. So, it is a mental reason rather than a practical one. Considering the social contexts, especially the shortage of government services, such as communication, public health, and even education, these could be concluded as causes why Thai people have to gain their hopes from the supernatural instead of the scientific performance.

From cultural perspective many practices concerning the supernatural are encultured and performed as special ways of life in some communities. Even the elite has also to practice those non-scientific traditions. Moreover, it is found frequently in most of the studied novels that many practices concerning the supernatural are added to Buddhist ritual and confusingly performed. Buddhist teachings are the major theme of most of the studied novels which many writers present them related to the supernatural.

Last but not least, the noticeable idea presented in many novels written by the young generation writers is that both science and technology, on one side, and the supernatural, on the other side, would equally perform important roles in advanced science and high technology of the future. Most writers express the hope that the present supernatural would be scientifically proved or explained.

**Applying Ethics in a Professional context: what can we hope to solve?**

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In 2004, UNESCO hosted a series of meetings to develop universal bioethical norms; the rationale for these meetings being insidious global environmental degradation; at the April 2004 IBC meeting in Paris, development of ethical norms was differentiated into two initiatives: human ethics (which was erroneously termed bioethics) and environmental ethics (dealing with the non-human aspects of our biosphere); I opposed this division, on the basis that humans are of, rather than distinct from, the biosphere; however, the decision to pursue this approach was defended on the basis that any holistic approach would be too complex, and would take too long; twelve months on, we have moved to develop separate protocols, although these are not, as yet, endorsed. I perceived three broad groups of issues that currently face humanity, resource focused, anthropocentric and environmental:

These are compounded by uncertainty regarding the nature (i.e. mechanisms and rapidity) of climate change, the political (and economic) effects of endorsement of protocols such as Kyoto, (including the acceptance of deals for 'emerging' economic giants such as China). There is still the widening gulf between the rich and poor nations, the later often beset by poor governance, high population density, poverty and poor human rights, the former by unsustainable demographic change, security and diminishing strategic

resource supply (e.g. water, petrochemicals and electricity). Professionals in any society are those individuals who are fortunate enough to have higher education. It is clearly the responsibility of this group to take even greater initiatives to solve global issues; scientists and engineers alone will not solve many of the current problems, but we can, and must, ensure mechanisms for dialogue exist whereby we can draw upon the very best skills available to solve crises, for whether or not we may wish it, we are now in crisis mode.

**The current state of embryonic stem cell research in Korea**

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Last year in February, a group of Korean scientists led by Dr. Hwang Woo-Suk cloned human embryo using "SCNT (Somatic Cell Nuclear Transfer) technique)", from which established human stem cell line. This research, for the first time, showed the possibility of producing "therapeutic stem cell" from cloned embryo. In May 2005, the same group developed a highly efficient recipe for producing cloned embryo and extracting stem cells. This method opened the way of practical using of the stem cell therapy from cloned embryo. In August, Dr. Hwang announced the first success of cloning dog – named "Snuppy," which has been considered as almost impossible among scientists.

With these serial success of research, Dr. Hwang and his colleagues have risen as national hero and the "Top of all Scientists in Korea." The Korean government granted over $20.0 million to his team only for this year, and the amount of fund will be growing. This amount of money is the largest one as single subject research fund to bioscience in the history of Korea. Over 90% of Korean praised his "success," and his case is introduced as "greatest scientist" in young students' textbook.

However, some experts in medical field are skeptical to the application of embryonic stem cells in clinical setting because of a lot of unsolved obstacles and risks to human. Bioethics groups and some NGOs, although their influence is very limited now, criticized his research for a number of ethical issues. Korean Catholic Church is clearly against human cloning research.

In spite of all criticism, to most ordinary people in Korea, Dr. Hwang is yet showed as national hero who will save Korea from the current economic turmoil. The government strongly supports his research with hope to take over the future "huge" biotechnology market. In this context the related bioethical issues are tend to be compromised, and clear impartial discussion will be hardly taken. We have to seriously consider the impact of economism and nationalism on ethically complicated biomedical researches.

**Gender Foeticide: Exploring Beyond Medical Ethics**

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Foetal foeticide based on gender selection has posed a major problem for doctors, society, government and religious institutions in the Punjab and other regions of North India. In 2001 the highest seat of Sikhs, the Akal Takht at the Harmandar Sahib, announced an edict forbidding any termination of pregnancy based on gender selection. The Indian State has passed legislation to deal with it, Activist groups have tried hard to stop foeticide, but it continues with Punjab having almost the largest number of ultrasound facilities in India per 1000 population. The 0-6 years old female to male ratio has steadily fallen in the Punjab and stands at 793: 1000 in 2001 against the national ratio of 927: 1000 female to male ration. In 1991 this ration was 875: 1000 in Punjab. No one quite knows how this will be reversed. It poses some considerable questions about the ethics related to medical opportunities and whether they should be freely available. It also requires a multi-disciplinary approach that sees the problem as wider than the scope of medical ethics and brings in various civil society actors in a coordinated approach.

## 6. Ethics & Policy across the Pacific & Asia

**Is there a 'greater good?' Ethics policies in the Pacific**

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Ethics has a central place in Pacific's indigenous knowledge systems and processes: each daily event is seen through a lens of ethical values, mores and codes of conduct developed over the years. Indigenous ethical systems incorporate technical insights and wisdom-based observations of natural, social and spiritual phenomena which in turn, validate place and identity as well Pacific survival as nations in increasingly globalized societies. How do these indigenous ethical systems reconcile with western systems which assume a universality?

A number of Pacific strategies to develop a post-colonial ethics discourse which is `Pacific in philosophy and locally grounded in context' will be presented for discussion. These include a) Pacific women's Pacific Platform for Action for Sustainable Development (SPC 1996) b) The Code of Ethics (Journalism Association of Samoa) and c) The Vanuatu Cultural Research Policy. These community-based examples provide a starting point for the emerging debate regarding the need for, role and nature of ethics policies in pacific universities

**How do Chinese and Japanese patients characterize the good nurse? A cross-cultural study of virtue ethics**

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This paper reports part of a cross-national research project being conducted in China, Korea, Taiwan and Japan, which sought to analyse how the concept of 'the good nurse' is articulated within Asian cultural contexts and value sources. Ethics grounded in principles emphasizes action. Character ethics or virtue ethics emphasizes the agent who performs actions. Being a good nurse is a fundamental part of nursing ethics which is vital for nursing education. Since patients are the recipients of nursing care, their ideas about the good nurse are important not only for the patient's welfare, but also for nursing education and nursing practice. Systemic study on this

question is limited to the nurse's perspective. A cross-cultural analysis of the concept of "the good" in nursing practice will contribute to the development of virtue ethics from an Asian perspective.

This study aims to examine the perceptions of Chinese patients about what makes a good nurse. In addition, these Chinese data were compared with similar data from Japanese patients to discover possible similar and different characteristics of the good nurse. Based on the rich descriptions given by the Chinese and Japanese cancer patients, van Kaam's controlled explication method was adopted to investigate the following: (1) the constituents of a good nurse grounded in the patients' illness experience, (2) the cultural and social factors that underlie these patients' views, and (3) the differences and similarities among these patients' views across the cultures.

'Virtuous comportments' and 'virtues residing in a cultivated heart' are essential constituents emerged from the Japanese and Chinese patients' accounts of the good nurse respectively. Both Chinese and Japanese patients experienced positive transformation from the vulnerable state of being in their encounters with the good nurse. The variability regarding the kinds of virtues that constitutes the good nurse in China and Japan are examined. Commonalities rooted in the Confucian virtues of "cheng", "ren" and "li" are observed, but with different emphasis in the two countries.

**Bioethical issues in intensive care nursing**

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The explosion of medical science and technology in the world has grown dramatic changes. Intensive care nurses are responsible for the care of critically patients and those with complex illnesses. Their most important care is the preservation of their patients' life. Psychological, emotional and spiritual well being are the second priority for nurses. However, for the patients themselves, psychological, emotional and spiritual needs are the most needed. The bioethical dilemmas in intensive care arise in various aspects. Should elderly patients be admitted to intensive care? Should terminally ill patients be excluded from intensive care? It is not by principle but by practice that we usually accept patients. However, when younger patients need the Intensive Care Unit bed, what is the right thing to do? Visiting hours in ICU are also a problem. The more the patients in ICU need support from the family, the less they receive. The selections of therapeutic regimens are from the physicians and the nurses. The choice of "do not resuscitate" is still a dilemma. In rural areas, where there are limited numbers of ventilators, which patients are chosen to use them? Who are the patients that should be removed from the respirator? Beside patients' dilemmas there are intensive care nurses' dilemmas. In everyday life these nurses are faced with grief, suffering and death. They sometimes feel depressed sorrowful and have a sense of loss. There are no systems to support them with the dilemma that the psychological status of nurses effects the quality care of critically ill patients. Who should take responsible for these issues?

**Controversy over Medical Futility**

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'Medical futility' has been used increasingly by physicians in clinical setting to reduce the inappropriate application of medical interventions that are unlikely to produce any significant benefit for the patient. References to medical futility have a long history in the medical profession. Plato and Hippocrates commented on the proper response of physicians and patients in the face of medical limitation.

The so-called problem of medical futility caused controversy not only over how to define the concept of futility but over its applications. Conflicts may arise when care providers do not agree with patients or their families on the point that requested therapies are in fact 'beneficial' and resist such requests on the basis of medical futility.

The aim of this article is to analyze the contemporary controversy over medical futility and to explore different approaches to the futility debates, from those who deny the concept of futility and believe that it was constructed as a means of enhancing physician domination, to others who insist that physicians should unilaterally refuse to provide such care in which there is no benefit.

In conclusion, by recognizing the validity of the concept of futility, authors try to limit its scope to the consensual conditions which can be formulated by taking into account the opinions of all parties involved without any prejudice.

**A Conception Risk in Decision-Making**

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The Committee on Risk Characterization of the U.S. National Research Council proposes an idea of risk characterization in "Understanding Risk: Informing Decisions in a Democratic Society" (1996). Although the proposed idea might sound good, in my opinion, there are some difficulties when it is applied to the case of developing country in which the scientific knowledge comes from abroad.

**DNA Technology in Asia-Pacific: Scenario for 2015**

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This paper describes a foresight study of DNA technology in the Asia-Pacific using scenario creation methodology. It depicts the future of the region, with pathways towards that future, some strategic issues that we may encounter, with a list of suggested policy initiatives based on the findings of the study.

Here, foresight is applied to the rapidly developing area of health sciences with particular emphasis on the links between genetic makeup of people and their susceptibility to diseases, and the potential for development of new cures. Rather than using projections from past trends, the researchers employ scenario writing to develop possible futures of DNA technology. This technique has been used in Europe from the viewpoint of identifying social research issues and the other

from the viewpoint of standards and measurement and testing requirements. The present study is aimed at a broader view of post-genomics and human health in the context of Asia-Pacific.

The first stage in the development of scenarios is to identify the major drivers of this future. This was done against the five categories known as STEEP: social, technological, economic, environmental and political. Participants identified, on 'Post-it' notes, the specific drivers they considered most important. These were subsequently clustered into common groupings.

The second stage involved the identification of the major uncertainties which could change the pattern of development of human health treatment in the future. These uncertainties, ranked according to the extent of their impact and uncertainty were used to develop the parameters for highly distinct future scenarios. Eventually three scenarios were developed, taking the form of a family story, reflecting the operation of the various features of their future up to 2015.

This paper resulted from the project "DNA Analysis for Human health in the Post-Genomic Era" conducted by APEC Center for Technology Foresight, Bangkok, Thailand.

**Awaiting Liberation of Animals from Experimental Clutches?**

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Recent advances in the field of biotechnology have brought into focus several ethical issues. The modern inventions in the fields of genetic engineering and related fields of molecular biology will affect not only the plants and animals but also the entire environment. It is wise to think about the systematic study of human conduct in the area of life sciences and health sciences and also moral values and principles existing during a particular period. People have the assumption that animals do not have rights and also they are not ready to give their original rights which belong to them. All must seek the truth with open minds and in full consciousness. Science as much as experience, teach us that it is no longer possible to assume that animals are mere machines or bundles of instincts and reflex; they have their own rights to flourish in freedom or languish under oppression. Our technological century serves to reinforce the lesson that the natural world is neither our property nor our servant. Factory farming, the destruction of natural environment and the introduction of novel scientific procedures such as cloning, and xenotransplantation can represent abuse of the interest of animals.

**Observations on ESD, animal rights and culture**

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Experience from the study of the animal rights movement in Japan, and collective data of public awareness of environmental issues, figured out that there is a clear distance between knowing the issue and actually doing something about it. Either the matter is widely recognized or not, just knowing or learning about the issue is not directly driving people to make a change and would not ameliorate the situation very much. For example, an animal rights organization campaigns so that some audiences might be aware of the abandoned animals or animal testing for humans. However this inspiration would not last for long, and does not have much influence on the audience's behavior. This can be seen in other ethical situations. In another part, some new technology need public understanding, like new biotechnology-related therapies are often associated with informed consent. Therefore, the public awareness and understanding is becoming increasingly important for the ethical decision.

What sort of awareness makes people wish to make a change in the situation? In order to examine this query, I organized a questionnaire addressed to both who have joined animal rights movements and those who have not, focusing on what made them aware of. In addition, I also conducted another study by comparing the questionnaire on environment for general public and hearing from people who joined environmental education school. As a result, 'learning from the real' or 'having real experience' came out as important factors. I believe that learning from reality is also applied to the education for bioethics and quite worthwhile to deepen this study, and therefore, the further question was addressed, 'how can people meet this real experience?' Learning from reality, for most people I asked, was just incidental and not a conducted process of education.

Here, in this talk, I would like to introduce a tentative flow of decision-making ranging from the process of recognition to making an ethical decision as well as showing some points to be concerned, derived from the studies and attending to NGOs and an EE (environmental education) school in Japan.

In short, some grass-roots efforts are certainly spreading and beginning to bring influence on the public in many places. For example, an organization is striving to make scientific technology close to the public by hosting local workshops or inviting them to a research place where technology is actually used; a student based group on ESD is working in collaboration with an NGO, conducting several activities for mobilizing public awareness.

Although these grass roots organizations are gradually taking part in the decision making, they need development to have more powerful consequences. Human communication and dialogues also have an important role and are to be considered. They would entirely harness the decision making process, making it complex and producing much open minded ideas. Moreover, to satisfy the aim of conveying the new idea and its implementation, a greater level of communication and dialogue is necessary.

**Animal Rides and Ethics**

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Animal ethics is a complex subject and rational argument about the right and wrong way to treat animals is made more difficult by the deep love that many human have. It raises fundamental questions to philosophers about the basis of moral rights. Higher animals have a moral status and there are right and wrong ways of treating them. The term 'non-

human animals' has been used for clarity since the animal kingdom is often taken to include humanity. Most animals, after all have lived on their spans in sublime indifference to the habits of those odd chattering bipeds with the removable plumage. Even if we had never existed they would still be here. We are just as accidental to them as they are to us.

Most animal rights activists are concerned with preventing cruelty to animals thus ensuring animal welfare required, providing for animal happiness as well as eliminating suffering. The main controversies in animal ethics are experiments on animals, rearing and killing animals for food, rearing and culling animals for fur and leather goods, hunting, entertainment, zoos, pet keeping, for races etc.

The real ethical issues are marriage, ethics of war, Euthanasia, human cloning, genetic engineering, designer babies and abortion as per the news. As Zoologists, what we can do about the use of animals with ethics remains a challenge to us. If animal ethics are taken care of then certainly animal rides will be totally eradicated.

## Tuesday, 13 September

## 7. Medical Ethics and Education

**Ethical views of first-year medical and nursing students in a joint bioethics course**

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Ethical views of 85 medical and 53 nursing first-year students were studied during a joint bioethics course. Questions included "Would you treat a mentally ill man condemned to death to fit him for execution?", "Should the doctor inform a patient of a very rare fatal drug reaction?", "Is a criminal law suit against a surgeon responsible for a patient's death reasonable?", and "Should a surgeon responsible for a patient's death be prosecuted for manslaughter?"; and to two open questions regarding the beginning of human life and what the students considered as the most important ethical issue. Medical students favored treating a condemned mentally ill man more frequently than did nursing students. More than 85% of all students endorsed full disclosure of medical information. While most students regarded a criminal law suit against the responsible surgeon as reasonable, significantly fewer medical than nursing students thought that the responsible surgeon should be prosecuted for manslaughter. The majority of students considered that human life began at fertilization. The most important ethical issue nominated by medical students was brain death/organ transplant and by nursing students, assisted reproductive technology. Thus, medical and nursing students at the beginning of their professional education agree on some, and differ on other, ethical issues. It is hoped that joint student courses on medical ethics will foster ethical sensitivity and stimulate and enhance future dialogue among healthcare professionals.

**An Earnest Appeal: We Need Spirituality in Medical Education**

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Historically medicine has been known as the science and art of healing. However, as modern medicine, during the last century, yielded spectacular advances in scientific knowledge and technologies, the language and methods of science have gradually crowded the spectrum of medical education. Virtual elimination of humanistic and philosophical dimensions of human knowledge with little or no attention to addressing the emotional, ethical and spiritual issues has drastically changed the science and art of healing, as hitherto known, to merely a mechanistic ordeal to diagnosis and treatment. Patients increasingly find their physicians not as healers but as uncaring skilled technocrats. Not surprisingly, medical education has been described as 'mistraining', 'dehumanizing', or even 'brutalizing' by medical students. Healthcare professionals today are, perhaps more than ever, confronted with issues that demand knowledge beyond the 'scientific', such as value judgment and contentious application of science and scientific procedure. They also need to address emotional and spiritual needs of the patients as they relate to disease, disability and death.

There is no structured curriculum on medical humanities, ethics or spirituality as part of required training stipulated by medical councils in Nepal and India. This paper argues in favor of inclusion of spirituality within medical curriculum to change the scenario of 'inhumanity of medicine' and make it more humane, holistic and compassionate. Inclusion of spirituality will further expand the horizons of medical education by adding the components of humanities and ethics. Further, it will also help the future healthcare professionals to better address emotional and spiritual needs of the patients, and examine the association between religious involvement and spirituality with health outcomes such as greater longevity, and better quality of life. The role of the physician as a healer, attending to mind, body and spirit, will thus be re-emphasized by inclusion of spirituality within the medical curriculum.

**Bioethics Education in Pakistan: Challenges and Prospects**

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Pakistan is a country of 150 million people and has 33 Medical Colleges or Universities, both in the public as well as the private sector. According to a recent national survey by one of the authors, 82% of the postgraduate and 65% of undergraduate medical institutions expressed a desire to incorporate bioethics education in their curriculum (unpublished data). This is in lines with the directive from the Pakistan Medical and Dental Council, the regulating body in the country for medical practitioners. According to the same survey, only a minority (5% postgraduate and 39% undergraduate institutions) have some bioethics teaching in their institutions. We believe an important reason for this is because Pakistan lacks human resources capable of developing and implementing even basic education in bioethics. Although the last decade has seen an increase in bioethics conferences mainly through personal efforts of a few individuals, there has been no concrete effort to promote bioethics in the country at an institutional level.

Establishment of the Centre of Biomedical Ethics and Culture (CBEC) at the Sindh Institute of Urology and

Transplantation, Karachi, a public sector institute is the first initiative in the country to correct this deficiency. Inaugurated in October 2004, CBEC plans to promote bioethics education through regular, organized activities. These include regular one-day National Seminars, two to three-day Workshops and week-long Conferences and Short Courses. The objective of these varied educational programs is to introduce health care professional and others to this rapidly developing field. From January 2006 CBEC will also offer a one year Postgraduate Diploma in Biomedical Ethics structured on a part time, on-campus and distance-learning format for mid career professionals. This would be the first such program to be offered in the country and it is hoped that graduates of this program will spearhead bioethics initiatives at their own institutions.

**Bioethics Education in Sri Lanka: the Current Status**

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There are thirteen national universities in Sri Lanka, of which six have medical faculties. The oldest, in Colombo was the first to introduce the teaching of medical ethics to its students, as a separate entity. Legal and professional ethics had been dealt with in the Forensic Medicine syllabus from the inception of all medical faculties. The second medical faculty in the University of Peradeniya took the initiative to establish a Medical Education unit, which included medical ethics in its regular courses on medical education for teachers of the medical faculties. While all six currently existing medical faculties teach medical ethics to their students at some stage of the medical course, the content, duration, and emphasis varies from faculty to faculty. The majority of medical faculties are currently in the process of redesigning their curricula and introducing new teaching methods, and the teaching of ethics is receiving the attention it deserves. In my presentation I will briefly describe the status of ethics teaching in the faculties of medicine.

While ethics teaching is established to a certain extent in the medical faculties, the other faculties in the universities have not yet introduced the teaching of bioethics in to their curricula. A National Bioethics Committee was set up in 2003, under the aegis of the National Science Foundation. One of the objectives of this committee is to encourage and facilitate the introduction of bioethics into the science based curricula of all the national universities. Funding has been requested from UNESCO for this project. In my presentation I will also describe the steps taken so far by the National Bioethics Committee to achieve this objective, and the constraints faced by the universities.

**Progress Report: Development of case study materials for teaching research ethics**

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Including research ethics as a subtopic in research methodology for graduate students in health sciences in the School of Pharmacy has been commenced in recent years. Various means have been used for discussion, i.e., films and case studies representing ethical dilemmas, as well as international guidelines on research involving humans. For the case studies, all were from western examples. The project's objective was thus to develop case studies associated with a Thai context, as a tool to teach research ethics in the school. It was also expected that the cases would be distributed for others to use as appropriate.

Individual interview with researchers in various research fields involving human subjects, as well as participants in research was conducted to cover as many ethical issues as possible. The cases were then fictitiously written and tested for feasibility of use among a sample of graduate students and lecturers/researchers.

Currently, four case studies were drafted based on the content drawn from the interviews with 9 active researchers and 10 volunteers in a drug study. The cases represented a clinical study of herbal products in HIV (+) patients, a study in healthy male volunteers for a pharmacokinetics study of a local brand sustained release antihypertensive medication, a study of mutated gene related to cervical cancer in Thai women, and a study of efficacy of anti-retroviral regimen in prevention of vertical transmission of HIV from mother to child.

Acknowledgement: The project was part of ASEAN-EU LEMLIFE project.

**Ethics in Paramedical Studies- Mapping a New Agenda**

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The importance of ethics in paramedical areas is increasing today due to quantum leaps in technology. There is a paradigm shift from clinical examination based treatment to investigations based treatment which increases the importance of role and responsibility of the paramedical personnel. To assess the level of awareness and applications of bioethics in paramedical students, first year students of Medical Laboratory Technology, Renal dialysis, Perfusion and Radiography were included. A 15 hour - semi structured preliminary program spread over a period of six days was conducted. The topics included Introduction to Ethics, Respect for Life and Confidentiality, with case studies which involved the decision making process applied to ethical dilemmas encountered in practice. Prior to, and after, the program the students' approach to problems was assessed.

The findings demonstrated that students do have a certain level of ethical awareness and perceived the knowledge of ethics as essential to discern between right and wrong. However, they lacked insight into the fundamental principles of bioethics. The students relied on the logical reasoning of the matter, utilizing common sense, in addition to their personal morals, to address the ethical dilemmas which were highlighted in the practical case study discussed.

They were neither aware of the financial pressures, which can be a tangible obstruction to ethical behavior, nor of the legal aspects. The students' age, different economic, religious, cultural and educational backgrounds as well as their varying exposure to environments are probably factors influencing their decisions. It is suggested to introduce ethics of laboratory practice/ paramedical studies as a part of the curriculum, this can have an impact on the health care of

patients. The details of the curriculum including topics and the hours required will be discussed.

**To Accomplish the Life Education Mission through Having Bioethics Courses in Medical School**

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In Taiwan, the Ministry of Education has been devoted to facilitating Life Education Programs since 2001. However, many of these programs focused only on education at a high school and middle school level. The public education and university level education are still undeveloped.

Life education includes bioethical learning. In order to have a sustainable future life we need to promote bioethical maturity of society to balance the benefits and risks of applications of biological or medical technology. Recently, the social and ethical issues raised by the use of modern biotechnology are being more widely discussed across the world. University students of all disciplines, especially for medical school, need to make ethical decisions on how they use science and technology products.

This presentation is aimed to share the idea of having bioethics courses in medical schools and the experience of previous class trials. In general, this course has been justified in that the materials are beneficial to university medical students in the sense of enhancing students' bioethical maturity as well as learning motivation in English learning. We have found that the teaching materials are suited for university level in Taiwan, in particular the full length chapters. Because of this, it is coordinated with the general aim of Content-Based approach of second language teaching in medical university and is a favorite as an ordinary elective course in the general education program. In addition, learning from team work was encouraged as a way to approach bioethical deliberation in university classes. In accordance with the method of autonomous learning, students were grouped into several teams and were given the freedom to select the chapter they felt most interesting to work on and present in class. The text book material - "Bioethics for Informed Citizens across Cultures" was used as a main structure of teaching, however students should not just follow the texts, some basic reading and illustrations can be searched for from the web-site resource as supplementary materials for this course. Finally, as faculty of a university we should find a way to examine the effectiveness of Bioethics education and the interdisciplinary education which can integrate science, ethics and language as an ordinary course of general education in medical school.

**Biomedical Ethics Education in post-communist Eastern Germany**

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Based on its socialist history, biomedical ethics education in Eastern Germany is faced with different socio-cultural premises and world views than in West Germany. The normative guidelines for biomedical ethics education in the united Germany nevertheless were created from a background of 'Western' values. Therefore it is difficult in Eastern Germany to mediate those normative concepts that are directly or indirectly related to liberal and/or Christian values. I will consider the claim that an appropriate mediation of central concepts like that of 'Informed Consent' can only be achieved with a tentative normative biomedical ethics especially taking into consideration individual rights in order to counterbalance materialistic and collectivistic thinking. In 2002 it was determined that in order to receive the licence to practise medicine in Germany a biomedical ethics education has to be absolved during the study of medicine. In order to put this regulation into practice the "Academy for Ethics in Medicine" worked out several aims of such an education. They are to a large extent accepted as a curriculum. According to those aims the task of biomedical ethical education is a) to mediate general knowledge, skills and capabilities, attitudes and views and b) to mediate a special biomedical ethical knowledge of 11 different fields. Apart from these formal aspects of the requirements for a medical study that East and West Germany have in common, there are still differences between East German and West German students. In a survey concerning medical relevant topics, namely abortion and euthanasia the results varied significantly. Those results of the East German inhabitants also need to be interpreted against the background of a socialist socialisation. A relatively high approval of a more generous handling of abortion and active euthanasia by request becomes more understandable considering the teachings of materialism and collectivism that are typical for socialist systems. Those world views are different to the central values of 'Western' biomedical ethics that are deeply grounded in intuitions of the 'sanctity of life' as well as the respect for the autonomy of the individual, those convictions that also dominate the value of 'human dignity'. For the biomedical ethics education in Eastern Germany this raises the question how it is to be realized if there is no common basis of certain normative concepts given. This is the point where a decision for a normative or descriptive style in biomedical ethics needs to be made. Under those circumstances I would argue for a tentative normative orientated biomedical ethics that communicates at least the liberal basics for central biomedical ethical concepts.

**Ethics Education in Medical Curriculum: Interns' perspectives**

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Formal Training in Medical Ethics is a felt need in Undergraduate Medical Education. The objectives of this study were to analyse the current ways and experiences of learning medical ethics by Medical students and interns, and make recommendations, in order to facilitate planning formal ethics curricula for medical undergraduate students.

A survey was conducted in four major medical colleges in Tamilnadu, a southern state in India. Data were collected from interns undergoing training after completing their four and half year MBBS course using a structured Questionnaire. 184 participants were asked.

68% of the interns felt that they had opportunities to learn about Ethics in their MBBS course and were able to discuss the ethical issues with the faculty. Most of them cited Forensic Medicine and Community Medicine as specialties where they learned about ethical issues. 75% wanted Medical

Ethics as a separate subject as study of ethics will have an impact in improving professionalism. The preferred teaching methods were Seminars, clinical teaching and lectures. However most felt that the teaching should be through all the phases of study for undergraduates covering topics like patient autonomy, Ethical theories, code of Medical ethics, rights and duties of Doctors, cost constraints for patients, collection of fees by doctors, Doctor-Doctor relationship, etc. They identified oral presentation, quizzes and MCQs as ways of evaluating more than essays or short answer questions .The influence of role-models has been emphasised.

A significant finding from the survey is that majority of the interns felt the need for formal ethics training for undergraduates.

**Bioethics Education in Tertiary Settings – The University of Malaya Experience**

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Biotechnology and biological sciences have emerged as the focal points in the development agendas of many Asian countries this century. Inherent within these agendas are activities related to agriculture, biotech business development, manufacturing, medicine, education, research and so forth. Malaysia, a rapidly developing country has not been left behind. Its' status as a 'mega biodiversity' hub has led the government to push for programmes that would take advantage of these resources. At the same time there is awareness that in line with these rapid developments, ELSI (Ethics, Legal and Social Implications) issues are important.

The University of Malaya celebrates it centenary this year. It is the oldest tertiary institution in Malaysia and has its foundation in the establishment of the King Edward VII Medical School in 1905. The Faculty of Medicine conducts undergraduate and postgraduate programmes in medicine, surgery, nursing, pharmacy, biomedical sciences, radiology, physiotherapy and medical laboratory science. Over the years, the faculty has produced the majority of medical and allied health professionals in the country. In the 1990s, the faculty realized that apart from intellectual ability, medical competence and ability to fit into the healthcare industry, its graduates should also have proper training in biomedical ethics.

In 1998, that the faculty introduced the new integrated medical curriculum and within it, a personal and professional development module. This 30 hour module covers the last three phases of medical education and students are introduced to the concepts of ELSI in theory and practice. In 2003, bioethics was designated a core subject for all other undergraduate courses in the faculty. Research activities remain a large component of the faculty which are biomedical sciences concerns itself with many human issues, and there is a need for biomedical professionals to understand ethical issues so as to be able to conduct activities and research in a responsible manner. The course gives students an overview of the philosophy of ethics and provides insights into a number of ethical issues such as research and data integrity, publication ethics, responsible use of animals for experimentation, cloning, eugenics, genetic screening, reproductive technologies, telemedicine and intellectual property. Discussion and debate among students are encouraged and it is hoped that we will produce graduates who are more aware of the impact of science on society.

## 8. Bioethics for All & South-South Dialogues

**The Study of Bioethics and Interdisciplinarity**

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Is bioethics essentially an interdisciplinary enterprise? What exactly is meant by 'interdisciplinarity'? By its nature bioethics involves many traditional disciplines, but what exactly is this thing called 'bioethics'? Is it just a collective noun referring to a hodgepodge of different materials, lumped together because of convenience? Or is there something that links all these together to form a unity?

I would like to argue in this paper that bioethics is always 'interdisciplinary' in that one always relies on the insights, methodologies and results from the established academic disciplines. As a result, a program of study in bioethics necessarily comprises collaborative work from many different fields. Corollary to this is that proposal that research in bioethics is not possible if the researcher is not steeply grounded in one of the more traditional disciplines that form the 'home base' of the study. In this case bioethics exists over and above the traditional disciplines and cannot exist independently of them. In the talk I will try to show some reasons why I believe all this is the case.

**Responses to Bioethics education Across Cultures – A survey to assess the bioethical need across Social Strata in Tamil Nadu, India**

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A new project was launched by Prof Darryl Macer and a textbook was produced entitled "*Bioethics education for informed citizens across cultures*" This project aims to produce teaching materials for bioethics education. This paper presents results from Tamil Nadu India.

In response to a global need for such materials, it is hoped to produce a textbook that could be used in school and university classes to teach about bioethical issues. For this purpose it is necessary to assess the need of each sector of a society. The textbook produced in this project is being tested in other countries like China, Japan, the Philippines and Taiwan. During the year 2004 an attempt was made to test the text across a range of disciplines and social strata so as to obtain the bioethical mindset of students and elders. The results are reported in this paper in sharing of teaching materials and class trials to teach students to cope with bioethical, environmental and medical ethics issues.

Class trials were carried out in the following sectors of society, at Chennai and Dharmapuri District in Tamil Nadu. In the former, the students were drawn from Higher Secondary and Matriculation schools, University Students from Anna University of Technology, Retired Fisheries Scientists, members of the Study Centre, Madras Diocese,

Church of South India and a few other centers of higher education.

Two types of questionnaire were given to the participants of the class trials: (i) a list of about 28 topics which are of bioethical importance and a copy of the response sheets found in selected topics from the Bioethics Education for Informed Citizens across Cultures. The respondents were also asked to prioritize their current need in acquainting themselves with any five of the 28 bioethical topics listed. The paper provides comparative results of the class trials and suggests a few recommendations before adopting the text for global use.

**Impulse of ethical research in life science and health systems as foundation of development in Sub-Saharan Africa**

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Health related issues in most of sub-Saharan African countries remains preoccupant. At least, half of the 6 millions of annual deaths in the population of children worldwide occur in Africa where the mortality among mothers giving birth is about 1000/100,000 versus 8/100,000 in Japan. Up to 70% of people infected by HIV/AIDS and 2 out of 3 persons infected with TB in the world live in Africa. Health policy has mostly been defined in terms of reducing the burden of sickness and premature death. The first major international policy endorsing such view was the "Alma Ata Declaration" of the late 1970s, which prioritised measures that aimed to prevent the sickness and the treatment of common diseases. Unfortunately, after twenty years of its implementation, it appeared that these strategies have failed to solve the problem in sub-Sahara Africa.

The health system dysfunctions coupled to the economic disparities and iniquities remain a real challenge for years to come. The identification of obstacles and implementation of health research activities are critical requirements for Africa. Indeed, in the context of globalization, the market economy, the increase of the "north/south 10/90 gap" and with Africa marginalization, it is unrealistic that without any adapted research, efficient solutions improving technical and scientific development in Africa could be reachable.

We will present how the strategies likely to contribute to improve the sanitary situation in Sub-Saharan Africa should be based on the implementation of scientific and ethical health systems. Moreover, we will also present how a better understanding of health system components and working could strengthen the performance of health care and lead to a sustainable development of Africa. We will emphasize the necessity of making tools that link research, action and then evaluation of the population well-being. Finally, we will present how taking in consideration and integration of anthropological, socio-cultural and economical specificities of Africa to promote ethical research might lead to the effective input on people living in Africa.

**Ethical Issues in the Face of Scarce Resources**

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Indonesia is still having economic difficulties resulting from the Asian financial crisis in the late 1990s and the recent rise in oil prices. This situation results in diminishing resources for all public services including public health. Ethical resource allocation decisions about public health are complex. It introduces the ethical dimensions of decision making as concerns accountability and resource allocation. Additionally, it presents a recommendation for the use of distributive justice in the allocation of scarce resources. It is important that Indonesia develops and implements a resource allocation policy in health care that also takes into consideration the ethical aspects of allocation of scarce resources.

Six ethical principles are relevant for health care leaders. They are: beneficence, non-malifecence, respect for persons, justice, utility, and truth telling. In the field of medical ethics, the fundamental principles that guide decision making are autonomy, beneficence, and justice. Policy-makers, managers and providers who face difficult resource allocation decisions may find distributive justice useful in making difficult decisions.

The use of ethical principles in decision making by health care providers, policy-makers and managers varies depending upon the context. Among providers, consideration for privacy, individual liberty, and freedom of choice is usually focused on the individual. Among policy-makers, managers, and in public health, autonomy, the right of privacy and freedom are recognized as long as they do not result in harm to others. From a public or organizational perspective, autonomy may be subordinated to the welfare of others or to society as a whole. Each represents a different context.

The principles of resource allocation in the face of scarce resources should be: priority setting, rationing based on priorities, and sustainability, while always keeping in mind the ethical aspects.

**Challenges for gender studies in the era of ever-growing development of biology**

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**The Teaching of the Ethics of Science and Technology in African Universities**

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The ethical problems related to the 'omnipresence' of techno science in human existence, which the International Community becomes more and more aware of in those last days doesn't spare Africa. If this Community, through UNESCO, admits that the teaching of the ethics of science and technology constitutes a solution one cannot evade, then this activity cannot be considered in African universities as a

luxury but rather a necessary task to promote and reinforce through International Cooperation.

**Informed Consent in Health Research: Current State of Knowledge among Physicians in Bangladeshi Perspective**

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Obtaining informed consent from human subject remains a mandatory ethical procedure in bio-medical research. We conducted a cross-sectional study among Bangladeshi physicians to assess their level of knowledge in this particular component of bioethics. A total of 46 medical doctors were interviewed and given a structured (Likert scale based) questionnaire during January–February 2005. While all (100%) of them agreed that informed consent is essential, only 65.3% agreed to that strongly. The majority (60.9%) of them opined in favour of informed consent both in oral and written form, while only 21.7% suggested it to be in written only. More than 58.7% were not aware of an important aspect that consent forms need to be submitted for ethical clearance. Moreover, 39.1% did not know that study-subjects reserve all rights of withdrawing themselves from the study, anytime. All of them opined that study subjects should have the rights to know the purpose of research. Though 8.7% remained confused whether all possible risks/hazards to the subjects are to be mentioned clearly in informed consent, however a maximum (91.3%) of them were aware of it. While 32.6% were uncertain if informed consent should include the terms of compensation in case of loss, disability or death of study subjects, but more than half (54.3%) strongly opined in favour of that. Most of them (95.7%) either strongly agreed or just agreed that, the well-being of study subjects should be prioritized over the interest of science. However, only 4.3% disagreed to this. Interestingly, all of the physicians opined that the study-subjects should be ensured confidentiality and/or anonymity. Findings of this pilot study (Likert scale scoring) revealed that, though most of the physicians were familiar with 'informed consent', many of them did not possess sufficient knowledge on this key component. Thus, Bangladeshi physicians need to be trained on such ethical issues more.

**Governance of Donor Insemination**

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Donor insemination (DI) presents an intriguing example of governance issues in Assisted Human Reproduction (AHR). For most of its over 100 year history DI was seen as a private matter concerning only the doctor and the patient couple. For the last 25 years however, governments in most western countries have taken an increasing interest in this and all areas of AHR. The move from a private model to a public model has met with strong resistance from the medical profession.

Following numerous government appointed investigations/inquiries, there has been a progressive move for countries to legislate regarding DI practice. The major focus of this legislation has centred on the rights/needs of children/offspring to have access to genetic information concerning 'their' semen donor. There has been extensive controversy regarding this issue with two dominant approaches being adopted. The first approach which is based on a right/justice/ethical perspective tries to examine the various parties – parents, offspring, and donors – needs. There is debate about how competing needs can be met. The second dominant approach is based on pragmatic considerations. This approach contends that if donors have to be identified to 'their' offspring when adults, then donors will not be prepared to donate, the service will not be able to be offered and infertile persons will be disadvantaged. In the last 20 years a handful of governments have decided that legislation is necessary to resolve and clarify these issues.

The advent of legislation has not meant that the debate has ceased, in fact it has become more intense. The strengths and limitations of legislative intervention will be examined through the experiences of two countries, Sweden and New Zealand.

**Is the era of the therapy by tailor-made stem cell coming?**

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Therapeutic cloning may result in immunologically compatible replacement tissues in severe degenerative or inherited diseases like Huntington's, Parkinson's, cystic fibrosis and other diseases. In Japan, the Council for Science and Technology Policy's bioethics subcommittee recommended in June 2004 that scientists be conditionally allowed to use cloned human embryos for research purposes.

The international community has been divided over the ethics of therapeutic cloning. Advocates list the development in regenerative medicine as a major benefit of allowing the cloning of human embryos, while opponents argue that it can be used to clone humans and that using embryos as a research tool is wrong. The United Nations tried to weigh in on the divisive issue by proposing universal research regulations, but was unable to have consensus

In May 2005, the South Korean scientist announced that he had created the first Embryonic Stem (ES) cells that genetically match injured or sick patients. The match means ES cells are unlikely to be rejected by the body's immune system. Researchers hope the cells eventually can be used to repair damage from disease. In order to accomplish this experiment, the eggs were retrieved from 18 volunteers, and total of 185 eggs were donated. Researchers got 31 embryos from which they tried to extract stem cells and managed to produce 11 ES cell line. When he derived the first human stem-cell line from a cloned embryo in February 2004, he used 242 eggs donated from women to create only one ES cell line. Striking aspect of his latest study is that he was able to

significantly increase the efficiency of his technique. He brought the average number of tries down to 17.

We worry that women's health will be placed at risk because creating embryos takes many donated eggs. Even if the new study decreases the amount of eggs necessary, this is still going to have women on the line as part of the production process. And as the technique brings the therapy much closer to reality, it will actually increase demand for eggs.

As scientific technology advances, we are increasingly forced to make difficult decisions. Although new technology can potentially be a solution to unsolved problems, it can lead to unexpected side effects when applied. Therefore bioethics becomes a more essential component of science.

## Wednesday, 14 September
## *(All day field visit at Kasertsart University - Kamphaeng Saen Campus)*

## 9. Biotechnology and Bioethics

**Transgenic papaya resistant to viral disease: a study for crop improvement in Thai papaya**

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Genetic transformation has been applied to produce papaya plants that withstand viral disease, namely papaya ringspot virus (PRSV), which is a major constraint in papaya production. PRSV resistant cultivar was not possible through conventional breeding technologies for commercial lines of papaya. Thai papaya, Khak Dum (commercial cultivar), was transformed via *Agrobacterium*-mediated transformation with different chimeric constructs containing either the coat protein (CP) or replicase (NIb) genes of PRSV, Thai isolates, for an introduction of PRSV resistance into papaya genome. Four constructs derived from PRSV genes were CP gene of PRSV, Suphan Buri isolate, NIb gene of PRSV, Suphan Buri isolate, CP gene linked with inverted repeat of CP gene, Suphan Buri isolate and NIb gene of PRSV, Nakhon Pathom isolate. From screening for PRSV resistant lines, our results are similar to those from previous studies where resistance to PRSV was obtained in transgenic papaya using these viral genes. To date, 42 putative transgenic lines were regenerated and determined the presence of transgene in papaya genome by PCR. Among these lines, 40 transgenic lines representing the four transgene constructs were evaluated for PRSV resistance by inoculated with several PRSV, Thai isolates. To date, 19 transgenic lines were challenged with PRSV isolates and showed PRSV resistance. It was noticed that all lines from CP transgene with inverted repeat sequences (pMON 65303) were the promising transgenic papaya resistant to PRSV isolates from different geographic regions in Thailand.

**Delayed ripening characters associated with genetically modified papaya (*Carica papaya L.)* with antisense ACC oxidase**

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A gene in the ethylene biosynthesis pathway in papaya, 1-aminocyclopropane-1-carboxylate (ACC) oxidase (*CP-ACO1*), was cloned in an antisense orientation and used to transgenic papaya somatic embryos by particle bombardment. Four transgenic lines; *PD/8*, *PD/90*, *PDY/138* and *PDY/147* were grown in a screen house and fruit harvested. Four criteria including shelf life, ACC oxidase expression, ethylene production and total soluble solid (TSS), were used to determine the fruit ripening characters. The results indicated that all four lines had significant longer shelf life ($p<0.001$) than non-transgenic papaya. Northern analysis showed that the *CP-ACO1* expression was suppressed. As a result, the ethylene production of transgenic papaya fruits was 34 – 41% of the production in non-transgenic papaya fruits.

**Biosafety study of GM papaya in Thailand**

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Papaya has been introduced to Thailand around 200 years ago. Papaya become a popular fruit in the Thai life style and caning industry. However in the last 20 years, papaya production in Thailand faces the problems. The major problem is papaya ringspot disease which seriously damage to the infected plants. Several of control measures have been trialed with a limited success for controlling. Kasetsart University, BIOTEC and Queensland University of Technology have joined to work on this problem since 1987. Papaya ringspot virus (PRSV) resistant plants were generated by using genetic transformation techniques with PRSV coat protein gene. Recently tests, the R4 generation of transgenic papaya perform well and resistant to the most of PRSV isolates in Thailand. In order to release this GM papaya to the environment, the studies involving the risks and consequences of gene transfer and food safety needed to be address. Biosafety study of GM papaya frameworks are following the National Biosafety Guideline which including biological and ecological effects to papaya and the risk and consequences of gene flow into the environment. This scientific informations, hopefully, will help the policy markers to make decission on the future of Biotech Crop in Thailand.

**The Transgenic Thai Papaya Story – A Milestone of Thailand toward a Biotech Crop Country**

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Thailand is taking actions toward the deregulation of its first biotech crop. Papaya is a model system for several upcoming transgenic fruit crops in several countries. To help manage the problems of the Thai farmers whose papaya production has been diminished by Papaya ringspot virus, a collaboration between Thailand's Department of Agriculture

and Cornell University, where the first virus-resistant transgenic papaya in the world was developed, was established. The goal of this collaboration was to transfer the technology and to engineer a virus-resistant papaya for Thailand. In 1997 at Cornell University, USA, the Thai papayas were transformed by Thai researchers with the help and technology of New York State Agricultural Experiment Station. In the same year, the first transgenic Thai papayas with engineered resistance to the virus were brought back to Thailand. Before any release of transgenic crops, the government requires biosafety information. The Department of Agriculture has set up Khon Kaen Horticultural Station, Thailand, to be the center of the study on these transgenic papayas. In 2004, biosafety regulations were questioned by a non-governmental organization. The governmental agencies needed to answer those questions and to clarify the concerns to the public before continuing the deregulation process. Thus, it is essential that the scientists and those who know and understand this technology speak up and make relevant information accessible to the public.

**Description of Thai indigenous chicken plumage colour and broodiness using classical and molecular genetics**

*Voravit Siripholvat*
Thailand

**Is there a Need or Space for Gene Technology Ethics: An Australian Perspective**

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The Japanese futurist, Taichi Sakaiya, has described the movement of advanced economies from production to knowledge-based industries. Biotechnology is a classical example of a knowledge-value industry that is widely supported by the OECD as a basis for future employment and wealth for advanced nations. Australia has drawn up its own biotechnology: national strategy in which it states that "consistent in safeguarding human health and ensuring environment protection, that Australia capture the benefits of biotechnology for the community, industry and environment". The *National Strategy* was developed with regard to international standards. Equally, the *National Strategy* acknowledges the emergence and development of environmental ethics. The environmental ethical principles that have emerged are expressed in both familiar and new terms, such as care and protection of the environment, respect for biodiversity, the precautionary approach (see Article 15 *Convention on Biological Diversity*), sustainability and natural ecosystems

The *Gene Technology Act*, 2000 establishes the regulatory framework for the licensing of dealings with genetically (modified organisms (GMOs) in Australia. The Act sets down a comprehensive and rigorous system of scientific assessment of risks and the development of a Risk Management Plan to address any identified risk. The Act also includes comprehensive consultation processes required for the issue of licences. The Act establishes the Office of the Gene Technology Regulator (OGTR), which regulates dealings with GMOs, including exempt dealings, accreditation of facilities and organisations and licensing of intentional releases of GMOs into the environment.

The Gene Technology Regulator has three advisory committees under the terms ofthis Act. The Gene Technology Technical Advisory Committee advises on the scientific and technical aspects of applications for licences The Act also recognizes that, as well as strict compliance with the legal requirement of the Act; there may be ethical and social issues that require consideration. These ethical and social issues surrounding genetically modified organisms were recognized by the creation of the Gene Technology Ethics Committee (GTEC) and the Gene Technology Community Consultative Committee (GTCCC). The Gene Technology Ethics Committee (GTEC) was established to provide advice to the Regulator or the Ministerial Council on:

(a) Ethical issues relating to gene technology
(b) The need for, and content of, codes of practice in relation to ethics in respect of conducting dealings with GMOs
(c) The need for, and content of, policy principles in relation to dealings with GMOs, which should be conducted for ethical reasons (s112).

Both the GTEC and the GTCCC are multi-disciplinary committees (s108 (3); s111 (5)).

In the area of research involving humans, the basic regulatory framework depends on well-established codes of ethical practice, such as the key international reference point of the *Declaration of Helsinki* (in Australia, the *National Statement of Ethical Conduct in Research Involving Humans* 1999). In the case of research involving animals, there is a statutory framework within State and Territory *Animal Welfare Acts.* The statutory framework has been supplemented gradually by Codes of Practice and ethical principles developed by the National Health and Medical Research Council, in particular the 7th edition of the *Australian Code of Practice for the Care and Use of Animals for Scientific Purposes* 2004. There are no gene technology or environmental equivalents of the Human Research Ethics Committees or Animal Welfare Committees. Similarly, while codes of medical research ethics contain statements of broadly agreed and consistent principles, there are no equivalent international statements in relation to agreed environmental ethical principles

The GTEC is developing a *National Framework Statement* on environmental ethics or the ethics of gene technology. GTEC notes the excellent work done by the two states of Queensland and Victoria in developing their ethical statements in this area.

GTEC has identified the following set of 10 core principles that apply to the environment in general, and gene technology, GMOs and GM products, in particular:

1. Integrity is the guiding value for researchers and all others involved in gene technology and dealings with GMOs in their search for knowledge and in their commitment to the obligations and spirit of the national regulatory system.

2. Researchers and all others involved in gene technology and dealings with GMOs have the legal and ethical responsibility to ensure that activities within their control do not cause damage to the Australian environment or in areas beyond the limits of national jurisdiction. In so doing, there must be a thorough assessment of the extended side effects of practical applications in gene technology and dealings with GMOs.

3. Gene technology and dealings with GMOs should be conducted with consideration of the environmental and health needs of present and future generations.

4. Gene technology and dealings with GMOs should be conducted in a manner that integrates the environmental and health protection into the research and development process, and not in isolation from it.

5. Researchers and all others involved in gene technology and dealings with GMOs should demonstrate respect for persons in all acts, including obtaining appropriate consent. Respect for persons is expressed as regard for the welfare, rights, beliefs, perceptions, customs and cultural heritage, both individual and collective, of persons likely to be affected by the gene technology and dealings with GMOs.

6. Researchers and all others involved in gene technology and dealings with GMOs should demonstrate respect for all living things, and the environment on which they depend, in each and every act when dealing with gene technology.

7. Researchers and all others involved in gene technology and dealings with GMOs should minimise risks of harm or discomfort to the persons (or living things) affected by the dealing.

8. Researchers and all others involved in gene technology and dealings with GMOs should act with compassion, reciprocity and solidarity with others and with future generations.

9. There is a challenge to promote an equitable distribution of the benefits from the biotechnology revolution to the developing nations. This may include promoting equal access to scientific developments, sharing knowledge and recognising the value of benefit sharing.

10. Researchers and all others involved in gene technology and dealings with GMOs should carry through the values and principles set out in this framework in a practical, informed way, without sacrificing one value while attempting to realise another value.

These core principles aim to assist scientists and the community to identify and follow right conduct in relation to the environment in general and gene technology, GMOs and GM products, in particular. The principles are for *guidance* and are not intended to be prescriptive at this stage. These principles may form the basis upon which codes of practice or policy principles (under the relevant provisions of the *Gene Technology Act 2000* and the corresponding state and territory acts) may be developed at a later stage.

Public trust in science and biotechnology is a major issue.. The Novartis Foundation, for example, has noted that deficits of trust, not advances of trust, are and were another rule. This was similarly recognised by the House of Lords Select Committee which said there was a "new mood for dialogue where scientists were beginning to understand the impact of the work in society and public opinion". This trend is to greater public scrutiny through legislation which, places the responsibility for the scrutiny of biotechnology squarely within parliamentary responsibility. But of course, this is not to deny the importance of the social responsibilities of the scientists themselves.

**Victorian Governance of Biotechnology**

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The Government of the State of Victoria, Australia, asked the Victorian Biotechnology Ethics Advisory Committee to develop a draft Statement of Ethical Principles for Biotechnology. The Statement provides guidance of ethical practices for scientists, institutions and companies using biotechnology in research and other applications.

The voluntary Statement of Ethical Principles was developed with extensive public consultation. Special processes were adopted to capture the youth perspective.

This paper summarises the development of the Statement of Ethical Principles for Biotechnology and considers how such guidelines may be adapted and implemented by scientists, institutions and companies. The author will briefly outline the Australian framework considering the ethics of science and technology, in particular, structures and processes relevant to gene technology.

**Lunch**

**Field site visits**

The participants will be divided into 2 groups (approximately 40 for each group)

**3:30pm come back to main room for a combined session again**

**Ethics in Public Communication on Agricultural Biotechnology**

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ELSI, Ethics, Legal and Social Implications are essential components in R & D on agricultural biotechnology. Particularly, consideration on ethics in public communication is cardinal for benefit for societies. A series of cases are given on the debates associated with agricultural biotechnology focusing on GM crops.

At the COPMOP-2 of the Cartagena Protocol on Biosafety for the Convention on Biological Diversity at Montreal, May, 2005, some delegations could not get visa issuance promptly from the Canadian government. This was hinted by many insiders that there was particularly the lack of understanding on how to follow the comprehensively instructed visa application by the applicants who supposed to have relevant experiences on the process. Finally those people could make it to attend the conference with the extraordinary efforts by the host government. Those applicants did not follow the procedures precisely it could be regarded as unprofessional and unethical on the one side of fault not admitted, but the stagnant visa issue process accused. There should be urgent needs in capacity building on how to request visa and to attend the international meeting before attending the COPMOP-2 meeting to discuss on the specific capacity building on biosafety.

Sensational demonstration on GM canola spill in Japan: Prior to the approval of importation of transgenic crops for the food, feed and processing uses by the government, the environmental risk assessments of GM crops have been done well with multidisciplinary scientific teams under the previous Japanese governmental guideline and are being confirmed by the new law which entered in to force in February 19, 2004. For example on the transgenic canola spilled at ports and

roads on the way processing factories, based on the governmental assessments, there is no finding made on the possibility of an adverse effect to the environment: no invasiveness, no introgression to wild relatives establishing as super-weeds, no crop contamination. As *Brassica* crops are alien species in Japan, there is no wild relatives which could be contaminated, and all crop seeds are well managed from mixing crop cultivation per se. Adventitious cross may happen with the bolting *Brassica* crops but these are controlled well in ordinary cultivation practices, and Japanese farming system never uses such voluntary plants in cropping. Unintentional crop contamination in *Brassica* vegetables could be imaginary and indeed it does not happen unless criminal set-up is made to intentionally mix them when market shipment is made. Thus, gene contamination message from NGOs is a falsified information and it is disturbing the Japanese public and making adverse effects to the benefit of the crops, to the fair decision making process of public and to Japanese communities.

Co-mingled material, Bt 10 corn issue: Background, Bt 10 corn, an experimental transgenic line containing ampicillin antibiotics resistance gene, was co-mingled with the bulk-shipment of corn feed commodity to Japan and other countries. Legal issues and mishandling of co-mingling the unapproved materials are definitely problems, but the Bt 10 corn it self has no threatening risk, even no subtle harm to the livestock, human and environment. Because of unapproved status as feed, NGOs made sensational comments on the danger of the Bt 10 corn. Generally speaking antibiotics marker genes have been avoided due to the public perception, but there is no threatening risk according to many of scientific reports from highly recognized sources. The detection at ports based on the Japanese domestic regulatory frame and implementation practice would be the model examples of how the Japanese monitoring system functioned well for detecting the co-mingled items which are not approved in the country based on the international recommended procedures and the system currently conducted by the government guidance. The statements from the domestic and international NGOs are making strong negative impact on the commercial movement of the LMOs-FFP, especially corn for feed. This is not only to the transaction at ports, but also to the distributors, farmers and consumers of the daily products derived from the livestocks which were fed with the imported corn.

It is unethical that some activists and their umbrella organizations abuse and intentional transformation of the scientific facts. It is quite adverse effects to the innocent public and it is damaging to socio-economic values. The imprecision and wrongful uses of the scientific facts are confusing and scaring to the Japanese communities. The threateningly loud voices from the activities only discourage the communities and infringe rights of the public to complete fairly on the benefit of the transgenic technology and product thereof.

It was pointed out that negative sentiments have been increasing over a decade since the first commercial release of GM crops in Japan. However, this is not totally correct. Whenever surveys had been made average of less than 20% of the target sample population replied. At the sampling stages, it had a biase in the context of random sampling, as the average of 80% did not answer or did not indicate the interest. Only small portion of the surveyed groups represented the general sentiment in Japan. Alternative approaches in information surveys have been conducted and these experimental cases indicated contrasting results on the diverse views rather than perception. The importance was pointed out on the role and responsibility of public news-media and information mediation mechanisms to be fair and more analytic on the dissemination of the complicated scientific and technological matters such on genetic engineering and products thereof.

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## Constituting ethics into biotechnology policies and developing international relations.

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Of late, genomic technologies are perceived as catalytic in developing a knowledge-based economy and argued for integrating international perspectives and balancing "interests" of all the stakeholder and "participation. Several international agencies, including UNESCO, WHO and UNDP are working towards developing ethical frameworks in global governance mechanisms, including the use of genetic technologies in agriculture and biomedicine. Though some of these frameworks mention similar principles, benefit sharing, justice and common heritage of mankind for example, these principles can be interpreted in several ways and conflict with each and arguably may not be reflective of the cultural values and applicable as guiding principles in prioritising the policies and challenging in the implementation of those policies. In this paper, I will explore some of the different interpretations of these principles and the need to integrate wider perspectives the governance of genomic technologies.

For developing countries, in Asia and elsewhere the issue of embracing potentially valuable technologies in the context of socio-economic background of the countries is also crucial. However, it is commonly acknowledged in the international debates that there is a strong need to first develop regulatory mechanisms integrating fundamental ethical values of different cultures. The issue of integrating ethical principles in policy frameworks is only one aspect; implementation of those value-led policies at local level, in each region and country is another challenge. Some issues such as what are the benefits for an individual versus sharing of benefits with the

communities, the concept of solidarity and mutuality in the biotechnological development and its meanings for Asian countries will be discussed.

**Benefits and Ethical Limits of Biotechnology**

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The emerging areas in Biotechnology range from the development of new medicines and drugs, genetically engineered foods, biologically controlled industrial manufacturing processes, and biologically based computing devices to the creation of new industrial materials and devices based upon biological structures and the use of biotechnology in food production. This research area carries the potential for strong societal reaction. To explore the potential impact of biotechnology on society, three fundamental options that influence societal acceptance of biotechnology are described. First, the extent to which technological integration proceeds may strongly impact the way society uses and perceives biotechnology derived products and processes as legitimate and reliable alternatives to current products may shape both market demand and public policy. Third, government should educate their citizens (especially people at schools) to ensure that they really understand this new technology and are able to make real choices and better understanding of biology will certainly result in a better acceptance by the society. The major reason cited for rejection of genetic manipulation research in society was seen as interfering with nature and as unethical. These may illustrate a paradigm shift among scientist to concentrate more attention on the social impacts of their research, especially in areas such as biotechnology and genetics. People should be offered the option of using new technology in medicine and agriculture and such application should be made providing internationally accepted ethical and safety standard.

**An Analytical Framework for Understanding Agricultural Biotechnology Controversies**

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Several years before the Indian government decided to introduce transgenic cotton (Bt cotton) to the Indian market, social controversy erupted. The controversy arose toward the end of the 1990s, when the government of Andhra Pradesh halted the open field trials of Bt cotton which were then being conducted by a joint venture between a local firm and a multinational corporation. Concerns about ethical issues – how the benefits of biotechnology will reach developing countries, how the benefits will be distributed to growers of different social and economic strata, and how the environmental and health risks will be distributed and redistributed – have given rise to a social movement at odds with the efforts of the Indian government and the cotton industry to introduce the new technology. Since the initial eruption of the controversy, many groups, including farmers, scientists, industrialists, NGOs, and various government agencies, have become actively involved in discussions and decisions concerning the commercialization of this new variety. Against this complex backdrop, the aim of this paper is to present an analytical framework providing insights into the landscape of agricultural biotechnology controversies in India. The social constructionist approach to social problems (SCSP) provides an overarching framework in which to analyze the issues. The paper will introduce the purpose and conceptual framework of SCSP by explicating the concepts of actors, claims and frames. The key notion that seemingly objective conditions actually constitute just one of many perceived realities will help us understand how both scientific and non-scientific considerations (ethics, values, needs and preferences) play out in processes of societal decision-making concerning agricultural biotechnology.

## Thursday, 15 September

## 10. Public Health and Ethics of Research

**Ethics of use of genetic control methods for infectious disease**

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There is a history over millennia of efforts to find medicinal compounds in nature and protect communities against common threats of infectious diseases. A new strategy that should enter field trials on certain isolated islands in the next few years is to alter the metabolism, structure and/or behaviour of disease vectors so that they cannot transmit pathogens to humans. We now have the DNA sequence of human beings, that of dozens of pathogens, and some disease vectors. It is therefore not surprising that molecular entomology, the study of the DNA and proteins that they encode, in insects, is emerging as a serious scientific approach for insect control in agriculture and medicine.

People in all cultures have developed biotechnologies, as they live together with many species in the wider biological and social community. Part of this process is for a local society to set values for consensus on risk assessment. This involves community engagement, and descriptions of the early results of several attempts at community engagement for these trials will be introduced. In this sense genetic engineering may be a catalyst for consideration of the need for community input in public health decisions in general. The empowerment of citizens in all communities, rural and urban, can have a significant impact on the approaches and solutions that are used and proposed.

The ethical principle of beneficence supports the development of science and medicine, and its provision to those who suffer in the world. The ethical principle of non-maleficence would make us balance reasonable caution about premature use of a technology when risks are not understood. Before field release of transgenic insects, researchers must assess all the scientific issues associated with GM vectors and develop safety precautions to address potential risks. A procedure for risk evaluation should be set up, so that new

information can be gathered and interpreted. Consent should be obtained from the communities involved. The specific mechanisms to obtain individual and group consent need to be specifically developed for public health interventions. The data should be made open to all so that it can benefit from global expertise and develop an international consensus.

[Background: Macer, DRJ. *Ethical, legal and social issues of genetically modified disease vectors in public health*. UNDP/World Bank/WHO Special program for Research and Training in Tropical Diseases (TDR), Geneva, 2003.](http://www.who.int/tdr/publications/publications/seb_topic1.htm)

**Gauging attitudes towards genetically modified mosquitoes**

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In the fight to reduce human suffering, there is an urgent need for the control of vector borne diseases such as malaria and dengue. The use of genetically modified (GM) insects is one of the methods that has been supported in principle by WHO as a new measure for disease control. However, there is much controversy surrounding the procedures of such research, especially concerning field trial studies of GM organisms (GMOs) in general, whether they be plants or in this case, insects. To carry out a field trial in an ethical manner, it is necessary to understand the concerns that the general public of each particular community, and various stakeholders have, and to ensure that there is open dialogue and a continuation of involvement of communities for the duration of a trial.

In order to gauge the attitudes that people have concerning bioethics, two surveys were conducted in Japan, one in 2003 and the second one in 2004 to both the general public and to farmers. These surveys contained a few questions relating to GMOs with one question focused specifically on whether using genetic modification techniques to make mosquitoes incapable of vectoring diseases such as malaria and Japanese encephalitis in their opinion is acceptable or not. The questions were given in an open response format, thus the returned comments were analyzed and categorized into concept categories which express the ideas in the responses given. Overall, among these surveys, 36% of the respondents found the technique acceptable while 17% responded that it would be unacceptable and 47% answered they didn't know. Of the total number of ideas in the comments made, 31% were positive, 19% were mixed, and 50% were negative feelings towards genetically modified mosquitoes.

Although the use of genetic modification techniques for the purpose of controlling diseases is accepted more than it is unaccepted, categorization of the comments revealed that the technique itself is viewed rather negatively by the Japanese people, while noting that Japan is not endemic for such infectious diseases. Given that globally there are several research groups with ongoing projects involving GM mosquitoes, studies need to be conducted in endemic countries and more regions to further analyze and understand the attitudes of different communities towards GM mosquitoes. Only in this manner is it possible to gain the trust of communities, and design a method of research concerning GM mosquitoes that can be accepted by the communities involved.

**Research Ethics in China: History, Status quo and Issues**

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There is no tradition of doing research involving human subjects in China. Traditional epistemology and Confucian ethics prevent physicians from doing research involving human subjects other than themselves. However, doing research only with the researcher himself is no longer valid with large scale trial, production and use of more effective new drugs and with other biomedical and health research in all disciplines. Since Dolly, bioethics began to be institutionalized. A draft of regulation on research involving human subjects (MOH) was circulated in a limited circle in 1998 and the first version of GCP was officially promulgated (SFDA) in 1999 in which ethical requirements for independent review and informed consent are specifically required. Later regulations on ART and human embryo stem cell research also require ethical review and obtaining informed consent. However, in their implementation there are lots of problems, which result in non-observance with these regulations or requirements. In response to urgent need to build capacity of bioethics training workshops on research ethics have been organized respectively by Research Centre for Bioethics, PUMC, HSC Peking University, and Centre for Bioethics, Huazhong University of Science and Technology in collaboration with Harvard School of Public Health under the sponsorship by NIH and CMB in six major cities. Some controversial cases will be discussed with the recommendations that there should be a policy to deal with different problems which take place in different cases, and that the role of mass media in bioethics should be properly evaluated.

**Current State of Research Ethics in Developing Countries: Where Do We Stand?**

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The main objective of this article is to illustrate the current situation on ethical issues in bio-medical research in developing countries along with focusing on the ways and means to ensure its implementation. In a developing country like Bangladesh, bio-medical researchers still lack proper knowledge about the ethical components of research and

attitudes toward practicing it. It is a common practice in developing countries to carry on bio-medical studies like clinical trials without taking informed consent from human subjects, which is a serious offense according to Helsinki Declaration and Nuremberg Code. It becomes possible because study subjects are easily exploitable due to their illiteracy, poverty, unemployment, lack of consciousness etc. Prior to starting a study, taking ethical clearance from appropriate authority remains as a thorny obstacle for researchers in developing countries due to widely practiced corruption, bribery, bureaucratic complication, procedural delay and so on, which distract researchers from fulfilling necessary formalities. Sometimes even scientific journals, particularly in developing countries, publish articles without asking the author(s) about ethical issues relevant to the performed study. More effective education/training on bioethics for prospective researchers can be useful. Moreover, checkpoints like Ethical Review Committees and scientific journals can also play a vital role to implement ethical aspects of bio-medical research. Achievement requires professional/technical assistance and political motivation both from national and international community.

**Utilization of traditional knowledge and support of access to health**

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Traditional medicine has been practiced in every corner of the world since dawn of humankind and it is recognized by the WHO that 80% of the population, especially in the rural areas of developing countries, rely primarily on traditional healers for their health needs. However, traditional health practitioners remain marginalized and their recognition by health authorities has only begun in several countries.

As a UN research institute focused on global problems which affect a majority of the world's population, UNU-IAS is conducting a program investigating modalities to integrate traditional medical knowledge into the public health systems of developing countries. A policy report including case studies from Canada, Cote d'Ivoire, India, Japan, Mongolia, Nepal, Peru and Trinidad & Tobago is being prepared for publication, reflecting the experiences in various cultures to incorporate non-standard methods in the main-stream health provision systems.

In order to improve access and quality of health care of the disadvantaged we can build on the existing wealth of understanding and the presence of trusted practitioners who have the authority bestowed by the communities for generations. The best possible, accessible and affordable medicine has to be provided to people, everywhere, in line with the UN Millennium Development Goals.

In addition, traditional medicines are becoming popular alternatives to the western approach in developing countries and various time-honored methods like acupuncture, homeopathy, Ayurveda, and many others are taught in medical universities and started to be recognized by governments as complementary to modern medicine. However, insurance schemes still favor modern drugs and procedures, in disregard of traditional methods, creating a dilemma for the consumer who is torn between choosing the less costly procedure (in the short run) versus the one which might take longer to cure in a gentler and more thorough manner.

In recent years there were numerous cases were research undertaken by pharmaceutical companies in the herbal pharmacopoeia of indigenous peoples has lead to patents which did not benefit, or even acknowledge the traditional information they were based on. These ethical aspects of research and distribution of resources and knowledge are being investigated.

## 11. Governance Models for Genetic and Reproductive Technology

**Informed Consent: An Essential Requirement for Essential Health Research**

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Strict requirements for informed consent have occasionally posed a barrier to the conduct of biomedical research involving human subjects even when such research is considered essential for public health. The situation has been particularly frustrating for scientists doing research on special groups such as children, the mentally handicapped, and others with a diminished capacity to give informed consent. Some writers have argued that the frustration must be shared by the public in general as they point out that it is time to relax the needlessly strict informed consent requirements.

I argue that notwithstanding the setbacks that have been encountered occasionally by scientists, the informed consent paradigm needs to remain firmly in place. The danger that arises from a diminished adherence to informed consent requirements far outweighs the danger that arises from a failure to pursue 'essential' research. Moreover, even when we continue to recognize the centrality of informed consent to the research enterprise, there are mechanisms that allow exceptions under justifiable special circumstances.

**Ethical Issues on Human Embryonic Stem Cell Research in China**

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HES cell research is developing quickly in China. This research became a hot topic in the mass media and a concern for both the public and scientists in 2001. Chinese bio-ethicists and the government made great efforts to illuminate the ethics issues, and drafted the "Ethical Principles and Regulations for HES Cell Research", "Ethical Code on HES Cell Research" and "Ethical Guidance on HES Cell Research". Discussion of ethics by bio-ethicists and the ethical committee is on going.

There are ethical disputes against the issuing of regulatory and ethical guidance. Some Chinese scientists thought that freedom of scientific research should not be violated and should go without ethical constraints. Two recommendations and the "Draft of Ethical Guidance on Human Embryo Stem Cell research" drafted by two Ministries, support and encourage human embryonic stem cell research,

on condition that the embryos researched are within 14 days of development. These papers are meeting objections from at home and abroad, so one ethical issue is support of or objection to research on embryos within 14 days of development. Another ethical debate is on the source of human embryonic stem cells in China and how to protect the donors. Human embryonic stem cell research must be carried out under the principles of informed consent in the context of culture and social situation. There are issues regarding the researchers' ethical training, how to guarantee the stem cell research is authorized and review by an ethics committee. Government work on regulation is expected.

**The Regulation of Stem Cell Technology: International Approaches to Restriction or Permission**

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Nearly 10 years ago in 1996, at the Roslyn Institute in Edinburgh in Scotland, a company called PPL Therapeutics created *Dolly* from a cell taken from an adult animal. The world's first cloned animal created an extraordinary international reaction. The general international reaction was to ban human reproductive cloning. As the debate matured, there was a general recognition that cloning, for "therapeutic" purposes might be an acceptable option.

The debates about therapeutic cloning have revived debates about the acceptable limits to research on human embryos. Stem cell research is seen as one of the great hopes for a revolution in medicine offering opportunities for tissue and organ repair and potentially therapies for Parkinsons, Diabetes, heart disease and the production of synthetic blood. More controversially, stem cells could be used for drug testing. Finally, perhaps one day, therapeutic cloning may become a reality where an individual's own (autologous) cells could be developed for transplant. Currently, both adult and embryonic stem cell research is at an early stage. Most of the modest success so far have been in the adult stem cell research area.

Stem cells can be derived from human embryos or other adult cells. For example, bone marrow transplants are a type of adult stem cell. Many people prefer the use of adult stem cells because of doubts about the moral status of the embryo in many religious traditions. Gradually, a number of countries have decided to allow embryo research using excess IVF embryos. Most countries have decided that some form of regulation is essential.

This presentation will concentrate on the embryo research legislation in Australia. A licensing regime has been set up for the use of excess ("surplus") embryos from assisted reproductive technology (IVF) programs. A Licensing Committee is set up within the National Health and Medical Research Council, which grants licences to researchers in the private and public sector. There are criminal offences for the use of embryos without a licence.

At the first stage, the researcher must present the research proposal to the Human Research Ethics Committee in their institution. That Committee must be satisfied that-
-the embryos are excess to the needs of the couple in the ART program,
-that all the consents have been obtained and
-that approval has been given for the activity and the project must be approved by the HREC.

At this stage the application can be referred to the National Licensing Committee, whose principle task is to licence the use of these ART embryos in research. The Licensing Committee must again confirm that the consents have been obtained and that the project has been approved.

The Licensing Committee to have regard to restricting the number of excess ART embryos to be likely to be necessary to the project and also to be satisfied that there is a likelihood of significant advancement in knowledge and improvement in technologies. At that moment a licence may be issued subject to conditions.

Interestingly, the Licensing Committee has already had to develop additional guidance on difficult practical issues which have arisen. Guidance has been given on when an embryo may be considered dead; how the consent of the parties is to be obtained and how the "likelihood of significant advance" will be interpreted Thus far, 9 licences have been issued.

This framework system of regulation of embryo research based on the use of surplus embryos from IVF (sometimes referred to Assisted Reproductive Technology -ART) is by far the most common model with a number of countries having introduced legislation such as the UK, Finland, Greece, Israel, The Netherlands, Sweden, South Korea, the American States of California and New Jersey and Australia. Other countries have also followed the surplus embryos approach but have preferred to use guidelines, such as Singapore, China, Spain and Japan.

The United Kingdom has gone much further and has introduced legislation allowing the actual creation of embryos, in very strict circumstances to obtain embryonic stem cells. It is worth noting, however, that the United Kingdom has not signed the Council of Europe *Convention on Biomedicine*. Finally, there are some countries who, as yet, have not introduced specific legislation. For example, the USA has not introduced legislation, but rather introduced restrictions on the use of public funds for such research.

The legislation and guidelines introduced to *permit* embryo research have usually placed many other *restrictions* on embryo research. For example:

- Only surplus IVF embryos allowed to be used except in the UK
- The consent of the parties creating the embryos is required at 2 stages - a consent that the embryos are no longer required for their IVF treatment and *also* consent to the research
- The purposes of the research must be explained and mostly the research purposes are limited and require careful justification
- The research purposes must be approved by an Ethics Review Committees
- The research is generally required to be reported and the research results published
- Finally, some countries have set up national committees to license the research with power to impose further conditions in the licence.

Restrictions are usual in relation to the purpose of the research. No country has allowed, as yet, undefined research on embryos. In Australia the researcher has to show there is a "likelihood of significant advancement of knowledge or improvement in technologies for treatment". Similarly in

Japan, the researcher may only use ES cells for basic research and cannot use them reproductively. The UK originally set out research purposes which related to infertility, miscarriages, genital diseases, contraception and chromosome abnormalities but is now extended the purposes to the development of embryos, knowledge of serious disease and the treatment of those diseases.

On the other hand, some countries maintain their legislation banning embryo research, for example, Austria, Ireland, Canada, Philippines and Germany. Interestingly, Germany bans embryo research but still allows stem cells to be imported.

Interestingly, the international debates about human embryo research has revived philosophic discussion. The utilitarian ideas weighing benefits and harms or the deontological approach to duties have now been supplemented with arguments based on human dignity. Arguments based on human dignity may be conservative but they do allow discussion on areas outside simple claims to human rights. For example, the embryo may not have human rights but deserve to be treated with dignity. Similarly, some have argued that reproductive cloning is part of the right to procreate. However, reproductive human cloning offends human dignity because the fundamental nature and values of a society are as important and may transcend individual rights. Human dignity also underpins human rights themselves and places proper limits on the idea of autonomy. Professor Brownsword has also suggested, human dignity is necessary to avoid the trivialisation of genetics for cosmetic purposes.

In conclusion, there is a reasonable international consensus about the unacceptability of reproductive cloning. In 1997 the UNESCO *Universal Declaration of the Human Genome and Human Rights* recommended the prohibition of reproductive cloning. This was followed by similar criticisms of reproductive cloning by the National Bioethics Advisory Commission in the USA, the WHO General Session and a Protocol prohibiting cloning added to the Council of Europe Convention on Human Rights and Biomedicine. More recently, this year, the UN introduced a resolution to ban reproductive cloning but did not introduce a formal Treaty. Similarly, there has been some consensus on the need for regulation of human embryo research. However, the models of regulation have some common themes. Secondly, it is widely agreed that harmonisation is desirable to avoid jurisdictional tourism where an individual simply goes to a country with lower regulatory standards.

**What are the points in human cloning debate? A view from Buddhism**

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Buddhist ethics argues that in moral debate first things required are the proper questioning. The right question leads to the right answer and the wrong question leads to the wrong answer. There are many views concerning the human cloning problem. Some of them could be based on the right questioning and some based on the wrong one. This paper will examine what, according to Buddhist bioethics, are the points to be explored in the debate over human cloning. Most moral conflicts in the world including the human cloning issue according to Buddhism could be solved by going back to the proper starting point. The paper will point out what is such a starting point in human cloning debate.

**Biobanking and Ethnic Monitoring**

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The tension between the right to information and the right to privacy is intensively pronounced in the field of 'race' relations. Accurate documentation of 'racial' and ethnic minorities as well as of subordinated positions generally is a fundamental task for promoting civil rights and non-discrimination all over the world. It is important in providing claims of racial discrimination. But, in spite of the need for better founded statistics, e.g., as a result of biobanking, to document the condition of minorities the understandable fear of abusive purposes is great. Therefore data-protection laws are often -even officially- interpreted as a necessary hurdle to hinder the collection of race or ethnic data in Biobanks and statistics. The result is that advocates for non-discrimination are more or less handicapped by non reliable information.

So, biobanks as well as better statistics as their possible result are needed for evidence to prove and combat racial discrimination, and my lecture might contribute to the following points of interest:

(1) Some short remarks concerning the ability of biobanks for collecting and using biomaterials and –data to give support for anti-discrimination activities.

(2) In which European countries are race statistics used and by whom (governments/anti-discrimination-advocates)?

(3) Is there any domestic or international law to prohibit collection and maintenance?

(4) Eventually recommending legal reforms.

The result should be a contribution to the way how it should be possible to do both: to collect biomaterial and personal data and to make research with it with the aim to support anti-discrimination, and, on the other hand, to realize an optimum of security for minorities and their acceptance.

**International Comparisons of Regulation of Biobanks**

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If one observes all factors that concern the organisation of an organic bank, the aspect of acceptance takes on an exceptional role. Every plan to successfully (re)organise a biobank depends on a high level of agreement by all participants.

A trusteeship represents an interesting possibility for the organisation and administration of genetic data. What remains to consider is what kind of trusteeship is appropriate. This often depends on the situation that the initiators of an organic bank find themselves in. For example, a private sector trusteeship tries to optimise the profit aspects of research. However, this profit orientation should lead in no manner to a neglect of the rules for data protection whereby this danger in the international transfer of data is quite high. Also, the acceptance of all parties concerned is not exactly the rule in private sector organisations. This shows that private sector

trusteeship is in a field of tension as regards to the common weal. If a public trustee is delegated to administer an organic bank, one can assume that at least in the Western industrial nations that sufficient control measures are guaranteed and therefore the common weal is not neglected. Therefore, it seems meaningful to strive for a co-operative form of public and private sector trusteeships or a commission form of public and/or private organisations. An alternative would be naturally a credible private sector organisation such as the First Genetic Trust.

**Some Thoughts about Implementation of International Bioethics Declarations in Vietnam Practice**

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A successful implementation of international bioethics Declarations depends on concrete conditions of each country. These conditions in Vietnam are now rather specific. After many years of wars the country and nation concentrate their efforts on development of economy, improvement of education and health care. To do this effectively, among other things, the country should apply the achievements of modern science and technology, such as biotechnology. In this social high speed development bioethical issues are sometimes considered "luxury". This can explain several things concerning bioethics, such as the lack of bioethics courses in most of schools; lack of some bioethical regulations; bioethics is not in the focus of public media and in public opinion in general etc... One example is the articles 8, 9 and 10 in the International Declaration on Human Genetic Data, concerning very important issue "Consent". Nowadays we have no official regulations on this matter and public as well as individuals who give biological samples (genetic data) for hospitals or counseling do not pay attention to the fate of their genetic information, which will be obtained from the samples.

From other side, in the abovementioned situation, some bioethics issues somewhere seem to be difficultly acceptable. For example, all the measures, both direct and indirect, aiming at limiting abortion, are useless, because we have an official Decree allowing free abortion, aiming at limiting the growth of population, a factor increasing poverty.

Another example is article 4 on ***Human Dignity and Human Rights***, paragraph b "*Any decision or practice shall respect the principle that the interests and welfare of the human person prevail over the sole interest of science or society"* in ***Universal Declaration on Bioethics***. This principle in our condition is very difficult to be accepted.

**Market-driven Biomedical Research: A Major Challenge to Everyday Bioethics**

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One of the pre-eminent issues of "everyday bioethics" has been highlighted by Médecins Sans Frontières (MSF): of the 1,393 new drugs approved between 1975 and 1999, only 16 (or just over 1 percent) were specifically developed for tropical diseases (such as malaria, sleeping sickness, Chagas' disease, kala azar) and tuberculosis, diseases that account for 11.4 percent of the global disease burden.

These diseases mainly affect poorer communities in countries of the South, which do not constitute a valuable enough market to stimulate adequate R&D by the multinational pharmaceutical companies. Where drugs have been developed for the markets of affluent countries, they are often priced out of reach of poorer communities suffering from the same ailments.

This fundamental dilemma, between need and economic demand, has been brought into sharp relief by the campaign for affordable essential drugs, in particular, for anti-retroviral treatment for people living with HIV/AIDS.

We have seen how a profit-driven, market orientation can sacrifice a humane, lifesaving mission in order to cater to the dictates of shareholder interests and market pricing strategies.

Genomic-based enterprises will follow the same trajectory unless a pro-active campaign intervenes effectively to re-direct them more towards needs-based priorities.

**Avoiding Biopiracy? Protecting Medicinal Knowledge and Plants"**

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There is a worldwide trend, particularly in developing countries such as the Marshall Islands, to recognize and incorporate time-tested traditional medicinal practices into the modern health-care system (WHO 2003). However, to effectively bring about such an integration requires that traditional medicinal knowledge make a transition from the private, often 'secret' domain, to the public so that it can be documented and scrutinized. This raises concerns about 'biopiracy' (Shiva, 1997). Healers and researchers express strong reservations that both the genetics of medicinal plants and the once closely held knowledge of healers will be exploited and lost to external commercial biotechnological interests. This paper describes the success and challenges of a collaborative project which aims to provide public access to the specialized knowledge in the use of 56 plants by 40 women healers in the Marshall Islands while both preserving the private right to the ownership of the formulas, and the security of the common, free and self-regenerative species of medicinal plants of the Marshall Islands.

## National Bioethics Commission of Indonesia in the framework of national scientific research and technological development

- *Amru Hydari Nazif and Umar A. Jenie,*

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The establishment of the National Bioethics Commission is seen as an institutionalization of a forum for moving forward discussion and consideration of issues and problems related to bioethics at the national level. It is a realization that is welcomed by the science community. In general, it is accepted that the challenge is to reach beyond the 'code-of-ethics approach' leading to a more open debate of identifying

and finding the future path and orientation of the new technologies. NBC will prepare and submit to the Government inputs in the framework of bioethical analysis to guide and push scientific research and technological development. Other study results are provided and presented to the public at large, indirectly through publications, and directly through periodically held "road shows".

Appendices

**Universal Declaration on the Human Genome and Human Rights**

**Universal Declaration on Bioethics**

**See www.unesco.org**

## News in Bioethics & Biotechnology

http://www2.unescobkk.org/eubios /NBB.htm
**News will appear in some future issues of *EJAIB*.**

### International Bioethics Education Project News

<http://groups.yahoo.com/group/Bioethicseducation/>)

Revised version of the bioethics education textbook is expected to be printed by November 2005.

### IAB Genetics & Bioethics Network: On-line

The complete address list is updated on the Internet. Send all changes to Darryl Macer.

### ABA Membership

http://www.unescobkk.org/index.php?id=41

### Conferences

A bioethics conference calendar website is: http://www.who.int/ethics/events/en/

*Sixth Asian Bioethics Conference,* 14-18 November, 2005, Sanliurfa, Turkey. Contact: saksoy@harran.edu.tr Website: http://www.jointbioethics.org

*IV World Conference on Bioethics*, Gijon, Spain. 21-25 November, 2005. Contact: bioetica@sibi.org

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