

How Well Does Japan Meet Its Challenges and Responsibilities in Biotechnology and Development for Asia?

Darryl R. J. Macer*
Minakshi Bhardwaj**

Introduction

The use of living organisms is essential for human beings. The word “biotechnology” simply means using living organisms, or parts of them, to provide goods or services (Macer, 1990). The gift that we receive when we are born into this world is love. While it is a gift that few are deprived of, a deprivation that is in itself an insult to the humanity that our flesh embodies, it is a norm for all forms of life for the new life to be given a good start. How will human beings continue to provide the food, shelter and community that are the demands of love? This is the subject for practical bioethics (Eubios Declaration, 2002). If we consider the ethical principles of beneficence and justice we would like to share technology with all for the betterment of all. This is summarized in the UNESCO Universal Declaration on the Human Genome and Human Rights (November, 1997) that all members of UNESCO. This has been endorsed by the United Nations in 1998.

* Director, Eubios Ethics Institute and Director, International Union of Biological Sciences (IUBS), Bioethics Program, University of Tsukuba, Japan.

Email: macer@bio1.tsukuln.ac.jp

** Ph.D. Student, Institute of Biological Sciences, University of Tsukuba, Japan.

Email: bminakshi@hotmail.com

It includes the words:

- 12.a) Benefits from advances in biology, genetics and medicine, concerning the human genome, shall be made available to all, with due regard for the dignity and human rights of each individual.
 - b) Freedom of research, which is necessary for the progress of knowledge, is part of freedom of thought. The applications of research, including applications in biology, genetics and medicine, concerning the human genome, shall seek to offer relief from suffering and improve the health of individuals and humankind as a whole.
-

Basically, the main questions raised for the new biotechnology applications include: if it would eradicate hunger, if it assure sustainable development, if it will effect biodiversity and how environment is affected, if it can provide a disease free world, if it will ensure renewable resource economy and most importantly what its contribution is to sustainable development. It is very urgent to reflect on some of the bioethical issues that challenge the principles of bioethics as biotechnology is applied in many new socio-scientific contexts, especially its relevance to poor countries and how Japan being the richest Asian country can help its poor neighbours by providing aid and assistance (Bhardwaj, 2001).

Japan and ODA

We can ask why Japan should give developmental aid to Asia? Japan is the richest economy in Asia. There are many Japanese based multinational companies. It is a world leader in antibiotics production and fermentation technology. It has had some good success in animal cloning, but it is generally not a good model for agricultural development. In the medical sector, however, it does have a well developed national health insurance system. Historically, Japan was the first Asian country to win a war against a European power (Russia - Japan war, 1905). It was the most successful Asian power in the 20th Century to challenge the economic power of Western countries, rising from the moral and economic defeat of World War II, so its methods may be able to be repeated. Let us now consider the formal policy of Japan from the Ministry of Foreign Affairs for ODA. The full policy and their

annual report up to 1999 is on-line (<http://www.mofa.go.jp/policy/oda>). Japan's Official Development Assistance (ODA) Charter results from a Cabinet Decision taken on June 30, 1992. In order to garner broader support for Japan's Official Development Assistance (ODA) through better understanding both at home and abroad and to implement it more effectively and efficiently, the government of Japan has established a Charter for its ODA. Some of the basic points are below:

A. Basic Philosophy

Many people are still suffering from famine and poverty in the developing countries, which constitute a greater majority among countries in the world. From a humanitarian viewpoint, the international community can ill afford to ignore this fact. The world is now striving to build a society where freedom, human rights, democracy and other values are ensured in peace and prosperity. We must recognize the fact of interdependence among nations of the international community and that stability and the further development of the developing world is indispensable to the peace and prosperity of the entire world. Environmental conservation is also a task for all humankind, which all countries, developed and developing alike, must work together to tackle. It is an important mission for Japan, as a peace-loving nation, to play a role commensurate with its position in the world, to maintain world peace and ensure global prosperity.

B. Principles

Taking into account comprehensively each recipient country's request, its socio-economic conditions, and Japan's bilateral relations with the recipient country, Japan's ODA will be provided in accordance with the principles of the United Nations Charter (especially those of sovereign equality and non-intervention in domestic matters), as well as the following four principles:

- (1) Environmental conservation and development should be pursued in tandem.
- (2) Any use of ODA for military purposes or for aggravation of international conflicts should be avoided.

- (3) Full attention should be paid to trends in recipient countries' military expenditures, their development and production of mass destruction weapons and missiles, their export and import of arms, etc., so as to maintain and strengthen international peace and stability, and from the viewpoint that developing countries should place appropriate priorities in the allocation of their resources in their own economic and social development.
- (4) Full attention should be paid to efforts for promoting democratization and introduction of a market-oriented economy, and the situation regarding the securing of basic human rights and freedoms in the recipient country.

C. Priorities

Historically, geographically, politically and economically, Asia is a region close to Japan. East Asian countries, especially member countries of the Association of South East Asian Nations (ASEAN), constitute one of the most economically dynamic regions in the world, and it is important for the world economy as a whole to sustain and promote the economic development of these countries. There are, however, some Asian countries where large segments of the population still suffer from poverty. Asia, therefore, will continue to be a priority region for Japan's ODA.

It is also necessary to be mindful of the poverty and the economic difficulties in the world as a whole. Japan will therefore, extend cooperation, befitting its position in the world, to Africa, the Middle East, Latin America, Eastern Europe, and Oceania. Due consideration will be paid in particular to least among the Less Developed Countries (LDCs).

(1) Approach to Global Problems

Recognizing that it is important for developed and developing countries to cooperate in tackling global problems such as the environment and population, Japan will support efforts being made by developing countries to overcome these problems.

(2) *Basic Human Needs*

To help people suffering from famine and poverty, refugees, and others, Japan will provide assistance to the Basic Humanitarian Needs (BHN) sector and emergency humanitarian aid.

(3) *Human Resources Development, Research and Other Cooperation for Improvement and Dissemination of Technologies*

A priority in Japan's ODA will be placed on assistance for human resources development which in the long term, is the most significant element of self-help efforts towards socio-economic development and is considered a basic factor for the nation-building of developing countries. Japan will also promote cooperation for the improvement and dissemination of technologies, such as research cooperation that will add to research and development as well as adaptive capabilities of developing countries.

(4) *Infrastructure Improvement*

Priority will be placed on assisting infrastructure improvement, which is a prerequisite to socio-economic development.

(5) *Structural Adjustment*

Japan will provide support to structural adjustment, so that the entrepreneurship and the vitality of the private sector in recipient countries can be fully exerted in the market mechanisms, and to their efforts for a solution to the accumulated debt problem.

Methods of Japanese ODA Aid

The official ODA homepage states: "Implementation of ODA calls for collaboration and coordination among government ministries and agencies, as well as the active utilization of the experience and know-how of the private sector, NGOs, local governments, labour and management groups, and other entities. Likewise, active measures will be taken to promote

cooperation and collaboration with other donor countries and international organizations. Furthermore, active support must be given to encouraging and expanding South-South cooperation.”

We can, therefore, envisage cooperation between the following partners and methods:

- Bilateral agreements with countries
- Regional agreements
- International organizations and United Nations
- Private sector
- NGOs

However, only 0.35 per cent GNP goes to official ODA. There are numerous projects for development assistance. However, the official ODA is not enough. Few countries in the world really fulfill their ethical obligations for delivering aid to the poor, even in their own country. We have to look at further programmes that are being implemented at all levels, including the role of individuals and volunteers not involving government coordination.

There should be a holistic assessment of development, given the past mistakes in the introduction of technology as developmental aid, like excessive pesticide and fertilizer use, therefore, a proper technology assessment is required. The full environmental, social and economic implications of action also needs to be assessed. This obligation for prior assessment is derived from the ethical principle of non-maleficence.

Bioethical Basis for Aid

Bioethics is both a word and a concept. The word is being used only from 1970, yet the concept comes from human heritage thousands of years old (Macer, 1998). It is the concept of love, balancing benefits and risks of choices and decisions. The balancing of principles, self-love (autonomy), love for others (justice), loving life (do no harm) and loving good (beneficence) can provide us with a vehicle to express our values according to the desire to love life. This heritage can be seen in all cultures, religions, and in

ancient writings from around the world. We, in fact, cannot trace the origin of bioethics back to their beginning, as the relationships between human beings within their society, within the biological community, and with nature and God, are formed at an earlier stage than our history would tell us.

In the book, *Bioethics is Love of Life* (Macer, 1998) it is argued that “love of life” is the simplest and most all encompassing definition of bioethics, and it is universal among all peoples of the world. The need for bioethics is being re-emphasized internationally, in UN Declarations, in statements of scientists and teachers, in the views of ordinary people, and as a response to the decay in the environment and moral fabric of societies as seemingly distant as Eskimos and Tamils.

To begin with, we need to think of what we mean as “bioethics”. There are at least three ways to view bioethics:

1. Descriptive bioethics is the way people view life, their moral interactions and responsibilities with living organisms in their life.
2. Prescriptive bioethics is to tell others what is ethically good or bad, or what principles are most important in making such decisions. It may also be required to say that someone has rights, and others have duties to them.
3. Interactive bioethics is discussion and debate between people, groups within society, and communities about 1 and 2 above.

Developing and clarifying descriptive bioethics allow us to make better choices, and choices that we can live with, improving our life and society. In order to inform our prescriptive bioethics we need to describe the bioethics that people have been following, and the bioethics that they have today. Prescriptive bioethics demands some actions that we need to promote more sustainable development.

We can find various definitions of bioethics, the simplest would be the consideration of the ethical issues raised by questions involving life (“bio”). We can include all the issues of medical ethics; and the use of biotechnology

to alleviate hunger and disease. It may include the choices in providing aid and help to resource poor countries while making governmental policies to the simpler questions we face each day, like “What food should I eat?”, “How is the food grown?”, “Where should I live and how much disturbance of nature should I make?”, “What relationships should I have with fellow organisms including human beings?”, “How do I balance the quality of my life with development of love of my life, other’s lives and the community?”, and so many more you can think of.

All living organisms are biological beings, and share a common and intertwined biological heritage. The process or time scale over which all life was made is not so remarkable as the species and ecosystems that we have today, or those that we can see from the fossils. The inter-relatedness of all living organisms can be readily seen in most ecosystems. All organisms need water, all organisms have the same genetic code and share similar genes. All creatures appear, at first sight at least, to be temporal, they live and they die. This relatedness is expressed by the idea that they are all alive. They share something - life. There is also a continuity between inorganic and organic, ecology refers to the relationship of every organism with the environment.

Public opinion may impede giving aid

Anti-GM food protests are a global bioethical phenomenon of those against new genetic technology. However, overall biotechnology will help people to have a better quality of life and food security (Macer, 1997). Some of the images of biotechnology used by groups on either side of the debate are powerful and misleading. Descriptive bioethics is important to inform us of how people really think. Studies of public opinion in different regions of the world show support for biotechnology which has fallen in the late 1990s, owing to a range of reasons (Macer et al. 1997; Macer and Ng, 2000, Ng et al. 2000).

The perceptions that people have towards biotechnology are basic to the acceptance of new applications of biotechnology in agriculture and medicine.

Since the beginning of agriculture around 8-10,000 years ago, people have started using living organisms to provide goods and services in a planned way. Trade in the products of agriculture was the basis of economies inside all countries and between them. The importance of agriculture and aquaculture to human life is universal among large societies, which raises the questions, as to what extent (a) attitudes are of use to organisms for providing these goods, (b) relationships with the organisms and ecosystems that provide them, and (c) attitudes to the consumption of the products, universal. Is there something we could describe as a “global” perception, and, in fact, is there anything like a single culture perception of biotechnology?

There are various methods used in surveys in Asia-Pacific countries, as elsewhere, such as face-to-face interviews and telephone interviews. The main methods Macer has used since 1991 are written surveys (Macer, 1992). In the 1993 International Bioethics Survey conducted in ten countries with the aid of collaborators, questionnaires including 150 questions in total, with 35 open-ended questions, were developed to look at how people think about diseases, life, nature, and selected issues of science and technology, biotechnology, genetic engineering, genetic screening, and gene therapy.

There is a strong support for the specific examples of environmental release of genetically modified organisms in all Asian countries in the 1993 International Bioethics Survey. These include better tasting tomatoes, meat that would be better for health, oil-degrading bacteria, disease-resistant crops and cows that produce more milk. However, there was less support for the example of genetic engineering for fun, a larger sports fish. The highest level of support was seen for bacteria to clean oil spills and disease-resistant crops, with over half supporting tasty tomatoes or meat with less fat. India and Thai samples are very positive to GM crops in 1993.

The 1997 surveys in Japan and New Zealand were national random telephone number surveys. The questionnaire was the Eurobarometer 46.1 questionnaire, which allow some comparisons to 15 countries in Eurobarometer 46.1 (EU), and Canada (Macer et al. 1997). The 2000 survey on biotechnology and bioethics was carried out on national random

samples of the public and scientists in January 2000-November 2000 throughout Japan. We could consider three “cultures” regarding GM food, Yes, No and Do not know. Even among scientists there is a drop in support when we ask about transfer of animal DNA to plants. Yet most know that DNA is the same from every organism. Scientists also have less confidence in biotechnology in 2000 compared to 1991. Still as a conclusion we can say that the consensus from the UN is that genetic engineering and genetically modified organisms (GMOs) will help people in the world.

A summary of the key concerns expressed in surveys is:

- Education level is not a predictor
- Unknown health effects are fearful
- Long term risk to self and family
- Safety evaluation seen to be inadequate
- Lack of trust in closed process
- Lack of trust in scientific experts
- Few ecological concerns
- Drop in support over the 1990s

When asked to chose one body that you think is the best placed to regulate modern biotechnology, in both New Zealand and Japan, over 60 per cent of respondents chose a UN Organization, and only 10 per cent choose their own government! Therefore there is public support for an international regulatory system for genetic engineering. Currently, this involves especially WHO, FAO, Codex Alimentarius Commission, and UNEP (Cartegena Protocol). Because of global trading, the WTO/SPS agreements are also important. Currently, the labelling of GM food is usually negative. There can be traditional religious reasons for eating or not eating certain food stuffs. Informed choice by consumers is possible if options are available, both GM and non-GM. Labelling has precedents, like vegetarian or non-Vegetarian food.

Food is needed everyday. It is safest to cook ourselves, but we also trust good restaurants. We generally trust that food that is sold in markets and supermarkets is safe. Food is becoming a nutrient delivery system, for a healthier life, e.g. vitamins, and magic bullets. We cannot comprehend the risks of food.

The anti-genetic engineering movement includes many concerns. This feeling is global, and mechanisms need to be developed for proper assessment of people's concerns and the real risks. Some concerns can be answered by more scientific studies on environmental and health risks, but others relate to a general fear of technology, and rapid change. But, the use of living organisms will continue to be essential for human beings, as it has always been. We should maintain the existing biodiversity as well as appreciate variety for farms and cities. There is nothing special about keeping current agricultural practices that depend on chemical or organic pesticides to grow food. We need to balance the benefits and risks of all options.

Social transition from paternalism to informed choice

Most Asian cultures have a very paternalistic relationship between those in higher social positions, like doctors, and those with less position, like patient. The civil rights movement in Japan has led to a growing challenge to this during the past thirty years. A growing number of patients have sought informed consent and choice.

Since 1968 there has been widespread discussion of brain deaths in Japan, partly as a challenge to medical technology and medical paternalism. This social phenomenon of bioethics discourse is useful as a model for other Asian countries. There is ongoing debate on whether specific religious background alters acceptance of biotechnology and medicine. However, the diversity found in all cultures supports the concept of choice being given to the citizens.

As an Asian democratic country there are some useful lessons in the way the people's concerns have started to be heard in Japan. The Consumer movement did change the GM food labelling law to be mandatory. However, there is a long way to go to transform the structured paternalism of Japanese society to one where all are valued.

We hope that informed Japanese citizens will exert influence to enable Japan to fulfill its obligations better, and allow Asian society to find

appropriate diversity of responses to seek multiple answers to decide the most appropriate aid.

In bioethics one of the key issues is relationships. Any relationship requires communication, like teacher-student; politician-people; and doctor-patient. In medicine, as in provision of aid, we have a weak person with a healer or donor, who is required to help, and not to exploit the vulnerability (weakness) of the patient, or recipient. In medicine or in shopping for GM food the relationship could have the doctor higher than the patient; equal, or the patient higher than the doctor (like a supermarket). In every society we see this transition, with globalization and education.

The motivation in aid

The imperative of love behind aid needs to be reemphasized. The ethical principle of loving good, beneficence, supports the use of science and technology to feed hungry people, and care for the sick. Respect for the ethical principle of self-love, autonomy, supports empowerment of people so they can grow food, and become free of being perpetual recipients of aid. The ethical principle of loving life, do no harm, warns us to do technology assessment on all options, current and new, to provide the best alternative for the local, regional, and global situation now. The ethical principle of loving others and justice, make us consider the risks for current and future generations, and for all to share in the fruits of scientific endeavour.

We can ask who should decide what is the appropriate form of aid? The local persons must consent to the process of aid in an informed manner, after proper assessment of the technology. Some coordination has advantages, but diversity should be encouraged. Conflicts of interest should be disclosed to those involved, and minimized.

We can ask whether Japan has any special obligations to its Asian neighbours? In addition to the ethical obligation to love others and help the weak, seen in all religions and cultures, is there anything special? The continued calls by some neighbours for compensation for wartime atrocities

that ended in 1945, stem from the perceived failure of Japanese society to properly show historical remorse for its colonial expansion and aggression. However, the reluctance of certain countries to accept the apologies and internationally agreed compensation after the war is often political. Any further financial obligations extend to persons and families whose lives were destroyed by crimes committed by Japan during that war. We would conclude that there is no special responsibility from the wartime atrocities of Japan, which, in fact, have been repeated by regimes in many Asian countries.

Any company has obligations to its workers, and foreign companies in Asian countries have a responsibility to the local community. Some Japanese companies are fulfilling these.

In conclusion the answer to the question “How Well Does Japan Meet Its Challenges and Responsibilities in Biotechnology and Development for Asia?”, is not enough but does provide some useful lessons and envisage a lot of future possibility.

References

- Eubios Ethics Institute <<http://www.biol.tsukuba.ac.jp/~macer/index.html>>
- Bhardwaj, M. 2001. “Biotechnology, Bioethics and the poor”. *Electronic Journal of Biotechnology (EJB)*, December.
<http://ejb.ucv.cl/content/vol4/issue3/issues/04/index.html>
- Macer, D.R.J. 1990. “Shaping Genes: Ethics, Law and Science of Using Genetic Technology in Medicine and Agriculture.” (Christchurch: Eubios Ethics Institute).
- Macer, D.R.J. 1992. *Attitudes to Genetic Engineering: Japanese and International Comparisons*, 162 pp. (bilingual English and Japanese), ISBN 0-908897-02-2, Japanese and English (Christchurch: Eubios Ethics Institute).
- Macer, D.R.J., H. Bezar, N.Harman, H. Kamada, N. Macer. 1997. “Attitudes to Biotechnology in Japan and New Zealand in 1997, with International Comparisons”, *EJAIB* 7, 137-151.
- Macer, D.R.J. 1997. “Food, plant biotechnology and ethics,” in *Proceedings of the UNESCO International Bioethics Committee Fourth Session*, Volume I (Paris: UNESCO), pp. 29-53.
- Macer, D.R.J. 1998. “Bioethics is Love of Life: An Alternative Textbook.” (Christchurch: Eubios Ethics Institute).

Macer, D.R.J. and Chen Ng, M. 2000. "Changing Attitudes to Biotechnology in Japan". *Nature Biotechnology*, 18: 945-7.

Ng M.C., Takeda C, Watanabe T and Macer D. 2000. Attitudes of the Public and Scientists to Biotechnology in Japan at the start of 2000. *Eubios Journal of Asian and International Bioethics*, 106: 106-13.