

Asia-Pacific Perspectives of Bioethics

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Keywords: *Asia-Pacific School of Ethics, phylogenetic trees, foodwebs, eubios, three-mile island, technology assessment*

What future do we want? An Asia-Pacific perspective of bioethics would say that the pursuit of a good life is a goal that all persons can hope for. We can consider the four imperatives of love for ethics, as self-love, love of others, loving life and loving good. Love is not only a universally recognised goal of ethical action, but is also the foundation of normative principles of ethics. Global responsibilities for promotion of health for all (not only humankind) is necessary for our sustainable future.

This paper will discuss ethical systems that are used in Asia and the Pacific, and some examples of how they relate to ethical principles agreed upon in the international community, through the Universal Declaration on Bioethics and Human Rights. What are the sources of moral guidance found in Asia and Pacific traditions, and how are these shaped into policy and research structures? Partnership building in the region is developing through the UNESCO Asia-Pacific School of Ethics, involving many individuals and a range of organizations, and this and other avenues towards implementation of recommendations of this and past conferences will be discussed. UNESCO aims to facilitate networking between different countries to share experiences and knowledge. Despite the unanimous acceptance of international declarations relating to ethics of genomics and human rights in

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UNESCO, and related international instruments by other UN agencies, there are gaps in the implementation of these standards into national laws and guidelines in many countries.

This paper will also discuss the situation relating to implementation of ethical standards in science, and the accompanying debates, in particular in the Asia and Pacific region. Policy statements and laws are not an end point but a point along the journey for each society to travel to rediscover its values and apply them to the emerging issues raised by science and technology, and the environmental crisis that we share. Strategies to better implement these standards will be compared, along with identification of the gaps between needs of different sectors of the communities in countries at a range of different socio-economic levels.

Bioethics is both a word and a concept. The word comes to us only from a German paper of 1927 (Jahr, 1927), although in English it was amplified by Potter (1970), yet the concept comes from human heritage thousands of years old (Macer, 1994). It is the concept of love, balancing benefits and risks of choices and decisions. 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.

We now have the power to change not only our own genes, but the genes of every organism, and the power to remodel whole ecosystems of the planet, which has made many focus on biotechnology applications however the key questions are more basic. We now have the power to change not only our own genes, but the genes of every organism, and the power to remodel whole ecosystems of the planet, which has made many focus on biotechnology applications however the key questions are more basic. We have the power to remodel whole ecosystems of the planets. New technology has nevertheless been a catalyst for our thinking about bioethics, which have been stimuli for research into bioethics in the last few decades. New technology has nevertheless been a catalyst for our thinking about bioethics, which has been a stimulus for research into bioethics in the last few decades.

We can find various definitions of bioethics (Macer, 1998), the simplest would be consideration of the ethical issues raised by questions involving life ("bio"). I would include all of the above issues of medical ethics, as well as

questions I 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. The history of bioethical reasoning is influenced by our genes, and the forces that shaped and continue to shape these genes into the people, society and cultures that we have.

A fundamental way of reasoning that people have when making decisions is to balance doing good against doing harm. We could group these ideals under the idea of love, though the question of benefits for whom and harm to whom is central to deciding whether an action is one of love or not. One of the underlying philosophical ideas of society is to pursue progress. The most common justification for this is the pursuit of improved medicines and health, which is doing good. A failure to attempt to do good is a form of doing harm, the sin of omission. This is the principle of beneficence. This is a powerful impetus for further research into ways of improving health and agriculture, and living standards.

Fritz Jahr (1927) wrote in the tradition of many sources of wisdom found in Asia and the Pacific. In his call for a review of the ethical relations of humans towards animals and plants, he followed the traditions of millennia in Asia and Pacific traditions, and those of numerous indigenous persons across every continent. If one has ever walked in a jungle, or swum in a coral reef, the words, “The strict distinction between animal and human being [Mensch], dominant in our European culture up to the end of the 18th century, cannot be supported anymore.” would have not only resonated, but made us wonder what sort of world tried to distinguish human beings from other animals.

Jahr introduced some form of Buddhist views to European readers, in a shift to a biocentric or ecocentric world view, influenced also by the increased understanding of biological evolution. The respect for life has always been expressed by some in society, in each religion.

Compassion has been proposed as common ground for bioethics in a Thai Buddhist context (Boyd, 1998), and compassion can be considered as love as is discussed in the writings of Buddha. Generally compassion is focused on a particular context in suffering whereas social justice looks at inequality. In Theravada Buddhism the four prime virtues are mindfulness of friendliness (*metta*), compassion, joy and equanimity.

In Buddhism in general the selfless love is the bodhisattva in Mahayana Buddhism. The bodhisattva, by virtue of his decision to decline the rewards of nirvana, “*until the last blade of grass has been liberated*” is revered in Buddhism as the infinite and inexhaustible reservoir of compassion (*karuna*). The bodhisattva could have passed himself into eternal bliss, but remains mortal while other beings are bound by the triple evils of greed, hatred, and delusionment. The six Perfections are giving, morality, patience, vigour, meditation and wisdom. And other virtues include friendliness, good will, loving kindness, benevolence and sympathetic joy. Benevolence and altruism have broader meanings, not being restricted to suffering.

There are several basic theories of bioethics, and the simplest distinction that can be made is whether they focus on the action, the consequences, or the motives. Another separation that is used is deontological theories, which examine the concepts of rights and duties, and teleological ones, which are based on effects and consequences. If we use the image of walking along the path of life, a teleologist tries to look where decisions lead, whereas a deontologist follows a planned direction.

Utilitarianism looks at the consequences of an action, and is based on the works of Jeremy Bentham (1748-1832) and John Stuart Mill (1806-1873). They could have been rediscovering what Mo Tzu had taught in China in the 6th century B.C. The principle of utility asserts that we ought always to produce the maximal balance of happiness/pleasure over pain, or good over harm, or positive value over disvalue. Initially they focused on the value of happiness, however recently other intrinsic values including friendship, knowledge, health, beauty, autonomy, achievement and success, understanding, enjoyment and deep personal relationships have been included (Beauchamp and Childress, 1994). Utilitarianism may appear cold and calculating, but it has been said by many, including its founders, to be an expression of brotherly love.

All living organisms are biological beings, and share a common and intertwined biological heritage. Humans are members of the species *homo sapiens*, one of the millions of species alive on the planet Earth. Fundamentally we must ask whether humans are a special form of life, different from other living creatures? We must also compare humans with other species and see where differences may lie. We may also look at individual humans and ask whether there is any significant difference between individual members of the human species that could influence the ethical duties we have to them.

Human beings are created in the midst of an intricate biodiversity, which is yet to be comprehended. 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. Biological data tells us that all human beings have the same basic set of genes, the variation found in any one population covers almost all of the total variation, and that humans share a common male and female African ancestor. Changes in DNA sequences have also been used to trace the way that different organisms evolve, called phylogenetic trees. We can compare the DNA of species alive today, and investigate trends in the sequence change, and we can also look at DNA from past organisms which is a more direct measure of the change over time.

The concept of love is applied to love of animals and to love of nature and this is found in many cultures. Bioethics has origins in exploring human relationships with animals and with nature, and this section explores the former and the following the later.

One of the aspects of nature which people seem to love is a diversity of living organisms. People put high value on biodiversity. The United Nations World Charter for Nature (1982) declared, *“Every form of life is unique, warranting respect regardless of its worth to man”*. This type of valuation is extrinsic. We need to ask whether there is intrinsic value to nature and life? We could reconsider the term selfishness as the conservation of intrinsic value, but we are left with the fact that *“The planet loves life and so do we”* (Rolston, 1994). We may not know where the value of life comes from, but every organism loves its own life, and at least tries to reproduce its own kind. Some organisms can picture others as themselves, giving extrinsic value to the other, but at least in their actions to love life, all try to survive.

An extension of love to other species could be considered under the concept of stewardship. Stewardship can apply to both the way people use other humans and the rest of nature. It has often been neglected, but has a long history in many religions, being central to a Judeo-Christian doctrine of creation (Macer, 1998). Usually people prefer to ignore it and to think of dominion of humans over the earth, treating the earth with little value, however we see what problems this has caused. There are numerous pollution problems that we can readily see, which affect humans and other species.

Biodiversity is a word used to picture the great diversity of living organisms on the planet. Just as the individual processes of life are dynamic, so is the composite of the lifeforms. The idea of dynamism also implies a balance. This is illustrated by

the words biosphere, foodwebs or ecosystem, with the largest ecosystem being nature itself. The dynamic nature is implied in both science - the second law of thermodynamics, and religion - in the religious doctrines, both Judeo-Christian creation and preservation; and other Asian religions with “harmony”. Nature changes with time; some organisms die and others thrive, and nature has done so in dramatic ways in the past.

There are various religious stories to support the preservation of biological diversity, the most famous of which is the story of Noah, which is shared by the Judeo-Christian-Islamic traditions. Noah preserved all the domestic and wild animals from environmental catastrophe, a catastrophe that it says was caused by the actions of humans.

If we consider a complete bioethics we must include the duties we have to human beings as well as to nature. In the midst of growing awareness of environmental change and damage we should be aware of the need for sustainable living. We not only have to view the environment in its role as essential to human existence, but we should value the environment itself. The destruction of the environment and disregard for other beings clearly ignores love.

Love has more claims to be the principle ethical ideal than desire coming from autonomy. Bioethics does involve all of life, if we do not love all of life we cannot love other people. We need to seek ways to balance need and desire, and promote a just distribution of the freedom that everyone is allowed. As response to the bioethical concerns about our environment that grew through the twentieth century we can also see international treaties on environmental protection outlining some of the limits of damage to the common environment that will be tolerated by other countries, such as the convention on ozone-damaging chemicals, and on deep sea dumping. We should not only aim to give the greatest good for the most number, nor the greatest freedom for the most number, but the greatest love for all.

We can also apply a number of the ethical approaches and ethical principles agreed upon in the international community, through international environmental treaties and the Universal Declaration on Bioethics and Human Rights, into debates on ethics of climate change and on human responsibilities. Although we may see a global love of life as a foundation for ethical behaviour, how can we apply this to new areas of applied ethics. As response to the bioethical concerns about our environment that grew through the twentieth century we can also see international treaties on environmental protection outlining common ethical principles (Rai et al., 2010).

Article 3 of the *United Nations Framework Convention on Climate Change* – UNFCCC (1992) contains a set of ethical principles which are to serve as guidance to the member states in achieving the objectives of the convention (4). As mentioned earlier, these are to a large degree drawn from ‘Our Common Future’ from 1987 and include:

Equity: *“The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities”* (Art.3, Par.1)

Common but differentiated responsibilities (and capabilities): *“acknowledging that... climate change calls for the widest possible cooperation by all countries..., in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions”* (Preamble) and *“the developed country Parties should take the lead in combating climate change and the adverse effects thereof”* (Art.3, Par.1)

Vulnerability: *“the specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change,..., should be given full consideration”* (Art.3, Par.2)

Precaution: *“the Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects”* (Art.3, Par.3)

Sustainable development: *“Parties have a right to, and should, promote sustainable development”* (Art.3, Par.4)

The Rio Declaration on Environment and Development (1992) consists of a set of twenty-seven principles that define the rights and responsibilities of states in future international agreements on sustainable development and environmental protection. The main principles include:

Human rights: *“Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature”* (Principle 1)

Sustainability: *“The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations”* (Principle 3)

Equity: *“All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world”* (Principle 5)

Common but differentiated responsibilities: *“States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth’s ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command”* (Principle 7)

Precaution: *“In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”* (Principle 15)

Participation: *“Environmental issues are best handled with the participation of all concerned citizens, at the relevant level”* (Principle 10). *“Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development”* (Principle 20). *“Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development”* (Principle 22).

Vulnerability: *“The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority”* (Principle 6). *“The environment and natural resources of people under oppression, domination and occupation shall be protected”* (Principle 23).

Peace: *“Peace, development and environmental protection are interdependent and indivisible”* (Principle 25)

We see growing attention in environmental planning for engagement of all stakeholders in decisions and policy making, which can build upon the community structures for consensus building and decision making that exist in

many nations. The societal and policy infrastructures to guide the development of wise and ethical science and technology need to be carefully constructed to utilize the creativity of humankind expressed in the scientific endeavour. We cannot leave it to governments to look after the planet, the actions of individual members of the human community and corporations are required. Some types of environmental improvement can be brought about already by individuals. That is the important call of bioethics and responsibility.

The development of the value of love of life quite consistent with a holistic view of life. The word “Eu-bios” means good-life, and such a life must be sustainable. The pursuit of a bioethical life, a good life for all, is something we can see across the world, and is a core of the bioethical imperative.

Nuclear energy is one of the energy options used today across the world that could be expanded for the future because in its day-to-day operations it does not produce CO₂ and other pollutants into the atmosphere, which cause global warming (7). A nuclear power plant (NPP) generates electricity from nuclear energy. More specifically, the nuclear reactor, housed within the plant, converts the heat energy generated from nuclear fission to electricity. Once built, they can operate at a relatively low cost.

Nuclear energy has been one of the major public topics of discussion in 2011 following the Fukushima accident, which has revived the fears that emerged after Chernobyl incident in 1986. In the UNESCO Ethics and Climate Change in Asia and the Pacific (ECCAP) project there is comparative analysis of the ethics of nuclear energy compared with other energy options, in terms of efficiency, use of renewable energy, with discussion of new forms of energy production, or alternatives to manage greenhouse gas emissions such as carbon sequestration, to mention a few.

The principle of non-maleficence is very important to people’s fears of nuclear technology. There are a variety of views of the world, and depending on the view that people have there will be different conclusions. A nuclear meltdown can occur if fission creates too much energy and overheats, causing damage to the surrounding structures and releasing radiation into the environment. It can also occur if the structures surrounding the nuclear reactor themselves suffer a malfunction, allowing radiation leaks. Finally, it can occur if cooling systems, such as the pressurized water moderator, malfunction damaging the structures surrounding the nuclear reactor and releasing radiation into the environment. Accidents at Three-Mile Island in the United States (1979), Chernobyl in Ukraine

(1986), and Fukushima in Japan (2011) have prompted the public to raise serious questions about nuclear safety (OECD, 2005).

However, when we consider the types of risk inherent in most energy options it may be difficult to argue that nuclear energy should be absolutely prohibited simply because accidents can occur. Nuclear energy can be considered as a safe source of electricity. As a comparison, several thousand persons die in coal mine accidents each year, and hundreds die in the oil and gas industry not to mention the added complications of health to miners and the public in general, and environmental effects.

However on the other hand, it is equally difficult to argue that such accidents should be downplayed and are “rare”. Utilitarianism may consider a simple multiplication product of the magnitude of the harm multiplied by the probability of its occurrence. In the case of nuclear meltdowns, the magnitude of the harm can be enormous. While Three-Mile Island did not produce any direct recorded deaths from radiation, the indirect health and environmental damage was inconclusive. The accident in fact demonstrated the importance of safety systems. Even though half the reactor core melted, the radionuclides that were released mostly plated out on the inside of the plant or dissolved in the condensing steam. The containment building housing the reactor also prevented any significant release of radioactivity. The reactor’s other protection systems also came into action.

The fact that Fukushima disaster occurred despite comprehensive safety systems and multiple redundant safety systems, and inherent and passive safety systems, has significant implications for nuclear safety (Suman). Although Fukushima nuclear accident was triggered by a major earthquake and tsunami that led to loss of power for the cooling systems, resulting in meltdowns at least three reactors, the NPP had been designed with the recurrent risk of earthquake and tsunami in that region of Japan in mind. The risk preparations were thus proven to be insufficient, with a number of implications for many other NPPs built close to earthquake faultlines.

Some of the most significant impediments to nuclear energy becoming a sustainable, safe source of power are the “unseen” expenses. The potential long-term viability of nuclear power could decrease if financial and environmental risks are ignored. Nuclear power is inherently tied to “external costs and benefits”, termed as “externalities”. Liabilities include the cost of environmental damage, adverse radiation effects on human health following a nuclear accident, damage to human health during routine operation of nuclear facilities, and the long-term

problems associated with nuclear waste disposal and plant decommissioning. External costs of electricity generation are largely dependent on the choice of fuel, technology and location, although assumptions underlying specific technologies studied cannot be generalized. In the case of nuclear energy, the impact assessment will need to include the risk of severe radiation accidents as the major environmental burden. It is largely perceived that the weakest areas of nuclear power externality studies are the assumptions that: 1) Nuclear fuel cycle wastes and other hazardous impacts are well managed. 2) The probability of nuclear accidents and its deleterious effects on society and environment are either ignored or neglected. Factors that might also affect nuclear externality studies are resource depletion, the extent of risk perception and capital invested in research and development (8).

Fukushima accident has revealed the high cost of clean up of the contaminated land as well as making the site safe over the number of years. Although it appears that the clean up will equal about half of the 2011 Japanese total budget, the money is going to companies that appear to be charging high prices. The costs of containing Chernobyl accident, that occurred in 1986, still are approximately half the Ukrainian annual GDP. The estimated cost for decommission of Fukushima Daiichi may be 502 billion yen. The cost and period of decommission in Three Mile Island was about 76 billion yen, after 14 years and 5 months. The cost and period of decommission in Chernobyl is annually 10 billion yen for every year of restoration, with the planned year for finishing the decommissioning is 2064 (7).

While the right to sustainable energy arguably deserves to be recognized as a fundamental human right, the current status on a generalized basis is that this right exists not as a substantive right by law/constitution but rather as procedural right. However, a substantive emphasis is required to set objectives for energy policies and programmes. Given the complexity of the technology, it then becomes necessary to examine the imperatives of international/national policies and treaties/programmes on nuclear energy in light of a human rights based approach. The United Nations Development Group (UNDG) Resolution adopted in 2003 (9), said that:

International policies and treaties on nuclear technologies need to take cognizance of the human rights principles of universality and inalienability; indivisibility; interdependence and inter-relatedness; non-discrimination and equality; participation and inclusion; accountability and the rule of law.

Further, UN High Commission on Human Rights (UNHCHR) guidance (10) can be adapted to HRBA in policies and programmes pertaining to nuclear technologies. Such guidance is helpful because it provides additional ethical support for a human rights based approach. The following are principles that may be derived from including such guidance into the approach: “The main objective of nuclear policies and programmes should be to fulfil human rights, in particular the right to sustainable energy.”

Nuclear policies and programmes should identify the right-holders and their entitlements, corresponding duty-bearers and their obligations, and work towards strengthening the capacities of rights-holders to make their claims and of duty-bearers to meet their obligations (the current emphasis in the nuclear context in many countries is on ‘stake-holders’, not ‘right-holders’).

Principles and standards derived from international human rights treaties should guide all policies and programmes in the nuclear sector and in all phases.

As the above principles indicate, the right to sustainable energy is considered a fundamental ethical right. The emphasis on the right to sustainable energy will not be productive unless it is firmed up. Pinning it down would provide firm ground for a progressive framework of energy management. Energy is essential for development. Just as food is a source of energy for human development, so are renewable and non-renewable sources of energy essential for economic growth and social well-being. If there is a right to development, then there exists a right to sustainable energy.

The right to development is an inalienable and indivisible human right “by virtue of which every person and all peoples are entitled to participate in, and contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realised” (Art. 1, Right to Development Declaration). The right to development is both, a substantive right, and a right to a process of development. The process, which as expressed in the human rights based approaches to development (HRBA, 2003), should be universal and inalienable, indivisible, interdependent and inter-related, non-discriminatory and equal, participatory and inclusive, accountable, and be situated in the rule of law. The right itself then, as society progresses, includes not only food and shelter but also energy. The right to sustainable energy is a component of the right to development. Such a right should be fulfilled in a manner that respects human rights. It is the duty of States to ‘co-operate with each other in ensuring development and eliminating obstacles to development’ (Article 3(3) Right to Development Declaration). Article 4 reinforces this duty by stipulating that States should ‘take steps, individually

and collectively, to formulate international development policies with a view to facilitating the full realization of the right to development' (7).

As discussed in the introduction and the considerations above there are a number of principles and theories that can be applied to assist ethical policymaking in nuclear energy. A contrast in philosophical viewpoints can be found between the deontological and utilitarian approach. The deontological approach emphasizes justice and the procedural aspects of decision-making, while utilitarianism focuses on the outcome of policies. The utilitarian approach also includes principles of justice, mainly distributive and retributive. Utilitarianism focuses more on the ends, deontology more on the means.

Further reflection on alternative sets of principles can be formulated, as discussed below. Further reflection on each principle in the light of each culture can be developed in the construction of policy analysis.

According to the principle of no acceptable risk, a risk can never be an 'acceptable' risk, as a risk implies that there is a negative effect to be taken into consideration, in the hope of attaining a certain benefit. That negative effect can never be absolutely acceptable. When applied to nuclear energy, there are multiple aspects that can be considered a risk or a possible negative implication. The ones mentioned in this report are the negative effects of mining, the risk of nuclear weapons proliferation and the safety risks of nuclear reactors. Although there is no absolute acceptable risk those negative effects should be weighed against the positive. This could make a negative effect more or less acceptable, but never completely acceptable.

In technology assessment, however, since all human activity has some risk, the relative risks of alternatives need to be weighed against each other. The precautionary principle has been used to exercise precaution in applications where the risks are very difficult to calculate due to the novelty of the circumstance.

Overall, safety on nuclear sites is said by IAEA (11) to be manageable. It is not said that nuclear sites are completely safe and any meltdown can be prevented, but technology has found ways of reducing a great part of the damage in unforeseen critical situations. Measures have been taken to improve the structure and internal system of the reactors, along with general procedural safety regulations. So far only three main nuclear accidents with environmental consequences have occurred. Each nation needs to answer the question whether the benefits of nuclear energy outweigh the consequences of any accidents, but we should have thorough debate on these issues. Policy statements and laws are not an end point but a point along

the journey for each society to travel to rediscover its values and apply them to the emerging issues raised by science and technology, and the environmental crisis that we share. Strategies to better implement these standards will be compared, along with identification of the gaps between needs of different sectors of the communities in countries at a range of different socio-economic levels, and different cultural value systems that can construct a more global bioethics. ■

References

Beauchamp TL and Childress JF (1994) *Principles of Biomedical Ethics*. Fourth Edition. New York: Oxford University Press.

Boyd A, Ratanakul P and Deepudong A. (1998) Compassion as common ground, *Eubios Journal of Asian and International Bioethics* 8(2) 34-37.

Jahr F (1927) Bio-Ethik. Eine Umschau ueber die ethischen Beziehungen des Menschen zu Tier und Pflanze, in: Kosmos. Handweiser fuer Naturfreunde 24 (1) 2-4.

Macer DRJ (1998) *Bioethics is Love of Life: An Alternative textbook*. Christchurch: Eubios Ethics Institute.

Macer DRJ (1994) *Bioethics for the People by the People*. Christchurch: Eubios Ethics Institute.

Rai, J. S., Thorheim, C., Dorjderem, A., and Macer, D. 2010. *Universalism and Ethical Values for the Environment: Ethics and Climate Change in Asia and the Pacific (ECCAP) Project, Working Group 1 Report*. Bangkok: UNESCO.

Rolston, Holmes III. *Conserving Natural Value* (New York: Columbia University Press, 1994).



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