Environmental Ethics in Mahayana Buddhism: The Significance of Keeping Precepts (śīla-pāramitā) and Wisdom (prajñā-pāramitā)

Shuichi Yamamoto

Introduction

IN today's world we face a range of environmental problems, such as global warming, ozone layer depletion, deforestation, and a reduction in biodiversity. The problems caused by a reduction in biodiversity are regarded as some of the greatest challenges facing humanity today. This is because a reduction in biodiversity affects our ecosystem, which in return also affects the life of human beings. Based on a consideration of the consequences of biodiversity reduction, a proposal for accepting the right to life of all living things has been made in recent years.[1]

In this paper, I appeal to upholding the dignity of human life, and regard loss of life as of gravest consequence. It is for that reason that in the field of medical science, bioethics entails investigating what affects the life of human beings. In Buddhism, human life and other forms of life are regarded as being of the same matter.[2,3] Therefore, since they are always related to living things, Buddhism regards environmental problems as essentially an issue of ethics.

The ultimate purpose of the practice of Buddhism is to attain Buddhahood, which in modern terms means to become as ideal a human being as that of a Buddha. Representative practices in Buddhism are the six kinds of practices by which a bodhisattva attains Buddhahood (ṣaṭ pāramitāh). The six kinds of practices consist of giving donations (dāna-pāramitā), keeping the precepts (śīla-pāramitā), being forbearing (kṣānti-pāramitā), being assiduous (vīrya-pāramitā), practicing meditation (dhyāna-pāramitā), and cultivating wisdom (prajñā-pāramitā). These six virtuous practices are required to become an ideal human being. It is thought that living with wisdom and upholding the precepts are especially appropriate as ethical norms.

In other words, the practice of Buddhism for solving environmental problems is in direct accord with the intention of Buddhism in that it

results in removing pain from all sentient beings. This means that developing ethical norms and plans of action based on Buddhist practices not only leads to solving environmental problems but also simultaneously fulfills the purpose of Buddhism. In this paper, I will discuss environmental problems related to living things, and examine how an ethical norm that accords with Buddhism could be created.

Environmental Problems Related to Living Things

As I have discussed in a previous paper, there are various environmental problems related to living things. In this section, I would like to discuss some typical environmental problems as they relate to living things, as well as examine how they concern the question of human nature or ethics.

Problems of Deforestation and Commercialization of Wildlife

Deforestation and commercialization of wildlife have become a profitable business. Deforestation, however, destroys not only forests but also reduces bio-intensity[5] and biodiversity, which means a reduction in the amount, as well as variation of, living things that, in turn, causes havoc on whole ecosystems. The cutting down of tropical rain forests is particularly detrimental to wildlife and other living things. The livelihood of local people, however, often depends on clearing forest areas using slash-and-burn farming techniques to make way for agricultural production, or harvesting trees for energy or export material. Commercialization of wildlife, either exported as food, pets, or fur, or usually further aggravated by over-hunting and deforestation, also reduces wildlife in some cases, to the point of extinction.

On the more positive side, even forest and wildlife can be recovered if given sufficient time and proper habitat. An often cited example of this is the whale. Although at the point of extinction due mainly to overfishing by Japan and other countries, the whale population has improved due to the prohibition of commercial whaling and the creation of protected areas. Likewise, environmental problems are caused by the speed at which forests are felled, wildlife killed, and ecosystems destroyed, all which exceeded the reproduction capacity. As the above example illustrates, we can observe that given a reduction in the speed at which destruction takes place, living things can be recovered with the regenerative power of nature.

It is important to also consider problems such as deforestation and the commercialization of wildlife at the level of human nature, or

ethics. It is clear that deforestation and commercialization of wildlife result in destroying and taking/killing living things. Decreasing the amount and kinds of living things, as well as their habitat means nothing less than pillaging such life from the ecosystem. Such behavior originates from certain violent and cruel aspects of human nature. This makes solving such problems fundamentally an ethical issue.

This action is particularly relevant to developing countries where poverty plays an important factor in environmental destruction. Deforestation and commercialization of wildlife are often the only activities that support local people's lives and economy. Thus the problem becomes much more complex than to be solved simply by unilaterally denying local people the right to cut down trees or engage in commercialization of wildlife.

Moreover, it is important to consider the desires of people in developed nations as one of the causes of environmental destruction. Living things provide people of developed nations with wealth, as well as an improved lifestyle, exemplied by enriched economies, food sources, and leisure activities. Another reason for environmental destruction is the poverty of developing countries. In the above discussion I have attempted to show that there are three oppositional, although highly interdependent interests: wealth and lifestyle of people in developed countries; the livelihood of disadvantaged people in developing countries; and the survival of ecosystems and living things. One can not simply be given priority over another, which makes it a question of ethics.

Problems of Land Development and the Use of Chemicals

Land development, transgenic crops, and chemical pollution can also be seriously harmful to living things and ecosystems. The development of farmland, cities, dams, recreational facilities, land reclamation etc. seems obvious examples of activities that impose various environmental hazards. Ecosystems and the habitats of living things are destroyed as a result of such developments, which, in turn, impacts biodiversity and bio-intensity. The reduction in biodiversity and bio-intensity in developed countries has mainly been attributed to such developments as mentioned above. Transgenic crops are another technology that has also caused a reduction in biodiversity and a transformation of ecosystems. Through a recombination of genes, transgenic crops at first glance appear beneficial to human beings as they have built-in protection against noxious insects, cold or dry weather, and specific agricultural chemicals. However, a closer look reveals rather frightening drawbacks.

As transgenic crops introduce extraneous genes into the ecosystem, they create the potential for destroying or seriously changing the structure of ecosystems and mechanisms of evolution.

There are also problems with chemical pollution, including heavy metals, agricultural chemicals, food additives, as well as endocrine disrupters. These problems are rooted in two main activities: extraction of naturally occuring materials such as heavy metals, and the synthesizing of artificial compounds by using, oil and chlorine, for example. In general, living things throughout history have acquired the capacity to cope with various chemicals. However, as new chemicals are released into the biosphere, living things have had difficulty in adaptation. Many artificial chemicals tend to turn toxic when accumulated in the human or animal body. One clear example is agricultural chemicals, which are designed to kill insects that damage crops. Insects are killed by extraneous chemicals that destroy the mechanism of living. However, because all living things are fundamentally functioning by the same principle, agricultural bioaccumulate and become detrimental all living things.

Endocrine disrupters have been shown to affect reproduction through lower sperm count, as well as ontogeny seen through higher risk of deformity. As pointed out in *Silent Spring* by Rachel Carson,[6] *Our Stolen Future* by Thea Colborn,[7] and *The Feminization of Nature* by Deborah Cadbury,[8] this problem is qualitatively different from past environmental problems. Although past environmental problems were a threat to the survival of individual lives, they did not function as endocrine disruptors do in acting against posterity.

Now how do the above mentioned problems relate to human nature or ethics?

In addition to the problems associated with deforestation and commercialization of wildlife, the fundamental cause is associated with violence and pillaging, which indicates that there is a problem in human nature or ethics. This is clearly seen when developments violently destroy nature, where wildlife habitat is reconstructed and pillaged to suit the desire for comfort and profit. Furthermore, if human beings are incapable of considering or predicting how certain developments would affect an ecosystem, it becomes either a question of arrogance or ignorance. If we do not feel a sense of responsibility for our actions on the ecosystems, it then becomes an issue of irresponsibility. We are deceiving ourselves if we fail to consider the consequences of certain developments and instead only emphasize advantages such as convenience and safety. Naturally, these developments are carried out to profit human beings by making life more comfortable and safer. From this we can

conclude that profit and desire are usually intertwined.

If we also remain indifferent to the adverse effects of chemicals on our ecosystems, the problem then becomes an issue of arrogance. However, if we are unable to predict the influence of the use of chemicals on our ecosystems, it then becomes a question of ignorance. Moreover, since agricultural chemicals were made with the aim of killing living things, there is an aspect of cruelty to be found in human nature that must be considered. The desire for profit, however, tends to overrule this ethical dilemma and encourage the development of chemical compounds such as agricultural chemicals and food additives. Such new developments aim to increase profits for producers by manufacturing attractive, easy-to-preserve, and cheap food items as well as increase the purchasing power of consumers. The desire of consumers for cheap and attractive food further sustains this process. But the synergistic effect of producers and consumers stimulating each other's desires is tends to increase in food and environments polluted by artificial chemicals. Such developments have also brought many disadvantages, such as general health hazards, destruction of ecosystems, and impediments to reproduction capacity in forms of lower sperm count and sterility which are detrimental to the posterity of living things. Considering these problems we can draw up two opposing interests: profits and disadvantages for human beings and disadvantages for ecosystems or living things. In the end, the problem is an ethical one.

Problems with Eco-Protection Management

The killing of wildlife in order to protect the ecosystem has been a controversial. For example, measures have then been taken to reduce the number of animals that have been shown to breed abnormally, such as the Japanese monkey or the Japanese serow. These measures were taken to combat the increase of Japanese monkeys, which had caused a food shortage, resulting in their descending on a village, injuring people and damaging agricultural products. Moreover, the Japanese serow eats the bark and young leaf buds of newly-planted trees, thereby having a damaging effect on forestry.

In recent years the numbers of captured and exterminated monkeys have reached several thousand per year, becoming a hotly debated issue. The issue goes straight to questioning the violent and cruel aspect of human nature. This question deals with the dilemma of whether it is morally justifiable to solve the problem by taking the lives of these animals in order to reduce their number.

On the other hand, a reduction in numbers carries certain benefits for human beings as well as for the ecosystem; fewer monkeys prevent harm being inflicted on people and economic losses, and regenerate the ecosystem. Thus on the one hand, the beneficial outcome of exterminating animals for human beings and the ecosystem, and on the other, the obvious detrimental effect this has on the animals themselves.

The Problem of Animals Used for Food and Experiments

Although this is not an issue directly related to environmental problems, the fact that human beings consume living things, as in the case of medical research, give rise to certain ethical dilemmas. A large number of animals serve as food for human beings. The annual number of mammals used as meat for human consumption, mainly pigs, cows, sheep, and goats, is about 4 billion.[9] Moreover, in 1989 11 billion chickens were consumed in the world.[10] In Japan alone, the number of chickens consumed is now (in 2001) at 0.7 billion per year.[11] In addition, it is estimated that as many animals as 200 million animals each year end up being used for experiments. In the United States alone for examples, there are an estimated 70 million rats per year are used in experiments.[12]

However, animals used for food contribute to the survival of human beings, just as they contribute to the development of medicine that improves our health. To find a substitute for using animals in this way is appear to be impossible. Therefore, how we justify the taking of animal life needs to be treated as an ethical problem; there is a dilemma in using animals for the benefit of human beings but at the expense of the animals killed.

Biological Conservation and Buddhist Thought

Before examining the Buddhist view on problems of biological conservation, I will describe some fundamental concepts in Buddhism.

Wisdom

The attainment of wisdom (prajñā-pāramitā) is part of the six kinds of practices by which a bodhisattva attains enlightenment (sat pāramitāh). This concept originally referred to the attainment of *absolute* wisdom (prajñā-pāramitā). Here, I would like to examine the idea of wisdom in relation to two fundamental Buddhist concepts as a way to solve environmental problems. They are "dependent origination" (pratītya-samutpāda) and "the middle way."

The doctrine of dependent origination teaches that an entity does not exist and generate independently. Instead it is characterized by its fundamental interdependence and interconnectedness to all phenome-na.[13] This concept of fundamental interdependence and interconnectedness of all phenomena indicates a relation of space (ontology) and a relation of time (formation). The ecological environment of today is included in the relation of space and relation of time. This means that all living things on earth are related including the circulation of organic or inorganic matter. Moreover, the time means not only movement between one generation and the next, i.e. a living thing is produced from its parents, but also indicates a historical relationship, such as the process of evolution over time. The transmigration of life as explained by Buddhism means rebirth of life. However, since in Buddhism the transmigration of life is based on the concept of non-self, it does not refer to the transmigration of life with a permanent entity. Broadly speaking, the transmigration of life exists in relation to time based on the concept of dependent origination.

The second concept is the wisdom of the middle way. Akira Hirakawa[14] has quoted "the metaphor of a koto" propounded by Shakyamuni, to describe in an easily comprehendible manner the principle of the wisdom of the middle way as "the middle way of pleasure-and-pain." According to Hirakawa, "the metaphor of a koto" declares that the strength of a bowstring for a koto is most useful when it is neither too loose nor too firm. "The middle way of pleasure-and-pain" describes the method of practice of Shakyamuni. Although Shakyamuni carried out austerities for six years together with five Buddhist monks, he was unable to attain spiritual enlightenment. After this long attempt, he realized the futility of trying to attain enlightenment through punishing himself. Indeed, after receiving rice gruel with milk from a woman named Sujata he recovered from his physical ordeals, and did in fact attain enlightenment.

The 'pain' of the penance principle indicates that although perhaps useful for developing strength of mind it does not lead to attaining absolute wisdom, or spiritual enlightenment. Instead, the 'pleasure' of hedonism shows that absolute wisdom can be acquired without taking recourse to punishing oneself. Therefore, the concept of the middle way of pleasure-and-pain denies a deterministic stand towards either hedonism or austerity. That is, while accepting the value of both principles, the middle way demands harmony between the two and does not accept an inclination to either side.

What I have been attempting to discuss in this section is how two

fundamental principles in Buddhism, the wisdom of dependent origination and the wisdom of the middle way, offer us an ethical framework that can be used to arrive at a solution for environmental problems. Moreover, understanding the workings of these two concepts will work as a driving force for wanting to keep the Buddhist precepts, which will be discussed later on in this article.

The Value of Life

The problem of biological conservation necessarily entails a consideration of how we rank the value of living things. To examine what Buddhism has to say about the value of life, in this section I will use the following example from the Brahma-carya chapter of the Nirvana Sutra which propounds that killing living things constitutes a crime.

"There are three degrees of killings: the lower, middle, and upper degrees. The lower degree constitutes the killing of any humble being, from an ant to any of the various kinds of animals. But the killing of any being that a bodhisattva has chosen to be born as [to help other living beings] is excluded. As a result of a killing of the lower degree, one will fall into the realms of hell, animals, and hungry spirits, and will suffer all the pains appropriate to a killing of the lower degree. Why should this be? Because even animals and other humble beings possess the roots of goodness, insignificant though those roots may be. That is why a person who kills such a being must suffer full retribution for his offense. Killing any person from an ordinary mortal to an anāgāmin (Anagon in Japanese)[15] constitutes what is termed the middle degree. As a consequence of such an act of killing, one fall into the realms of hell, hungry spirits, and animals, and will suffer all the pains appropriate to a killing of the middle degree. The upper degree of killing refers to the killing of a parent, an arhat (Arakan in Japanese),[16] a pratyekabuddha (Byakushi-butsu in Japanese),[17] or a bodhisattva who has reached the stage of non-retrogression. For such a crime one will fall into the great Avīchi (Avīci) hell (Abijigoku in Japanese)[18]."[19]

This passage clearly expresses a hierarchy in the value of different life forms. For sure, Buddhism, especially Mahayana Buddhism of China or Japan asserts that all living things including animals and plants deserve respect since they possess the state of Buddhahood. On the other hand, the above passage points out that the seriousness of killing is hierarchical, namely in the descending order of killing parents, arhats, pratyekabuddhas, and bodhisattvas being the worst crime one can commit, killing ordinary mortals and anagamins the second worst, and the

killing of animals the less heavy crime of the three. This hierarchy in the seriousness of killing also depicts how Buddhism ranks the value of different life forms.

Therefore, although in principle all lives are regarded as equal in Buddhism, the value of human life is regarded is higher than that of other living things. I believe this means that although Buddhism is based on the spirit of egalitarianism priority is still given to human life.

Keeping the Precepts

Keeping the precepts in the six kinds of practices by which bodhisattvas are able to attain enlightenment specifically means keeping "the five precepts" (for laymen and lay-women) or "the ten good precepts." The five precepts consist of the precepts of "not killing living things," "not stealing," "not committing adultery," "not telling lies," and "not drinking intoxicants." On the other hand, the ten good precepts are categorized into precepts that refer to good deeds, good words, and good thoughts. Good deeds, or bodily acts, are "not killing living things," "not stealing" and "not committing adultery." Good words, or verbal acts, are "not telling lies," "not engaging in idle talk," "not uttering harsh words," and "not uttering words which cause enmity between two or more persons." And finally good thoughts refer to "not being greedy," "not being angry," and "not having wrong views." For the sake of establishing an ethical norm for solving present environmental problems, I consider the concept of keeping precepts an important contribution to that project.

Since Yoichi Kawada[20] has already discussed "the ten major precepts" and "the forty eight light precepts" in the Brahma-net Sutra from the point of view of the role of Buddhist precepts in solving environmental and peace problems I will not go into further details here. Instead, I will examine the significance of two particular precepts, namely, the precepts of "not killing living things" and "not stealing" in the Brahma-net Sutra as they relate directly to the challenges facing biological conservation today.

The Precept of "Not Killing Living Things"

The "First Major Precept on Killing" of the Brahma-net Sutra propounds:

"A disciple of the Buddha shall not kill himself, encourage others to kill, kill by expedient means, praise killing, rejoice at witnessing killing, or kill through incantation or deviant mantras. He must not cre-

ate the causes, conditions, methods, or karma of killing, and shall not intentionally kill any living creature. As a Buddha's disciple, he ought to nurture a mind of compassion and filial piety, always devising expedient means to rescue and protect all beings. If instead, he fails to restrain himself and kills sentient beings without mercy he commits a Parajika[21] (major) offense."[22]

This precept forbids the killing of any living thing, and further adds that although killing itself is an offense; the state of mind of the person at the time of the killing, i.e. whether a person kills intentionally or for no apparent reason, determines the graveness of the offense. Therefore, it is an offense to kill a living thing, but it is a major offense if "he fails to restrain himself and kills sentient beings without mercy," or out of pleasure. This ethical standard of Buddhism described in the precept of "not killing living things" can be used as the basis for solving problems or dilemmas related to the killing of living things.

The Precept of "Not Stealing"

The "Second Major Precept on Stealing" of the Brahma-net Sutra states:

"A disciple of the Buddha must not himself steal or encourage others to steal, steal by expedient means, steal by means of incantation or deviant mantras. He should not create the causes, conditions, methods, or karma of stealing. No valuables or possessions, even those belonging to ghosts and spirits or thieves and robbers, be they as small as a needle or blade of grass, should be intentionally stolen. As a Buddha's disciple, he ought to have a mind of mercy, compassion, and filial piety—always helping people earn merits and achieve happiness. If instead, he steals the possessions of others, he commits a Parajika offense."[23]

This precept also forbids stealing especially when it is done intentionally (without reason). Since the standard of judgment is based on the life-state of a bodhisattva, which is to help people earn merits and achieve happiness, stealing is regarded as of gravest consequence (a Parajka offense). In today's world it is necessary to interpret this precept more widely and consider it an offense to not only steal from other human beings but also from nature, or the ecosystem.

The Meaning of Keeping Precepts

In considering environmental problems, it is helpful to examine the characteristics of Buddhist precepts, that is, the meaning and the role of keeping such precepts. Many of the precepts, such as the ten major precepts, and the forty eight light percepts of the Brahma-net Sutra, regu-

late the behavior of human beings. However, as described above, there are also many precepts to which the conditions of "without reason," or "intentionally" for example are attached. This means that precepts in Buddhism are not absolute.

Does that mean that any justification is acceptable? For example, in the tenth light precept "on storing weapons" (I will discuss this later) the statement "he must not even avenge the death of his parents"[24] appears. This sentence clearly states that killing in retaliation is unacceptable even if it is for the sake of revenging one's parents' murder. This means that retaliation is not recognized as sufficient justification for killing.

Then, what kind of justification is acceptable? If we kill living things in order to support our own survival it is in fact justifiable. (How we decide on what we need to survive is of course something we must consider very carefully. It is not my intention, however, to delve into that question here.) Eating a living thing, however, is still equivalent to stealing the body from such a living thing. But since this is the minimum requirements for supporting human life, the condition of "without reason" attached to the precepts of "not killing" and "not stealing" need not apply here.

Reasons for killing living things, which are contrary to Buddhist wisdom, are also prohibited. That is, human behavior which destroys relations in ecosystems, is also considered an offense since it runs counter to the concept of dependent origination, i.e. disrupting ecological and historical relations, and thereby undermines our own survival.

In modern society, some precepts may be more relevant than others. However, regarding to environmental problems, what is the relevancy of keeping precepts in the first place? I suggest that the significance of keeping precepts is relevant in that it develops:

1) An understanding that wanting to achieve a particular end does not necessarily justify the means. We should judge what is permissible according to Buddhist thought,
2) The ability to put a halt to the continuation of reckless behavior that is controlled by our desires, and
3) The awareness of the need to control our actions.

Biological Conservation and Ethics of Mahayana Buddhism

In the following sections, I offer a few guidelines found in Mahayana Buddhism that are useful when considering the basis for biological conservation. These guidelines are pertinent to deforestation and over-hunt-

ing, ecosystems protection, use of agricultural chemicals, and the use of animals for food and experiments.

Ethics for Deforestation and Over-hunting

First, I will consider the problem of deforestation, and its impact on wildlife, which is, for example, further reduced by over-hunting and commercialization. As stated earlier, there are certain problems with destroying species and pillaging living things from the ecosystem. From a Buddhist frame of reference, these acts constitute breaking the not-killing-living-things precept, as well as the not-stealing precept. An understanding of the concept of dependent origination makes the destruction of life, capture, or pillaging of living things a problem to be taken seriously. As described above, we should forbid such behavior in principle because it means, first, that we destroy the relation between each living thing, and second, that we destroy its future potential for being born again. Especially causing the extinction of a species should be absolutely forbidden according to the Buddhist canon because it destroys its future potential for reproduction.

Apart from the seriousness of species extinction, we must also give consideration to how the capture of wildlife and felling of forests are a means of support for local people. This corresponds to having a justifiable "reason" as discussed from the passage of "intentionally (without reason)." Moreover, according to the ethics of the middle way, the destruction and capturing of living things will be acceptable as long as the generative power of an ecosystem is not destroyed. I think that the ethics of the middle way neither denies the survival of local people, nor affirms the destruction of an ecosystem, as long as securing the benefits for local people does not mean destroying the generative power of an ecosystem. However, in order to secure the protection of ecosystems it is important to have a system of surveillance and proper management put in place.

It is also necessary to consider that living things support the accumulation of wealth and general well-being of people in developed countries. There is no denial in Buddhism of comfort and wealth. Instead what Buddhism refutes is making desires for comfort and profit the basis of one's life. Surely desires are needed to motivate human beings to make effort towards achieving something. But it is when a life-style is caught up in overindulgence that Buddhism sees life as being excessively governed by desires. Therefore, excessive or unnecessary destruction and capturing of living things is considered to correspond to

the offense "he fails to restrain himself and kills sentient beings without mercy" described in the precept on "not killing living things." Moreover, if developed countries exploit local peoples for the sake of obtaining wealth, this would correspond to the offense described as "rejoice at witness killing" also expounded in the percept on "not killing living things." Therefore, when a consumer pursues a comfortable or profitable life, self-control that prevents him or her from becoming 'greedy' is a must. This should be the basis of a Buddhist ethical norm.

Ethics for Eco-Protection Management

Here, I would like to examine the problem of killing animals by eco-protection management. The extermination or capture of monkeys and serows in Japan is a common problem, as was described earlier. In this case, from the viewpoint of dependent origination it is considered 'allowed' because it is done to protect the ecosystem and done so without cutting off ecological and historical relations. This is because the ecosystem itself may be destroyed if no intervention takes place. However, it is undoubtedly more desirable to develop a method which does not kill living things, a method that avoids committing the offense of "killing" in the first place. This view is also prominent in the concept of "Land Ethics" advocated by Aldo Leopold who points out the appropriateness of maintaining the beauty and stability of the totality of a community of living things.[25]

Ethics for Using Chemicals

I now turn to the question of how we should view the use of chemicals, such as agricultural chemicals. The answer is to be found in the tenth light percept "on storing deadly weapons" of the Brahma-net Sutra. It says:

"A disciple of the Buddha should not store weapons such as knives, clubs, bows, arrows, spears, axes or any other weapons, nor may he keep nets, traps or any such devices used in destroying life. As a disciple of the Buddha, he must not even avenge the death of his parents—let alone kill sentient beings! He should not store any weapons or devices that can be used to kill sentient beings. If he deliberately does so, he commits a secondary offense."[26]

This precept admonishes against the possession of tools used for killing living things. According to this precept, we should make it a principle not to produce artificial chemicals aimed at killing living things such as is the purpose of agricultural chemicals. Furthermore, as

the production of artificial chemicals is considered to be the cause of change in reproduction such as endocrine disruptors, and destroys the potential for continued reproduction, i.e. destroys the historical relationship described in the concept of dependent origination, it should be forbidden.

Still, although the tenth light precept, as well as the first or second precept cited above, forbids possession of tools used for killing living things, it also stresses *without reason* ("deliberately"). For example, if, like the present day, it is difficult to secure the harvest of crops and to supply enough food without agricultural chemicals, its use could be justified. However, I believe we should develop alternative methods to increase the yield of crops to agricultural chemicals. I have discussed this in a previous paper from the standpoint of the consciousness-only doctrine.[27]

What can we then conclude from the above discussion on killing living things by using agricultural chemicals from the viewpoint of dependent origination? Certainly it is evil to kill a living thing using agricultural chemicals. At the same time, however, it increases food production and supposedly the supply to many people who would otherwise starve. In Buddhism, all living things are respect worthy because they are endowed with Buddha Nature. However, when the value of human life is compared with that of other living things, human beings are given priority. Therefore, as a matter of course, priority should be given to supplying food to human beings, and people suffering from starvation. However, it goes without saying that if we can develop a way to supply enough food without using agricultural chemicals, such methods should be used. Taking into account the influence on human health or on other living things of residual agricultural chemicals, we should naturally move in the direction of discontinuing this technology. Transgenic crops may appear to meet such expectations. However, if the genetic code of an ecosystem is disturbed, such transgenic crops would need to be reconsidered.

In the case of food additives, technology that does not use preservation agents, such as dried or frozen technology where the microbe is suppressed rather than destroyed is considered more desirable. That is because from the Buddhist standpoint of "not killing living things" technology that does not kill, in this case, microbe is considered to be more ethically sound. Such a standpoint is derived from the concept of the wisdom of the middle way. Making full use of the wisdom of the middle way and the wisdom of dependent origination is also considered to correspond to the ethics of the middle way in Buddhism.

Ethics for Using Animals for Food and Experiments

Finally, I would like to examine the ethics for eating livestock and conducting experiments on animals. Although these issues are seemingly not directly related to environmental problems as described above, they are important issues related to our daily life. It is difficult to separate such issues from environmental problems because they are directly related to how we treat living things.

The "third light precept on eating meat" of the Brahma-net Sutra states:

"A disciple of the Buddha must not deliberately eat meat. He should not eat the flesh of any sentient being. The meat-eater forfeits the seed of Great Compassion, severs the seed of the Buddha Nature and causes [animals and transcendental] beings to avoid him. Those who do so are guilty of countless offenses. Therefore, Bodhisattvas should not eat the flesh of any sentient beings whatsoever. If instead, he deliberately eats meat, he commits a secondary offense."[28]

The above precept forbids the eating of all meat. The reason is that "the meat-eater forfeits the seed of Great Compassion, severs the seed of the Buddha Nature." Moreover, the "twentieth light precept on failure to liberate sentient beings" of the Brahma-net Sutra states:

"A disciple of the Buddha should have a mind of compassion and cultivate the practice of liberating sentient beings. He must reflect thus: throughout the eons of time, all male sentient beings have been my father, all female sentient beings my mother. I was born of them. Therefore, the sentient beings in the six worlds are all my parents. If I now slaughter them, I would be slaughtering my parents, as well as eating flesh that was once my own. This is so because all elements, earth, water, fire and air—the four constituents of all life—have previously been part of my body, part of my substance. I must therefore always cultivate the practice of liberating sentient beings."[29]

This precept promulgates from the viewpoint of the transmigration of life that we should not eat meat. To be sure, it is important to view the transmigration of life in light of the ethical foundation of Buddhism.[30] However, we must consider the fact that human beings and other animals can sustain life only by eating living things. Plants greatly differ from animals on this point. On the other hand, if there is Buddha Nature in all things, a plant could also possess Buddha Nature. Then, even eating vegetables becomes conduct that tramples on the respect-worthy Buddha Nature.

The last thing to be considered is the statement "restricting a transmi-

gration of life to a sentient being." We generally draw the line between sentient and insentient beings at the level of animals. However, since there are also animals without a brain, we can not come to a definite conclusion that all animals have sentiments (consciousness). Moreover, a plant without a brain is independently equivalent to various situations and its environment. For example, a plant changes direction of a leaf to light and stretches a root to water or nutrients. That is, a plant recognizes the environment and acts to that as an animal recognizing the environment by the five sense organs (the five consciousnesses of Buddhism) of an eye, an ear, a nose, a tongue, and a body and acting to that. Therefore, from a broad perspective, a plant is considered to have sentiment.[31] If we were to follow this logic, however, we would have little left to rightly eat.

This dilemma can be addressed using the doctrine of dependent origination. As described previously, the historical relation of a living thing, including inorganic matter, can be considered to be a transmigration of life. The sentence "all elements, earth, water, fire and air—the four constituents of all life—have previously been part of my body, part of my substance" in the "twentieth light precept" suggests that the transmigration of life include inorganic substance. Judging from this frame of reference, it will be evil to destroy any relationships within an ecosystem. Therefore, if an ecosystem is destroyed by taking wildlife from its habitat, it will be necessary to admonish against such behavior. However, since human beings manage agriculture or livestock farming, eating these animals would not destroy the ecosystem, i.e., the historical relationship of the animal, and the elemental cycle. Therefore, the act of eating meat will be allowed in Buddhism.

Thus from the viewpoint of ecological and historical relationships (transmigration of life) derived from the concept of dependent origination, Buddhism regards the existence of human beings and living things, as well as the future lives of human beings and other living things, as of equal importance.

Conclusion

The view of Buddhist ethics with regards to living things, as I have mentioned, depicts actions based on wisdom of dependent origination and of the middle way. The pursuit of profit has been discussed as being neither confirmed nor dinied. However, as living things are usually only beneficial for human beings, we have to examine what we are able to give in return.

First, since a valuable life is lost by eating, we need to have a sense of obligation. Since human beings survive through consuming living things, we also have to have a sense of gratitude. Also, human beings can not only be born because of the ecosystem, but also continuously gain from the circulation of substances in such a system. According to Buddhism, this means that we should have a sense of obligation, as well as appreciation towards other living things.

In Buddhism there are various forms for obligation: obligation to a parent, to a sentient being, to a king, and to the three treasures[32] as expounded in the "Meditation on the Mind-base Sutra (Hṛdayabhūmi-dhyāna-sutra)."[33] For the purpose of our discussion here, I will elaborate on the meaning of "the obligation to a sentient being." According to Shigeo Kamata,[34] this obligation is categorized as "close relationships" and "distant relationships." Specifically, a close relationship includes family relations, social relations, state relation, and other living things closely related to human beings, such as a horse or a cow. A distant relationship is considered to include not only all living things but also even inorganic matter. Therefore, Buddhism elucidates one's obligation to all things.

Let us consider what this means in concrete terms. As stated previously, even if we assert that deforestation, the capturing of living things, and the eating of animals are necessary acts to support human beings, we can not deny that these acts are regarded as evil in Buddhism, and that "the meat-eater forfeits the seed of Great Compassion." Moreover, eating animals, felling trees, and capturing wildlife are expressions of desire. Naturally overeating and excessive-drinking, the thoughtless felling of trees, and over-hunting should be condemned from a moral point of view. It is, however, important not only to condemn such evil acts, but also to accumulate much good karma by doing good acts.

The "twentieth light precept" stresses the importance of cultivating "the practice of liberating sentient beings" as described above. That is, we should seek to refrain from restraining a living thing and instead aim to provide it with freedom. Considering this from the precept of "not-stealing", the notion of granting enough space for living things to thrive is necessary. Such actions as releasing fish into rivers or lakes, reforesting, and developing methods for riverbank construction suitable to the habitation of marine life and others, are examples of habitat development for living things. Reforestation and proper riverbank construction methods are especially important affirmative actions that contribute to recreating habitat for animals. It is also important to construct policies that are based on an understanding of ecosystem management. Such

well-thought out policies are equivalent to the practice of donation of the six practices mention in the introduction. We should aim to act "with mercy," and should strongly admonish acts "with evil intention." This is also stressed by many of the other light precepts.

Acknowledgements

I wish to express my gratitude to Anne Mette Fisker-Nielsen for editing the English version of this article.

I also express my gratitude to Dr. Mike Curtis for reading this article and providing some useful comments.

NOTES

[1] Kato, Hisatake (1991), *Kankyo Rinrigaku No Susume*, (Introduction to Environmental Ethics), Maruzen, Tokyo, 1991

[2] Yamamoto, Shuichi (1998), "Contribution of Buddhism to Environmental Thoughts," *The Journal of Oriental Studies*, vol. 8, 144–173.

[3] Yamamoto, Shuichi (1998), "Kankyo-rinri to Bukkyou no Kadai" (Environmental Ethics and Issues of Buddhism), *Nihon Indo-gaku Bukkyo-gaku Kenkyu* (The Journal of India and Buddhist Studies), vol. 47, No. 2, 78–84

[4] Yamamoto, Shuichi (1993), "Seibutsu-hogo notameno Rinri to Kyouiku (1)" (Ethics and Education for Biological Conservation (1)), The Bulletin of Institute of Oriental Philosophy, vol. 9, 59–81.

[5] I am here using the word 'bio-intensity' to refer to the quantity of living things in a given environment

[6] Carson, Rachel (1987), Chinmoku no Haru, Shincho-sha (in Japanese), (*Silent Spring*, 1962, Houghton Mifflin Company.)

[7] Colborn, Theo (1997), *Our Stolen Future, Abacus*, (translated in Japanese, (Ubawaresi Mirai, Shoueisha, 1997)

[8] Cadbury, Deborah (1997), *The Feminization of Nature: Our Future at Risk*, (Mesuka-suru Sizen, Shuei-sha, 1998) Hamish Halilton.

[9] Singer Peter ed. (1985), *In Defence of Animals* (Doubutsu no Kenri, Gijutsu to Ningen-sha, 1986) Basil Blackwell.

[10] Ibid.

[11] Statistics and Information, 2001, Ministry of Agriculture, Forestry and Fisheries of Japan (2002). http://www.maff.go.jp

[12] See endnote 9.

[13] See endnote 2.

[14] Hirakawa, Akira (1998), *Dajou Bukkyo Nyumon* (Introduction to Mahayana buddhism), Daisan Bunmei-sha, Tokyo.

[15] Anāgāmin (in Sanskrit) means the third degree of the four degrees to be attained by a follower of Hinayana Buddhism.

[16] Arhat (in Sanskrit) is a person who is freed from all craving and rebirth, and is one of the ten appellations of the Buddha.

[17] Pratyekabuddha (in Sanskrit) is a person who is a self-enlightened Buddha.

[18] Avīchi Hell means the worst kind of hell, where sinners suffer interminable pain.

[19] Daihatsu-Nehangyo, Nehanbu vol. 1, p. 338, Kokuyaku-issai-kyo, Daito Shupan-sha. This text is translated into English in: The Writings of Nichiren Daishonin, p.19–20, Soka Gakkai, Tokyo, 1999.

[20] Kawada, Yoichi (1994), *Chikyu Kankyo to Bukkyo Shiso* (The Global Environment and Buddhist Thoughts), Daisan Bunmei-sha, Tokyo.

[21] Pārājika (in Sanskrit) is the four gravest offenses for a Buddhist monk.

[22] Bonmo-kyo (Brahma-net Sutra), Ritsubu vol. 12, p. 336, Kokuyaku-issai-kyo, Daito Shupan-sha. http://www.sinc.sunysb.edu/Clubs/Buddhism/bns/bnstext.htm (For an English Translation)

[23] Bonmo-kyo (Brahma-net Sutra), Ritsubu vol. 12, p. 336, Kokuyaku-issai-kyo, Daito Shupan-sha. (English translation as cited in endnote 22)

[24] Bonmo-kyo (Brahma-net Sutra), Ritsubu vol. 12, p. 340, Kokuyaku-issai-kyo, Daito Shupan-sha. (English translation as cited in endnote 22)

[25] Aldo, Leopold (1986), *Yaseino Uta ga Kikoeru*, Shinrin-Shobo (*A Sand County Almanac*, 1966, Oxford University Press.)

[26] See endnote 21.

[27] Yamamoto, Shuichi (2001), "Environmental problems and Buddhist ethics: From the perspective of the consciousness-only doctrine," *The Journal of Oriental Studies*, vol. 11, 167–180.

[28] Bonmo-kyo (Brahma-net Sutra), *Ritsubu* vol. 12, p. 339, Kokuyaku-issai-kyo, Daito Shupan-sha. (English translation as cited in endnote 22).

[29] Bonmo-kyo (Brahma-net Sutra), *Ritsubu* vol. 12, p. 341, Kokuyaku-issai-kyo, Daito Shupan-sha. (English translation as cited in endnote 22)

[30] See endnote 17.

[31] Yamamoto, Shuichi (1999), "Kankyo-rinri to Bukkyou no Kadai II" (Environmental Ethics and Issues of Buddhism II). *Nihon Indo-gaku Bukkyo-gaku Kenkyu* (The Journal of India and Buddhist Studies), vol. 48, No. 1, 250–256.

[32] Three treasures indicate the Buddha, the Buddhist law and the Buddhist monk.

[33] Kamata, Shigeo (1998), *Gendai-jin no Bukyo* (Buddhism for humans of today), Koudan-sha.

[34] Ibid.