ENVIRONMENTAL LAW AND ETHICS

ENRICHMENT COURSE

ENVIRONMENTAL ETHICS

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LO 7: THE CHALLENGE AND MAIN APPROACHES TO ENVIRONMENTAL ETHICS

1. Three areas of environmental ethics

Ethical reflection is an essential part of practical philosophy. It tries to give answers to the question 'What should we do?' Ethics aims to provide a normative orientation for human action. The relation between the actors is of particular importance: in accordance with which underlying criteria shall the interaction between people take place? Further: how is a given situation to be assessed, in order to behave in an ethically correct manner? Universal ethics (as, e.g., Immanuel Kant defines it) proceeds on the assumption that all moral subjects are axiomatically coequal and therefore are to be treated according to the same criteria. Social distinctions are therefore basically irrelevant: from the standpoint of ethics, which lays universal claim to validation, all human (rational) subjects are of the same value. Therefore, the acts of all humans are to be subject to the same criteria and 'moral imperatives'. Thus, for example, lying is forbidden without exception for all human subjects. 'White' lies might be acceptable under certain circumstances, but sanction can never be given to untruthfulness in principal. What applies to one person applies to any other person as well. Whoever wants to be acknowledged by another person as a moral being, and wants to be treated in a just way, has to be willing on his or her part to accept the morality and dignity of any other person and treat him or her with justice (principle of equality and principle of reciprocity). Without these principles there would be no general human rights, and democratic societies would not be legitimised.

In general, ethics examines what is valuable in individual and social life, in relation to the world, in so far as ethical behaviour always consists of implementing ethical values. At the outset it may not be evident exactly which values are valid for all people (or ethical beings) and how in detail justice can prevail among people (what exactly is meant by 'distributive justice' or 'justice of performance'?). Nevertheless there are certain ethical principles the globalised world cannot forgo, if it wants to live in peace: for this the Universal Declaration of Human Rights provides the foundation. Certain ethical values in mind-set and behaviour are necessary in order to lay down binding rules for a harmonious social, political, economic and cultural intercourse of people and nations and to be able to maintain it permanently. Yet how certain core values such as freedom, equality and solidarity are to be interpreted needs to be negotiated frequently on an interpersonal, intercultural and international level. In interpreting

even such high-ranking values as human rights, conflicts of interest and values arise, as happens when the world-view of different people is affected by different religious, ethnic and political viewpoints that are not compatible. And there may be different reasons lying behind the same values when people come from different philosophical and ideological backgrounds. This can lead to different priorities of the values (within the hierarchy of values) and consequences for behaviour; so, for example, the value 'solidarity' is presented differently from a utilitarian position than from a Kantian or a Christian viewpoint.

A special problem in applying values originates when it is not really clear what belongs to the 'ethical universe'. Environmental ethics has this application problem. Environmental ethics is an ethics of application. It's worth depends on whether moral intrinsic value is attached to the environment of the human society—that is, nature—or not. It is indisputable that nature is valuable for humans; but does nature own, as a whole, a value in itself, or do certain natural entities hold a value in themselves, as is considered to be the case for people? In other words, does nature—or do natural beings—own an intrinsic (absolute) value or only a relative (derived) value in relation to the good of humans (individuals or society as a whole)? Many environmental ethicists are of the opinion that such an autonomous value needs to be conferred on certain beings in the natural environment of humans, which has to be respected in our relations with them. Later we will amplify the different reasons for such an extension of the 'moral community' to nature.

Even though if one confines oneself to ascribing an *indirect* value to nature that only exists in relation to humans and their needs and interests, environmental ethics poses a challenge to the ethical, political and economic behaviour of people towards their natural environment. It constitutes a field with new forms of evaluation: for example, how one should proceed with scarce natural resources (e.g. fossil fuels), of which unconsidered waste can lead to a crisis for future generations. The interest in an immediate use comes into conflict with the interest in provisions for the future. We will return to that.

1.1. Moral concern and self-interest

> To have moral concern or respect for others means to place intrinsic value on their good life, to further their happiness for its own sake and not solely for the sake of your own happiness. A self-interested agent, in contrast, accords the happiness of others only instrumental value for his or her own happiness. —That moral concern has something to do with an *unselfish regard for the good life of all others* is accepted by virtually all contemporary moral theories (Krebs 1999: 16).

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We can distinguish three areas of environmental ethics, which together build an ascending sequence. Each subsequent area includes the former or extends it with an additional 'moral agent'.

1.2 Ethics of resources

When a value is given to nature only in relation to humans, we talk about ethics of resources. Of course the ethics of resources is environmental ethics only in a narrower sense; nevertheless, it always remains a part of every broader definition of environmental ethics. The ethics of resources places humans in the centre of its interests by scrutinising aspects of the handling of scarce, exhaustible raw materials and environmental media such as water, soil and air. Special ethical considerations are focused on renewable biotic resources such as forests and fishing resources. Questions about a dangerous change in the earth's climate also belong to the field of resource ethics. Not least, agricultural ethics belongs to this form of environmental ethics and particularly engages in questions of changes to soil and landscape. Grave environmental damage is caused especially by the agricultural utilisation of the environment.

Resource ethics asks how we can use the raw materials and environmental media (such as water and soil) provided by nature without causing irreversible damage (over-exploitation or environmental pollution). Such ethics can be justified solely for anthropocentric reasons, that is, by the interests of people.

1.3 Animal ethics

Animal ethics is concerned with the well-being of individual beings that are sensitive to pain. The term 'animal ethics' is a bit ambiguous, as animal ethics usually only applies to *sentient* organisms. Thereby the animal kingdom is divided into animals with a nerve system and animals that lack sensitivity (to pain) because of an absent nerve system. The leading assumption here is that the existence of a nerve system is a prerequisite for a capacity to suffer. In any case, animal ethics views the relationship of humans to all such natural beings by assuming they are able to suffer in the same way as we do. We can empathise with a sentient being, because the animal as a 'suffering creature' is sibling-like, associated with humans. Furthermore, such beings possess a distinct instinct for self-preservation—in the way they pursue interests, search for satisfaction and strive to avoid suffering and dislike.

Organisms that have an interest in themselves, however, notably appear as morally valuable, because one has to acknowledge a certain autonomy in their behaviour. This is not only valid for the big apes, which are our nearest relatives in the animal kingdom, but also for all non-

primates, presuming that they have sensitivity to pain and obviously have a self-conscious perception of their environment.

So animal ethics asks whether animals—at least the ones with sensitivity to pain—possess a value and a purpose in themselves, and—if so—asks what this means in an ethical sense with regard to our relationship and behaviour towards them. Consequently, animal ethics moves beyond the sole anthropocentric approach by thinking in a 'pathocentric' way.

1.4 Ethics of nature

The ethics of nature attends to the moral aspects of dealing with lower 'insentient' life forms (plants, fungi, bacteria, etc.) as well as with other supra-individual biotic entities as species, ecosystems and landscapes. In the form of 'conservation ethics' it discusses questions of preservation of natural areas to protect them from destruction by humans. In this sense it will contribute to the environment-related protection of civilisation. In a narrower sense the ethics of nature deals with the determination of the moral status of nature or larger natural systems (ecosystems). We will see later that the substantiation of nature ethics will confront us with most difficult problems. The main concern is not with individual ethics referring to single organisms and the protection of certain individual beings, but about supra-individual entities, for example, species conservation, perhaps even the protection of evolutionary potentials or processes. In this case nature ethics is 'biocentrically' (all living beings) or 'ecocentrically' (ecological systems) or even 'holistically' (all natural things) oriented. Nature's ethical considerations touch on difficult natural philosophical questions. For example: Does nature as a whole hold a moral status? Do the protective rights of biotopes (habitats of organisms) rank higher than the protective rights of single organisms and species, so that we have to sacrifice single organisms or even whole populations in favour of the conservation of larger ecosystems? Nature ethics asks whether each form of life or complex natural systems—and perhaps even nature as a whole—possesses moral value and therefore is absolutely worthy of protection. Such ethics (however it might be substantiated) goes—even more than the animal ethics—beyond the scope of an environmental ethics that respects the interests solely of humans. Instead of anthropocentric, nature ethics is physiocentric oriented (see Eser and Potthast 1999; Krebs 1999).

> Only when the last tree has died and the last river has been poisoned and the last
> fish has been caught will we realise that we cannot eat money (A prophecy of a
> nineteenth-century Cree Indian
> made popular by Greenpeace).

To finish this section let us look briefly at the historic development of these three areas of the environmental ethics

Historically, **resource ethics** is the oldest form of environmental ethics. In earlier times, people were already wondering how existing natural materials, such as the wood of the forests or water, could be used in a sustainable (protecting) manner. This was based on experience of the desolation of entire regions that had been cleared completely for construction and shipbuilding (the ancient Greeks, who maintained large fleets, had already noticed this with pain); or on experience of the contamination of waters that had been used too intensively for tanning skins and dyeing textiles. The resource-ethics debate reached a first culminating point in the 1970s with the realisation of the 'limits of the growth', as the Club of Rome warned of the over-exploitation of fossil fuels and natural metal deposits.

Animal ethics also has old philosophical roots, with Immanuel Kant postulating a prescription of brute contact with sentient animals (in contrast with René Descartes who, still thinking mechanistically, had viewed animals as dumb machines). Furthermore, as Kant believed, considerate contact with animals could contribute to the moral improvement of the humans. Even the utilitarian Jeremy Bentham formulated a primary obligation of humans towards sentient animals.

Nature ethics, in the form of conservation ethics, refers back to the age of Romanticism (end of the 18th century until the mid-19th century), as the beauty of landscapes was appreciated extensively for the first time (see Pfordten 1996; Thomas 1983). The contribution of the aesthetic feeling for nature to the emergence of environmental ethics cannot be estimated highly enough. This is still valid today. In the tradition of the romantic philosophy of nature the home- and nature conservation movement began in Europe and North America in the 19th century: here for the first time, criticism of civilisation and technology was joined with national homeland 'connectedness' and the feeling of a deep bond with nature. This connection is still alive in miscellaneous varieties of eco-philosophy or 'deep ecology' as well as in the green movement.

1.5 To the argument of aesthetic contemplation

Mr K and Nature

Asked about his attitude to nature, Mr. K said: 'Now and then I like to see a few trees on coming out of the house particularly because they achieve such a special degree of reality by looking so different according to the time of day and season. Also, as time goes on, we city dwellers get dazed by never seeing anything but use-

objects, such as houses and railways which, if unoccupied, would be empty, if unused, meaningless. Our peculiar social system allows us to regard even human beings as such use-objects; and so trees, at any rate for me, since I am not a carpenter, have something soothingly independent about them, outside myself, and as a matter of fact I hope that for carpenters, too, they have something about them which cannot be put to use' (Brecht 1961: 110).

Environmental ethics as an autonomous academic field, however, began only around 1970, as the threat to the natural livelihood of humans from pollution and ecological destruction became obvious. It was only then that the scientific exploration of complex natural systems (ecology and ecosystem research) and interactions between ecosystems and economies had progressed far enough so that arguments from environmental ethics could now also be backed up scientifically. Resource ethics especially, but also landscape ethics, experienced an immense upswing in the context of 'ecological ethics'.

This development was accompanied by a strong change of public awareness towards a distinct environmental consciousness. For the first time the green movement was able to articulate its protest against the destruction and the blight of the natural environment by founding green parties. Many of them were elected into their national parliaments and so could work politically.

At that time, it became very obvious to many people around the globe, that the reflection on the relationship between humans, society and nature should be an integral part of *all* ethics. Animal protectionists could now exert their concern for better protection of sentient animals more effectively: this pertained to the treatment of animals in agriculture (animal husbandry) and in research (animal experiments), but also included an understanding that the continuing (danger of) extinction of species (birds, whales, big apes, etc.) needed to be stopped. The demand for the ethically appropriate treatment of animals and for the protection of endangered species, as well as significant ecosystems (e.g. tropical rainforests) that contribute to the world climate as well as providing a habitat, became unmistakable.

It is clear that a conflict within environmental ethics between an anthropocentric and a physiocentric ethics was bound to happen. How are the particular interests of humans and animals (plants, biotopes, species, etc.) to be ethically weighed against each other? In which cases do the interests of humans have to take second place to the interests of other living beings? Environmental ethicists have not only to assert their demands against economic and social interests but also to crusade in internal conflicts for the 'right' environmental ethics.

2. Three levels of environmental reasoning

Earlier we distinguished three fields of environmental ethics: resource ethics, animal ethics and nature ethics. This division can be abolished in certain cases. Discrimination is applied analytically but not categorically. Some environmental problems—such as the protection of water in the foundation of natural parks, in spacious urban planning, etc.—have aspects of all three: resource, animal and nature ethics.

In order to establish a classification of environmental ethics it is important not only to discriminate between the three fields (among environmental ethicists these are largely agreed), but also to distinguish the different levels on which environmental ethics are implemented. According to Konrad Ott (2000), three such levels can be outlined:

1. Philosophical level (ethics)
2. Political–legal level (laws)
3. Casuistic level (single cases and actions)

On the one hand, each level requires a different sphere of acitivity; on the other hand, these levels are built on each other: public measures in reference to single cases (environmental management) have to be legally protected. The law for its part has to be based on ethical principles.

2.1 Philosophical level

This 'high' level deals with fundamental explanatory statements: ethical claims of validity are raised that should be applied universally, that is, for all members of the ethical discourse community. In the philosophical universe of discourse on environmental ethics the pros and cons of certain positions are developed and discussed. The participants of this discussion are the academic ethics experts (environmental ethicists) and all people who have to make environmental decisions in their vocational context (politicians and jurists, but also engineers, biotechnologists, etc.). In an extended framework all people can participate in the environmental debate if they possess a developed environmental consciousness (as well as a certain scientific education) and when they wish to account for their actions towards the environment. Among the participants of the environmental discourse all non-philosophers, of course, are dependent on preparatory work from the environmental experts for a better understanding and orientation: they expect well-founded proposals for environmentally compatible behaviour and an argued solution to environmental ethical conflicts.

However, *within* environmental ethics—as mentioned above—there are controversies among environmental ethicists that make orientation difficult; in particular, the anthropocentric and

physiocentric positions are opposed sharply. For the broader public it is not possible offhand to comprehend the pros and cons of arguments concerning the alternatives presented by philosophers. However, when the internal philosophical debate does not lead to any objectively valid results, environment-ethical counselling of the public and especially the decision-makers (politicians, engineers, etc.) is possible only in a limited way. Ultimately each person and each society has to decide for itself to what extent it wants to give—besides the anthropocentric arguments—importance to physiocentric arguments

If and how far animal and nature ethical aspects will play a role in the behaviour of people and societies has to be decided by each person *individually* or—on the national and international level—politically. In order that these decisions are not ill founded or made merely intuitively, it is necessary to gain a profound understanding of the controversial discussions within professional environmental ethics.

2.2 Political–legal level

On this level we are dealing with the definition of collective, binding, normative regulations and aims for political actions (e.g. environmental-quality goals). Every definition of this kind presupposes certain environmental attitudes and other political decisions in the past. All relevant environmental aims and programmes are decided and set in force by political organs such as governments, parliaments and public administrations. The most important instrument in this process is the existing environmental law. **Environmental law** combines ethical principles and the results of political decision-making in the form of laws and other ordinances that are obligatory for all citizens of a state. The coverage of legal directives is normally extensive: not only strict binding laws but also guidelines, quotas and standards may be defined. Within the context of political–legal regulation, environmental consulting can help to weigh different individual and collective claims and rights to use environmental resources and media (such as water, soil or air). To what extent has an industrial entrepreneur the right to free use without contamination of water or soil? How far can liberal societies restrain individual rights in favour of communal rights? Under what conditions can the claim of protecting the workplace and the societal claim of conserving an intact and healthy environment live in harmony? More generally, how can we harmonise a consistent environment policy with legitimate economic interests? How is it possible to achieve long-term environmental political aims of sustainability (e.g. concerning the consumption of fossil fuels or other raw materials) and short-term interests of private profit?

Environmental ethics can contribute to making environment policies efficient and to raising public awareness and consciousness. For example, the environmental ethicist may leave inner academic circles and intervene in the public debate about the definition of climate goals, the rescue of tropical rainforests or fish stocks in the oceans, or about the problem of 'environmental justice' (the disadvantage or discrimination of marginal groups in their own society or of people in the developing world). In particular, the skills of environmental ethicists are required to determine environmental aims, quality standards and limits of reasonability, because in these cases the qualitative dimension of environmental political and legal decisions is affected. An adequate determination of the relationship between people and society on the one hand and nature on the other is an essential precondition for regulating behaviour towards the natural environment, because environmental ethics provides the arguments to legitimise our behaviour as acceptable.

2.3 Casuistic level

At the centre of the casuistic level are tangible cases of environmental contamination or destruction, responsible methods and measures for the protection or regeneration of a polluted or destroyed environment. Primarily, these measures are of a technical kind. Practical environmental management is required, and the know-how of environmental experts (environmental engineers, technicians, etc.) is central. Although environmental ethics cannot directly contribute to the technical solutions of environmental problems, it can enquire into the sense and significance of technological measures and of their normative legitimisation. And environmental ethics can assess alternative technical solutions, where the depth of intervention, the costs and the possible unintended side-effects of the submitted solutions are different. The execution of technical measures does not take place in an ethics-free room: such actions always touch collective or individual interests or rights protected by law as well as having to take account of the different interests and claims of people involved. Who has the disadvantage? Who bears the costs? How sustainable should the effects of the intended measure be? In an ethical comparison of alternative technological conceptions or programmes, especially, conflicts can arise between anthropocentric and physiocentric perspectives. What is most worthy of protection in such a case? Which has priority: the welfare of humans or the welfare of animals and plants involved in the environmental problem?

Furthermore, is the intended measure even appropriate, if the given environmental problem is very complex and the success of the intended measure is uncertain? Technical interventions into complex ecosystems always take place with a certain uncertainty: will the desired effects

be reached or not? And will unintended (and unexpected) effects outweigh the intended outcome? The assessment of technological effects in the real world is much more difficult than the assessment of effects in an isolated laboratory. Interventions in nature are always experiments with nature, often resulting in irreversible consequences despite their aim to improve or to regenerate a contaminated environment. There is no consensus among environmental ethicists about the significance of the respective economic or ecological methods for managing environmental problems: in particular, ecology is, for many environmental ethicists, a 'weaker' science with little predictive power. They do not believe that it is possible to evaluate achieved effects in an adequate quantitative (financial) manner: for example, how can we estimate the costs of an extinguished insect species in the Amazonian rain forest? Is it possible and sensible to calculate such damage in a monetary form?

Even the question of what exactly the supposed environmental problem is and how urgent its solution, may require environmental ethical considerations. This question goes beyond pure technical aspects and relates to *normative* aspects. And normative questions are always also ethical questions. And what is 'good practice' in environmental management anyway? Before conducting a risk-analysis we have to clarify in a normative way, what a real risk is and whether there is a real risk in the given case (this is a question of risk perception). Using the same consideration, we have to make a cost–benefit analysis: we have to know, what values are involved and to what extent we are willing to pay for the conservation or re-creation of a polluted or damaged environment. How valuable is 'intact nature' for society? In addition, the ranking of the values involved has to be established before we take any measures. According to which normative criteria do we characterise 'values of nature'? In a utilitarian manner, related to its possible use for humans? Or deontologically, related to an inherent or intrinsic value of nature? At this point we have returned to those questions of environmental ethics that we have already touched on at the philosophical level.

Moreover, the question of what is a good aim for environmental protection or how we can recognise the success of a measure taken is often neither scientifically nor ethically easy to answer. Some environmental ethicists (coming from the concept of ecosystems) think that the balance of nature—its maintenance or restitution—should be the main goal of environment or nature protection. But it is often unclear when we can speak of a resilient and equilibrated system and how exactly we can determine the limits of the load capacity of an existing natural system (e.g. the global climate or a coral reef). Some could argue that certain disequilibria and instabilities that take place within nature are even desirable, because they are sources for

change and evolution. Instabilities could even be the 'motor' of evolution; so long-term robust ecosystems are only exceptions within nature.

On the other hand, it is important for environmental ethicists to know which scientific and technical means (methods, tools, etc.) are at their disposal for purposes of environment protection. How far is it possible to determine the specific character of a given environmental problem and to assess the success of a measure taken in this field? It makes little sense, if we postulate ethically that all people have a right to clean drinking water but we do not have reliable methods to measure the quality of water and to determine and control threshold value for acceptable levels of chemicals. The fulfilment of ethical demands depends on the usability of methods of technical environment protection. Ethical norms often have to be translated into technical controllable norms (such as threshold values) to achieve practical relevance. Thus there is a controversy among environmental ethicists on how far environmental ethics should become scientific. In any case, modern environmental ethics does not ignore either the results of scientific ecology or the technological potentiality of practical environment protection.

As applied ethics, environmental ethics relies on the results of the empirical sciences; otherwise environmental ethics cannot formulate realistic demands and perspectives. Although, under an old philosophical principle, it is not allowable to deduce normative demands (duties) from being (existence) because ethical principles always precede empiricism, the practical success of environmental ethics depends on scientific knowledge: obviously it is not acceptable to decide only intuitively which the natural entities count as 'moral agents' to the 'moral community' and which do not. So we need a biological examination to recognise whether, for example, an eelworm has a nervous system and might be sentient and therefore—from a pathocentric perspective—worthy of protection. Also the question of what factors are responsible, and to what extent, for changes to the earth climate needs to be clarified by a detailed analysis of all processes playing a role in the climate change, before the true delinquents can be named and made accountable. But in the forefront of this analysis, environmental ethics can already point to possible risks and causes; moreover, environmental ethicists can demand scientific examinations and preach caution about current emissions. In this case they can refer to the obligation to maintain favourable life conditions for all people and other living beings. Confronted with a situation of unclear causation it is an ethical command to cut back the quantity of anthropogenic emissions for preventive reasons. Nevertheless, environmental political and legal decisions need for their legitimisation not only ethical demands and doubts, but also scientific expertise and efficient means of technical environment protection.

Environmental ethics is undoubtedly of great importance in determining our relationship with nature and our behaviour towards it. In addition to internal struggles about what is the right position from a practical viewpoint, environmental ethics has to be based on the fundamental ideas of justice for all living beings' worthy of protection and of ecological sustainability. Environmental ethics has the task of developing models (general orientations) in certain directions: (a) a model of sustainability, especially for resource ethics, (b) a model of species-appropriate handling for animal ethics, and (c) a model of intact nature in the area of ethics of nature. Environmental ethics provides the basis for environmental education. On the philosophical level environmental ethics offers reasons and arguments for distinct areas of environmental action on the political–legal and casuistic levels. Therefore, environmental ethics is, and remains, a persistent challenge to modern society, because environmental ethics pleads emphatically for a cautious and ethical sensitive coexistence with nature.

3   Main approaches to environmental ethics

3.1   Introduction: Moral care for nature

Environmental ethics emerged as a new sub-discipline of philosophy in the early 1970s. Until that time philosophy had been questioning human actions towards human beings. Actions towards nature were dealt with in an anthropocentric way. Those actions were good or not good when the well-being of humans was at stake.

Since the 1970s traditional anthropocentrism has been challenged. In the first place, environmental ethics questions the assumed moral superiority of human beings to members of other species on earth. In the second place, it investigates the possibility of rational arguments assigning intrinsic value to the natural environment and its non-human elements.

3.2 The anthropocentric view

3.2.1 Different anthropocentric positions

The central ethical question is: Who or what belongs to the moral universe? In other words, to whom or what do we have direct moral obligations? Who or what has a dignity that must be respected? In this section we deal only with the anthropocentric view of the moral universe. We can state: The anthropocentric view of environmental ethics is totally human-centred. But also, within the tight boundaries of a moral universe seen as strictly human, there are different ways to answer our central question. Some of the most common answers are (after Krebs 1999: 19):

1. Only myself (egoism)

2. Myself, my family, and friends (small group egoism)

3. All people of my class (classism)

4. All citizens of my country (nationalism)

5. All people of my race (racism)

6. All people of my sex (sexism)

7. All living human beings (universalism of the present)

8. All living human beings and those of the past (universalism including the past)

9. All living human beings and those of the future (universalism including the future)

In the light of this sequence of nine steps, each of which expands the boundaries of the moral universe, a moral theory is anthropocentric if it opts for one of the positions between (1) and (9) being within the boundaries of the moral universe and excludes all non-human beings from direct moral concern. From an amplified (physiocentric) perspective that also includes non-human beings in the moral universe, this anthropocentric position may seem as 'species egoism' or 'species-ism' (Singer 1975) or as a form of 'human chauvinism' (Routley and Routley 1979).

The above sequence presents a hierarchical structure, expanding the focus of anthropocentrism more and more. We cannot discuss all the different positions in detail here, but of special interest is the anthropocentric position number 9, because it includes the living humans not only of the present but also of the future. Indeed, what we do to nature today severely reduces the chances of future generations to lead good lives. If moral respect is respect for the good life of all others, it must include the good life of future generations. It is difficult to see what argument could be made against this approach. As Angelika Krebs says:

> Disregarding the good life of those who come after us, who have a different position in time, is parallel to disregarding the good life of those who have a different position in space, for instance people in the Third World. If the second is immoral, the first must be immoral too (Krebs 1999: 20).

It is not clear how the future will be and what future generations will need for their good life. We can't know exactly, but we can imagine some basic needs of the people to come; although we do not know their personal and culture-specific options for the good life, we know a lot about what are universally accessible basic options.

> They will, for example, want to be healthy and many of them will want to enjoy clear summer days. If we destroy the ozone layer and future generations must

remain indoors to avoid skin cancer, how could this be morally right? (Krebs 1999: 20).

We can say: because they will have existence, future generations have all the same moral rights that present generations have, including the right to life. Therefore, an anthropocentric ethics has to claim that we have obligations to respect the environment for the sake of human well-being and prosperity in the present *and* in the future. Moreover, it is evident that the actions and policies that we contemporary humans undertake will have a great impact on the well-being of future individuals (see Gewirth 2001). Although there is a lack of reciprocity (because future generations cannot do anything for us in exchange for what we do for them), and a problem of knowledge (because we do not know exactly, who and how future people will be; see Parfit 1984), one can argue that our obligations lie with ensuring that we do not prevent future generations from meeting their basis needs (see Barry 1999). This, for instance, 'forces us to consider and appropriately revise our levels of pollution, resource depletion, climate change and population growth' (Cochrane 2007).

3.2.2 Instrumental value of nature

In the anthropocentric view animals, plants, ecosystems and the whole of nature have a 'value' only in relation to human beings and their interests. This is mostly called 'instrumental value'. The most important consequence of this perspective with respect to the protection of environment and nature is that the only acceptable reason to conserve and cultivate nature is that the satisfaction of basic human needs—such as nourishing the body and maintaining health—depends on nature. Nature, especially in the form of natural resources, is a precondition for our biological and economic life; without nature human life is not possible.

In the anthropocentric view, nature (air, water, minerals, animals, plants, etc.) is necessary and valuable for human beings—but valuable *only in this sense*. There is no other reason for estimating nature, no value of nature for itself, but only in respect to human interests. And reluctance to use natural resources (animals, fossil fuels, minerals, etc.) can be justified only in respect to the needs and interests of contemporary humans or, at most, future generations.

So, for instance, the discussion of sustainable development frequently focuses on forms of resource management, with an emphasis on social justice and on the well-being of future generations of humans (see Palmer 2008: 18). Indeed, the most commonly cited definition of sustainable development, taken from *Our Common Future'* (WCED 1987) is anthropocentric: 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'

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From this viewpoint we do not need special environmental ethics, because all ethics are always *human* ethics. Values are both human-generated and human-focused. In principle, only humans have 'moral standing' and are 'moral agents'. In accordance with this very strict anthropocentric view we have to distinguish between, on the one hand, 'direct duties' to all beings with moral standing (i.e. all humans) and, on the other hand, 'indirect duties' to all beings (animals, plants, etc.) that humans (as moral agents) need for continuing their life responsibly, well-being. Nature is ethically valuable only in an indirect manner if, and only if, nature contributes to the needs and interests of humans. In consequence, we have to distinguish between 'value *in* nature' and 'value *of* nature' (Palmer 2008: 17): but only the second will be accepted by strict anthropocentrics such as the philosopher William Baxter, because for them there are no intrinsic values in nature itself. If we speak about the 'value *of* nature', then we only attribute to nature our own interests regarding nature. Without humans there would not be any 'natural' values.

But this strong anthropocentric view stands in sharp contrast to the intuitive feelings many people have towards nature: they esteem or love nature (natural beings such as plants and animals) for their own sake, not only for instrumental reasons. Wise or moderate anthropocentric philosophers concede that we can have more than instrumental interests regarding the environment and nature: they argue that it is not necessary for anthropocentric reasoning to emphasise only the pragmatic or utilitarian aspects of our interrelations with nature. Without leaving the anthropocentric position we can come into contact with nature in an aesthetic or contemplative way (more passive than active, more enjoying than using in a technological sense).

3.2.3 Aesthetic and other values of nature

We have said that some less strict anthropocentrics concede that at least an aesthetic (or contemplative) argument for protecting nature could be added to the instrumental view of nature; they base the need to conserve and cultivate nature on nature's sensual attractions for us, the pleasure we take, for instance, in breathing fresh mountain air.

Beyond a narrow instrumentalistic perspective you can recognise nature's aesthetic and contemplative values. Such values resemble intrinsic values of nature, because they seem to be values of nature in itself, but nevertheless they are attributed by humans: they come into the world only through human beings and their aesthetic or contemplative practice. And hold in mind that aesthetic or contemplative values have another quality as moral or ethical values! For many people the term 'contemplative value' means not only that nature is an aesthetic resource for us, but also that nature is *absolutely* beautiful and sublime! Here the

anthropocentric position goes over to an epistemic and ontological position (although not in a moral sense), examining the problem how we can recognise nature in a metyphysical way.

However, someone can deny this ontological implication and argue that there is no independent aesthetic quality of nature in itself; that an aesthetic or contemplative value of nature only exists if a human being values nature's beauty and sublimity. You can consider for yourself whether you think nature has *genuine* aesthetic worth or not. You might conduct common thought experiment and ask: Would the last human being on earth commit a wrong if he or she destroyed nature? *If* it is wrong for the last person to destroy the whole planet, then non-humans must have value, perhaps even moral value in themselves!

Consider whether it is really a contradiction in itself to say that nature's aesthetic value is an 'aesthetic *intrinsic* value *for us'*. Could there be aesthetic aspects of nature in itself (in an objective meaning), only recognisable for us, but in a manner that we are not free to decide what we regard as aesthetically attractive in nature, because certain qualities of nature have to be estimated as aesthetic by anthropological reasons (basing on the general human constitution)?

> In finding it intrinsically valuable to contemplate something, we respond to qualities which inhere in it, its enormous size or power (giant redwood trees, waterfalls) or its structural complexity (bizarre rock formations), or its freedom from marks of instrumental human activity (the sea, the desert, the sky)' (Krebs 1999: 46).

It may be that our given practice of aesthetic perception is a prerequisite to experience the beauty and sublimity of nature, but this special relationship between us and nature is a fundamental (ontological *and* anthropological) trait both of ourselves and the non-human natural world. Indeed, it is necessary to have aesthetic consciousness to experience nature as beauty, but nevertheless nature is beautiful in itself, and we possess an innate disposition to feel nature's beauty! These are complex philosophical questions that are not easy to answer, and this will give us a good occasion to discuss the problem of the intrinsic values of nature in a more general perspective.

If one does decide that nature has an intrinsic aesthetic value, this does not mean that a *moral* intrinsic value can also be ascribed to nature. From an anthropocentric perspective moral intrinsic values are internal to our moral culture (and never external). Therefore, on the one hand, an anthropocentric philosopher may accept aesthetic and contemplative values as intrinsic values of nature, but, on the other hand, he can deny that moral values of nature are intrinsic values of nature: for him moral values are always human-related values of using and

enjoying natural resources or phenomena. But he may concede that the contemplation of nature is valuable for a good human life. In this sense (and only in this sense) in an anthropocentric view the aesthetic value of nature (what may be an intrinsic value) *contributes* to the morality of humankind, insofar as life as a *good* life is of moral importance. So, aesthetic (intrinsic) values of nature contribute in an *indirect* manner to ethics, although aesthetic values in themselves are not genuine moral values. This is indeed a very intricate consideration, but a typical example of philosophical reasoning.

The point is that the anthropocentric position is not principally against emotions or feelings; it doesn't refer only to material interests in nature. Anthropocentric thinkers can share with non-anthropocentric ethicists the special positive feelings towards the natural environment in which human beings have lived for long periods of their lives, because these places provide feelings of familiarity and security. These are feelings of 'homeland'. The homeland usually contributes to the identity of those who live there. Understanding yourself in terms of a native landscape is a common form of expressing individuality (see Krebs 1999: 55). A feeling of alienation and mourning will arise in many people who return to places where they have lived in former times, and see, for example, that the trees in front of their childhood home have vanished, that the whole natural environment has changed radically. Anthropocentric philosophers can agree with the idea that nature should be conserved if it is part of the home of humans. So the anthropocentric view is compatible with a certain idealism and even romanticism (towards 'homeland').

An anthropocentric-oriented person can also have empathy and compassion towards sentient animals, although denying that sentient animals have any moral intrinsic value in themselves. The desire to avoid pain and unhappiness for all living beings is not unusual in an anthropocentric. To have compassion for living beings that can feel pain and distress doesn't need a special ethical justification, because for most people this is self-evident. Even without moral respect for nature one can love nature and hold it in high esteem. The anthropocentric view is not the same as a cold and heartless view of nature. Anthropocentrics can appreciate, in principle, all natural phenomena and their integrity, although they are not disposed to attribute to nature any moral intrinsic value.

Only if the anthropocentric position is restricted to a purely instrumental view of nature is it then associated with a cruel and strict materialistic view. 'Only someone who damages or destroys nature without good reasons, someone who leaves an empty Coca Cola lying around in a field, or who steps on a beetle or a flower, which could easily have been avoided, vandalizes nature.' In contrast 'When workers on a construction site fell trees to make space for a new

building, they obviously do not do anything which corrupts their character. They do not vandalize nature' (Krebs 1999: 58).

Intelligent and prudent anthropocentrics will never destroy the natural environment just to protect the natural base of their own live, but also for the reasons of protecting their own positive (aesthetic and empathic) feelings towards an intact nature. So, ultimately, the behaviour of an anthropocentric will not differ from that of a moderate non-anthropocentric who concedes nature a moral intrinsic value.

Only in comparison to a more fundamental non-anthropocentric ethicist will the anthropocentric ethicist act differently, for example, killing a cockroach in the kitchen, something a radical non-anthropocentric would never do. For an anthropocentric ethicist a cockroach may have an ecological value (value in the sense of 'function'), in so far as nature is a complex interconnected system (what humans need for their healthy life), but not a moral value in itself. From the anthropocentric's perspective there is no reason not to kill an individual cockroach; no moral respect will hinder him or her from extinguishing this single animal. This marks a clear difference between a moderate anthropocentric view and a radical non-anthropocentric view of nature. Nevertheless, as we have seen, there are different possibilities of arguing for 'values *of* nature' in an anthropocentric manner—not only in an instrumental or materialistic way. On the other hand, there are good reasons to claim that anthropocentric ethics is too narrow-minded because it is too human-centred, and that not only humans belong to the moral universe.

3.3 The non-anthropocentric view

In this section we look at rational arguments for giving intrinsic value to the natural environment and its non-human contents. First, some of the meanings of 'intrinsic value' and some functions of the use of that concept will be explained. Second, we look at some main theories and their proponents within the non-anthropocentric view. Each of them gives an argument to widen the 'moral community' with non-human beings. In the footnote you find some remarks you can read before we go to some of the main theories and their representatives. Before looking at the four main theories it is important to know something about the meaning and the use of intrinsic value.

3.3.1   Different non-anthropocentric positions

Wouter Achterberg (1994: 182-87) makes a distinction of three kinds of intrinsic value. He follows Taylor (1986, 72-76; 1984, 150 and next).

Intrinsic value means:

1. What is directly experienced, felt as satisfying, pleasant or of worth *in itself*, for example, pleasure and luck according to the classic hedonistic utilitarian
2. The value that is given by humans to places or objects with an aesthetic, historical, cultural or even sentimental meaning
3. Beings or entities have certain essential properties. Because of those properties they deserve moral consideration or is an attitude of moral respect towards them the proper thing to do?

The non-anthropocentric view, it can be presented in many ways. In this book the view is presented by four theories:

1. Pathocentrism
2. Biocentrism
3. Ecocentrism
4. Holism

Each theory deals with the question of which elements of nature and environment are candidates for moral status and what is the argument for that moral status. The argument often can be seen as a part of the main ethical theories we saw in Chapter 2, Lesson 1. Each theory has its proponents. Table 4.1 provides a schematic presentation of the four non-anthropocentric theories.

Table 1 Schematic presentation of the non-anthropocentric view (prepared by Kees Vromans)

Theory	Candidate	Argument	Proponent
Pathocentrism Utilitarianism Consequentialism Sentientism	All creatures that can suffer. All creatures that are 'sentient'	The overall balance of pleasure over pain. An individual animal has moral status as far as the individual pain or pleasure is part of the total sum of pleasure or pain.	Peter Singer
Deontology		Individual animals have moral status (inherent value) because they are a 'subject-of-a-life'	Tom Regan

Biocentrism Deontology	All creatures that live	Organisms have moral status because they have intrinsic value. They try to achieve their own good.	Paul Taylor
Consequentialism		All living beings have moral status because they have a good of their own but there is a hierarchy. Some living beings have an intrinsic value to a greater extent.	Robin Attfield
Ecocentrism	All organisms including ecological systems	Human beings and all other organisms have moral status because they have the right to flourish	
Holism	All natural things	The whole ('land') has moral status	Aldo Leopold

(1) The pathocentric theory

This theory says that making animals suffer is wrong. Not only human beings feel pleasure or pain; animals can too. Animals are equal to human beings; they are both sentient. Within sentientism there are writers with a consequentialist argument or with a deontological one.

Peter Singer (1993) is a utilitarian. Utilitarianism, one of the consequentialist theories, focuses on the balance of pleasure and pain as such. An action can affect the interests of sentient beings. The interests of all sentient beings, including the non-human ones, should be taken into account equally when assessing an action to be right or wrong.

Singer and other utilitarians argue that the experience of pleasure or the satisfaction of interests as such have intrinsic value, not the beings involved. For utilitarians such as Singer, non-sentient objects in the environment such as plant species, rivers, mountains and landscapes are of no intrinsic and at most of only instrumental value to the satisfaction of sentient beings. The utilitarian calculation can lead to the conclusion that an action that causes harm to individual animals may be right because other interests outweigh those of the animal involved.

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Tom Regan (1983) has a deontological ethical argument. He argues that some animals have intrinsic value. He calls it inherent value. These animals have the moral right to respectful treatment and should not be treated as mere means to other ends. The animals that he has defined as a 'subject-of-a-life' have intrinsic value and being the 'subject-of-a-life' is a sufficient (though not necessary) condition for having intrinsic value. To be a subject-of-a-life involves, among other things, having sense-perceptions, beliefs, desires, motives, memory, a sense of the future and a psychological identity over time.

(2) The biocentric theory

Some authors have extended concern for individual well-being further, arguing for the intrinsic value of organisms because each organism has a reason for being, or a purpose, that is inherently good, whether those organisms are capable of consciousness or not. Paul Taylor's version of this view (1981, 1986), which we might call *biocentrism*, is a deontological example. Unlike Taylor's egalitarian and deontological biocentrism, Robin Attfield (1987) argues for a hierarchical view that says while all beings that have their own good reason for being have intrinsic value, some of them (e.g. people) have greater intrinsic value. Attfield also endorses a form of consequentialism that takes into consideration, and attempts to balance, the many and possibly conflicting good of different living things.

(3) The ecocentric theory

According to Achterberg, ecocentrism means that natural entities *ought* to have the freedom to flourish or to function apart from human interference. Ecocentrism admits the moral status of human beings *and* also of all other organisms. Moreover, nature at a higher level of organisation than individual organisms, for example, at the level of species and ecosystems, deserves moral respect and has intrinsic value. Ecocentrism doesn't become exclusive holistic in terms of 'concerning the whole'.

(4) The holistic theory

According to Achterberg there are two possible ways to expand our moral care towards collective entities such as ecosystems. One of them is by cognitive adjustment. We have to have a certain perception of nature. We have to change our view of complex natural entities themselves and in relation to the usual organisms. One of the examples of this ecocentric way is the land ethic of Aldo Leopold. It is not a philosophical theory, but it is very inspiring. The land ethic can be found in the last chapter of *A Sand Count Almanac*.

According to Achterberg remarks of Leopold bear witness to ethical holism: the ecosystem (the land) as a whole has moral status. The core is:

- The land *is* a community of interdependent elements;
- The land *as* a community *and* the elements have to be treated with moral respect
- The land has a value far above its economic and instrumental value, a value in the philosophical sense, something like 'intrinsic value'

The central thesis of Leopold can be found in the following sentence:

> Examine each question [of land use] in terms of what is ethically and esthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise (Leopold).

So Leopold uses two metaphors: the land as community and the land as organism. The first emphasises the relative independence of the elements of the ecosystem and their moral status. The second underlines the systematic cohesion: the ecosystem.

Achterberg distinguishes three kinds of holism to clarify the position of Aldo Leopold: metaphysical, methodological and ethical holism.

Metaphysical holism proposes that the 'wholes' are as real as their parts. Methodological holism claims that to understand the whole, for example, the ecosystem, the knowledge of the parts, seen apart, on their own, is not enough. According to ethical holism some 'wholes' can deserve moral consideration, have moral status, just as some companies have a legal status apart from the legal status of the individual shareholders. So the ethical holism doesn't need the metaphysical and the methodological as a basis. To Achterberg, Aldo Leopold's *Sand County Almanac* shows ethical holism and possibly methodological holism, but not metaphysical holism.

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1. Environmental Ethics and Sustainability

Environmental ethics deals with ethical issues that do not concern human nature, and human interventions in nature. The topic is very broad and refers in the context of sustainability considerations for example also to the permanent human survival on earth and issues such as intergenerational equity. Despite its diversity, sustainability is always still in the stage of development. This can be seen in the differentiation of its contents, and also in the development of the concept of sustainability itself.

2. The development of the concept of "sustainability"

Besides the fact that this concept had its roots in the German forestry about 300 years ago , it came to political significance only in the debates and conferences about the Brundtland Report and the Rio Process. It was born as "sustainable development" on March 5, 1980, when the "World Conservation Strategy" was presented with the subtitle "Living Resource Conservation for sustainable development" in 35 major cities around the world simultaneously. It says in the introduction that the relationship between humanity and the environment would deteriorate still further, and only stop if sustainable forms of development came to the rule would. Such a term was created starting from nature protection which marks a change of strategy in environmental protection: away from ad hoc firefighting operations to long-term planning action. Even the General Assembly of the "International Union for Conservation of Nature and Natural Resources' (IUCN) had contributed in 1969 to both the broad concepts as well as the strategic orientation. It had seen the term "quality of life" as central in this discussion context and had meant ecological, social and aesthetic values that "enrich the human experience and give it meaning and satisfaction". And at the same time "conservation" has been clarified as a key concept of the organization. It moved from a merely preservative nature protection as no longer appropriate because of the exclusion of any use of species and habitats was no longer up to date. "Additionally necessary is the ‚management', which includes monitoring, research, management - and use of air, water, soil, minerals and living species; nature conservation and the highest sustainable quality of life belonged together." And the preservation and use of living resources presupposes diversity, as reflected in the concept of sustainability and its apparent indeterminacy.

The "Brandt Report" from 1981, entitled "North-South", took not only the term "sustainability" several times, so as "biological environment" and "sustainable prosperity". In particular, the term "development" has been redefined to "get away from the constant confusion of growth and development". Development strategies should not be more than just focused on the growth of GNP and standard of living. To achieve the goal of a just distribution of income is paramount; priority were also the development of the productive possibilities and human potential. This too is part of the sustainability in a broader sense.

The Brundtland Report of April 27, 1987 formulated the key phrase for sustainability, of which has been made use repeatedly: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The needs addressed here are basic needs. And then development means satisfying the basic material needs of each person through economic growth (Quality of Life). Sustainable development then means, to make a new balance between man and nature, between the cultures of the world and interpersonal relationships. In short, we present a new civilization design here. Thus, the term "sustainable development" aims at ensuring that the living and production bases are secured, but in the sense of permanent and global environmental conservation. Likewise, the economic and social behavior are to be developed and stabilized. Since the formulation of this key set to sustainability, the meanings of open terms sustainable development and sustainable growth have shifted. In the Brundtland report the very anthropocentric aspect is still very stressed with the emphasis on economic growth. Meanwhile sustainable growth is based only on the quantitative variables such as domestic product or national income in terms of economic growth. Sustainable development on the other hand focuses primarily on the qualitative aspects in a broader sense. This can fix the fact that in the originally pursued sustainable development now also viable and sustainable development are included, for example. The German "Sachverständigenrat für Umweltfragen (SRU)" therefore speaks in the year 1994 of an "Sustainable Ecological Development".

Thus, we can conclude that at least since the adoption of the Programme of Action of Agenda 21 at the UN - Conference in Rio de Janeiro on Environment and Development in 1992, ecological, economic and social sustainability are understood as integral parts of a comprehensive sustainability. With this action program, the theoretical values for the practical reality of the economic and social life should be implemented.

2.1 Specification of the environmental and economic aspects

Given the wide scope of interpretation of the concept of sustainability and its development, it is obvious that there are a variety of approaches to its specification. Equally obvious is that scientific and ecological concepts for instructions as the basis of these concepts must be agreed with their economic "management". It is thus targeted to dealing in production and consumption of renewable and non-renewable natural resources and other features that are found on the ecosphere for the economic system. "Such features are the inclusion or assimilation of material inputs, they are in securing general ecosystem functions as well as the direct influence of human well-being. In summary, it iss poken of the ‚natural capital ', which is separated from ‚man made capital' created by people. Sustainability concepts now differ greatly in assessing how far the substitution of natural capital is possible by physical capital."

There are basically two approaches which have to be distinguished:

1. the optimistic view of the "weak" sustainability, by which for almost all functions of natural capital replacement by other types of capital should be possible. This replacement or substitution processes should be permitted if the existing capital will be wholly preserved in this way;

2. the "pessimistic" approach provides critizises such substitutability and does not see it as given. This concept of "strong" sustainability argues that intergenerational justice requires that "the stocks of different types of capital remain independent of each other in biological or physical standards. This is especially true for natural capital. As an argument for it is argued that the natural capital and physical capital are usually complementary in production and consumption ratios (for example, fishing boats without fish are without any sense). "For a position of strong sustainability would thus follow to preserve each component and subsystem in its physical inventory. However, this seems impossible, especially because incessantly changes take place within the ecological system.

The more plausible concept of strong sustainability has developed for practical implementation as a guide to action three management rules that will improve the natural capital stock permanently. These management rules are both macro and micro applicable as well as at the l political and social level. They include the principles that

1. the degradation rate for renewable natural resources should not exceed their regeneration rate. In this way, in principle, the ecological performance of this part of the natural capital should be maintained. But even here there are many imponderables that must be observed for each concrete implementation, and allow infinitely many solutions.

2. substances into an environment can be controlled permitted only to the extent, that they correspond to its assimilation ability and can cause any danger of its functions (critical loads,

critical levels). "It should be noted that the form of the use of natural resources due to the first law of thermodynamics, the mass and energy conservation law, eventually determines at the same time the amount of material inputs in the ecological system."

3. Because of the second law of thermodynamics, the entropy law, any use of non-renewable resources reduces, in the final analysis, the available stock. Therefore, for this one "is required quasi-sustainable use". „Non-renewable resources should be used only in the extent to which a physically and functionally equivalent replacement is assured in the form of renewable resources or a higher productivity of natural resources in their use." And if exhaustible resources are used, then is has to be distinguished between two parts: Although a proportion of their output can be used at the same time but the other part is to be inserted in the construction of renewable resources to compensate for their consumption. The result then is to serve the newly established renewable resource to replace the consumed. In this way a continuous consumption stream could be ensured. Provided here is that technical efficiency is increased accordingly and so contributes to the quasi-sustainable use.

Both in the Brundtland report as in Agenda 21 indicators were early called for that would be suitable as a benchmark for sustainable development. This is true even for the political dimension, for which the State must provide at the local, regional, national and international level. In practice, this means that the gross domestic product has to be mapped faithfully and environmental damage and repairs must be considered (Ökosozialprodukt / Genuine Progress Indicator as a further development of the Index of Sustainable Economic Welfare). Therefore, it was also already a work program submitted in the work of the UN Commission on Sustainable Development in 1995, where in cooperation with the UN Department for Policy Coordination and Sustainable Development (UN DPCSD) a list of more than 140 indicators will be developed. These are firstly divided into four categories: economic, ecological, social and institutional indicators; on the other hand, grouped by the Pressure-State-Response principle (PSR), the CSD chooses instead pressure the wider approach of the driving force. This would result in a matrix, which meets the requirements of Agenda 21 and can be applied at national level.

However, this process is not yet complete and the question is whether the development of indicators can ever succeed in the sense that a realistic figure may be held by indicators. This also because interpretational factors play a major role.

At this point the critical question arises whether the above-mentioned objectives of sustainable resource use have been achieved so far in any direction. This can be relatively "easy" measured by the two criteria, whether

1.   the "ecological footprint" has been reduced and whether

2.   for each person quality of life has increased. Thus, in 2012 on August 22, the entire stock of natural resources has been consumed, which has been produced on Earth throughout 2012. This means that from that date the generated amounts of waste and emissions could not be absorbed (so called Earth Overshoot Day). This date occurs every year a little earlier. "After four decades of Planet Earth Politics controls the planet still steers to the collapse the Club of Rome predicted for the middle of the 21st century."

Also, to improve the quality of life as a promise of the good life for all, it has not become better. Apart from the increase in the quantitative growth (gross domestic product) and the associated accumulation of goods, no reliable quality of life for everyone is generally considered obviously occurred, as it is the goal of a sustainable lifestyle and economy. For this argument the well-known studies of the WHO and the FAO from all the past years and decades can be used as evidence. This critical interim conclusion nevertheless should not devalue the variety of measures, which were part of the policy at local, regional, national and international level, or of companies and have been since enforced; nor the measures in consumptive area. On the contrary: Without it, the sustainability balance sheet would look absolutely devastating.

2.2 The national sustainability strategy

In contrast, the national sustainability strategy of the German Federal Republic looks very positive (officially). It will be shown below here, because it not only valuable facts with regard to the now state of sustainability in Germany are represented, but also the perspectives become clear. The subsequent comparison of statistical figures on EU-level perspective, however, is thinking this partly in relative terms.

The German sustainability strategy was adopted in 2002. Since it determines the course for sustainable development in Germany. It bears the title "Perspectives for Germany" and includes specific tasks and objectives.

Guidelines of the national sustainability strategy are intergenerational equity, quality of life, social cohesion and international responsibility. These guidelines indicators were determined with medium-term and long-term targets in the strategy. Examples: reducing greenhouse gas emissions by 2020 to fall by 40 percent, the share of renewables in energy consumption to 60 percent by 2050 and by 2015 a quarter of the carriage of goods take place on the rail.

Germany wins now a quarter of electricity consumption from renewable energy sources. This reduces greenhouse gas emissions dramatically. Compared with 1990, they are already in 2012 decreased by 25.5 percent.

2.2.1 The perspective

In 1992, the United Nations stood up for the model of sustainable development. In Rio de Janeiro, they adopted a global action program. With the "Agenda 21", each of the 170 signatory countries agreed to implement the model nationally in all policy areas with the participation of society and economy. Also Germany has signed.

Therefore, in 2002 the Federal Government introduced the strategy "Perspectives for Germany". A 2010 decreed measure program of the Federal Government designates the measures that will help the sustainability goals to be achieved. The strategy and the individual measures are continuously improved. To this end, the Federal Government publishes regularly (every four years) progress reports. Every two years, inform indicators report in detail about how the core areas of sustainable policies have evolved.

The strategy is applied in content comprehensively and not exhaustive. It is the basis for political reforms as well as changes in behavior of businesses and consumers. Far beyond the environmental challenge the concept is also used as a guide to action for a comprehensive sustainable policy. It involves overall responsibility for an economically, environmentally and socially sustainable development for all generations.

2.2.2 Principles of sustainable development strategy

The guidelines direct the way, the direction in which Germany must move in order to become more sustainable. They cover the spectrum of "intergenerational justice - Quality of life - social cohesion and international responsibility".

1. Generation Justice

According to the guidelines a new generation contract will be required, which focuses on the balance of interests between the generations. This involves the reduction of public debt, the reform of social security systems, health care costs as well as the preservation of the natural foundations of life.

The ethical principle of sustainability is: Every generation must solve its own problems and should not burden the next generations. Contravenes who makes an economic and social policy on credit and leaves future generations rising government debts. The same applies if investment for the economic future are neglected and instead quicker and easier consumption moves in the foreground.

2. Quality of life

The concept of sustainability has a vital and simple core: Good quality of life for everyone, now and in the future. All are to take their lives into their own hands, learn, work, take

responsibility for oneself and others. And this is embedded in a network of social relations in a healthy and safe environment.

For the quality of life a healthy environment is essential. But quality of life comprises more. It includes health, personal development opportunities, satisfying work, decent housing, adequate income, social recognition. It also includes good schools, a livable and safe city with many cultural offers.

3. Social Cohesion

The following elements characterize the social dimension of sustainable development:

• prevention of poverty and social exclusion,

• the division of society into winners and losers prevent,

• involve all sections of the population in the economic and social development.

The challenge for the government is to provide sufficient training opportunities for new or modified activities. It must also provide efficient social security systems.

4. International Responsibility

Combining environment and development, was the promise of the 1992 Rio Conference on the developing countries. The combination of the two targets is internationally used as the basis for a worldwide strategy for sustainable development. For example, clean water and fertile soil are the base for many developing countries for their economic development. On the other hand, result in these countries is that poverty and lack of economic alternatives lead to overexploitation of soil.

Principle: Each generation must solve its own problems and should not burden the next generations. You must also make provision for foreseeable future problems. This applies to the conservation of natural resources, economic development, social cohesion and demographic change.

Sustainability management means better use of the institutions for control within the meaning of sustainable development. To have goals, is not enough. Sustainability must primarily be anchored organizationally so that it will prevail in politics and society.

Central resource for the path from theory to practice are the management rules of sustainability. In addition to the above principle, there are rules for individual areas of action. For the environment, the rule is that their resources may be used only to the extent as they grow or regenerate itself. Public budgets are committed to intergenerational justice. Poverty and social exclusion is to prevent.

2.2.3 Management rules:

• citizens, producers and consumers, business and trade unions, academia, churches and associations are key actors with the state in the sustainable development. They are expected to participate in the public dialogue about the model of sustainable development. They should be autonomously guided in their decisions and actions towards these goals.

• The companies are responsible for their production and their products. This includes providing information to consumers about health and environmental properties of the products as well as sustainable production methods. The consumer is responsible for the selection of the product and its socially and environmentally friendly use.

• Renewable natural resources (such as wood or fish stocks) may be used only in the context of their ability to regenerate over time. Non-renewable natural resources (such as minerals and fossil fuels) may be used in the long term only to the extent that their functions can be replaced by other materials or by other energy sources. The release of substances or energy cannot be greater than the adaptability of ecosystems in the long term: for example, the climate, forests and oceans.

Dangers and unacceptable risks to human health should be avoided.

• structural change triggered by technical developments and the international competition is to be made economically successful and built environmentally and socially in a responsible manner. To this end, the policy fields should be integrated so that economic growth, high employment, social cohesion and environmental protection go hand in hand.

• energy and resource consumption and transport services must be decoupled from economic growth. At the same time, it is desirable that the growth-related increase in the demand for energy resources and transport services will be more than compensated through efficiency gains.

• The public budgets have to take care of intergenerational equity. Federal, state and local governments should establish balanced budgets as soon as possible and continuously reduce the debt in a further step.

• A sustainable agriculture must be natural and environmentally friendly. It must comply with the requirements of an animal-friendly husbandry and preventative, particularly concerning health protection.

• To strengthen social cohesion, poverty and social exclusion have to be avoided as far as possible. All social classes opportunities are opened to participate in the economic development. All should participate in social and political life.

• The international framework must be designed so that people can lead a decent life on their own terms in all countries. They should share in the economic developments. Environment and

development form a unit. In an integrated approach the combat against poverty is to be linked with respect for human rights, including economic development, environmental protection and good governance.

2.2.4 Indicators and targets

Indicators show where we are on the path to sustainable development. Goals make the need for action clear and are important for a successful control.

Monitoring: Every four years, a progress report provides the status of sustainable development. It is to be supplemented by a two-yearly indicators report of the Federal Statistical Office, which sets out the development of sustainability indicators.

Regulatory Impact Assessment Sustainability: The - since the beginning of the 17th electoral term - compulsory sustainability examination is important for all legislative and regulatory proposals of the Federal Government. Because it contributes to extract political decisions in Germany from the structural terms of present time. It should be a path to greater intergenerational justice and a sustainable policy. With the monitoring of sustainability, the Federal Government make laws and draft regulations more transparent. Eventually it allows a priority consideration. The monitoring of sustainability is to provide a holistic political discourse in public.

2.2.5 Priority areas for action

Sustainable development cannot be imposed from above. But probably the state can support the reversal. For this, the Federal Government set in 2002 fields of action. These were reviewed with each progress report and supplemented. Last in the progress report from 2012.

2012 Progress Report

The 2012 Progress Report gave in the year of the sustainability conference of the United Nations in Rio its topics with a global reference: sustainable business practices, climate and energy, water policy.

• Climate and energy are key issues for sustainable development. Climate protection and adaptation to climate change is one of the greatest challenges facing humanity in the 21st century. A warming of more than 2 degrees Celsius above pre-industrial times would have serious consequences in its effects on human health and the environment. Therefore, the global greenhouse gas emissions must be reduced to 2050 from 1990 by at least 50 percent.

• In the context of decisions on energy policy of the future, the German Federal Government has reiterated its goal, to reduce greenhouse gas emissions in Germany in 2020 to 40 percent compared to 1990. By 2050, the energy concept aims to decrease it by 80 to 95 percent.

• Internationally, the federal government continues to argue for a worldwide applicable, binding climate agreement. This provides, based on a fair burden-sharing, verifiable commitments for all major emitters. In addition, this agreement shall prevent the relocation of production to countries without climate change. The Federal Government has thereby also the economic, security and development implications of climate change in mind.

• Sustainable water policy is of particular importance for clean water as an essential basis of life and one of our most important resources. In Germany the water has reached a high to very high standard. The high investments including in the waste water infrastructure and water restoration projects have brought significant improvements in water quality in Germany. However, the water pollution control remains an ongoing task.

• An aligned use at the idea of sustainability management of water shall secure water resources for future generations and preserve the ecological balance of the waters or restore it. Sustainable water policy is a cross-cutting issue; water political aspects must therefore be strengthened thought along in other policy areas.

2.2.6 Learning Control: The indicators

A successful management includes in particular the review of any development based on defined criteria and metrics. Therefore, the sustainability strategy contains 21 topics total of 38 indicators. The number of key indicators was deliberately kept small: rapidly with a few figures to give an overview of important developments. For a complete picture, it is important to look at the indicators not in isolation but in the entire system.

The indicators are linked with concrete and - where appropriate and possible - quantified targets. So that they are relevant for political action. An understanding of state and social actors about the path as well as the necessary measures is possible. The sustainability strategy involves balancing conflicting goals and to bring them as much as possible consistent with each other. For example, economic growth is compatible with climate protection goals if it is accompanied by efficiency improvements or structural changes.

In 2012 some indicators and associated targets were revised in the federal government. Decisive criteria were continuity and transparency. In this framework, individual some new objectives were included, for example long-term objectives with the perspective of 2050 in the energy / climate sector. Some indicators have been revised to increase inter alia their significance or to bring them in consistency with agreed objectives at EU level. To map the area of fiscal sustainability more intensively, two new sub-indicators were introduced.

The professionally independent analysis of the indicator development by the Federal Statistical Office in April 2013 shows a different picture. In the current indicators report "Sustainable

Development in Germany" (edition 2014) 38 indicators show the current status of sustainable development in the areas of environment, economy and society. The indicators report identifies the extent to which policy objectives are met. More than half of the indicators have performed well in recent years.

The employment rate has risen in the group of the most successful indicators. In continuation of the current development the target set for 2020 can be achieved. In the same group we now find two indicators for public debt (government deficit and a structural deficit), where the set limits are met. In the second best group, the indicator of all-day care of the 0 to 2-year-olds has been added among others because of its improved development.

But the indicator for resource productivity has been relegated to the third group, while for example the indicator of freight transport intensity rose in this group. In the worst group the indicator for the economic future provision - based on gross fixed capital formation to GDP ratio - and the indicator the share of rail in freight transport performance are slipped. Unchanged among the worst are the indicators for debt, biodiversity and landscape quality as well as the share of inland waterway transport in goods transport performance.

With the key indicators for sustainable development, the German Federal Government wants to show every two years: Where do we stand on the way to sustainable development? What progress has been achieved? Where there is need for further action?

2.2.7 Dialogue on sustainability

Sustainability is a guiding principle for the policy of the Federal Government. But not only the state and politics, each and every individual is required to work for this goal. Sustainable development cannot be imposed by the state. Only when all players in the economy and society and citizens make theme to their cause, sustainable development will succeed.

When companies invest, consumers consume, they help shape the future development as well as the state with its laws and programs. Therefore, the public discussion, cooperation with and between social actors is an essential element of the sustainability strategy of the federal government.

Sustainability lives of the public debate and the participation of all citizens - whether private, in the family or at work and in daily living together. This responsible behavior of those involved in everyday life is closely tied to the condition to be included and involved in the development of society. Participation is just very important also in view of the complexity and speed of social processes.

An essential component of continuing the strategy is therefore the discussion with experts and with the public. Accordingly, both vertices and the first drafts of the strategy were published,

or the progress reports on the Internet. The dialogue supplemented rounds of consultation with communities, business and trade unions, environmental and development organizations, agricultural and consumer associations, and science and churches.

When developing the strategy, the views and ideas of different social groups flow in the contents of the progress reports. Suggestions and proposals of citizens have to be taken into account. With this, the strategy is the first political program of a Federal Government, in which citizens have been actively contributed and continue to participate. In the Progress Report 2012 citizens have their say with their opinions of the dialogue on sustainability directly (reports to the citizen dialogues).

2.2.8 The Civil dialogue on the progress report 2012

The Comprehensive Dialogue on Sustainability was launched in autumn 2010. In the first phase, from September to November 2010, the federal government presented its proposals for the thematic focus of the new progress report for discussion: "sustainable management" and "water". The government also invited people to express their views on other issues of sustainability policy.

In a second phase of dialogue from June to September 2011, the draft of the federal government could be discussed for the 2012 Progress Report. Many citizens have participated in the dialogue. Since August 2010, the site was visited by over 72,000 users. About 386,000 individual page views were recorded (page impressions). The participants gave a total of over 1,600 submissions and comments in both phases. In addition, there were a total of 2,100 positive or negative reviews.

About 95 percent of the contributions were received online. Above all institutions chose the path of postal mailings of their comments. In a dialogue session at the Federal Chancellery in September 2011, associations and organizations were also able to express on the progress report. In October 2011, they took position on the draft of the new center of gravity chapter "Climate and Energy". In all partly also clearly expressed criticism in detail, many comments were nevertheless supportive or called for a further strengthening of the idea of sustainability in and through the strategy.

2.2.9 Progress in sustainability

On 15 February 2012, the Federal Government adopted the latest progress report on the National Sustainability Strategy. Sustainability has become a guiding principle of human action in all sectors of society in importance. This is reflected in the indicators as in the political structures.

In order to objectively check where Germany is, when it comes to sustainability, the German Federal Government goes back to a set of indicators. For each of these 38 indicators from the guide sectors "quality of life", "intergenerational justice", "social cohesion" and "international responsibility", the government has formulated a specific goal to be achieved. The calculation of values where Germany is, does the Federal Statistical Office.

For 2012, we can confirm success for Germany in 19 of 38 sustainability indicators; for example, in the reduction of greenhouse gases or the expansion of renewable energies. There were positive developments about in climate protection, renewable energy, economic performance, the entry rate of students as well as the employment rate of older workers. Success in the other indicators are not yet satisfactory or have yet to come.

The Federal Government promotes sustainable business. Sustainable management is increasingly becoming a trademark. Because for the economy a higher energy and resource efficiency is both economically and ecologically profitable. This includes supporting and promoting the concept of "Corporate Social Responsibility" (CSR). It connects intrinsically responsible corporate behavior with the voluntary and additional perception of social responsibility. The federal government supports, among other

• small and medium-sized companies in CSR activities,

• brings together information on CSR,

• raise public awareness of the issue,

• developed a concept of "CSR - Made in Germany",

• integrated CSR into education, training, science and research and

• strengthens CSR internationally and in developmental contexts.

2.2.10 Sustainability for the financial sector

The financial and economic crisis has resulted in mind how important it is in financial policies that decisions take especially in the long term. A business as usual cannot exist so far. Therefore, the federal government wanted to mark milestones with their consolidation and growth: A structurally balanced federal budget in 2014, the black 2015 and surpluses from the 2016th.

2.2.11 An energy concept of sustainability

With the new energy concept, the government tried to describe as early as 2010 the way into the age of renewable energy. 2011 Federal Government, the Parliament and the Upper House decided another comprehensive package of measures. Because the experience of the nuclear accident at Fukushima has taught that an even faster conversion is better.

2011 the federal government confirmed the reduction targets for greenhouse gas: they should be decreased in 2020 to 40 percent, by 2030 to 55 percent, till 2040 by 70 percent, and till 2050 by 80 to 95 percent - compared to 1990. The government wants to expand its renewable energy into a pillar of energy supply. Parallel, the primary energy consumption shall go back till 2050 by 50 percent compared to 2008. The power consumption is expected to decline by 25 percent; 2020 already 10 percent. At the same time the renovation rate for buildings is currently being approximately doubled annually to two percent of the total building stock. And in transport the energy consumption – but compared to 2005 – shall decrease by approximately 40 percent.

The expansion of facilities for wind, solar or biomass energy Germany has taken a big step in the federal government's view. More than 20 percent of current production comes from systems of renewable energies. Decisive this success is due to the Renewable Energy Sources Act (EEG), which provides fixed rates for the producers of green electricity. The security of investment achieved in this way sparked a dynamic growth in many areas of renewable energy. Energy efficiency is another key to economic rationality to achieve a high proportion of renewable energy and objectives as defined in the energy concept. Again, there is ample potential of saving energy and electricity. The federal government relies on the responsibility of businesses and consumers.

In Germany the electricity is still relatively close to the centers of consumption. In future, it will be more decentralized - whereas the wind blows or an previously untapped conversion area is used for solar power generation. In order to feed this electricity to the grid, a modern and efficient electricity grid is required. Mainly because of the significant investment in infrastructure, the conversion of energy supply businesses and consumers is confronted with great challenges. Goal of the Federal Government it is that Germany, while maintaining competitive energy prices, reliable energy supply and a high level of prosperity remains one of the most sustainable and energy-efficient economies in the world.

3. European Strategy for Sustainable Development and Eurostat report

To illustrate that at European level the results by Eurostat concerning "Sustainable development - consumption and production" will be used from 2013. These are based on the indicators of the European Union – about them unity was established via the agreement for monitoring the strategy of sustainable development. They form together with similar indicators for other areas the report "Sustainable development in the European Union - 2013 monitoring report of the EU sustainable development strategy". This report is compiled by Eurostat every two years to an objective statistical picture of progress admit that is reached with regard to the

aims and objects as they are set by the European sustainable strategy: „To that end it promotes a dynamic economy with full employment and a high level of education, health protection, social and territorial cohesion and environmental protection in a peaceful and secure world, respecting cultural diversity." This Eurostat report is in turn the base for the corresponding report of the European Commission on the implementation of its strategy. This is based on the "Review of the EU Sustainable Development Strategy (EU SDS) - Renewed Strategy of 9 June 2006 the Council of Europe, which in turn is based on the draft of the European 2001 strategy. This has among other things use to be made of the EU SDS and the Lisbon strategy for growth and creation of jobs. The overarching goal, however, is to limit climate change and its costs and negative effects on society and the environment. And other objectives include the promotion of sustainable production and sustainable consumption. There are certain operational items and objectives:

3.1. Operational objectives and targets

Promoting sustainable consumption and production by addressing social and economic development within the carrying capacity of ecosystems and decoupling economic growth from environmental degradation.

Improving the environmental and social performance for products and processes and encouraging their uptake by business and consumers.

Aiming to achieve by 2010 an EU average level of Green Public Procurement (GPP) equal to that currently achieved by the best performing Member States.

The EU should seek to increase its global market share in the field of environmental technologies and eco-innovations.

These again lead to defined actions. These actions should include:

- The Commission and Member States will explore specific actions to bring about more sustainable consumption and production patterns at EU and global level, in particular through the UN Marrakech Process and the Commission for Sustainable Development. In this context the Commission will propose an EU Sustainable Consumption and production Action plan by 2007, which should help to identify and overcome barriers for SCP and to ensure better coherence between the different related policy areas and to raise awareness among citizens and change unsustainable consumption habits.

- The Commission and the Member States should engage in a dialogue with business and

- relevant stakeholders aiming at setting environmental and social performance targets for products and processes.

- The Commission and Member States will develop a structured process to share best practice and expertise on GPP taking into account the potential to promote GPP at local and regional levels. The Commission will facilitate regular EU - wide benchmarking of GPP performance, according to an assessment methodology based on agreed and objective parameters, and examine with Member States how best to promote GPP for other major product groups by 2007.

- The Commission and Member States will step up efforts to promote and disseminate social and eco - innovations and environmental technologies, inter alia through effective implementation of the Environmental Technologies Action Plan (ETAP) by all actors concerned in order to create new economic opportunities and new markets.

- The Commission will propose extending performance labelling schemes from electrical appliances and cars to other groups of environmentally harmful products including products with high environmental impacts.

- Member States should support information campaigns with retailers and other organisations to promote sustainable products inter alia products that stem from organic farming and fair trade as well as environmentally sound products.

Thus, a large area is circumscribed, in which the EU sees its range of activity for the next few years to decades. The respective Eurostat reports fulfil the function of the two-year monitoring, ie the control of progress in the sustainable development of production and consumption sector. Firstly, there is an overview of the main changes to the last level of two years ago. This is followed by the main statistical results, which are divided according to resource consumption and waste and consumption patterns. In resource consumption and waste are the breakdowns of domestic material consumption, non-mineralogical waste, hazardous waste, recycled and composted municipal waste and finally emissions into the atmosphere. Consumption patterns are distinguished by the number of households, household spending, their electricity consumption, the total energy consumption, the number of cars, environmental management systems, ecolabels, the area under agricultural environmental exposures, organic farming and the index for the density of livestock.

It is interesting to see what changes have actually occurred in consumption and production between 2000 and 2007. There are highly unfavorable and also very advantageous developments. Thus, the consumption of material and electricity is still growing as well as to

hazardous waste. On the other hand, the total energy consumption and the amount of non-mineral waste in the EU have declined. And the proportion of waste recycled or composted has increased. In addition, there has been a substantial reduction in emissions / air pollution. Progress was also made in connection with production patterns with regard to the environmental dimension of CSR by companies and environmentally friendly agricultural practices:

Resource productivity: Despite an increasing trend in resource productivity (measured as GDP divided by domestic material consumption) in the EU between 2000 and 2007, resource use has been growing.

Domestic material consumption: Domestic material consumption per capita in the EU increased between 2000 and 2007. This unfavourable development was driven by increases in domestic extraction and imports stemming from a growing demand for minerals.

Non-mineral waste: Between 2004 and 2008 the amount of non-mineral waste per capita generated in EU decreased considerably.

Hazardous waste: Between 2004 and 2008 the amount of hazardous waste generated per capita in the EU rose considerably.

Recycled and composted municipal waste: The share of recycled and composted municipal waste increased considerably between 2000 and 2009 in the EU. Waste incineration also rose, but waste disposal through landfill declined substantially.

Atmospheric emissions: Between 2000 and 2008 emissions of air pollutants contributing to acidification, eutrophication and ground-level ozone fell considerably.

Consumption patterns: Number of people in households: During the period from 2005 to 2009 the average number of people per household decreased slightly in the EU, reflecting a trend towards more but smaller households.

Household expenditure: Between 2000 and 2007 household expenditure in the EU increased continuously, in particular for entertainment and housing and utilities. Due to the economic crisis household saving rates increased sharply, leading to a drop in expenditures from 2007 to 2009.

Electricity consumption of households: Between 2000 and 2009 electricity consumption by households increased considerably in the EU.

Final energy consumption: Between 2000 and 2009 final energy consumption decreased very moderately. It increased significantly between 2000 and 2004, then changes were limited until 2008 and finally a significant drop occurred in 2009.

Car ownership: Between 2000 and 2009 the number of passenger cars per 1 000 inhabitants in the EU increased significantly. The highest increases were documented in Eastern Europe and in the Baltic region.

Environmental management systems: Between 2003 and 2010, the number of organisations in the EU certified according to the Eco-Management and Audit Scheme increased substantially, mainly due to high growth rates in Southern European countries.

Ecolabels: Between 2000 and 2010 the number of ecolabel licenses in the EU was multiplied by a factor of more than 20.

Area under agri-environmental commitment: In 2009, almost one-quarter of the EU's total utilised agricultural area was enrolled in agri-environmental measures.

Organic farming: Between 2005 and 2009 the share of agricultural area occupied by organic farming in the EU increased considerably

Livestock density index: Between 2003 and 2007 the number of livestock units per hectare of utilised agricultural area decreased considerably in the EU.

These statistics should actually - after the above remarks on the broad concept of sustainability- be in the context belonging to a plethora of other objectives that go far beyond the realm of production and consumption and are not covered here. This includes, for example, quality of life, which is, however, extremely difficult to quantify.

4. Conclusion

Environmental ethics is a very broad topic and refers in the context of sustainability considerations for example to the permanent human survival on earth and issues such as intergenerational equity. Despite its diversity, sustainability is always still in the stage of development. This can be seen in the differentiation of its contents, and also in the development of the concept of sustainability itself.

There are basically two approaches which have to be distinguished:

1. the optimistic view of "weak" sustainability, by which for almost all functions of natural capital replacement by other types of capital should be possible. This replacement or substitution processes should be permitted if the existing capital will be wholly preserved in this way;

2. the "pessimistic" or „strong" sustainability approach critizises such substitutability and does not see it as given. This concept of "strong" sustainability argues that intergenerational justice requires that "the stocks of different types of capital remain independent of each other in biological or physical standards". This is especially true for natural capital.

The more plausible concept of strong sustainability has developed three management rules for practical implementation as a guide to action that will improve the natural capital stock permanently. These management rules are both macro and micro applicable as well as at the political and social level. These management rules are that the degradation rate for renewable natural resources should not exceed their regeneration rate; that substances into an environment can be controlled permitted only to the extent that they correspond to its assimilation ability and can cause any danger of its functions (critical loads, critical levels) and that because of the second law of thermodynamics, the entropy law, any use of non-renewable resources reduces, in the final analysis, the available stock. This means altogether: „Non-renewable resources should be used only in the extent to which a physically and functionally equivalent replacement is assured in the form of renewable resources or a higher productivity of natural resources in their use."

The question arises how this demanding concept will be transformed into practise. Therefore, on the national level of Germany the „national sustainability strategy" as the most important strategy has been developed among others. The German sustainability strategy was adopted in 2002. Since it determines the course for sustainable development in Germany. It bears the title "Perspectives for Germany" and includes specific tasks and objectives. The guidelines direct the way, the direction in which Germany must move in order to become more sustainable. They cover the spectrum of "intergenerational justice - Quality of life - social cohesion and international responsibility".

But to transform this spectrum into reality also some management rules are necessary. These are the indicators and targets. Indicators show where we are on the path to sustainable development. Goals make the need for action clear and are important for a successful control. A successful management includes in particular the review of development based on defined criteria and metrics. Therefore, the sustainability strategy contains 21 topics total of 38 indicators. The number of key indicators was deliberately kept small: rapidly with a few figures to give an overview of important developments. For a complete picture, it is important to look at the indicators not in isolation but in the entire system.

The indicators are linked with concrete and - where appropriate and possible - quantified targets. Thus that they are relevant for political action. The sustainability strategy involves balancing conflicting goals and to bring as much as possible consistent with each other. For example, economic growth is compatible with climate protection goals if it is accompanied by efficiency improvements or structural changes.

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In 2012 the federal government revised some indicators and associated targets. Decisive criteria were continuity and transparency. In this framework, individual inclusion of new objectives was created, including long-term objectives with the perspective of 2050 in the energy / climate. Some indicators have been revised to increase inter alia to their significance or to bring them with agreed at EU level objectives. To map the area of fiscal sustainability more, also two new sub-indicators were introduced.

Another new instrument is the reporting system and the dialog for sustainability. Sustainability is a guiding principle for the policy of the Federal Government. But not only the state and politics, each and every individual is required to work for this goal. Sustainable development cannot be imposed by the state. Only when all players in the economy and society and citizens make the theme to their cause, sustainable development will succeed.

The Comprehensive Dialogue on Sustainability was launched in autumn 2010. In the first phase, from September to November 2010, the federal government presented its proposals for the thematic focus of the new progress report for discussion: "sustainable management" and "water". In a second phase of dialogue from June to September 2011, the draft of the federal government could be discussed for the 2012 Progress Report.

On 15 February 2012, the Federal Government adopted the latest progress report on the National Sustainability Strategy. Sustainability has become a guiding principle of human action in all sectors of society in importance. This is reflected in the indicators as in the political structures.

Finally, the critical question arises whether the above-mentioned objectives of sustainable resource use have been achieved so far in any direction. This can be relatively "easy" measured by the two criteria, whether

1.   the "ecological footprint" has been reduced and whether

2.   for each person quality of life has increased. Thus, in 2012 on August 22, the entire stock of natural resources has been consumed, which has been produced on Earth throughout 2012. This means that from that date the generated amounts of waste and emissions could not be absorbed (so called Earth Overshoot Day). This date occurs every year a little earlier. "After four decades of Planet Earth Politics controls the planet still steers to the collapse the Club of Rome predicted for the middle of the 21st century."

Also, to improve the quality of life as a promise of the good life for all, it has not become better. Apart from the increase in the quantitative growth (gross domestic product) and the associated accumulation of goods, no reliable quality of life for everyone is generally considered obviously occurred, as it is the goal of a sustainable lifestyle and economy. For this argument

the well-known studies of the WHO and the FAO from all the past years and decades can be used as evidence. This critical interim conclusion nevertheless should not devalue the variety of measures, which were part of the policy at local, regional, national and international level, or of companies and have been since enforced; nor the measures in consumptive area. On the contrary: Without it, the sustainability balance sheet would look absolutely devastating.

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