1. SuWaRest, the "Third Culture" and environmental ethics

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1.1 Introduction on epistemology

The "Sustainable water management and wetland restoration in settlements of continental arid Central Asia" (SuWaRest) project has been a so-called "Mode-II" project in transdisciplinary environmental science. While "Mode-I" projects perform normal disciplinary science, Mode-II projects transgress the boundaries between the natural sciences, technological disciplines and humanities – spanning from cultural studies to economics and even to ethics. Mode-II projects have found some attention in the epistemology of sustainability science (Ziegler & Ott 2011). Given the famous distinction of the "two cultures" of natural sciences on the one hand and humanities on the other (Snow 1959, 1990), Mode-II projects are constitutive of a third epistemic culture that tries to combine the empirical rigor (as in biochemical data mining, Chapter 4 and 5) and technological outcomes of the sciences (as in combustion research, Chapter 7) with economic cost-benefit analysis (as in our studies on reed utilisation, Chapter 8) and with the conceptual and reflexive competencies of the humanities (as in scenario writing, Chapter 10). Therefore, SuWaRest has been a paradigm case of such still emerging "third culture" of transdisciplinary environmental research. As editors and authors hope for, this book illustrates the spirit of such third culture. This chapter presents an argument, why and how this third culture should be grounded in ethics. This argument had been outlined years ago with respect to ecological science within the book, *Ipso Facto*, Ch. 8. (Ott 1997). The experience of the SuWaRest project made me even more convinced that this type of argument holds for the "third culture" in general. The context of

discovery of this argument was SuWaRest, but its context of application and justification transcends SuWaRest by far.

With respect to empirical findings ("data") and causal explanations ("natural laws"), natural sciences are value-free. Such findings and explanations should not be biased by the many values scientists may be committed to as moral persons. In any case, science should not be submitted to standards of political correctness. This meaning of science as being value-free intrinsically belongs to the general ethos of science (Ott 1997, Ch. 3 & 5). This meaning, however, does not imply that the overall enterprise of doing science and performing human studies within different epistemic disciplines should be completely devoid of ethics. Some highly general principles are underlying the very practice of epistemic disciplines. In philosophy, types of epistemic knowledge have been connected to some general interests that motivate epistemic research. Jürgen Habermas, for instance, has argued in the line of Max Scheler that different epistemic disciplines serve some practical interest of knowledge, written in German as "Erkenntnisinteresse" (Habermas 1965). Very broadly, the interest of knowledge in the natural sciences is, for example, about taxonomy, explanation, technological control and utilisation of nature as being conceived as "neutral objectivity". The interest of knowledge within the humanities is about orientation within a highly complex social order that is shaped by many cultural, religious and aesthetic traditions and by institutional regulations (e.g. law and economics). The humanities both broaden and deepen the sense for the varieties of human cultures and how the many different modes of being human have been realised throughout history (as in "older civilisations" as in China and Europe). According to Habermas, there are also some other "critical" disciplines (as psychoanalysis, social philosophy and ethics) which serve an interest in individual and political liberation since they bring about a general critical and reflexive attitude towards conventions, ideologies and doctrines which may repress and dominate people. Control over nature, orientation in culture and liberation from ideologies and illusions are general practical human interests, which are served by different epistemic cultures. If so, sciences and humanities are oriented both at (1) propositional and

theoretical truth and (2) modes of practice by which human life is organised. Dealing with nature is one basic mode of practice.

If one credits the idea that epistemic disciplines are rooted in such general practical interests of knowledge and if one contributes by one's own research to transdisciplinary environmental research ("third culture"), as our group did in the SuWaRest project, one might, on epistemological reflection, ask which specific kind of interests might be implied in such third culture. What kind of practical interest, if any, might be constitutive to the many research programs in the field of climate change, forestry, agriculture, biodiversity, fisheries, conservation biology, restoration ecology and freshwater allocation. According to Habermas' original conception, all these disciplines must be primarily oriented at technological control and domination over nature. However, this conception is too narrow and it does not fit well within environmental disciplines.

Many researchers involved in this new epistemic culture orient themselves at some broad motives to protect, preserve and even restore parts of nature in the face of over-utilisation, pollution, depletion, degradation and the like. Such protective and restorative motives cannot be simply subsumed under Habermas' triadic structure but require another genuine practical interest of knowledge, which cannot be reduced to technological control over nature. Since environmental disciplines emerged since the 1970s, the original conception of "Erkenntnis und Interesse" must be broadened. There is no argument given by Habermas that there are exactly three practical interests of knowledge irrespectively how epistemic cultures may develop.

Given this argument so far, the general interest of knowledge that underlies transdisciplinary environmental research can, in principle, be combined with ideas, leitmotifs and visions in contemporary environmentalism. Given the spectrum of such ideas ("ecological integrity", "flourishing of life", "healing and saving the Earth", "making peace with nature", "overcoming anthropocentrism", "anthropocene with a human face" and the like) it seems prudent within a scientifically shaped culture to adopt the rather modest idea of sustainability which also has some foothold in global environmental

policy-making, even if as lip-service only. If the third culture of environmental sciences is to be grounded in some practical interest of knowledge, and if researches in the field are often motivated by protective objectives, and if there is a spectrum of environmental ideas and vision, and if one favours moral parsimony within the ethics of science, the idea of sustainability shows up as an attractive idea for grounding the third culture ethically.

Such grounding of environmental sciences as "third culture" does not impair the methods and standards of sound science that remain intact. Neither does it impair the freedom of research. The adoption of such underlying interest in sustainability does neither change scientific methods and standards nor does the rejection of such underlying ideas improve one's scientific research with respect to truth. It rather orients scientists on a higher layer of reflection.[1] If so, there is a pathway of ethical reflection that originates from the practice of transdisciplinary environmental research and ultimately immerses into the sources of ethics that are constitutive to the idea of sustainability. The idea of sustainability is clearly an ethical one. Its moral sources stem both from a theory of inter- and intragenerational justice and the overall discourse in environmental ethics (Ott & Döring 2008; Ott 2014). The specific concepts of the general idea of sustainability (weak, intermediate and strong sustainability, see final section of Chapter 10) ultimately depend on these sources.

Given the argument so far, there is an intrinsic logic of reflection starting from the performance of transdisciplinary environmental research, as within the SuWaRest project, and ending in the moral sources within the idea of sustainability. This reflective logic is inescapable from a philosophical perspective even if scientists may, for whatever reasons, prefer to abstract it away from their research. Since most scientists are trained to shy away from

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1   Such grounding is critical against environmental science as it is restricted to mere data mining, which is, perfectly "objective" but disconnected to any meaningful practical purpose. Such "data positivism" is widespread in the Chinese environmental scientific community.

ethics, they often feel unfamiliar with and uncomfortable in theses ethical realms and prefer to get rid of them by abstracting them away. This escape route of abstraction always remains open to scientists. The SuWaRest project, however, might serve as an example that environmental research may succeed scientifically without abstracting away ethical ideas. In the following chapter, only one out of two moral sources of sustainability will be outlined, namely environmental ethics. The topic of intergenerational justice has been addressed recently elsewhere (Ott 2014).

1.2 Environmental ethics

No concept of nature should contradict scientific insights, but any concept should be open for different cultural interpretations of nature. Values and norms cannot logically be deduced from nature as nature is conceived scientifically as value-free objectivity, because from a given set of empirical-descriptive statements, it cannot be deduced what should be done. This would be a so-called naturalistic fallacy. The third culture is grounded in ethics but such grounding does not rest on such fallacy. The argument being presented in this chapter does not derive values or rules from nature itself but it grounds them as presuppositions being implied in the epistemic practices of the third culture. Therefore, the argument belongs to a type of "transcendental-pragmatic" arguments which explicate the underlying normative presuppositions of one's own practical performance (Ott 1997).

Environmental ethics assumes that the "objective" truths of the natural sciences do not contain everything that can reasonably be said about nature. Roughly speaking, the sciences deal with nature "per se", i.e. with an objectified nature which presents itself in the same way to every neutral observer concerning its characteristics and its causal structures, while environmental ethics deals with nature "for us", i.e. with all the ways in which nature seems important, meaningful, valuable and engaging to humans. Environmental scientists should agree that nature is meaningful to many humans in extra-scientific but reasonable ways. If so, scientists within the third culture have to distinguish between two perspectives on nature. As scientists, they face nature as objectivity. As members of the third culture,

they face natural sites (e.g. mires and peat lands, rivers and lakes, forests and coastlines) as units that are modified by human action in many respects and can be valued and designed in different ways. Both perspectives should not be confused but should complement each other. If so, members of the "third culture" always have to perceive nature both from an "objective" scientific perspective and from a "value laden" sustainability perspective. Such two-fold perspective does neither diminish nor distort the scientific perspective but augments and enriches it. If so, the concept of nature in environmental sciences must be a dialectical one.[2]

Environmental ethics generally asks for the reasons that should determine our individual and collective actions in dealing with non-human nature and the standards (i.e. values and norms) which are derived from these reasons. It also asks how these standards could be implemented. Therefore, environmental ethics has a theoretical and practical dimension. This chapter only deals with the theoretical dimension. In this dimension, environmental ethics asks for reasonable justifications for environmental, animal and nature conservation. Terminologically, "nature conservation" is used as an umbrella term that includes environmental conservation (e.g. water, soil, air, waste, noise, etc.), animal conservation and nature conservation *sensu strictu* (e.g. species conservation, habitat conservation, wilderness conservation, etc.). The theoretical dimension of environmental ethics is compatible with any modern conception of doing science (Ott 1997, Ch. 8). Since arguing is common to all scientific disciplines, scientists in general and members of the third culture in particular should have no principled aversion against environmental ethical reasoning.

Accordingly, the core business of environmental ethics can be understood as *critical analytics of the environmental ethical sphere of argumentation* (SA), including the presuppositions invested therein and the practical (i.e. political, legal and economic) consequences resulting thereof. Members of the third culture are invited to take an interest in this SA as such but, of

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2   In this respect, it seems possible to read Hegel's often misunderstood philosophy of nature.

course, they are not committed to any substantial argument within SA. Any substantial argument is open for debate and the concept of sustainability has to be modified according to these debates. The interest in the SA results from the matter of fact that the idea of sustainability is to be warranted by SA. One may imagine the constitution of the sphere of argumentation in such a way that first of all, an empty field of possible environmental claims is opened into which reasonable answers to the basic question of *why* environmental media, living beings and certain components of nature (e.g. species, ecosystems, landscapes, etc.) *should* be conserved (i.e. protected, preserved, restored or cared for), can be entered. Intuitively acceptable answers ("conserve nature *N* because of reason *R*") are entered into the field of claims and can thus be tested against sceptical refusals. Insofar, environmental ethics takes up the intuitions, aims and corresponding speech acts of environmentalists and nature conservationists and tests them with regard to whether and, if so, how they can be transformed into sound reasons. Since members of the third culture often perform "protective" speech acts (as in the SuWaRest project: "save the Wuliangsuhai as lake", "restore the Tugai forest", "reduce pollution of the Heihe River" and the like) they are implicitly dealing with such reasons. Therefore, in the SA all known patterns of argument that "speak" in favour of nature conservation are assembled. This assembly of reasons is constitutive to environmental discourse and, as such, inescapable to any persons which participates in such discourse. Since this discourse is present within the third culture, this holds true for its members. Dialectically spoken, members of the third cultures are both invited and committed to SA. The patterns of argument that constitute the "texture" of environmental ethics can be arranged in different ways. In a classification that is oriented by the anthropocentrism vs. physiocentrism debate ("demarcation problem"), SA can be represented as shown in Table 1.

SA assembles the discourse of environmental ethics and related disciplines in a compact terminological form, which is open for any fine-grained analysis of single arguments. The bias of SA towards conservation corrects itself by presenting the reasons to sceptical persons for inspection and through the fact that all arguments can and should be critically reflected. A

note on religious arguments seems appropriate at this point. Religious arguments constitute a vast array of reasoning that are based on narratives, Holy Scriptures, prayers and proverbs and spiritual practices of worshipping. Whether such "reasons" are incompatible with science, would need more elaboration than this chapter allows for. This also holds for "deep ecology" arguments. All other arguments are compatible with science since there is no scientific argument why scientists should not adopt a general attitude of reverence for life or should not feel mercy with sentient beings.

Table 1 – Sphere of argumentation of environmental ethics, adopted from Ott (2010).

A. Anthropocentric arguments

1. Dependence arguments ("livelihood", "basic needs")
2. Biophilia hypothesis
3. Health and well-being arguments ("anti-pollution" arguments)
4. Natural aesthetical arguments ("beauty", "sublime", "auratic" nature)
5. *Heimat* arguments ("Ethics of Place") ("feeling at home")
6. "Transformative value" argument ("virtuous character traits")
7. Difference argument ("civilisation should be escapable")
8. "Human-right-to-nature" argument ("right to a decent environment")
9. Obligations towards future generations with reference to 1-8. ("intergenerational responsibility with respect to all welfare effects of nature")

B. Physiocentric arguments

10. Sentientist arguments ("caring or sentient creatures")
11. Biocentric arguments ("reverence for life")
12. Ecocentric arguments ("land as biotic community that includes humans")
13. Holistic arguments ("universal consideration")
14. "Deep ecology" arguments ("nature as creative and projective force", "widening identification with nature")

C. Religious arguments ("creation", "Dao", "sacred sites" and the like)

The basic question "*Why preserve nature?*", can be answered firstly, because humans and their descendants are and (most likely) will be dependent on

the ongoing utilisation of nature as resource, reservoir, sink and medium, and secondly, because certain states of nature bring about joy, pleasure, well-being, peace, delight, etc. (i.e. *Naturgenuss* as stated by Alexander von Humboldt in the 19th Century writings of *Kosmos*). Humans are not only reliant upon nature as resource but they are benefitted by the many cultural and eudemic (from "eudaimonia" which means "flourishing life" in Aristotelian ethics) values within nature. Many humans also have a morally shaped interest in the continued existence of whales, tigers, coral reefs, primary forests, etc. on this planet. Concerning such interests, economists speak of existence values. Utilisation of resources and pleasure and delight in nature can be summarised under a broad conception of human welfare. It is beyond doubt that nature contributes to human welfare in many respects.[3]

A third answer to the question for justification, starts from the intuition that nature conservation might be morally required (i.e. imposed on all persons as an understandable obligation irrespective of their cultural values, lifestyles and individual preferences) not because of its contribution to human welfare but for the sake of nature itself or for the inherent moral value of certain natural beings. Such arguments are referred to as physiocentric; arguments that address the first two answers to the initial question are referred to as anthropocentric. Therefore, conceptions of environmental ethics deal with nature as a resource, nature as a source of pleasure and nature as an ensemble of beings that might have inherent moral value. Physiocentric arguments agree that natural beings have inherent moral value, but disagree on the scope of such entities. After decades of debate, the mainstream-solution is sentientism (Krebs 1999; Ott 2008). To sentientism, all sentient beings count morally as such. Whether moral respect to sentient beings might (not) be graded and might be applied to domesticated and wild-living sentient beings, is beyond the scope of this chapter. In any case,

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3   The ecosystem services approach is a way of how to order welfare effects. Studies that exploit the ecosystem services approach have come to the conclusion that cultural values of nature contribute far more to social welfare than conventional economic wisdom has made us believe (Jax et al. 2013).

adoption of sentientism implies to include animal welfare in the concept of sustainability. Thus, birdlife at Wuliangsuhai would count not only with respect to the delight bird watching brings about. Delight in bird watching and the inherent moral value of birds constitute both the moral significance of birdlife.

SA as such contains neither criteria for the solution of conflicts in nature conservation nor a casuistry for evaluating special cases in detail (as in Wuliangsuhai and the Heihe River Basin). Both are topics of single projects within environmental disciplines, which touch real-world conditions at specific study sites. Furthermore, it does not contain a certain conception of what it might mean to "weigh" issues of nature conservation with other issues, as economic and societal ones (e.g. urbanisation, meat production, energy consumption and tourism). SA rather makes all persons, including policy-makers and members of the third culture more aware about the many conflicts that occur if reasoning about nature's values is taken seriously. In the first instance, environmental ethics multiplies conflicts. The questions of "good" conflict solving, "careful" consideration and "appropriate" assess-ment of individual cases presuppose a thorough examination of the SA because otherwise, the conventional thought patterns remain dominant and concerns of nature conservation may be "weighed away", as it is all too often the case. Members of the third culture often are in the middle of such conflicts. The ethos of the third culture might require them to take the role of environmentally concerned scientists and, as such, to advocate long-term human and even nature's interests and to look for feasible and viable strategies for adaptive management and for a transformation towards sustainability. Such advocacy is always in tension with principles of presumptive neutrality and with the commitment not to interfere with governmental affairs of foreign countries in which research often will be been performed (as in SuWaRest). In domestic affairs, members of third cultures can provide recommendations of how to act to policy-makers; in foreign countries, they may restrict themselves to provide scenarios (see Chapter 10). Thus, advocacy for sustainability must be tempered by prudence and politeness.

1.3   The concept of sustainability

So far, members of the third culture are committed only to the very idea of sustainability but not to any specific concept. From sustainability discourse, however, they may recognise that there are competing concepts of sustainability. Members of the third culture are also committed to the overall discourse in environmental ethics but not to any single substantial argument. They might recognise some broad and general insights that have resulted from some decades of debate, as (1) the many welfare effects of nature and (2) the mainstream solution with respect to the demarcation problem (i.e. sentientism) but they remain free to challenge and question any argument. If members of the third culture agree up to this point, they should take an interest in both SA and the contest between different concepts of sustainability. We turn now to such concepts of sustainability.

In its core, the idea of sustainability has been conceived rather anthropocentrically. Nature is taken fully into account as a source of welfare, joy and meaning and it is assumed that members of future generations will, with high likeliness, also be benefitted by the many values within nature. All items and sites of nature, which bring about welfare effects or so-called ecosystem services fall under the term "natural capital". To the SuWaRest project, Heihe River, Tugai forests and Wuliangsuhai Lake they have been perceived as critical natural capital of Inner Mongolia. The critical question against such value-based perception is grounded in the possibility to replace and substitute natural capital by artificial capital, by technologies, and by commodities that benefit humans. Since many economists are familiar with substitution processes in both production and consumption they might not deny welfare effects of natural capitals but might cast doubts on claims that these welfare effects outweigh other kinds of welfare effects, as monetary income. Since environmental economics is part of the third culture, casting such doubts is perfectly legitimate and must be addressed. SuWaRest, for instance, faced the problem whether agriculture production at Heihe middle-stream and in Hetao Irrigation District outweighs the benefits of Tugai forest and Wuliangsuhai Lake. Clearly, humans can conform and cope with many artificial environments and one cannot predict with certainty how deeply

different cultures may feel the loss of natural goods, as, for instance, with the Tugai forests in the Ejina region or Wuliangsuhai Lake within the League of the Bayannur. Perhaps, most Chinese people feel comfortable with cheap food, skyscrapers, shopping malls and other items of urban life. If so, substitution of nature is always an option to any advanced society. One scenario, as being presented in Chapter 10, substitutes the Wuliangsuhai Lake by a wetland that is designed for "sustainable" reed production. In principle, the psychological welfare effects of a water-consuming space-flight station as being located at midstream of the Heihe River Basin to many Chinese people may outweigh the existence value of Tugai forests at its downstream. Therefore, serious economic topics like substitutability of welfare effects show up within the third culture. Scholarly persons can elucidate on them but, ultimately, it must be decided by politic affairs. Members of the third culture can point at such loss of nature but must leave the decision to stakeholders and policy-makers, hoping for comprehensive environmental deliberation on such matters.

Generally, citizens of different societies must specify the basic question "*What to sustain?*" with respect to different types of capital (i.e. human made capital, human capital and natural capital). They should not leave the answer to market forces since real markets function in ways that privilege commodities over collective goods. Any answer on this basic question that refers to a fair bequest package will rest on assumptions that are contested within the ongoing theoretical debate on "weak", "intermediate" and "strong" sustainability, such as substitution, technological progress, discounting and compensation. Very weak sustainability is about growth of gross domestic product, weak sustainability permits substitution of natural capital if the overall genuine savings of a society are positive, intermediate sustainability requires to preserve all natural capital which is "critical" in some respect to be defined, strong sustainability is committed to hold natural capital at least constant and, finally, very strong sustainability adds animal welfare to the picture because sentientism is adopted from SA. For the sake of my overall argument, I do not wish to commit all members of the "third culture" to a specific solution of the inherent-moral-value-problem

(i.e. a "demarcation problem"). It might be sufficient to make scientists aware of the very problem that plays a role in any Mode-II project in which wildlife and animal farming plays a role.

This ongoing debate on concepts of sustainability constitutes a vast array of claims, arguments, refutations, scientific evidence, models and the like. Given discursive freedom, different societies may reach different conclusions about the amount of natural capital that should be preserved, about criticality of natural capital, about the contribution of ecological services to societal welfare, about the rate of discount and about the degree of substitutability between different types of capital. In the first instance, any decent society is entitled to adopt freely whatever concept of sustainability they believe to be "superior" or "more favourable". If the discursive procedure has been fair, the outcome has to be respected fully on political grounds. This condition of fair discourse is, of course, not fulfilled in many countries. Very often, substitution is not chosen deliberately by people but continues as a brute economic force that is imposed upon them. Therefore, it may happen that "third-culture"-scholars reject substitution of natural capital but perform their research in a country within which natural capital is substituted by human-made capital at high speed. In my opinion, this was the case in the SuWaRest project.

Matters would look highly different, however, if scholars and people would reach some common moral ground and would agree that the theoretical debate between weak, intermediate and strong concepts of sustainability has, indeed, provided some robust results in favour of, at least, strong sustainability. Such results emerge if questions are framed with respect to SA in general, not only with respect to economic utilisation of nature as a resource. The crucial question is not only "*Can we substitute nature by technical means?*" nor "*Can we substitute natural resource inputs for production?*", but also "*Do we really wish to substitute natural environments by more artificial ones if nature has many non-material, cultural welfare effects on many of us?*" Human life will continue if natural capital will be depleted but it might not be desirable to do so. With respect to nature conservation, single

groups within societies may argue from within strong environmental traditions (as Daoism in China) or even with moral convictions about inherent moral values in nature. The question to supporters of very strong sustainability then is "*Are we morally permitted to substitute natural sites that serve as habitat for sentient wildlife?*"

There are arguments about risk and precaution with respect to critical natural capital. If intermediate sustainability requires maintaining all critical natural capital and if there are large uncertainties about criticality, one should better adopt an ambitious safe minimum standard. If prudent members of decent societies ask themselves "*How safe is safe enough?*" and if they look back to a long historical process of domination, exploitation and over-utilisation of nature they better should conclude that they should maintain *prima facie* the remaining stocks of natural capital. If so, intermediate sustainability tends towards a Constant Natural Capital Rule (CNCR), which is constitutive to strong sustainability.

There is a cultural dimension of uncertainty as well. Uncertainty of future preferences, if taken seriously, should make any society more cautious against depletion of nature since many members' future generations may be more sensitive to nature's values and might be more open even to spiritual encounters with nature as ordinary "rationalised" members of Western civilisation have been throughout the 20th Century. We should not rule out the possibility that future people may have rediscovered the evolutionary biophilic disposition of humans and may shape this disposition in new cultural ways, wishing to live lightly in nature. The human capability of being able to live with a deep concern for a world of nature, including animals and plants, might be actualised to high levels by future individuals. If one hopefully assumes that the habits and attitudes of future generations might be shaped by SA, it would be absurd to bequeath a highly artificial world to them as result of ongoing substitution processes.

1.4 Conclusion

Therefore, prudent and long-term oriented anthropocentrism can make a strong case in favour of concepts of sustainability, which demand to hold natural capitals constant over time for the sake of future generations with respect to the many valuable benefits of nature (Daly 1996; Ott & Döring 2008; Ott 2014). In other words, different arguments motivate a reasonable and prudent choice at least in favour of strong sustainability. Such choice is clearly not a proof but rather a judgment. It is not strictly binding, as proofs are, but favourable to members of the third culture and recommendable to any society. As judgment, it constitutes a collective *prima facie* obligation to hold natural capitals (i.e. natural goods) at least constant over time (i.e. CNCR). CNCR, being the basic rule of strong sustainability, gives content to the problem of how to conceive a fair intertemporal bequest package. CNCR must be specified to a comprehensive system of rules (so-called "management rules"). The establishment of a rule-based governance scheme, which specifies the CNCR, defines the core meaning of institutionalising strong sustainability. Holding natural capital constant over time should reduce pollution, while the undertaking to restore a depleted reserve becomes mandatory. The SuWaRest project took such a perspective within its study areas, which can be generalised as third culture.

If the argument were sound, the concept of strong sustainability would ground the interests of knowledge within environmental sciences and within the third culture. Such grounding gives a focal epistemic perspective to the third culture and it explains the role of "concerned scientists".[4] To many scientists, these arguments looks as a strong and uncommon claim. Scientists within the third culture may feel uncomfortable with this claim since it seems to be a new way of "moralising" science. They may fear to be pressed *nolens volens* into political alliances with environmentalists and conserva-

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4   In 2010, at a meeting in Zhangye, the SuWaRest project confronted a somewhat complicated task of translating "concerned scientists' viewpoints" to our Chinese counter partners. Such translation was not only a linguistic issue, but also touched deeper problems about the role of environmental science in China, which is often solely reduced to data mining.

tionists. Therefore, anyone who is engaged in environmental sciences should feel challenged by this claim in order to refute such transcendental-pragmatic grounding.

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