

COMMISSION OF THE EUROPEAN COMMUNITIES  
FP7-ENV-2011

Proposal full title

**MOTivational strength of ecosystem services and  
alternative ways to express the value of BIODiversity**

Proposal acronym

**BIOMOT**



Type of funding scheme: Collaborative Project  
(Small or medium-scale focused research project)

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ENV.2011.2.1.4-3  
("Improved comprehension of the utility of the concepts of value of biodiversity"),

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## **1: Scientific and/or technical quality, relevant to the topics addressed by the call**

### **1.1 Problem statement**

Economic research has shown that biodiversity has total economic values running into the trillions of euros worldwide and hundreds of millions even for ‘minor’ ecosystem services on local scales. The problem addressed by the BIOMOT project is that in spite of these immense values, politicians and the public in general in Europe do not appear to respond swiftly and effectively to prevent further biodiversity degradation. Why is that? What could really work to motivate publics and politics into action for biodiversity?

The FP7 topic ENV.2011.2.1.4-3 calls for an “Improved comprehension of the utility of the concepts of value of biodiversity”. The problem is worded as follows:

“Endeavours to convince policy makers to invest effort in vigorous action to conserve biodiversity depend increasingly on demonstrating the [economic] value of biodiversity to humans, largely through the concept of ecosystem services, to the extent that alternative [non-economic] arguments and strategies are sometimes neglected. Research is needed on the one hand to assess the potential and observed effectiveness of the various arguments and on the other to clarify the relationships between biodiversity and ecosystem services. The research will analyse the implications of these relationships for the valuation of biodiversity, and for the concept of valuation as a means for protecting biodiversity, at a variety of spatial and temporal scales including the regional (e.g. European) scale. It will examine the potential or observed effectiveness of alternative ways to argue the case for swift and effective action to prevent further degradation of the natural world”.

### **1.2 Project approach and objectives**

Approach: Scientific research can help to address this motivation problem by means of a comprehensive rethinking of what value and motivation actually are for people. The BIOMOT project takes this approach to investigation, so as to fully respond to what in the FP7 call is termed as expected impact, that is the ***“Analysis of alternative ways to improve biodiversity policy making and governance at local, national and global scales.”***

In the BIOMOT project, this point of departure is made operational along four research lines summarised in our main objectives and made operational in four Work Packages:

1. Improvement of economic valuation methods
2. Biodiversity value in successful governance for biodiversity
3. Biodiversity value in successful leadership for biodiversity
4. Establishment of a general theory of motivation to act for biodiversity.

#### **1. Improvement of economic methods of biodiversity valuation**

The first line of research focuses on the economic methods to express the value of biodiversity through ecosystem services or other concepts. Issues to address here are manifold and include:

- Do problems of effectiveness (motivational strength) of these methods arise because values are transferred unconvincingly across scales?

- Do problems arise because the methods rely too heavily on unconvincing tools such as contingent valuation?

There are also questions of a more fundamental character, including:

- To what extent do problems arise because ecosystem services are in fact based on bio-mass or non-biotic processes rather than on bio-diversity?
- Is the economic value of nature not much more than the value of a collection of services?
- Do people value nature in quite different realms than current economic approaches elicit?
- Could more embedded and contextual methods of economic valuation perform better in motivating people to act for nature?

Through such questions, the first research line of BIOMOT will search for concepts and approaches to improve the motivational strength (“utility”, effectiveness) of economic valuation. Literature study will play an important role here, but connected with interviews with economic practitioners across Europe. This research line will deliver new methods of valuation, with improved motivational impact from the local to the global scales.

Economic methods and economic language to express the value of biodiversity, even after all possible improvements are made, may continue to fail to motivate publics and politics into action. Research lines 2, 3 and 4 in BIOMOT start out from this point of view and the idea that motivational strength may possibly be found in value concepts that engage ethics of long-term and collective obligations, language of deep dependence and resilience, virtues in a good life, narratives of home and identity. What, therefore, are *alternative and possibly more effective ways* to express the value of biodiversity at various scales, from the local to the European?

## **2. Value of biodiversity in successful governance for biodiversity**

This line of research engages successful governance actions (policies, directives, agreements, programmes, projects) across Europe in order to analyse which (economic and non-economic) ways to express the value of biodiversity have been at work there. Document analysis and interviews with key actors will form the empirical basis, guided by governance theory as well as a common BIOMOT research framework/protocol jointly developed by the partners. This research line will deliver new insights into how biodiversity values can be put to work in biodiversity governance at the local to the global scales.

## **3. Value of biodiversity in successful people for biodiversity**

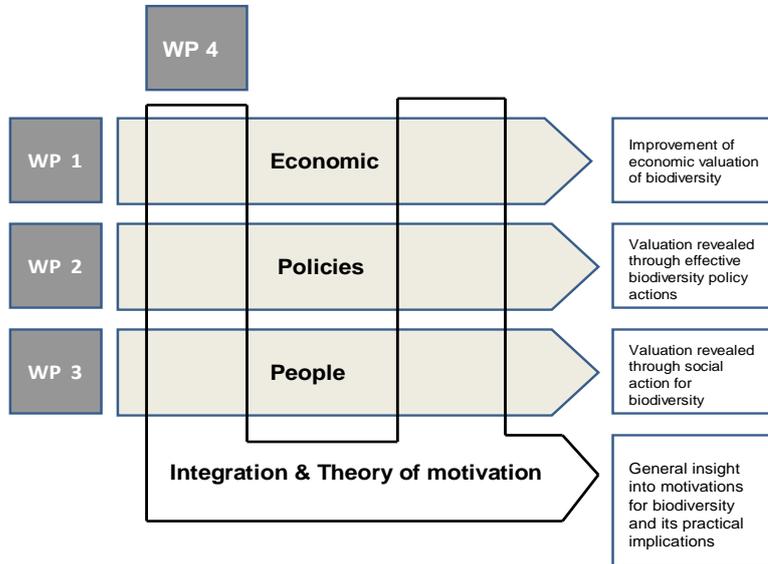
This line of research follows the same method as the previous one but focusing on the motivations of leaders in business, civil society and other sectors across Europe who have successfully involved themselves with biodiversity protection. What concepts of value has driven these actions? Interviews with leaders will form the empirical basis, guided by theory from psychology and other social science, as well as the common BIOMOT research framework/protocol jointly developed by the partners. This research line will deliver new insights into how biodiversity values can be put to work to play a greater role in business and civil society.

## **4. A general theory of motivation to act for biodiversity.**

Theories from economics, governance and psychology all have an essential role to play in the desired improved comprehension of what moves policies and publics to action for biodiversity. These theories all have their specific limitations, however, and a great stride forward will be made by their integration. In the fourth research line, this stride will be made under the guidance of philosophy as the mother discipline able to embrace all. Scientists from all partners will join in this effort. In the early stage of BIOMOT, the effort will generate the common research framework. In the middle stage, the theory will develop through literature enquiry and the empirical results from the other research lines. In the final stage of BIOMOT, the

research line will synthesize all findings and think through its practical implications for policy making. This research line will deliver the generic, foundational insights into how biodiversity values can be expressed in such a way that they become connected to daily lives and daily practice of people and institutions.

The figure below depicts this structure.



In summary, the four objectives of the BIOMOT project are as follows:

- **Objective 1:** To establish how economic methods to express the value of biodiversity can be adapted in such a way that they result in stronger motivations to act for biodiversity at the local to global scales.
- **Objective 2:** To establish what (economic and alternative) ways to express the value of biodiversity are at work in cases of successful governance and policy action for biodiversity at the local to global scales.
- **Objective 3:** To establish what (economic and alternative) ways to express the value of biodiversity are at work in cases of successful action for biodiversity carried out by political, businesses, NGO and other leaders at various scales.
- **Objective 4:** To establish, based on these results and philosophical enquiry, a general ‘theory of motivation to act for biodiversity’ and show the practical applications of this theory to enhance biodiversity action in the daily lives and practices of people and institutions at levels ranging from the local to the global.

The work packages and impacts of BIOMOT are further detailed in sections 1.4 and 3.1, respectively.

## 1.2 Progress beyond the state-of-the-art

In this section, progress beyond the state of the art is highlighted in bold text.

Ecosystem services (ES) have rapidly become the mainstream concept to express the benefits of nature (ecosystems, biodiversity) to society. The concept is now used for many purposes, among which are:

- Analytical and overview purposes, in which a listing of ecosystem services is applied to get a full grip on the many linkages between biodiversity and societies.
- Policy formulation purposes, e.g. as in the new EU soils Directive in which the protection of soil services is article 1.1.

- As a justification for payments for ecosystem services (PES), in which land users are compensated for activities that protect ecosystem services of their land.
- As a basis to calculate the 'Total Economic Value' (TEV) of ecosystems in smaller or wider regions.

Especially TEV is seen as the key concept to motivate the general public and policy makers to act for biodiversity. Even nature conservation NGOs nowadays focus on the economic benefits of nature in their mission statements (Campagna and Fernández 2007; Butler and Acott 2007). The logic is clear: if you are aware that nature is worth so many billions, of course you are motivated to take action and protect it.

TEV assessment suffers from many methodological problems. Some of them are problems of system boundaries, double-counting and omissions (Turner et al., 2010). Others concern the difficulties of 'value transfer', when local assessments are scaled up to higher levels or to different places. Finally there are problems associated with the limitations of 'willingness to pay' and likewise statements in contingent valuation methods, hypothetical compensation projects, defensive expenditures and other methods of monetarisation (Bockstael et al., 2000). Against this background, economists have been developing less abstract, e.g. more qualitative, discourse based and 'embedded' methods of economic valuation of biodiversity (e.g. Chee, 2004; Kumar and Kumar, 2008; Spash 2008; see also the VALVE project of the EU). Much of this state of the art is at present embedded in the European TEEB project ('The Economics of Ecosystems and Biodiversity')

**In its first research line (implemented in WP 1), the BIOMOT project will move beyond the state of the art by analysing the economic methods with a special view of assessing and enhancing not so much their technical perfection but rather their motivational power, i.e. their success in moving people to take action *after* the assessment.**

Economic valuation is only one element in the effort to improve biodiversity policy and a degree of pessimism continues to surround economic valuation efforts. Even if all methodological problems would have been surmounted and the Total Economic Value of biodiversity in, say, a region or the EU as a whole could be assessed with great certainty, would that really motivate publics and policies into swift and effective action? Nothing points at a positive answer yet. It would seem that TEV values are simply too big to handle, too abstract and too weakly connected to our core motivations. The huge TEV values appear to remain like paintings on the wall, unconnected to daily and political life.

This concern increases further if we look at research results of people's 'visions of nature' in Europe (De Groot et al. i.p., De Groot and De Groot 2009). In surveys conducted in France, the Netherlands and Germany in the framework of the EU (Interreg) project 'Freude am Fluss', the old image of human Mastery over nature is massively rejected, and the far majority of the respondents strongly adhere to notions of Stewardship or even more ecocentric images of the human/nature relationship. In qualitative interviews, people often remark that the value of nature is infinite, because without nature, we would not exist at all. Yet, only very few people really take action for nature or demand that their governments do it. In the ballot box, people worry about mortgages and job security, not nature.

Economists have expressed concern about the motivation problem of TEV and highlighted that solving this goes beyond a simple fix of technical methods as such. TEV may in some instances motivate policy makers, e.g. when the economic value of a mangrove forest is shown to a local government, but what is the utility, the motivational strength, of TEV in general? As Norgaard et al. (1998) put it succinctly: "And now that we

know the exchange value [TEV] of the earth, we wondered with whom we might exchange it and what we would do with the money, sans earth.”

Alternative, non-economic ways to express value do exist and may in fact be much more powerful in some cases. With respect to our children, for instance, no-one assesses their TEV and the private cost-benefit outcomes of having children in Europe are downright negative. Yet, we have them by the millions and we do demand governments to spend on them by the billions, e.g. on education. What kind of motivations underlie these actions, and could they also be put to work for biodiversity?

Another indication that non-economic ways to express value of biodiversity can be of great utility to evoke action is to look at results of social-scientific research into valuation of nature. People often reject economic valuation and stress that money values will never be able to capture what nature is to them (e.g. Bonaiuto et al. 2002)

**In its second and third research lines (WPs 2 and 3), the BIOMOT project will use a ‘reversed’ methodology in the sense that it will take *successful actions* for biodiversity as its point of departure and then ask *what understandings of the value of biodiversity has motivated these actions*. In WP 2, the starting point will be on successful regulations, policies, governance structures and projects at various scales (global, EU, national, local). In WP 3, the point of departure will be on successful people, i.e. citizens, business and public leaders who have shown a direct link between awareness of values of biodiversity and action to safeguard these values. This approach guarantees that WP 2 and WP 3 will not simply add to the state of the art but move beyond it.**

In the state of the art, historical-geographic theory has been developed to explain why urban cultures, having lost their direct connection to nature, include an element of yearning for reconnection and give rise to nature protection as typically urban phenomenon (De Groot 2006). Environmental psychologists in the US have recently become interested in the concept of connectedness to nature, e.g. developing a Connectedness-to-Nature survey scale (Mayer and Franz 2004). Also a qualitative exploration in the Netherlands has shown that one big difference between people who take or do not take action for nature is their feeling of connectedness to nature (Heinen 2002). In exactly the same vein, the philosopher Nolt (2006) has argued that connectedness to a value is the one great variable that makes people move from the abstract Good (acknowledgement of the value) to the concrete Ought (feeling of duty to act). Is connectedness to nature a key concept to explain why TEV values (the abstract Good) do not motivate people into action, while children, without a TEV, do? Is connectedness to nature one of the core concepts of what may be called a ‘theory of motivation to act for biodiversity’?

**The task of WP 4 in the BIOMOT project is the development of a generic and multi-applicable theory of action for biodiversity. The project will move beyond the state of the art here because it will integrate the as yet disparate and nascent visions from philosophy, psychology, governance science, economics in a joint effort that involves all partner universities of the project, and think through its policy and communication consequences for the EU, national and local levels.**

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### 1.3 S/T methodology and associated work plan

#### *(i) Overall strategy of the work plan*

Based on its four objectives, the BIOMOT consortium represents a unique combination of economists, philosophers, governance scientists and psychologists.

The overall strategy is to work with three coherent work packages, interconnected through a single integrative work package 4 that will work most intensely at the beginning of the project (setting all participants in a coherent and interrelated course) and at the end of the project, integrating all results and leading the process of developing the theory of motivation and its practical implications. One task in this WP 4 in the beginning of the project is to clarify the relationships between ecosystem services and biodiversity, which is important for all WPs. A second early task in WP 4 is to generate the common concepts, research framework and protocols for all WPs, which coincides with the first contours of the theory of motivation that is to be developed later in this WP. In the later stage of the BIOMOT project, WP 4 will generate the overall concepts and structures of the reporting and communication of all WPs and integrate all WPs' results into the general theory of motivation to act for biodiversity, including the implications of this theory for policies, business and civil society. WP 4 will also carry the main responsibility for the whole-project events such as the mid-term and final conferences. The diagram in section 1.1 displays this overall strategy.

Based on these joint beginnings, WP 1 will focus on the motivational strength of economic (ecosystem services) valuation of biodiversity, engaging all debate and proposals for improvement of economists and others. Literature study will play a major role here but WP 1 will ground itself also in interviews with economists (academic and applied) and practitioners of economic valuation in biodiversity policy settings (local, national, EU).

WP 2 and WP 3 share a common methodology of investigating cases of daring and effective action for biodiversity in Europe, and search for the ways in which the value of biodiversity has been expressed in these actions. This is 'revealed valuation' is analogous to the 'revealed preference' in neo-classic economics. The difference between WP 2 and WP 3 is that the former focuses on effective policy actions, while WP 3 takes effective people (citizens, business, public leaders) as its point of departure. Interviews will be the major research method.

Each WP will have one leading partner, assigned largely by discipline (economics for WP1, governance science for WP 2, psychology for WP 3 and philosophy for WP 4). Each leading partner will be supported by one or two other partners as major co-partner. Depending on the WP, yet other partners will have a supporting role. This way, all disciplines will be intensely involved in all WPs, exploiting the full power of BIOMOT's unique consortium.

WPs 1, 2 and 3 will contain empirical research, mainly interviews, across Europe. In the work plan, each partner in a country will be responsible for the execution of the empirical research in that country, so as to avoid travel cost and language problems. This work is done under the guidance of the lead partners of the respective WPs.

(ii) Timing of the different WPs and their components

The Table below is organised by quarter year (16 quarters = 48 months). In quarters 1 to 4 (i.e. year 1), WP 4 will interconnect the other WPs especially by setting all research protocols in a common framework ('contours of a theory of motivation for biodiversity action'). In quarters 11 and 12, WP 4 will lead the conceptual integration of all efforts through the integrated theory, built jointly with the other WPs and generating the common framework for their separate final analyses and reporting.

Task	Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>WP 5</b>	<b>Management</b>																
5.1	Leadership																
5.2	Coordination																
5.3	Financial																
5.4	Communic.																
<b>WP 1</b>	<b>Economic</b>																
1.1	TEV																
1.2	Context																
1.3	Gath. & Anal.																
1.4	Reporting																
<b>WP 2</b>	<b>Governance</b>																
2.1	Cases																
2.2	Protocol																
2.3	Gath. & Anal.																
2.4	Reporting																
<b>WP 3</b>	<b>Leaders</b>																
3.1	Cases																
3.2	Protocol																
3.3	Gath. & Anal.																
3.4	Reporting																
<b>WP 4</b>	<b>Int. &amp; Theory</b>																
4.1	Concepts																
4..2	Frame																
4.3	Building																
4.4	Reconnect																
4.5	Consequen.																
4.6	Reporting																

(iii) Detailed work description

Table 1.3 a gives the Work Packages list.

Work package No	Work package title	Type of activity	Lead partner No	Lead partner name	Person-months	Start month	End month
WP 1	Strengthening the valuation of biodiversity and its motivational capacity	RTD	2	MU	60	1	48
WP 2	Biodiversity values in successful biodiversity governance	RTD	3	UCL	90	1	48
WP 3	Biodiversity value motivating public, business and citizen leaders in action for biodiversity	RTD	7	CIRPA	96	1	48
WP 4	Project integration and Theory of motivation to act for biodiversity	RTD	1	RU	105	1	48
WP 5	Project management	MGT	1	RU	24	1	48
				TOTAL	375		

The deliverables and milestones of the project are given in the next two tables.

Table 1.3 b: Deliverables List

Note 1: The deliverable's nature marked as "R" indicates not only a report but the full arrays of other modes of dissemination too, following the communication plan (section 3.2).

Note 2: Marked in bold are the final and most important outputs.

Del. no.	Deliverable name	WP no.	Nature	Dissemination level	Delivery date
1.1	Perspective and methods for TEV assessment with improved motivational strength: an exploration	1	R	PU	12
1.2	Perspective and methods for alternative, motivational economic methods of biodiversity value assessment	1	R	PU	21
1.3	Motivational capacity of biodiversity value assessment: reflecting with economists in Europe	1	R	PU	36
<b>1.4</b>	<b>Biodiversity valuation for biodiversity action: New perspectives, new methods</b>	<b>1</b>	<b>R</b>	<b>PU</b>	<b>48</b>
2.1	Preliminary theory and cases for motivational analysis of governance action for biodiversity	2	R	RE	9
2.2	Theory and protocol for motivational analysis of governance action for biodiversity	2	R	PU	18
2.3	Governance actors visions on valuation concepts driving successful governance actions for biodiversity	2	R	PU	36
<b>2.4</b>	<b>Biodiversity values in successful biodiversity governance: New perspectives, new proposals</b>	<b>2</b>	<b>R</b>	<b>PU</b>	<b>48</b>
3.1	Preliminary theory and cases for motivational analysis of leadership for biodiversity	3	R	RE	6
3.2	Theory and protocol for motivational analysis of leadership for biodiversity	3	R	PU	18
3.3	Leaders' visions on valuation concepts driving successful leadership for biodiversity	3	R	PU	36
<b>3.4</b>	<b>Biodiversity values in successful leadership for nature: New perspectives, new proposals</b>	<b>3</b>	<b>R</b>	<b>PU</b>	<b>48</b>
4.1	Common concepts for the BIOMOT project	4	R	RE	6
4.2	First frame of a theory of motivation for biodiversity action	4	R	PU	12
4.3	A general theory of motivation to act for biodiversity: building blocks, empirical analysis and synthesis	4	R	PU	36
4.4	A general theory of motivation to act for biodiversity: implications for governance, business and civil society	4	R	PU	42
<b>4.5</b>	<b>What works for biodiversity? Economic and alternative perspectives and methods for biodiversity valuation and motivation</b>	<b>4</b>	<b>R</b>	<b>PU</b>	<b>48</b>

**Table 1.3 c: List of milestones**

The milestones mentioned here concern the whole-project control points with regard to the next stage, to be carried out by the overall BIOMOT project leader. Most of them will also be taken over by the separate WPs, then formally carried out by the WP leaders.

<b>Milestone number</b>	<b>Milestone name</b>	<b>Work package(s) involved</b>	<b>Expected date (month)</b>	<b>Means of verification</b>
1	Common concepts accepted	all	8	Reports, workshop and evaluation by Executive Committee
2	Common framework established	all	12	Reports, workshop and evaluation by Executive Committee
3	Jointly developed protocols of WP 2 and WP 3 established	all	18	Reports, workshop and evaluation by Executive Committee
4	Jointly developed protocol of WP 1 established	all	21	Reports, workshop and evaluation by Executive Committee
5	Interim evaluation of progress and process in Theory of Motivation	4	21	Reports, workshop and evaluation by WP 4 leader
6	Evaluation of Mid-Term conference and other early communication actions	all	24	Reports, workshop and evaluation by Executive Committee
7	Data gathering and pre-analyses successfully ongoing	1, 2, 3	30	Reports, workshop and evaluation by leaders of WPs 1, 2 and 3
8	Successful integration of empirical findings in Theory of Motivation	all	33	Reports, workshop and evaluation by Executive Committee



The tables on the next pages give the detailed descriptions of the four substantive Work packages and the management work package.

Table 1.3 d-1: Work package description WP 1

<b>Work package number</b>	1	Start date or starting event:					1
<b>Work package title</b>	<b>Strengthening the valuation of biodiversity and its motivational capacity</b>						
<b>Activity Type</b>	RTD						
<b>Participant number</b>	2	8	3	7	4	5	6
<b>Participant short name</b>	MU	LU	UCL	CIRPA	UG	UEF	ZRC SAZU
<b>Person-months per participant:</b>	18	15	5	4	8	6	4

### Objectives

The objective of WP 1 is to establish how methods for the valuation of biodiversity can be modified or recalibrated to strengthen their ability to motivate action to enhance biodiversity at various scales. These recommendations will be derived from theoretical and empirical analysis of the various issues involved.

### Description of work

WP 1 will be organized in three tasks.

#### Task 1.1: Conceptualisation of 'Total Economic Value' (TEV), especially with regards to its motivational capacity.

The public interest in biodiversity and in conservation to halt further losses has resulted in a considerable resonance in research to operationalise the value of biodiversity. But despite some progress, it remains difficult to link this research to practical decisions and actions. Most of past research is heavily concerned with the scientific quality of the measurement method. But scientific correctness alone does not determine the actual usefulness of a measurement in policy and management. **The ultimate metric for useful information is whether it actually enables and contributes to individual and collective decision making and actions.**

People are motivated to undertake an action if it is something they can relate to and something they can believe in. The motivational power of a tool describing the value of biodiversity depends on whether it is able to capture people's *relation to biodiversity* and their beliefs in *the results of their actions* in this specific context.

The question then arises whether humans' relations and beliefs regarding biodiversity can be captured by one monetary value as with the concept of Total Economic Value. Total Economic Value was at the centre of the controversial paper by Costanza et al. (1997) that estimated the aggregate annual monetary value TEV of the world's biodiversity (the entire biosphere) at US\$ 16-54 trillion, using the ecosystem services concept. Many criticisms have been raised against this TEV idea, including concern about its capacity to really move people into individual and collective action.

One criticism is that the ecosystem services that make up the far majority of the TEV value, are based on *bio-mass* and *bio-productivity* rather than on *bio-diversity* (De Groot, 1992). Examples include the waste processing capacity of wetlands or the carbon sequestration capacity of forests. Would any nutrient-poor ecosystem, with all the high biodiversity that usually converges there, really have a lower biodiversity value than any potato field? A second criticism relates to scale. On a local scale, it may make much sense to use

TEV to explain the value of, say, a forest to a local government. On the global level, this sense evaporates, as noted already in section 1.2. In other words, even if values could be transferable in a formal sense, the motivational capacity of that value cannot. A third standard criticism is that a monetary value will actually be demotivating because it will lead biodiversity to be treated merely as a commodity to be exploited. A fourth criticism is that neither TEV nor any other valuation scheme written in economic language will ever be able to capture non-economic motivations for nature, which may be written in the much more narrative language of obligations, virtues or culture. As remarked in TEEB (D0, Chapter 4), “if we ask people their willingness to pay for biodiversity, it is likely that people actually state their willingness to pay for biodiversity”, without capturing non-utilitarian and non-individual motivations. A fifth criticism with regard to TEV is that it is total absolute value and that only marginal values make motivational sense. Classic, ‘Costanzian’ TEV is total economic value and it assesses the value of a thing X as what we would lose if we would have to do without that X. Thus, the value of sunlight is infinite and the value of estuaries is very high. But why bother? We may bother, and hence feel motivated for, *changes* in ecosystems that we have some responsibility for, as citizens or governments. If the policy question is to impose regulation to protect biodiversity in a specific region, the status quo — as described by the *current* biological diversity in this region — must be compared with the predicted *alternative* biological diversity. That way, we move away from classic TEV and come much closer to changes in TEV as a possible result of our actions, much akin to methodologies in cost-benefit analysis.

Cost-benefit analysis (CBA) assigns monetary values to changes in environmental attributes. The purpose is the assessment of the net contribution of such a change to society's overall well-being in terms of each individual's own assessment. Thus the notion of value here is inherently anthropocentric. CBA is a reductionistic tool that requires all effects of a policy or project to be converted in monetary benefits or costs, and then summed and compared. This makes the concept of biodiversity and other ecosystem services operational but focuses necessarily on a subset of values that can be captured through economic valuation. A particular problem here is the exact definition of existence value which refers to human value and as such does not include indirect biological functions of species. In addition, economists recognise that techniques such as contingent valuation that are used to estimate existence values suffer from several conceptual weaknesses such as preference reversal and protest responses. Both weaknesses indicate that to an individual the change in a public good might involve more than can be captured in a one monetary value.

Continuing in CBA terms, new issues arise when it comes to motivational strength and to the question whose actions would be involved (CBA for whom?). CBAs can be ‘private’ or ‘public’. Private CBA (e.g. of a company or another private actor) works with costs as paid and benefits as received, i.e. using market prices that include taxes and subsidies and ignoring all cost and benefits accruing to others (‘external effects’). Public CBA, based in welfare economics, uses real prices (‘shadow prices’ excluding taxes and subsidies) and whole-system costs and benefits. Which of the two has more motivational capacity? It may be hypothesized that even for government agencies in many instances, even though they should be motivated by public CBA (‘the good of society’), private CBA often has more motivational strength. The agency calculates as an actor who has to make budgetary ends meet, in real cash-flow terms and ignoring benefits accruing to others. Here again we meet issues of scale.

Limited budgets and the need to allocate these as best as possible have led to other valuation tools in interdisciplinary economics. Popular is relative valuation through the use of cost-effectiveness analysis (Naidoo et al., 2006; Kareira, 2010). This keeps environmental results in the original biophysical metrics, or in some measurable statistics such as indicator species or protection need indicators for areas. This implies trading-off the objectives of maximizing biodiversity conservation and minimising expenditures without committing to the goal of maximising well-being. Thus decision support without complex assessments of the affected public’s subjective price for a change in biodiversity is well possible and it fact common in practice. But as traditional economists will point out, this precludes the integration of information on human preferences (peoples’ relation to biodiversity) and the extent in which this would be met, something only CBA offers, however imperfectly.

People's relations to biodiversity and belief in effects of actions are context specific and culture specific. This is important when we move across scales. Desirable ends are easier to address if these occur at broad scales and the associated ecosystem service provision varies considerably at lower scales, as with carbon storage for example. With biodiversity, often space and spatial configuration as well as temporal scales need to be included explicitly (Wossink et al., 1999; Chan et al., 2006; Anderson et al., 2009). This is also critical when it comes to the alignment of biodiversity protection with the simultaneous provision of other main ecosystem benefits. These other benefits, including flood control, carbon storage, recreation, open space, pollution services, food/fiber/fuel, and water provision, vary greatly in their scale of operation as well as in their spatial patterns of association with biodiversity. Such contextual and scalar aspects (who gets what, when and where) cannot be covered appropriately by aggregated monetary values whereas these aspect are likely crucial when it comes to motivation.

Finally, the increasing number of member states and the implementation of conservation actions at many different administrative levels indicate that motivation of geopolitical coordination will become increasingly important (Bladt et al., 2009). However, research has shown that there are considerable differences in how EU-citizens perceive biodiversity loss (Eurobarometer, 2010). In particular there is a very large variation among members state in citizens' perceptions regarding the seriousness of biodiversity loss as a domestic problem in their own country. The latter variation is much larger than the variation in the perceptions of the seriousness of biodiversity loss at the European or global levels. Here we once again meet the issue of scale.

#### *Method and expected results of Task 1.1*

The scientific task as presented here, is to develop a fresh perspective by addressing the motivational capacity of economic valuation tools starting from the scale at which the decision making process takes place ranging from the global to the local level. This will be done based on literature and theory, in close connection with the researchers in WP 4 as well as the empirical work in task 3 (below). The task includes the question how economic valuation tools can be modified or recalibrated to strengthen their ability to motivate action to enhance biodiversity at various scales. We will pay particular attention to the motivational capacity of valuation at the regional scales most useful to decision makers in the EU.

#### **Task 1.2: Thinking through valuation in context**

Many economists have become aware of the limitations of monetary valuations of environmental and non-environmental goods. Many ethical and social commitments are constituted by a refusal of monetary valuation (Raz, 1986). Respondents to contingent valuation sometimes resist monetary valuation through protest bids. Valuation is a not only a purely economic affair. Biodiversity is not simply a resource, but the object of ethical and social values which cannot be captured in monetary valuations (O'Neill, 2007).

Spash (2008) for example notes how economists concerned with validity are combining stated-preference methods with participatory deliberation to address on-going criticism. The results of such activities in general indicate different realms of value, reflecting the plurality of values at play in public concern over environmental change. This provides evidence of a range of issues which cannot be captured by economic valuation and which raise questions about the validity of its methods. The existence of plural and incommensurable values, lexicographic preferences, justice within and across generations and the non-instrumental values ascribed to non-human nature (Sagoff, 2009).

Some social scientists and philosophers argue that the resolution of conflicts between these kinds of values requires the deliberative procedures of the forum rather than the preference-aggregating procedures of the market. Sagoff for examples suggests it is a mistake to treat the judgement an individual expresses as a citizen as being of the same kind as those she has as a consumer. The public judgements individuals express as citizens are statements of belief about the good of the community which are open to reasoned argument. The persuasiveness of public reasons rather than an individual's willingness to pay should guide policy (Sagoff 2008a).

One response to the existence of plural values has been to invoke forms of multi-criteria decision analysis which do not require the use of some single measure of value (O'Neill et al., 1998). Recent work has attempted to combine MCDA with more deliberative contexts (Marchi et al 2000, Stirling, 2006).

Another response has been to suggest a more contextual approach Goodin (1982 and De Groot (1992). People are seen as evaluating things within a certain 'moral mode' of reasoning, such as reasoning within a 'rational choice' mode or an 'ethics of care' mode where the modes of reasoning towards the same thing such as biodiversity may switch depending on context. This idea of context dependent preferences has also found a place in economics (Irwin et al., 1993) and has proven to be particularly important in the measurement of personal values. People often do not hold values that are well defined in monetary units, unless the items being valued are familiar and simple. Most environmental goods are neither and individuals will construct values based on the context. This can occur when people have social preferences to help out even though it is privately costly to them, e.g., a landowner who protects endangered species on his land even if it reduces his land rents. The specific concern then is that paying them to protect nature would be counter-productive, because it leads biodiversity being treated in the economic mode of reasoning, resulting in a motivational "crowding out" of the willingness to do the good deed (Frey, 1997). Thus, behavioural economists have argued monetary rewards weaken intrinsic motivation. Where the crowding out effect holds monetary reward decreases the effort of the people concerned — the exact opposite what economics would predict.

There are then limits to how far monetary rewards motivate and monetary valuations can capture the variety of social and ethical values that are brought to bear on different aspects of biodiversity. At the same time, the limits of ethical motivations also need to be noted. There is a widely noted gap between ethical values and behaviour. In social psychology this is known as the intention-behaviour gap. This gap is important to policy makers and researchers alike but is still poorly understood.

#### *Method and expected results Task 2*

Task 2 of WP1 will address the issues about the role and place of economic valuation in the context of wider normative perspectives on biodiversity. This will be done based on literature and theory and in close contact with WPs 3 and 4 as well as the empirical work done in task 3 (below).

#### **Task 1.3: Eliciting the voices from theory and practice**

All the seven partner countries of BIOMOT harbour academic economists, applied economists and practitioners (in governments, NGOs and consultants) that work with economic valuation of biodiversity. In task 3, structured interviews with these experts will be staged in order to discuss and enrich all issues raised in Tasks 1.1 and 1.2 of this WP, following the research protocol co-developed with WP 4, as well as respond to allied issues that the respondents themselves may bring to the table. Thus, the interviews will gather all relevant opinions, practices and experiences (What is done? What works? What motivates? And why?) of the European action arena of economic valuation of biodiversity. The results of Task 3 will be fed back into the theory building streams of Tasks 1.1 and 1.2 of WP 1, as well as the foundational theory building action in WP 4.

#### *Method and expect results Task 3*

Some 60 interviews are envisaged, leadership on the construction of the interviews and their subsequent analysis will be provided by the leader (Manchester) and co-researcher (Leiden) of WP 1, but interviews will be carried out in the field by all partners in their own countries. Preparing for this, the leader and co-researcher of WP 1 will do trial interviews and train the interviewers from the other partners.

#### **Task 1.4: Reporting an communication**

The respondent selections as well as the interim and preliminary results will be discussed during workshops of the BIOMOT partners. The Mid-term Conference will be used to share preliminary results with the wider public. The lead partner will design the plan for reporting in scientific journals. All other dissemination and

communication activities will be part of the overall communication plan of BIOMOT .

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## Deliverables

The deliverables follow from the four tasks. They are presented here as the subject descriptions ('working titles') of the major reports of the Work Package, to be disseminated also in the various modes described in the communication plan (section 3.2). The most important deliverable is in bold.

1.1. Perspective and methods for TEV assessment with improved motivational strength: an exploration. (Month 12)

1.2. Perspective and methods for alternative, motivational economic methods of biodiversity value assessment. (Month 21)

1.3. Motivational capacity of biodiversity value assessment: reflecting with economists in Europe. (Month 36)

**1.4. Biodiversity valuation for biodiversity action: New perspectives, new methods. (Month 48)**

**Table 1.3 d-2: Work package description WP 2**

<b>Work package number</b>	1	Start date or starting event:						1
<b>Work package title</b>	<b>Biodiversity values in successful biodiversity governance</b>							
<b>Activity Type</b>	RTD							
<b>Participant number</b>	3	5	1	8	2	4	6	7
<b>Participant short name</b>	UCL	UEF	RU	LU	MU	UG	ZRC SAZU	CIR PA
<b>Person-months per participant:</b>	32	16	4	6	7	8	10	7

**Objectives**

The objectives of WP 2 are

1. to establish, empirically and theory-based, what (economic and alternative) ways to express the value of biodiversity have been at work in cases of successful actions for biodiversity at the global, the EU, the national and local scales,
2. to establish how these value expressions depend on contexts e.g. levels of scale and time,
3. and to propose how economic and alternative value expressions could be better embedded in European legislation so as to enhance motivational capacity.

**Description of work**

As stated already in the preceding sections, WP 2 will follow a methodology of starting out from daring policy actions for biodiversity and then trace what types of motivations and values of biodiversity have underpinned and driven these actions. With ‘daring’ actions we mean actions that have somehow been driven by the idea that something beyond the current routines needed to be undertaken to prevent further biodiversity degradation. Daring actions may have been successful or unsuccessful. The cases for the study will be selected such that successful actions predominate but unsuccessful one will also be taken up, in order to enhance contrast in the data. Cases that have been successful or unsuccessful for trivial reasons (e.g. budget crunches) will be excluded.

The cases will be identified on the global level, the EU level, the national level and the local level. The actions (units of analysis’) may be of any type. Going down along the scale level steps, actions are typically described as treaties, protocols, agreements, laws, directives, policies, codes of conduct, financial and legal instruments, programmes and projects. At the global level, typical candidate cases may be the establishment and maintenance of the whaling moratorium, CITES and the CBD, the protection of Antarctica, the Man and Biosphere program, the International Treaty of Plant Genetic Resources for Food and Agriculture (ITPGRFA), the FSC timber label, REDD (if successful) and suchlike initiatives. At the EU level, typical candidate cases for research are the Water Framework directive, the governance framework of the Mediterranean sea, the Habitat directive and the eco-agricultural schemes within the CAP. At the national and local levels, each of the BIOMOT countries will have its own examples of daring policies and projects. In the Netherlands, for instance, the project WaalWeelde involves 15 municipalities, along with citizens and business enterprises, in the design and implementation of new, sustainable and nature-rich landscape management of the floodplains of the big rivers. WP 2 will also seek some comparative perspective by involving to some extent cases from the US and developing countries, such as the US Endangered Species Act, the wetland banking schemes and successful cases of implementation of PES (‘Payments for Ecosystem Services’) in countries like Mexico or Nicaragua.

### **Task 2.1: Selection of cases.**

All BIOMOT partners will propose candidate cases from the national and local levels in their own countries. Jointly with its co-researching partner (University of Eastern Finland) and the other partners, the lead partner of WP 2 (Catholic University of Louvain) will establish the final list of cases to be studied. This list may include, for instance, three global cases, three EU cases plus one policy and two or three projects from each BIOMOT country, totalling some 30 cases for in-depth study. Possibly, the selection will be done in two steps, after a preliminary exploration in each BIOMOT country.

### **Task 2.2: Design of the research protocol.**

All cases will have important common elements such as the *mechanisms* through which the various individual actors (states, business, NGOs, municipalities, user groups etc.) have been brought to collective action. These may vary between, for instance, community involvement in co-management to rigorous cap-and-trade banking for biodiversity.

Allied to this are the *conceptual vehicles* that have been used to stage the discourse around the action – these are equivalent to the “ways to argue” in the call text of FP7. These vehicles often take the shape of driving governance concepts such as the “common heritage doctrine” or the idea of “providing natural resources in trust by the State for the benefit of the people”, or the principle of involving all stakeholders already at the stage of problem definition. The success of such concepts may well turn out to depend on scale and context, however, and the research protocol should fully embrace that contextuality.

The final protocol will be established in close collaboration with the researchers in WP 4 (Task 4.2). At present, we think that elements of the research protocol should in any case be:

- The history of the action, the parameters of its success or failure.
- The proximate and more indirect driving actors (GO, NGO, epistemic communities, transition arenas), each in their own contexts, and the routes of their influence on each other (actor configurations and causal ‘actor fields’).
- The driving principles and motivations of each driving actor (e.g. political opportunity, sense of obligation, economic benefits, love of nature).
- The governance mechanisms and conceptual vehicles (‘ways to argue’) used to bring the actors to collective action.
- The degrees and content of scale, culture and time dependency of these mechanisms and ways to argue.
- What can be learned in general from all this regarding the motivational strengths of ways to argue for the value of biodiversity?

Based on the empirical analyses, the project will also endeavour into more normative exploration, jointly with the stakeholders. Key questions here could be, for instance:

- Would the actions have been more successful if the valuation of biodiversity, economic or otherwise, would have been more prescriptively embedded in legislation?
- And, taking all cases together in a comparative perspective, what may be recommended towards European legal systems and lawmaking efforts?

Apart from the key questions such as these, the research protocol will go into the technicalities of data gathering (using documents and interviews, e.g. three interviews for each case), so that researchers from all BIOMOT partners can be trained effectively by the WP 2 leaders (UCL and UEF).

### **Task 2.3: Data gathering and analysis.**

This task is the implementation of the research protocol. The WP 2 leaders will divide the global and EU cases between them. The other BIOMOT partners will gather the data from their respective countries and pre-analyse and translate them. The overall analysis then is done by the WP 2 leaders.

#### **Task 2.4: Reporting and communication.**

The case selections as well as the interim and preliminary results will be discussed during workshops of the BIOMOT partners. The Mid-term Conference will be used to share preliminary results with the wider public. The lead partner will design the plan for reporting in scientific journals. All other dissemination and communication activities will be part of the overall communication plan of BIOMOT .

#### Roles of the partners

- **UCL** (WP leader) and **UEF** (WP co-researcher): selection of cases, design of research protocol, data gathering and analysis of global and EU cases, training of the BIOMOT partners for data gathering and pre-analyses of their own country cases, organisation of BIOMOT-level workshops, communication as part of the overall BIOMOT communication plan.
- **All other BIOMOT partners:** contributing to the cases selection and the overall process of theory building, empirical research (documents, interviews) of the cases in their respective countries.

#### **Deliverables**

The deliverables follow from the four tasks. They are presented here as the subject descriptions ('working titles') of the major reports of the Work Package, to be disseminated also in the various modes described in the communication plan (section 3.2). The most important deliverable is in bold.

2.1. Preliminary theory and cases for motivational analysis of governance action for biodiversity. (Month 9)

2.2. Theory and protocol for motivational analysis of governance action for biodiversity. (Month 18)

2.3. Governance actors' visions on valuation concepts driving successful governance actions for biodiversity. (Month 36)

**2.4. Biodiversity values in successful biodiversity governance: New perspectives, new proposals. (Month 48)**

**Table 1.3 d-3: Work package description WP 3**

<b>Work package number</b>	1	Start date or starting event:						1
<b>Work package title</b>	<b>Biodiversity value motivating public, business and citizen leaders in action for biodiversity</b>							
<b>Activity Type</b>	RTD							
<b>Participant number</b>	7	2	1	8	4	6	3	5
<b>Participant short name</b>	CIRPA	MU	RU	LU	UG	ZRC SAZU	UCL	UEF
<b>Person-months per participant:</b>	28	12	4	12	11	13	10	6

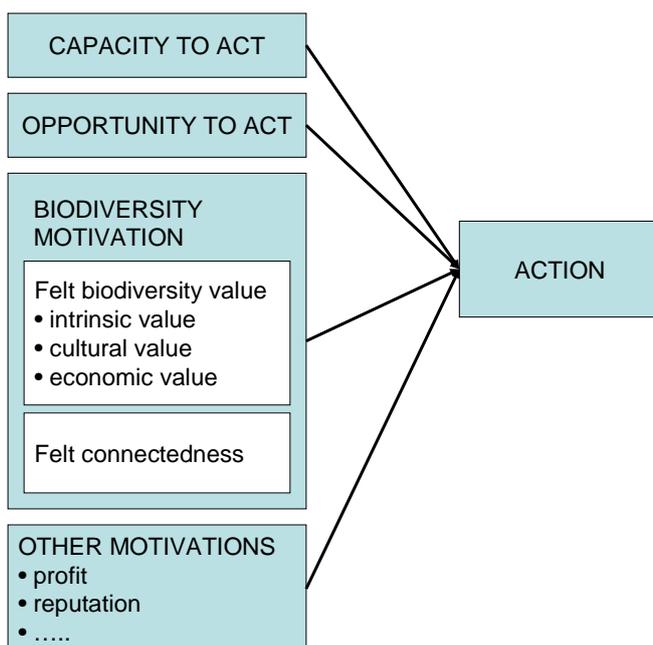
**Objectives**

The objective of WP 3 is to establish, both theoretically and empirically, which expressions of the value (either economic or alternative) of biodiversity drive outstanding pro-biodiversity actions of individual public leaders, business leaders and citizen leaders at the local, national and EU levels.

**Description of work**

As stated already in the section 1.3, WP 3 will follow a methodology of starting out from actors that are recognized as exemplary for outstanding action for biodiversity, and then trace what types of motivations and values of biodiversity have guided these actors. They will be contrasted with non-exemplary actors in ‘matched pairs’. The actors may be of any type but are roughly categorized as public, business and civil society leaders here.

Interviews will be the main research tool. They will be guided by a theoretical framework that will be developed fully during the first phase of the WP, in collaboration with WP 4 (see task 3.2). In order to help describe the work in WP 3, a preliminary version is depicted underneath.



Action for biodiversity is assumed to arise from the actor's capacity to act (e.g. knowledge and social capital), the opportunity to act and make a difference, and the actor's motivation to act. This motivation is seen as composed of 'biodiversity motivation' and other motivations such as for example profit, votes and/or reputation. 'Biodiversity motivation', in turn, is seen as determined by two factors: the *biodiversity value* as perceived by the actor and the actor's feeling of *connectedness* to that value (see WP 4). The perceived biodiversity value, finally, can be composed of intrinsic values ('existence value'), cultural values and economic values, accruing to either the actor him or herself, to the community that the actor is part of, or to society at large. The latter value is equivalent to 'Total Economic Value' (TEV) of WP 1.

Simple as it is, the framework takes heed of the results of many studies on the 'values-action gap' such as of Ba (2004) in that it drops the traditional intermediary variable of intention/attitude/willingness (e.g. Ajzen and Madden 1986) that often confounds rather than enlightens the research. As such, it takes in the basic elements of De Groot's (1992) Action-in-Context framework. During the first stages of WP 3, the framework will be enriched by other elements that are seen as possibly important, such as beliefs and habits.

The sampling procedure of WP 3 pairs each exemplary actor with a non-exemplary one (a non-initiator of action) that is assessed as having basically the same capacity and opportunity to act, in the same country and preferably in the same policy/business context. Through this 'matched pairs' sampling, the motivational drivers will emerge with clarity without requiring complex statistical inferences that would require much larger samples.

WP 3 plans to select 15 exemplary actors in each country, spread over the categories of public, business and civil society, matched with 15 non-exemplary actors. For BIOMOT as a whole, this creates a dataset with 105 exemplary and 105 non-exemplary actors. For the partners in each country doing the interviews and assuming that in some more complex cases an additional interview with an informant might be necessary, the 'interview load' then is 15 (exemplary) + 15 (non-exemplary) + 10 (informants) = 40 interviews.

### **Task 3.1: Selection of cases.**

All BIOMOT partners will propose exemplary candidate actors for interviews. Jointly with its co-researching partner (University of Manchester) and the other partners in the BIOMOT project, the lead partner of WP 3 (CIRPA-Rome) will establish the final list of 105 exemplary actors to be studied. The non-exemplary actors will be selected along the way by each partner, coordinated with CIRPA.

### **Task 3.2: Design of the research protocol.**

The leading partner and the co-researcher of WP 3 will establish the conceptual framework to guide the interviews, together with the other partners and the 'first frame' researchers in WP 4 (Task 4.2). The protocol will be finalized through an ad-hoc BIOMOT workshop, starting from the working hypotheses synthesised in the figure supplied above. The framework will be the core of the research protocol which will also comprise the more technical issues of matched pair sampling, interview style, data coding schemes and so on. The interviewers from the BIOMOT countries will be trained by the WP 3 leaders (CIRPA and MU).

### **Task 3.3: Data gathering and analysis.**

This task is the implementation of the research protocol. Each partner will do the work in their own country. In addition, The WP 3 leaders will help the other partners along the way if needed. All partners will do the pre-analysis of their own data and translate them. The final and overall analysis then is done by the WP 3 leaders.

### Task 3.4: Reporting and communication.

The actors selection as well as the interim and preliminary results will be discussed during workshops of the BIOMOT partners. The Mid-term Conference (see communication plan) will be used to share preliminary results with the wider public. The leading partners of WP 3 will design the plan for reporting in scientific journals. All other dissemination and communication activities will be part of the overall communication plan of BIOMOT.

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#### Roles of the partners

- **CIRPA** (WP leader) and **MU** (WP co-researcher): selection of actors, design of the research framework and protocol, data gathering and analysis in their own countries, training of the BIOMOT partners for data gathering and pre-analyses of their countries, organisation of BIOMOT-level workshops, communication as part of the overall BIOMOT communication plan.
- **All other BIOMOT partners:** contributing to the cases selection and the overall process of theory building, and interviews and pre-analyses in their respective countries.

### Deliverables

The deliverables follow from the four tasks. They are presented here as the subject descriptions ('working titles') of the major reports of the Work Package, to be disseminated also in the various modes described in the communication plan (section 3.2). The most important deliverable is in bold.

3.1. Preliminary theory and cases for motivational analysis of leadership for biodiversity. (Month 6)

3.2. Theory and protocol for motivational analysis of leadership for biodiversity. (Month 18)

3.3. Leaders' visions on valuation concepts driving successful leadership for biodiversity. (Month 36)

**3.4. Biodiversity values in successful leadership for nature: New perspectives, new proposals. (Month 48)**

**Table 1.3 d-4: Work package description WP 4**

<b>Work package number</b>	1	Start date or starting event:						1
<b>Work package title</b>	<b>Project integration and Theory of motivation to act for biodiversity</b>							
<b>Activity Type</b>	RTD							
<b>Participant number</b>	1	2	3	4	5	6	7	8
<b>Participant short name</b>	RU	MU	UCL	UG	UEF	ZRC SAZU	CIR PA	LU
<b>Person-months per participant:</b>	32	10	6	13	6	22	6	10

### Objectives

The objectives of WP 4 are:

- (1) To supply the common project framework and secure the connections between the WPs
- (2) To build an integrative theory of motivation to act for biodiversity that fully incorporates the contextuality and non-deliberative sources of motivation.

### Description of work (possibly broken down into tasks), and role of participants

#### *Objective 1*

All partners will participate in WP 4, so that all will feel a natural responsibility for the first objective of this WP, which is to secure full-project coherence. The integrative theory of motivation will be one vehicle for this work (tasks 4.2 and 4.4). Objective 1 also generates task 4.1, focusing on all other ('non-motivational) concepts, terms and schemes for the project as a whole. This is quite important at the beginning of the project, in view of the wide range of countries and disciplines (economics, governance, psychology, philosophy) that participate in BIOMOT, and to embed BIOMOT in other efforts such as the European TEEB project. The main focus will be on issues of **scale** (e.g. transfer of TEV values across scales), issues of **concept and terminology** (e.g. the differences between values and prices, ecosystem services, nature and biodiversity) and an analysis of the **connections between ecosystem services and biodiversity**, differentiating between those scientifically grounded and those commonly believed and communicated. Tasks 4.1 and 4.2 will start parallel at the beginning of the project, enabling a flying start of the project in terms of common concepts, terminology and frames.

#### *Objective 2*

Why do people do the things they do? Why do we do things that require a certain conviction, such as to act for (work for, pay for, vote for, ..) biodiversity? Because we have the opportunity and the capacity for such action, but most importantly because we have a motivation to act.

The most cost common structure to conceptualize motivation is the Humean theory of motivation (Smith 1987). The actor has a desire that Y be realized, plus a belief that action X contributes to realization of Y. Then, 'do X' is the logical result. This structure is implemented in psychology such as the well-known Fishbein/Ajzen models of reasoned action. The mainstream character of Humean theory in scientific practice is also visible in ICT science that has commonly adopted the BDI (belief/desire/intention) structure to represent actors in agents-based models. Also preliminary framework of WP 3 is Humean in a broad sense. Menzel and Scarpa (2005) use Humean theory to better explain willingness-to-pay (WTP) bids that

seem anomalous at first economic sight.

On a more fundamental level, the Humean theory of motivation is strongly criticized, even declared dead by Dancy (1995) and others. They do so for philosophical hairsplitting reasons that are not of great interest to BIOMOT but also for two reasons that definitely are, namely the that (1) human reasoning is *much more contextual* than assumed by the fixed desires and calculi in Humean theory, and (2) human reasoning is *much less deliberative* than presumed by the Humean theory. Hence the second objective of WP 4.

### **Ad 1. Contextuality of human motivation**

Contextuality ('particularism', 'ontological multiplicity') means that human motivation does not work through fixed desires, principles and cognitions, but that these are context-dependent. Extremely put, any person is a new person in a new situation. One reading of contextuality is by way of 'moral modes of reasoning' (Goodin 1982, De Groot 1992), in which the actor is seen as responding to different contexts through a set of different 'ethics' (e.g. rational choice, ethics of care, ethics of honor). Other readings are given by Dancy, Ingold (2000) and many others such as Cheney (1989) who states that we live inside normatively binding bio-regional narratives, not inside ethical principles. One indication of the empirical strength of conceptuality is that moral modes often appear to exclude each other, e.g. when rewards undermine intrinsic motivations (Deci et al. 2010). Connected to the issue of contextuality are philosophies of aesthetical appreciation of nature (Carlson 1995) and philosophies of place and dwelling (Heidegger, Ingold etc.).

### **Ad 2. Non-deliberatedness of human motivation**

Human motivation is based on much more than self-interested deliberation only. Based on the literature (e.g. Ott 2007) and discussions with BIOMOT partners, the preliminary full list of *sources of motivation* reads as follows:

1. **Self-interest.** This is the core of Humean theory focused on maximizing utility, based on desires (preferences) and beliefs, specified into many models such as narrow and broad rational choice, reasoned action, BDI etc.
2. **Values, norms, principles, duties.** Values (e.g. values of biodiversity) are what raises people out of the confines of self-interest. Contrary to the previous group, norms and principles are moreover non-consequential. A prime example are social norms (e.g. to be a member of the labour union) that often help to bridge the gap between the private and collective good.
3. **Connectedness, empathy, identification.** This group of concepts focuses especially on the strength of motivation, through connection between the abstract Good (value, good intentions etc.) and the concrete Ought (felt duty to act).
4. **Virtues, shining examples, traditions, habits, imitation.** This groups of concepts, ranging from the abstract virtues to the concrete 'embedded virtues' that traditions and habits often are, focuses on the character traits and action that express what it is to be a good person – but surely, a person in context (a good bureaucrat rationally embodying the common good, a good boss of a green or non-green private company, a good mother in the family).
5. **Anxiety reduction.** This is one key concept from the psychoanalytical view on persons and society claiming that in many contexts, especially when we are thinking about the world outside our direct home and family, feelings of insecurity and fear underlie most of our actual choices.
6. **Aesthetic appreciation.** While aesthetic appreciation is often thought to be 'disinterested', this can be challenged in many ways, both philosophically and psychologically. In fact, it might well turn out that aesthetic values, connected to others, play an important role as source of motivation.

It may be hypothesized that these six sources of motivation rest on a deeper level of basic cognitions ('images'), namely the image of Self and the image of the World (or, contextually, self-in-world). For BIOMOT, the preliminary conceptualization of these two *roots of motivation* is:

- **Identity; images of self.** These concepts are linked to moderns versus postmodern images of self, images of the 'lone hunter of benefits' versus those of the person embedded in networks and narratives.
- **Images and cognitions of nature.** These are our basic beliefs and visions of what nature is, which may in fact contradict or at least stand in a very ambiguous relationship with our public expressions of

'awareness' about nature. Is nature vulnerable or (also) a capricious enemy taking care of itself? Should we be a stewards of nature then?

Each of these groups of concepts is connected to a host of theoretical and empirical work. In most of this vast literature, no significant progress is discernable over time, implying that an old piece of say, Foote (1951) is just as readable and relevant as mid-aged Dancy (1987) and present-day De Groot et al. (2010). In the psychoanalytical approach, old Freud, mid-aged Turner (1987) and present-day Slavoj Žižek equally add insights. Moreover, the theory of motivation is addressed in quite different disciplinary traditions, ranging from psychology and cognitive economics via anthropology (Ingold) and sociology (Turner) to general philosophy (Dancy, MacIntyre 1984) and environmental ethics (Cheney). A theory of motivation to act for biodiversity will have to address perennial problems of how human agency relates to reasons, motives, worldviews, virtues and the like. For BIOMOT, this implies that the consortium should be fully connected to these disciplinary fields (which it is), and that senior scientists from all partners should have enough person-months to have a really deep involvement in WP 4 (which they have).

It is quite possible that during all the theoretical and meta-analytical work in WP 4, the group will develop a desire to test findings in reality, on top of the empirical work already going on in WPs 1, 2 and 3. For instance, if voting (ballot box behavior) might be as contextual as any other sort of action, this could be tested in a ballot box experiment with people voting for parties (Party for Freedom and Economic Development, Party for Security and a Strong Nation, Party for Nature and Justice etc.) in two ballot boxes, one regular (narrow, gray, anxiety arousing) and one green (forest wall paper, a flower on the table). Would the green ballot box generate more green votes? Is this universal or differentiated, e.g. over the BIOMOT countries? Other possibilities of empirical work may be on benchmarking, hermeneutic virtue ethics and so on. It cannot be predicted what the WP 4 studies will lead to, but all partners will have budget space for empirical work in WP 4.

#### Tasks in WP 4

**Task 4.1: Common concepts.** This is the conceptual and terminological work on the non-motivational concepts relevant for BIOMOT as a whole, e.g. on scales, the relationship between ecosystem services and biodiversity etc. (see above).

**Task 4.2: First frame of a theory of motivation for biodiversity.** As is 4.1, this task focuses on the common concepts giving all WPs a common starting point. As one result, interviews done in WP 2 and WP 3 can greatly benefit from schemes generated in WP 4 that facilitate respondents to express values and obligation that do not fit into 'rational choice', Humean reasoning. One element here may be an "axeological matrix" that summarizes all categories of values of biodiversity and the languages that facilitates respondents to express these values.

**Task 4.3: Building a theory of motivation (including possible empirical part).** In this task, the WP 4 group will focus on its own core issues of theoretical progress.

**Task 4.4: Empirical reconnections.** In this task, the theoretical results will be connected with the empirical results from WP 1, 2 and 3. This will work both ways: WPs 1, 2 and 3 will be supplied with an enriched framework for the interpretation and reporting of their empirical data, and the data will enrich the final phases of WP 4's theory construction.

**Task 4.5: Thinking through the consequences.** In this task, the WP 4 groups will draft the recommendation for society, separated into various user groups (policy makers, business, communicators etc.)

**Task 4.6: Synthesis and reporting.** This task comprises all final communication with science and society, both for WP 4 separately and for the BIOMOT project as a whole.

#### Roles of the partners in WP 4

WP 4 will be led by partner 1 (Radboud University), drawing on its broad basis in philosophy and the social sciences. WP 4 will be very much an all-partners collective effort however, with all partners allotted a substantial number of person-months. All partners will participate according to their proper strengths (Manchester with psychology, philosophy and economics, Louvain and Joensuu with political and policy theory, Rome with psychology, Greifswald with philosophy and economics, Leiden with psychology and economics, Ljubljana with philosophy), but also drawing advice from other parts of their institutions.

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## Deliverables

The deliverables follow from the WP tasks. They are presented here as the subject descriptions ('working titles') of the major reports of the Work Package, to be disseminated also in the various modes described in the communication plan (section 3.2). The most important deliverable is in bold.

4.1. Common concepts for the BIOMOT project. (Month 6)

4.2. First frame of a theory of motivation for biodiversity action. (Month 12)

4.3. A general theory of motivation to act for biodiversity: building blocks, empirical analysis and synthesis. (Month 36)

4.4. A general theory of motivation to act for biodiversity: implications for governance, business and civil society. (Month 42)

**4.5. What works for biodiversity? Economic and alternative perspectives and methods for biodiversity valuation and motivation.** (Month 48)

**Table 1.3 d-5: Work package description WP 5**

<b>Work package number</b>	5	<b>Start date or starting event:</b>	1				
<b>Work package title</b>	<b>Project Management</b>						
<b>Activity Type</b>	MGT						
<b>Participant number</b>	1						
<b>Participant short name</b>	RU						
<b>Person-months</b>	24						

### Objective

The objective of WP 5 is to assure efficient, effective (e.g. coherent) and adaptive execution of the BIOMOT project.

### Description of work

#### Task 5.1: Project leadership / Scientific management

This task comprises the safeguarding of the overall project coherence across the WPs (e.g. coherence of research protocols, conceptual and terminological unity between WPs, efficient data exchange); leading the external contacts of the project; facilitating the strategic project choices beyond the research application; lead deliberations of possible project problems and make the final decisions.

#### Task 5.2: Project coordination

This task comprises monitoring of project progress and possible problems, take care of daily decisions under supervision of the project leader, setting up and maintenance of the BIOMOT website and the BIOMOT data sharing platform, liaison between financial and scientific deliberations, support of partners in reporting and financial duties, systematic project archive, coordination of reports towards FP7, support in the organisation of BIOMOT events, especially the conferences.

#### Task 5.3: Financial management

This task comprises the monitoring and compilation of the overall finances of the project, advice to partners on their own financial matters, early warning of possible problems towards the project leader and separate partners, compilation of the Payment Claims, coordination of juridical advice if needed, organisation of the audits, advice to the project leader on the financial aspects of project decisions.

#### Task 5.4: Project communication

The coordinating partner (RU) chairs the management team of the project, in which all partners participate (see section 3.2). Elements of this pan are the two-way engagement of some 300 professionals, the dissemination to (a matrix of) target groups, the website and the conferences.

### Deliverables

- 5.1. Timely, just and effective project decisions at any time needed (all months)
- 5.2. Timely and effective support of partners in financial issues. (all months)
- 5.3. BIOMOT website and data sharing platform (starting month 3)
- 5.4. Timely Payment Claims and audits of the project (whole project duration)
- 5.5. Two-way engagement, dissemination, Mid-Term Conference and Final Conference(s).

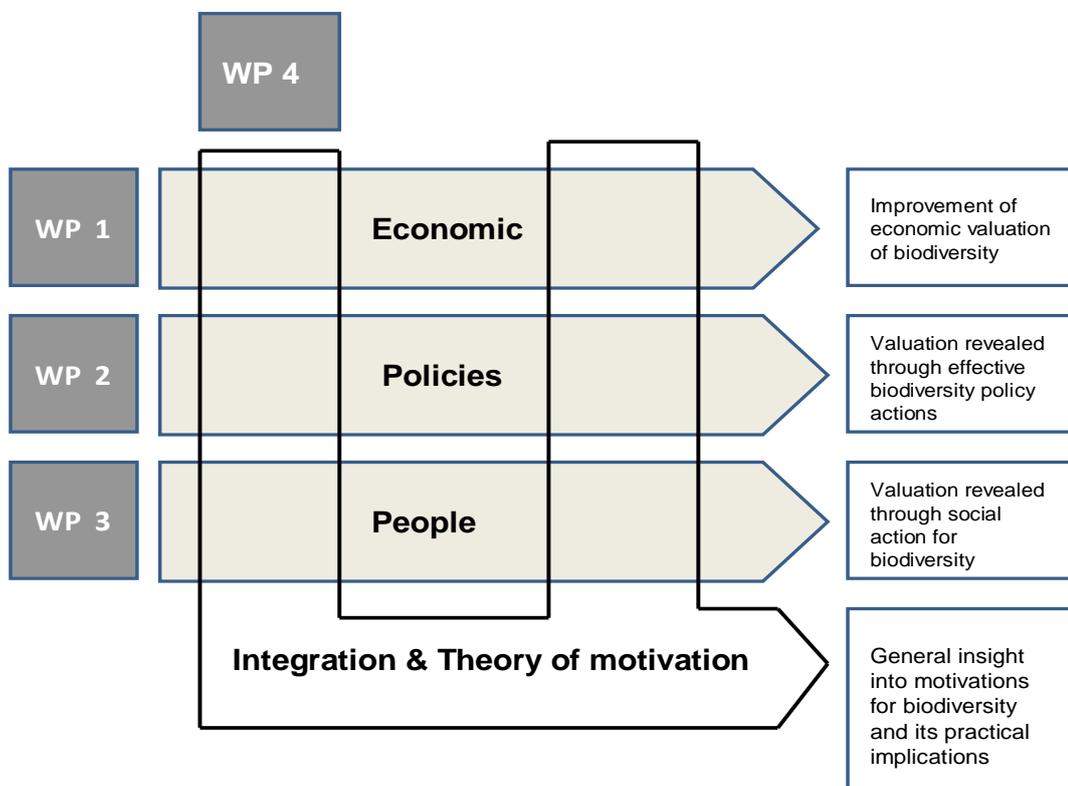
Finally in this section, a summary of staff effort is given, with the WP leaders in bold.

**Table 1.3 e: Summary of staff effort**

Participant no./short name	WP1	WP2	WP3	WP 4	WP 5 (MGT)	Total person months
1 RU	-	4	4	<b>32</b>	24	64
2 MU	<b>18</b>	7	12	10	-	47
3 UCL	5	<b>32</b>	10	6	-	53
4 UG	8	8	11	13	-	40
5 UEF	6	16	6	6	-	34
6 ZRC SAZU	4	10	13	22	-	49
7 CIRPA	4	7	<b>28</b>	6	-	45
9 LU	15	6	12	10	-	43
Total	60	90	96	105	24	375

*(iv) Graphical presentation of components*

In the graph below, it is visible how WP 4, especially in the early and the later phases of the project, will set all Work Packages on the coherent course (through the design of the first contours of a general theory of motivation for biodiversity action) and integrate all results, captured in the final theory of motivation for biodiversity action.



#### *(v) Risks and contingency plans*

All partners in the project are part of reputable institutions with good track records of reliability. Yet, risks cannot be excluded.

The technical risks of the project are minor, due to that the project only employs methods such as literature studies and interviews (with experts, leaders and citizens) that have a very low risk profile. One partner has indicated that stakeholders in its country are sometimes wary to be interviewed. If this would indeed be the case in that country to an insurmountable degree, the project has still six out of its seven fieldwork countries in Europe left.

The one foreseeable most serious risk is that partners would fail to supply the planned number of person-months in the project, e.g. due to reorganisation, sickness or staff turn-over. This issue is addressed through the basic set-up of all WPs, which comprises one WP lead partner, one co-researching partner and several supporting partners. If any other than the lead partner would fail, the WP lead partner has the opportunity to reallocate tasks over the remaining WP partners, if approved by the project's General Assembly (see section 2.2). The problem would of course be more serious if the risk would strike at a WP lead partner. That is why each WP has a co-researching partner that is fully updated on the theories and methods of the WP. Therefore if need be, the co-researching partner will always be able to take over the WP lead. Within the overall lead partner of the project (Radboud University), the personnel risk has been reduced by involving two senior researchers (prof.dr. De Groot and dr. Knippenberg) for a substantial time slot during the whole project; both are able to take over each other's roles if needed.

Interventions such as mentioned above require good monitoring and rapid response. This is supported in the project by that the project lead partner is also lead partner of WP 4, which is the WP interweaving all others, thus ensuring intensive communication and monitoring throughout the project period. The project leader will here be supported by the assistant project leader, who is dedicated to quick and intensive communication.



## 2. Implementation

### 2.1 Management structure and procedures

With eight partners of only a single (university) type, four work packages and no IPR complexities, the BIOMOT project does not require a complex management structure and process. The principles are given underneath.

Before entering into the contract with the European Commissions the participants will enter into a Consortium Agreement that specifies the details in the management structure and the procedures, including the legal responsibilities, liabilities and special measures to ensure that the Consortium as a whole and the participants for themselves will meet the goals and obligations towards the Commission. The agreement will pay special attention to obligations and potential conflicts, *e.g.* by allowing that in case one partner does not fulfil its obligations, other partners may take over and have a claim on the funds for that partner. The management of the consortium agreement is in the hands of the project leader.

#### **(a) Structure: Coordination, Executive Board and General Assembly**

The management structure of BIOMOT has three levels on which decisions are taken. Depending on the kind of decision or its consequences for the Consortium, less or more partners are involved in the decision making.

##### **Coordination**

Radboud University Nijmegen (RU) will be responsible for the overall management and co-ordination. Project leadership is in the hands of Prof. dr. Wouter T. de Groot of RU, who has research management experience with some 30 externally funded projects (e.g. as project leader of 'Freude am Fluss', and 8 million euro project of EU-Interreg). The responsibility of the project leader is to assure that the scientific work is executed as promised, directed by the proposal and later decisions by the Executive Board and General Assembly (see below). He also has the responsibility of reporting on and administrative matters to the EC, by collecting the work package reports from the work package leaders and delivering a full progress report according to the reporting schedule described below.

The Project Leader will be supported by an Assistant Project Leader who will take care of day-to-day matters, including the website and data sharing platform, under the Project Leader's supervision.

The department of Project Control of the Faculty of Science of the RU will take care of the financial and administrative matters. This department has coordinated and assisted in managing more than 220 EU projects in the last 12 years. On purely technical matters, the Project Control department can communicate directly with partners.

The project leader, the assistant project leader and a representative of Project Control will form a management team that will meet frequently. Its task is to assure full coherence of scientific, administrative and financial decisions and communication.

##### **Executive Board**

Decisions which concern changes in strategy, distribution of funds, or the consortium itself are taken by the project Executive Board which represents the next higher level in the management structure. The Executive Board is composed of the Work Package leaders, with one vote for each. Decisions of the Board are mostly taken on a majority vote unless otherwise agreed in the Consortium Agreement. In case of a draw the vote of the project leader decides.

Board meetings will take place in parallel with the regularly scheduled project meetings which take place every 6 months. In case of conflicts or urgent decisions it is the project leader’s task to initiate a Board meeting or a Board decision by telephone conference or e-mail.

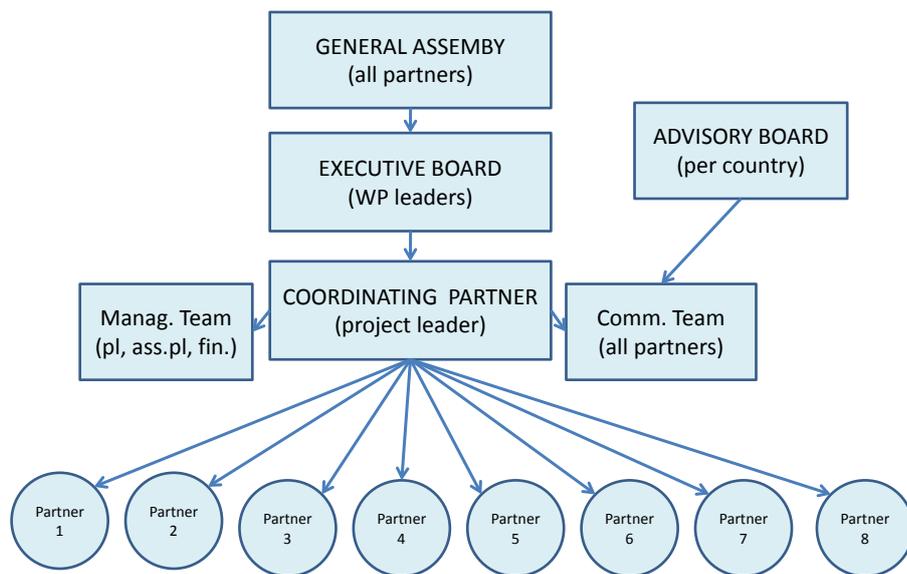
### General Assembly

The General Assembly is the highest decision making body of the consortium. Each Partner has one vote. In cases explicitly mentioned in the Consortium Agreement decisions will be taken by the General Assembly. Decisions of the General Assembly are taken by majority vote unless otherwise agreed in the Consortium Agreement. In case of a draw the final decision is taken by the Executive Board. The General Assembly will meet once a year. In case of conflicts or urgent decisions in which the Assembly should be involved following the Consortium Agreement rules, it is the project leader’s task to initiate an Assembly meeting or an Assembly decision by telephone conference or e-mail.

### Advisory Board

The Advisory Board is not part of the management structure but mentioned here for the sake of completeness. This Board, organised country by country, will meet at least once during the project lifetime in each country, and especially discuss general project issues with a special view on impact, communication and dissemination (see Section 3.2).

The structure is depicted below. The drawn lines are the formal ones; informal connections will run many more ways.



## (b) Procedures

### Meetings and reports

Project meetings will be organized on a regular timescale. Every 6 months, a meeting will take place in which partners will present their results and discuss progress and next actions. At these occasions, the Executive Board will meet and, if necessary, take decisions on strategic issues. Directly after an Executive Board Meeting a Meeting of the General Assembly can be organised to take a decision about an advice or a

decision of the Executive Board. Focused on impact and communication issues, also the communication team (see Section 3.2) and the country-based Advisory Board will meet during these occasions.

Yearly reports will be drafted by the WP leaders, supplying a substantive description of activities and the results obtained over the year. They will be delivered to the EC and also support the reviewers. The other reports such as those of the partners accompanying their payment claims can therefore be less substantive but will supply a compilation of activities and results with sufficient detail for the report's use. Besides the scientific reports, the Coordinator also sends the deliverable reports to the EC. For deliverables not due in the current year, indications will be supplied with respect to their expected delivery so as to keep track of the work flow and the work plan.

### **Communication strategy**

The communication strategy of the project has an internal and an external (i.e. dissemination) component.

The **internal** communication component aims to keep all participants fully informed about the project status, the planning and all other issues which are important to the participants in order to obtain maximum transparency for all involved and to increase the synergy of the cooperation. Elements of this strategy are the following:

1. Only informal but quite important in a general sense is that in BIOMOT, all partners will be involved in **all** Work Packages. This will guarantee an ongoing interest in each other's theories and results and an ongoing informal flow of information.
2. Project meetings will be frequent, duly reported and uploaded to be always accessible for all partners.
3. The project will have a **dedicated internal website (e.g. Wiki)** that will in any case contain all project documents (minutes, reports, reviews etc.), accessible to all partners. The website will be pre-structured by the project Coordinator but allow all partners to directly upload their own documents.
4. The project will also have a **web-based data sharing platform**, possibly integrated with the project documents Wiki, that will contain all raw empirical data, findings of theoretical explorations, structured and analysed data, draft and final publications. As will be detailed in the consortium agreement, all raw data will be common property but all other elements on the data sharing platform will be clearly authored.
5. Supplying a quick response to any partner query is a priority task for the assistant project leader. He/she will also draft a biweekly project newsletter and agenda, e-mailed to all partners.

The **external** communication component focuses on policy-makers, conservation practitioners and NGOs, public and business leaders, scientist from economics, psychology, governance science and philosophy, as well as the public at large. Its effectiveness will be enhanced through the Advisory Board. Details are given in Section 3.2 (Dissemination of project results).

### **Methods for monitoring and reporting progress**

Each participant will formally report to the work package leaders who collect the information. The work package leaders report to the project leader about the progress of the work, on the basis of a regularly updated detailed planning. The reporting includes information about the scientific progress, results obtained and compliance with the work program. The project leader will summarize the overall project status and planning and will coordinate the preparation of the scientific project reports and take care of their distribution. This concerns especially the brief 6-monthly progress reports, and the more detailed 12-monthly progress reports. Also every 12 months, the coordinator will prepare a consolidated overview of the budgetary situation of the project, on the basis of the cost statements he has received from the participants for submission to the EC and of the payments that have been made. The budgetary situation will also be compared with the initial costs-per-year planning which is to be made at the kick-off phase of the project.

## Protection of data and knowledge

The consortium does not comprise commercial partners and neither do the generated data and theory entail connections to patents or other formal IPR. Therefore, only a few simple rules apply on top of the basic scientific traditions of openness and peer review. They will be detailed in the consortium agreement but the general thrust is that (1) all raw data generated in the project will be protected against use by outsiders but be common property of the consortium as a whole, i.e. usable by all partners, and (2) all other theoretical and empirical outcomes shall be clearly authored so that researchers within BIOMOT can make simple *ad hoc* arrangements on how to refer to each other while using these outcomes (co-authorship, referencing, acknowledgements etc.). Raw data and intermediary findings can be opened up to outsiders if the data gatherers and data analysts agree in writing. All final findings and reports are of course fully open, i.e. published on the web, scientific journal and other media. If any problem would persist in spite of these arrangements, the project leader and Executive Board will initiate a two-tiered process of resolution, first mediated by scientific peers and then, if necessary, through the legal experts from the partner institutions.

## 2.2 Individual participants



## Partner 1: Institute for Science Innovation and Society (ISIS), Faculty of Science, Radboud University (RU).

ISIS is the 'meta-institute' of the Faculty of Science. It employs 30 philosophers, social scientists, ecologists and business innovation scientists focusing on science communication, empirical and normative philosophy of nature, genomics, water and landscape management and business innovation. ISIS and the Faculty of Science as a whole have extensive experience as coordinating partner and regular partner in EU-funded projects, such as 'Freude am Fluss' (Interreg IIIB, lead partner over 8 million Euros) and EuroMagnet II and INES in FP7.

### Role in the project

Radboud University will be coordinating partner of BIOMOT as a whole and lead the integrative WP 4. It will moreover contribute, especially as 'theory supplier', to WPs 1 – 3.

### Staff profiles

- **Prof.dr. Wouter T. de Groot** is full professor in social environmental science and authors of some 120 academic publications that include qualitative and quantitative methodologies, environmental philosophy, interdisciplinary frameworks, inductive vs deductive epistemology, theories of leadership and land use change, models of social causation and applications in the field of biodiversity conservation, land management and river management. He is also founder of the 'Visions of Nature' group at ISIS, that studies images of nature and the people-nature relationship, both empirically and philosophically.
- **Prof. Dr. Hub Zwart** is full professor of Philosophy and scientific director of ISIS. He has published ten books, more than forty articles in international journals and volumes and over hundred articles in Dutch, focusing on nature, ethics and genomics.
- **Prof.dr. T. Smits** is full professor in river management and initiator of the WaalWeelde programme, a prime example of integrating landscape management, biodiversity valuation and enterprise.
- **Dr. Luuk Knippenberg** is assistant professor and a senior researcher with fields of interest ranging from medieval philosophy to sustainable development indicators and the social aspects of landscape rehabilitation.
- **Dr. Martin Drenthen** is assistant professor and an environmental philosopher. He holds a PhD on Nietzsche's philosophy of nature and is currently working on ethics of place and ecological restoration.
- **Dr. Riyan J.G. van den Born** is assistant professor and a social scientist with a PhD on Visions of nature of lay people and has a wide experience in qualitative and quantitative methods in the social sciences. She currently works in the field of science communication and scientific and lay images of invasive exotic species, connected to theories of perception, framing and participation.

### Recent publications:

**De Groot, W.T.** and **R.J.G. van den Born** (2003) 'Visions of Nature and Landscape Type Preferences'. *Landscape and Urban Planning* 63, p. 127-138./ **Van den Born, R.J.G.** and **W.T. de Groot** (2008) 'The Authenticity of Nature: an exploration of lay people's interpretations in the Netherlands'. In: M. Drenthen, J. Keulartz and J. Proctor (eds.) *New Visions of Nature: Complexity and Authenticity*. Dordrecht: Springer, pp. 47-66./ **De Groot, M., M. Drenthen** and **W.T. de Groot** (2010). Public Visions on the Human/Nature Relationship and the Role of Environmental Ethics, in press, *Environmental Ethics*./ **Van den Born, R.J.G., R.H.J. Lenders** and **W.T. de Groot** (eds.) (2006): '*Visions of Nature. A scientific exploration of people's implicit philosophies regarding nature in Germany, the Netherlands and the United Kingdom*'. LIT Verlag, Berlin./ **Knippenberg, L.** (2010). Chasing God: the idea of sustainable development and its implications. In: F. Wijssen and S. Marcos (eds.), *Indigenous Voices in the Sustainability Discourse: spirituality and the struggle for a better life*. Berlin; LIT-Verlag (pp. 31-48)/ **Knippenberg, L.** and E. de Jong (2010). Moralising the Market by Moralising the Firm: towards a firm-oriented perspective of corporate social responsibility. *Journal of Business Ethics* (2010) 96: 17–31./ **Zwart H.** (2008). Understanding nature. Case studies in comparative epistemology. Dordrecht: Springer (284 pp.)

## Partner 2: Manchester University (MU), United Kingdom

Manchester University will participate in the BIOMOT project through the School of Social Sciences (Department of Economics and Department of Philosophy) and the School of Psychology. Both Schools, as well as Manchester University as a whole, have a wide experience in FP and many other international projects for the EU and other international agencies.

### Role in the project

MU will lead WP 1 (economics), with Prof. O'Neill and Prof. Wossink as senior staff. Moreover, MU through Prof. Beattie as senior staff will be co-researcher in WP 3 (psychology). MU will also contribute substantially to the common effort of WP 4 (theory of motivation), through Prof. Goldie and Dr. Scott as senior staff. In addition Dr. Banerjee will contribute to the empirical work of WP 1 and WP 2, and more junior researchers will be employed additionally.

### School of Social Sciences

**Prof.dr. John O'Neill** is Hallsworth Professor of Political Economy. He has written widely on philosophy and political economy, political theory, environmental policy, ethics, and the philosophy of science. He has published over 100 journal papers, book chapters and policy reports. He has been a partner in 10 European Projects over the last 15 years including: *Participatory Approaches in Science and Technology* (FP6); *Consultative Institutions, Values and Information in a Changing Society* (CIVICS); *Concerted Action on Environmental Valuation*; and *VALSE : Social Processes for Environmental Valuation*. His policy reports include *Representing Diversity* (2008) *Conceptions of Value in Environmental Decision-Making* (with Clive Spash, 2000) and *Costing Environmental Damage* (with A. Holland and M. O'Connor, 1996). His recent reports include *Living Well Within Limits: Well-Being, Time and Sustainability*. His books include *Markets, Deliberation and Environment* (Routledge, 2007), *The Market: Ethics, Knowledge and Politics* (Routledge, 1998) and *Ecology, Policy and Politics: Human Well-Being and the Natural World* (Routledge, 1993). He is co-editor with Tim Hayward of *Justice, Property and the Environment: Social and Legal Perspectives* (Ashgate, 1997) and *Environmental Ethics and Philosophy* (Edward Elgar, 2001). He is currently Principal Investigator on the project *Justice, Vulnerability and Climate Change*. He is on the scientific advisory board for research projects in Finland, Germany and Portugal.

**Prof.dr. Ada Wossink** is Professor of Environmental Economics. Her theoretical and empirical work addresses the integration of insights provided by production ecology, environmental ecology and behavioural economics and she has published extensively in this area. She has been actively involved in more than 25 externally funded multidisciplinary research assignments in past and in current positions in Europe and the US and has coordinated several of such projects. During 2004-2007 she was the leader of an USDA-SARE funded project on *Sustainability indicators as management tools to guide farmers, scientists, policy makers and the general public*. She has served on the research review panels for: the *U.S. National Institute of Health*, the *Research Council of Norway*, and the *U.S. National Academy of Sciences*. Selected Publications: (2008) The Meaning of Sustainability: Evidence from a Conjoint Analysis, *Agric. Systems* 98(1): 10-20. (2007) Jointness in Production and Willingness to Supply Non-Marketed Ecosystem Services, *Ecol. Economics* 64(2): 297-303. (2006) Environmental Policy Uncertainty and Marketable Permit Systems, *Amer. J. of Agric. Econ.* 88 (1): 16-27. (2004) Location specific modelling for wildlife management, *Ecol. Economics* 48: 395-407. (2003) Evaluation of sustainability of organic, integrated and conventional systems, *Agric., Ecosystems and Environm.* 95(1): 273-288; (2001) Non-separability and heterogeneity in integrated analysis of non-point source pollution, *Ecol. Economics* 38: 345-357. (2000) Environmental Policies and Land Values, *Land Econ.* 76(3): 413-429.

**Prof.dr. Peter Goldie** is the Samuel Hall Chair in Philosophy. His main philosophical interests are in the philosophy of mind, ethics and aesthetics, and particularly in questions concerning value and how the mind engages with value. He is the author of some fifty published papers and book chapters, and the author of

*The Emotions: A Philosophical Exploration* (OUP 2000), and *On Personality* (Routledge, 2004). He is co-author of *Who's Afraid of Conceptual Art?* (Routledge 2010), editor of *Understanding Emotions: Mind and Morals* (Ashgate, 2002), and *The Oxford Handbook of Philosophy of Emotion* (2010), and co-editor of *Aesthetic Psychology: Philosophy and the Empirical Sciences* (OUP 2011), and *Empathy: Philosophical and Psychological Perspectives* (OUP 2011). He is currently writing a book for OUP on narrative thinking and emotion. He was a partner in HUMAINE (FP6) and in the IST (Information Society Technologies) Thematic Priority IST-2002-2.3.1.6.

**Dr. Michael Scott** is Senior Lecturer in Philosophy. His main research areas are the philosophy of psychology (in particular theories of action, motivation and perception), the philosophy of religion and philosophy of biology. He has published over 25 academic papers. He is the co-author of *Reading Philosophy of Religion* (2010) with and currently writing a book on philosophy of religion. He is editor of *Realism and Religion* (2007). He was a principal investigator on *The Motivations of Indifference* (2009-10) with Peter Goldie, a project looking into the philosophy and psychology of theories of motivation to account for the indifference towards environmental sustainability in the behavior of agents and populations, despite the apparently pro-environmental opinions expressed by individuals.

**Prasenjit Banerjee** is lecturer in environmental economics. His theoretical and experimental research is motivated by interdependencies between human behaviour and institutions designed for environmental protection. His work includes endangered species conservation, common pool resource management, behavioural impact on environmental policies, mechanism design, institutions for environmental protection, and environmental regulation. He also looks at philosophical and behavioural underpinnings of valuation of environmental goods. Publications: Banerjee, P., and J. F. Shogren (2010), "Regulation, Reputation and Environmental Risk", *Economics Letters*. 106 (1): 45-47; Shogren, J. F., G. M. Parkhurst, and P. Banerjee (2010), "Two Cheers and a Qualm for Behavioral Environmental Economics", *Environmental and Resource Economics* 46 (2): 235-247.

### **School of Psychology**

**Prof. Geoffrey Beattie** is Professor of Psychology and Head of School of Psychological Sciences. He obtained his PhD in Psychology from the University of Cambridge (Trinity College) and is a Fellow of the British Psychological Society (BPS). He was President of the Psychology section of the British Association for the Advancement of Science (2005-2006). His research interests include applied social psychology; human multi-modal communication; perception and processing, including subliminal processing; micro-level analysis of individual behaviour in the context of sustainability; advertising; and implicit and explicit attitudes to the environment. He is the author of 17 books including *Visible Thought* (2003) and *Why Aren't We Saving the Planet? A Psychologist's Perspective* (2010). In the past three years, he has been PI on a number of grants, e.g. two funded by the Sustainable Consumption. Selected Recent Publications: Beattie G, McGuire, L and Sale L. (2010). Do we actually look at the carbon footprint of a product in the initial few seconds? An experimental analysis of unconscious eye movements. *International Journal of Environmental, Cultural, Economic and Social Sustainability*, 6, 47-66; Beattie G, Webster K, Ross J. (2010). The fixation and processing of the iconic gestures that accompany talk. *Journal of Language and Social Psychology*, 1-20; Beattie G, Sale L. (2009). Explicit and implicit attitudes to low and high carbon footprint products. *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 5, 191-206; Beattie G. (2008). What we know about how the human brain works. *How Public Service Advertising Works*. In Lannon, J. (ed.) (pp.219-231). UK: World Advertising Research Centre.

### **Partner 3: Université Catholique de Louvain (UCL), Louvain-la-Neuve, Centre for the Philosophy of Law, Unit on Biodiversity and Reflexive Governance (BIOGOV)**

The research Unit on Biodiversity and Reflexive governance (BIOGOV) is a research unit of the Centre for the Philosophy of Law (CPDR) at the Université Catholique de Louvain (UCL). Its focus is on collective learning in the field of sustainable development, with a particular focus on access and benefit sharing and intellectual property as it pertains to the utilization of genetic resources. This research is developed in an international (REFGOV) and national (IUAP VI/06) network on democratic governance. BIOGOV is also partner of the European projects LowInput Breeds and Communia.

#### **Tasks in the project**

UCL will lead WP 2 on “Motivational factors behind policy successes for nature”. The main tasks under this WP is concerned with a comparative analysis of motivational strengths at the policy level, based on an analysis of the actor configurations and their motivations that played a role in major cases of success and failures of biodiversity/ecosystems policies (globally, EU level and lower scales in the countries of the BIOMOT partners). UCL will also carry out the empirical work for WPs 1, 2 and 3 in Belgium. Moreover it will contribute to the collective effort of theory building in WP 4.

#### **Relevant previous experience**

The BIOGOV research unit has coordinated a number of research programs, both national and international, in the field of access and benefit sharing for genetic resources, innovative intellectual property arrangements and governance of global public goods. In particular the BIOGOV unit is currently in charge of the sustainability assessment work package of the LowInput Breeds project on the improvement of animal genetic resources (FP7, <http://www.lowinputbreeds.org>) and of the biodiversity sub-network of the Belgian Interuniversity network on democratic governance (<http://iap6.cpdr.ucl.ac.be/>). The BIOGOV unit has also coordinated sub-networks of two other major European projects: the global public goods sub-network of the European REFGOV network (FP6, <http://refgov.cpdr.ucl.ac.be/>) and the Communia network on the digital scientific research commons (<http://www.communia-project.eu/>). The BIOGOV unit has in addition organized international conferences dedicated to the implementation of the Convention on Biological Diversity (<http://biogov.cpdr.ucl.ac.be/>).

#### **Key staff involved**

**Prof. Dr. ir. Tom Dedeurwaerdere** is the research director of the Biodiversity Governance Unit of the Centre for the Philosophy of Law. He is also professor at the Faculty of Philosophy, Université Catholique de Louvain and holds a permanent position as research associate at the National Foundation for Scientific Research, Belgium (F.R.S.-FNRS). **Prof. Dr. Jacques Lenoble** is professor at the law school of the Université catholique de Louvain and Director of the Center for Philosophy of Law; he has been the coordinator of several European and Belgian research programmes in the field of theories of democratic governance. **Prof. Dr. Marc Maesschalck** is professor at the Faculty of Philosophy and director of the Philosophy Unit of the Centre for Philosophy of Law. He is coordinating with prof. J. C. Godard the EU Master program Erasmus mundus EuroPhilosophie. **Prof. Dr. Olivier De Schutter** is professor at the faculty of law and director of the Fundamental Rights Unit at the Centre for Philosophy of Law. He is currently the special rapporteur of the United Nations on the Right to Food.

#### **Relevant publications**

- Dedeurwaerdere, T. (2009). Social Learning as a Basis for Cooperative Small-Scale Forest Management. *Small-scale Forestry* 8:193-209.
- Tom Dedeurwaerdere (2007). The contribution of network governance to sustainability impact assessment, in: Thoyer S. and Martimort-Asso B. (eds), *Trade and Sustainable Development*, Ashgate, Hampshire, pp. 209-228.
- Dedeurwaerdere, T. (2005). From bioprospecting to reflexive governance. *Ecological Economics* 53(4), pp. 473-491

## Partner 4: University of Greifswald (UG) - Institute of Botany and Landscape Ecology (Working Group: Environmental Ethics)

The Institute of Botany and Landscape Ecology has a unique interdisciplinary profile, comprising biologists, ecologists, economists, social and political scientists, and philosophers. The Institute has a long-standing worldwide expertise in the field of mire and paleo-ecology, and ecosystem dynamics. Moreover, it is the only Institute in Germany that holds a full professorship on environmental ethics. The Working Group Environmental Ethics hosts an interdisciplinary research group on social entrepreneurship (GETIDOS) with a specific expertise in empirical social research.

### Role in the project

The Institute will do the empirical work for WPs 1 – 3 in Germany and also contribute to the theory inputs there. The second involvement is in WP 4, where the Institute will contribute substantially to the all-partners effort towards the general theory of motivation to act for biodiversity.

### Staff profiles and publications

1. **Prof. Dr. phil. Konrad Ott** is full professor for environmental ethics. He is author of several books and many articles about axiology and deontology in environmental ethics. His research topics are: discourse ethics, general environmental ethics, theories of sustainability, reasons for biodiversity conservation, ethics of climate change. As a member of the German Environmental Advisory Board, he was involved in policy advice for eight years. He is member of the Board of Biodiversity and Genetic Resources at the German Federal Ministry of Food, Agriculture, and Consumer Protection. Selection of topic-related publications:

- *Umweltethik zur Einführung*, Hamburg 2010.
- Zur ethischen Begründung des Schutzes von Biodiversität, in: Thomas Potthast (Hg.): *Biodiversität - Schlüsselbegriff des Naturschutzes im 21. Jahrhundert*, Bonn 2007, S. 89-124.
- Environmental Values and Comprehensive Environmental Assessment, in: Carl. F. Gethmann (Ed.): *Environment Across Borders*, Berlin 2003, pp. 153-172.

2. **Dr. Barbara Muraca** is currently lecturer in philosophy and environmental ethics. Her PhD thesis was on sustainability theory, in which she has elaborated a multifaceted axiological matrix for environmental ethics. As a facilitator she has coordinated a working group on "Value and valuation of biodiversity conservation" ([http://www.bfn.de/0610\\_v\\_poverty08+M52087573ab0.html](http://www.bfn.de/0610_v_poverty08+M52087573ab0.html)) for the workshop on Biodiversity Conservation and Poverty Reduction, organised by the German Federal Agency for Nature Conservation in 2009, and delivered several contributions to the European project TEEB on the issue of value and valuation of biodiversity and ecosystems. Selection of topic-related publications:

- *Denken im Grenzgebiet. Prozessphilosophische Grundlagen einer Theorie starker Nachhaltigkeit* (2010). Freiburg/München: Alber.
- The Map of Moral Significance: a new matrix for environmental ethics, in: *Environmental Values* (accepted).

3. **Dr. Achim Schäfer** is a researcher in environmental and landscape economics. He conducted several research projects on economic impacts of peatland restoration and the monetization of ecosystem services. Currently he is working on the estimation of costs and benefits of the implementation of the National Strategy on Biodiversity in Germany. Selection of topic-related publications:

- Moore und Euros – die vergessenen Millionen. *Archiv für Forstwesen und Landschaftsökologie* 43 (4): 156-160.
- Monetarisierung ökologischer Leistungen von Mooren. *Greifswalder Geogr. Arbeiten* 31: 21-30.
- Utilizing economic tools in nature protection. Recommendation Study. The European Union's Transition Facility 2004 programme for Czech Republic.

## Partner 5: Environmental law research group, Department of Law, University of Eastern Finland (UEF)

The Environmental Law research group is the largest of its kind in Finland. Environmental research and natural resource management are one of the areas of expertise at the UEF. Since 2007, the university has focused especially on multidisciplinary social-scientific environmental research by funding the centre of excellence called "Forest, environment and society" (MYY).

The research group consists of two professors, 4 post doctoral researchers and 9 full-time PhD-students. The department of law provides the widest selection of environmental law courses in Finland, covering all areas of environmental law from international and European environmental law to nature conservation and forest law. The recent international research evaluation (2008) points out, that environmental law is the leader of expertise in the Department of Law at UEF (<http://www.uef.fi/uef/tutkimuksen-arviointi> -> Evaluation Report, Faculty of Law, Economics and Business Administration)

### Role in the project

The research group will be co-leader of WP 2 (on motivations for biodiversity in governance settings) and will carry out the empirical work for WPs 1, 2 and 3 in Finland. Moreover it will contribute to the all-partners effort of theory building in WP 4.

### Staff profiles

*Tapio Määttä* (Dr. Jur.) is professor of environmental law. He is an expert in the environmental law and legal theory, specialized in doctrinal and theoretical evolution of modern environmental law. His recent research as a senior scientist (funded by Academy of Finland 2009–2010) has focused on the legitimacy of the governance of natural resources. His research interests include multidisciplinary methodologies of environmental law. Prof. Määttä was the scientific coordinator of the Environment and Law Research Programme 2005–2008 at the Academy of Finland ([www.aka.fi/envlaw](http://www.aka.fi/envlaw)).

*Juha Hiedanpää* (Dr. Env.Pol) is adjunct professor and has worked at the Finnish Game and Fisheries Research Institute. He has a degree in environmental economics (1994) and PhD on environmental policy (2004). He has studied the institutional aspects of biodiversity and ecosystem service-based policies and the consequences of the social-ecological fragmentation of the hunting grounds in southern Finland. He also writes about cultural ecosystem services. Some publications include: (1) Hiedanpää, J. & Bromley, D.W. 2010b. Contestations over Biodiversity Protection: Considering Peircean Semeiosis; *Environmental Values*, forthcoming, (2) Hiedanpää, J. & Bromley, D.W. 2010a. The Harmonization Game: Reason and Rules in European Biodiversity Policy. *Environmental Policy and Governance*, in press; Hiedanpää, J. 2005. The Edges of Conflict and Consensus, *Ecological Economics* 55, 4: 485-498; (3) Hiedanpää, J. 2004. An Institutionalist Approach to Environmental Valuation, *Environmental Values* 13, 2: 243-260; (4) Hiedanpää, J. 2002. European-Wide Conservation vs. Local Well-being: The Reception of Natura 2000 Reserve Network in Karvia, SW-Finland. *Landscape and Urban Planning* 61, 2-4: 113-123.

*Suvi Borgström* (MSc) works as a researcher in University of Eastern Finland at the Department of Law. She has master's degree in environmental law and is currently finalizing her PhD studies in environmental law (defense in autumn 2011). In her PhD work she studies legal and societal issues involved in the conservation of wolves. One of the research interests is to evaluate how current regulatory mechanisms protect the ecosystem services.

## Partner 6: Scientific Research Centre of the Slovenian Academy of Sciences and Arts (ZRC SAZU)

ZRC SAZU is the leading Slovenian research center in the humanities and a cutting-edge academic institution in central, east and southeast Europe. It has a multidisciplinary and interdisciplinary character; in addition to the humanities, its spheres of research also cover the natural and social sciences. Natural and cultural heritage is one of ZRC SAZU's fields of research. ZRC SAZU overarches 17 research institutes, two of which will be involved in BIOMOT.

Growth in both manpower and research fields demonstrates the high level of skill in financial and organizational management at ZRC SAZU. The scientific and administrative staff has much experience in international cooperation, including FP7 (e.g. NEREIDS, ARCLAND and CapHaz-Net) and LIFE+.

### Tasks in the project and involved institutions

ZRC SAZU will be involved in the theory building effort of WP 4 and the empirical work of WPs 1, 2 and 3 (document study and interviews in Slovenia, analysis of these data and contributing to the international results).

For WP 4, the main contribution will come from the **Institute of Philosophy**. The research carried out by the Institute of Philosophy include: ethics, aesthetics, contemporary philosophy, political and legal philosophy, the philosophy of language, the philosophy of history and the history of political thought, the history and philosophy of science, medieval philosophy, the philosophy of Kant, and the philosophical significance of psychoanalysis (particularly Lacanian psychoanalysis). For the BIOMOT project, the psychoanalytical contribution to the understanding of human motivation will be important but many other concepts covered by the Institute as well, including the understanding of Eastern-European 'cultures of nature'.

For WPs 1, 2 and 3, the main contribution will come from the **Anton Melik Geographical Institute**. This institute is divided into seven departments, among which Social Geography, Regional Geography and Environmental Protection. The last department works, *inter alia*, on biodiversity conservation, human ecology, agriculture, natural resource management and public awareness. Expertise for the BIOMOT project, e.g. on research methods, can be drawn from other departments too, however.

### Staff profiles

- **Prof.dr. Rado Riha** is head of the Institute of Philosophy and a professor at the University of Nova Gorica (subject:). holds a degree in Philosophy and German language and a PhD in Philosophy. He is a senior research fellow and the His main research topics are transformation of post-modern thought, Kantian ethics, psychoanalysis and contemporary French philosophy.
- **Dr. Tadej Troha** is a researcher at the Institute of Philosophy. His main research topics are Freudian psychoanalysis, politics and discourse analysis.
- **Dr. Samo Tomšič** is a researcher at the Institute of Philosophy and at the Jan van Eyck Academie in Maastricht, Netherlands. His research focuses on Lacanian psychoanalysis, ethics and political philosophy.
- **Dr. Aleš Smrekar** is head of the Department of Environmental Protection. His interests comprise environmental methodology and public awareness of environmental conservation. He is moreover active for many policy-making and societal groups, such as the Regional Development Council of the Ljubljana Region, the national advisory committee for environmental statistics and the expert committee for ecology and environment of Znanost mladini ('Science to youth').
- **Dr. Mimi Urbanc** is a geographer and assistant director of ZRC SAZU. Her research interests are cultural landscapes, perception of landscape change, participatory approaches in regional planning, and public awareness of climate change.

## Partner 7: Centre for Interuniversity Research on Environmental Psychology – Sapienza University of Rome (CIRPA-Sapienza)

CIRPA was established in 2005, at the Sapienza University of Rome, Italy, to promote and develop environmental psychology in Italy. The Director of CIRPA is Prof. Mirilia Bonnes. CIRPA also has PhD program since 2006. CIRPA and its members are currently involved in several national and international funded research projects, including European FP7 ones.

### Main tasks in the BIOMOT project and previous experience relevant to those tasks

CIRPA will contribute to BIOMOT by leading the work in WP 3, and will contribute to the research activities in WP 1 and WP 2, as well as in the dissemination tasks. CIRPA has been and is currently involved in several national and international funded projects on people-environment relations.

### Selected reference to research projects and networking relevant to BIOMOT

- LOCAW (2011-2014), funded by EU FP7.
- UR-Flood (2009-2011), funded by EU 2nd ERA-Net CRUE Funding Initiative.
- INTERFACE (2006-2008), funded by British Council and Italian Research Ministry.
- ASPEN (2008-2010), funded by Italian Ministry of Instruction University and Research.
- Environmental psychology research program (2009-2011), funded by Cilento and Vallo di Diano NP.
- COST E39 Action on Forests, trees, and human health and well-being (2004-2007).

### Profile of the key staff members undertaking the BIOMOT project

- **Marino Bonaiuto** is full professor at the Sapienza University of Rome, Italy, and vice-director of CIRPA. His research interests are on perceived urban quality indicators and identity processes. He coordinated several national and international funded projects, including European FP ones, and authored several volumes, chapters, and articles in peer reviewed journals.
- **Mirilia Bonnes** is full professor at the Sapienza University of Rome, Italy, and director of CIRPA. Her research interests are on environmental and social psychology. She coordinated several national and international funded projects, including European FP ones, and authored several volumes, chapters, and articles in peer reviewed journals.
- **Giuseppe Carrus** is Researcher at the University of Roma Tre, Italy and scientific secretary of CIRPA. He is Board member of IAPS. His research interests are on pro-environmental attitudes and people-nature relations. He participated and coordinated several national and international funded projects, including European FP ones, and authored several volumes, chapters, and articles in peer reviewed journals.
- **Ferdinando Fornara** is Researcher in Social Psychology at the Department of Psychology of the University of Cagliari. His research interests are on residential satisfaction and perception of healthcare environments. He participated to several national and international funded projects, including European FP ones.

### Selected recent publications relevant to BIOMOT

- **Bonnes, M., Passafaro, P., & Carrus, G.** (2010). The ambivalence of attitudes towards urban green areas: Between pro-environmental worldviews and daily residential experience. *Environment and Behavior*. In press
- **Bonaiuto, M., Bonnes, M., Nenci, A.M., & Carrus, G.** (2010). *Urban Diversities – Environmental and Social Issues*. Gottingen: Hogrefe & Huber. In press.
- **Carrus, G., Cini, F., Bonaiuto, M., Mauro, A.** (2009). Mass media communication and environmental disputes: an analysis of local press communication on the designation of the Tuscan Archipelago National Park in Italy. *Society & Natural Resources*, 22, 607-624..
- **Corral-Verdugo, V., Bonnes, M., Tapia-Fonllem C., Fraijo-Sing, B., Frias-Armenta, M., & Carrus, G.** (2009). Affinity towards diversity as a correlate of sustainable orientation. *Journal of Environmental Psychology*, 29, 34-43.
- **Corral-Verdugo, V., Carrus, G., Bonnes, M., Moser, G., Sinha, J.** (2008). Environmental beliefs and endorsement of Sustainable Development principles in water conservation: towards a New Human Interdependence Paradigm scale. *Environment and Behavior*, 40, 703-725

## Partner 8: Institute of Environmental Sciences (CML), Leiden University

CML is an institute of the [Faculty of Science](#) with research and education programs in the multidisciplinary field of environmental sciences, including biology, ecosystem services, economics, landscape management and industrial ecology. It employs about 32 people who are distributed over two departments, one on Industrial Ecology and another one on Conservation Biology ([www.cml.leiden.edu](http://www.cml.leiden.edu)). For the BIOMOT project, CML will also use its good relation with the department of *Social and Organizational Psychology* at the Faculty of Social Sciences, that works, inter alia, on social dilemmas, attitude-behaviour relations, pro-environmental behaviour and leadership.

### Previous experience

CML has been involved in more than 10 EU-funded projects, both as coordinator and as regular partner. CML can rely on experienced financial and administrative support from the Science Faculty professionals.

### Role in the project

CML will do the empirical data gathering for WPs 1, 2 and 3 in the Netherlands, be co-researcher for WP 1 as a whole and contribute substantially, along with all other partners, to the integrative theory building in WP 4.

### Staff profiles

- **Prof. dr. G.R. de Snoo** is full professor of Conservation Biology, working on biodiversity in rural areas, the impacts of land use change on biodiversity, and the social transition towards sustainable land use, including motivation for nature protection by farmers. De Snoo is also endowed professor at the Wageningen University in the field of Nature Conservation on Farmland.
- **Prof.dr. Wouter T. de Groot** has 35 years of experience in land use change, river management, interdisciplinary methodologies, ecosystem services, economics and the social aspects of the people-nature relationship, in Europe and the developing countries.
- **Dr. Henk Staats** coordinates the Centre for Energy and Environmental Research. His research interests include environmental preferences, psychological restoration and the analysis of pro-environmental behaviour.
- **Dr. Denyse Snelder** has 25 years of experience in research methodology and research supervision in the field of conservation and natural resource management, in Europe and the developing countries.

### Selection of recent publications:

- Lokhorst, A.M., **H. Staats**, J. van Dijk, E. van Dijk and **G.R. de Snoo** (2010). What's in it for me? Motivational differences between farmers' subsidized and non-subsidized nature conservation practices. *Applied Psychology: An International Review*. Accepted.
- Hartig, T. & **Staats, H.** (2006). The need for psychological restoration as a determinant of environmental preferences. *Journal of Environmental Psychology*, 26, 215-226
- Hunka, A., **W.T. de Groot** and A. Biela (2009), Visions of Nature in Eastern Europe: A Polish Example. *Environmental Values* 18, 429-452
- **De Groot, W.T.** and M.R. Romero (2009), 'Forest fringe farmers on the way to sustainability: an econometric and cost-benefit analysis', in K. Burger and F. Zaal (eds.), *Sustainable Land Management in the Tropics: Explaining the Miracle*, Ashgate Publishers, pp. 141-156.
- De Groot, M. and **W.T. de Groot** (2009), "'Room for river" measures and public visions in the Netherlands: A survey on river perceptions among riverside residents, *Water Resources Research* 45, W07403, doi:10.1029/2008WR007339.
- **De Snoo, G. R.**, Lokhorst, A. M., Van Dijk, J., **Staats, H.**, Musters, C. J. M. (2010). Agri-Environment schemes, what have they accomplished and where do we go from here? Benchmarking biodiversity performances of farmers. *Aspects of Applied Biology*, 100, 311-317

## **2.3 Consortium as a whole**

Critical disciplines for this project are economics, governance science, psychology and philosophy. The consortium has a perfect composition in these disciplinary essentials, even to the extent that all disciplines are represented by more than one partner. Economics is found at senior level within partners in Manchester (MU), Leiden (LU) and Greifswald (UG). Governance science is found at senior level within partners in Louvain (UCL) and Joensuu (UEF). Psychology is found at senior level within partners in Rome (SIRPA), Manchester (MU), Leiden (LU) and Nijmegen (RU). And philosophy is found at senior level within partners in Nijmegen (RU), Greifswald (UG), Manchester (MU), Ljubljana (ZRC ZASU), while other partners such as UCL and LU have a theory base of such depth that they too will contribute much to the foundational WP 4. Finally, all partners have good networks with their own broad institutions, enabling them to enrich BIOMOT through informal contacts with colleagues outside their own working groups. One example is at RU, where ISIS is also working on business innovation and public leadership, in collaboration with the School of Management.

This unique composition is exploited to the full through the division of tasks within the WPs. WPs 1, 2 and 3 will have a WP leader and a second partner as co-researcher. Moreover in each WP, three or four other partners will join with 1 to 4 person-months to assure capturing the full richness of each other's experiences and perspectives. In WP 4, even all partners will join the effort under the leadership of RU, with staff involvement of 4 to 12 person-months. This way, BIOMOT will be a truly interdisciplinary, international and cross-cultural undertaking.

Second, the project needs a good basis in social-scientific methodologies for the data gathering and data analyses of the empirical work to be done in WPs 1, 2 and 3 and possibly 4. All partners avail of this capacity, enabling BIOMOT to do the empirical research in all seven BIOMOT countries, spread over North, West, South and Eastern Europe. This empirical research will be carried out by the partners in these respective countries, thus saving travel time and money and avoiding the language problems that might easily crop up in the complex and qualitative issues to be discussed with the respondents. BIOMOT will generate common protocols for this endeavour (tasks 1.3, 2.2, 3.2. and 4.2). Researchers from all partners will be trained in these protocols by the lead partners of the respective WPs. Thus, all partners will join in a maximally efficient and effective data gathering and analysis effort.

There will be no subcontracting involved except possibly on a very minor scale for technical jobs such as organisation of the Mid-Term and Final conferences or the production of the general-public final booklet/DVD of the project.

The consortium, balanced and complete as it is, does not require other, as-yet-unidentified partners or countries. This does not preclude, of course, that other institutions may appear and wish to join BIOMOT at some stage. The project is not against such possible expansion, provided that both the General Assembly and FP7 would approve. Much will depend on the additional data and theory that the new partner would bring along as well as the options for budgetary accommodation. One format for later partners could be to join only for a small number of person-months, focusing especially on the theory-building efforts in WP 4 or other WPs.

## **2.4 Resources to be committed**

All partners separately will take care of the mobilisation of the resources beyond the EC contribution, implying a substantial commitment through the universities' basic funding.

The BIOMOT project is not a routine research effort aiming to supply some more data to fill a concrete 'knowledge gap'. BIOMOT aims to really address a persistent problem at a deep level. This implies a relatively high involvement of senior scientists in all BIOMOT partners and the senior staff members listed in the partner descriptions of Section 2.2 are scheduled to do so indeed. Junior staff will be hired however

for all jobs that lend themselves to that, such as the assistant project leader at RU and the interviews and/or interview transcriptions in the WPs 1 to 3.

The major budget line in the project, logically, is personnel. The execution of BIOMOT, designed as it is for intense interdisciplinary collaboration between partners (see previous section), will however also entail substantial travel beyond the regular project meetings, e.g. for theory workshops, discussions of the common protocols and training for the interviews in WPs 1 to 3. Moreover, the empirical work in all countries will require a budget. That is why all partners have a travel, subsistence and consumables budget of approximately 7,000 euros in each work package. This amount is about the same for all partners because all will do the empirical work for the work packages in their countries and all will organise and join in workshops and training to basically the same degree, as is visible in the BIOMOT design (see preceding section and the WP descriptions). Other consumables have been set aside for the organisation of the Mid-Term Conference (70,000 euros including overhead at RU) and Final Conference (56,000 euros excluding overheads at UCL, being closest to Brussels). These last figures are still somewhat provisional in allocation. Would it be decided, for instance, to hold several in-country final conferences plus one for the EU specifically (see communication plan) *in lieu* of one international Final Conference, the final conference funds will be redistributed over partners accordingly.

### 3. Impact



#### 3.1 Expected impacts listed in the work programme

##### Short-term impact: comprehension and tools in a broad circle of practice

If conserving forests has a net present value of some 3 trillion euros, why is deforestation still accelerating? What works to move policies and publics into action for biodiversity? Do the current economic methods to assess the 'Total Economic Value' of biodiversity (TEV) through ecosystem services suffice to halt the ongoing degradation of biodiversity in Europe? What other, alternative methods to grasp the value of nature may possibly have a greater impact ("utility")? That is the question put forward in the call topic 2.1.4-3 of ENV-2011. Its title is:

**"Improved comprehension of the utility of the concepts of value of biodiversity".**

Its expected impact is formulated as:

***"Expected impact: Analysis of alternative ways to improve biodiversity policy making and governance at local, national and global scales."***

In the BIOMOT project, this expected impact has been the key to design the project from the beginning, including its consortium that comprises economists, governance scientists, psychologist and philosophers. Its basic structure is given by that ecosystem services, TEV and the methods it is based on (e.g. contingent valuation) do not only require a technical review in order to enhance their motivational impact, but also need to be deeply rethought, both within economics (WP 1) and outside it, connecting the value of biodiversity to the domains of governance (WP 2), psychology (WP 3) and philosophy (WP 4). In the BIOMOT design, WP 4 will gather all disciplinary insights, set the integrative course of the project as a whole and finally end with an overarching theory of motivation to act for biodiversity, ready to be put to work on biodiversity policy issues at the local, national, EU and global scales.

A European scale of BIOMOT is quite appropriate for reasons of both efficiency and effectiveness (impact). Expressing the value of biodiversity is not an objective affair with one simple best way to do it. This implies that capturing the scientific traditions, cultural insights and governance contexts of countries all over Europe (in BIOMOT's case, the full circle of West, North, East and South) greatly enriches the empirical and theoretical basis and also enhances its potential impact all over Europe. Its results will not be felt as invented "over there" but felt to be "invented also here".

The BIOMOT project stands on the shoulders of much European effort such as the VALVE, REFGOV and TEEB projects in which BIOMOT partners have been or still are involved. TEEB ("The Economics of Ecosystems and Biodiversity") is sponsored by the EC and several European governments and is of special importance for BIOMOT because it is an ongoing broad and successful project. TEEB has made great progress in a broad and systematic economic approach in the valuation of biodiversity, largely through ecosystem services and TEV. Although TEEB formally acknowledges a "plurality of values which people hold for nature", no step is made to conceptualize these values other than broadly economic ("preference-based", TEEB Synthesis Report, 2010, p. 9). Thus, the TEEB approach cannot address the problem that TEV values, however huge, may continue to fail to move policies and publics into action.

In its WP 1, the BIOMOT project stays within the economic realm but contrary to TEEB, it will not take the motivational strength of TEV as its unreflected point of departure. BIOMOT will seek factors in motivational failure and motivational success of TEV, both theoretically and empirically, discussing cases and problems with economic practitioners. Moreover it will move beyond TEV in its search, again both theoretically and empirically, of other, e.g. more social and more plural ways to grasp nature's value economically.

The WPs 2, 3 and 4 of BIOMOT will move even one step further, through the analysis and integration of non-economic, truly alternative ways to argue for and help express values of biodiversity, moving into the philosophical, governance and psychological realms where concepts of embedded value, contextuality, virtue, connectedness, home, anxiety, identity and culture can be developed and tested for their own power and limitations. Thus developing a general ‘theory of motivation to act for biodiversity’, connected to the depth of philosophy (WP 4) as well as the empirical realities of successful actions for biodiversity in Europe (WP 2 and WP 3), BIOMOT will not only move beyond TEV but also beyond economics as the privileged way to argue for value and help politics and publics into action.

A good working relationship with TEEB will be built through the many contacts that BIOMOT researchers already have with TEEB economists and ecologists. Moreover, a written Memorandum will be drafted that describes the more formal aspects of the relationship such as the regular exchange of information. Sealing this relationship, a TEEB researcher will be invited to join the General Assembly of BIOMOT (without a formal vote). This way, BIOMOT will become embedded in the broad network and professional communication efforts of TEEB, through which it can multiply its impact.

Apart from TEEB and as detailed in the next section, the BIOMOT project will engage some 300 economic, government and civil society professionals in two-way communication and the pack all its outcomes in sector-specific outputs (see next section), so as to most adequately serve a wide circle of policy-makers and practitioners in government, business and civil society.

Thus, the BIOMOT project will have impacts both in terms of comprehension (see the title of the FP7 call topic) and in terms of practical recommendations.

Concerning the former, the BIOMOT project will end by that a wide circle of involved and informed policy-makers and professionals will have a much better comprehension of

- **when TEV may take first place and what are the best methods to assess TEV over various scales,**
- **when other economic methods may have a higher action impact,**
- **when alternative, more principled approaches may work better,**
- **when combinations when most appropriate and what these combinations can be,**
- **when it may work best not to enter into any money arguments at all**
- **and when even not argue at all but express the examples, the virtues and the good of biodiversity action in non-discursive language and deeds.**

In terms of recommendations, the BIOMOT project will generate **concrete inputs of how to act on these insights on various levels, from local projects, via national and EU directives to the global negotiations. These recommendations will include concrete principles and tools for styles and content of policies, projects and communication.**

#### Long-term impact: comprehension, tools, more successful policies, and cultural change.

On the longer run and if indeed the concepts to be developed by BIOMOT will be as compelling as we expect them to be, the circle of involved and informed practitioners will spread. In that process, the BIOMOT results will become adapted and mixed with other perspectives possibly to the extent that that become so self-evident and normal no-one knows of BIOMOT anymore.

All this will result in biodiversity policies and projects that can draw from a much broader stock of arguments, principles, images, stories and examples than only economic ones, and can therewith build on a much broader set of values and motivations for biodiversity across Europe.

On its deepest level of impact, BIOMOT aims to contribute to long-term cultural change, especially with respect to the present-day phenomenon that we all think that in order to be taken seriously in society, we

have to 'talk economics'. BIOMOT will gather the other, non-economic considerations of the human mind and heart, reinforce these considerations by theory and data from philosophy and psychology, and lift them from the private spheres of human life to the open stage of public, reputable knowledge. This way, BIOMOT will serve not only to talk better economics about biodiversity, but also to regain the *full* language of nature, and re-establish that language as a self-evident, accepted ground for justification of action in the public sphere. Taking care of nature for more than economic reasons will become embedded not only in the personal lives of Europeans, but also in their public choices – in business, civil society and ballot box.

### **3.2 Dissemination and/or exploitation of project results, and management of intellectual property**

#### **Communication team and Advisory Board**

The BIOMOT project will establish a communication team, headed by dr. R.J.G van den Born, who works on science communication in the lead partner institute (ISIS at RU). Members of the communication team will be one from each partner. The team will meet regularly, connected with the general project meetings. The Advisory Board has a section per country, enabling to call a meeting at low cost when BIOMOT has a workshop or other event in that country. The Advisory Board will be composed of practitioners (policy-makers, NGO leaders etc.) and focus especially on issues of policy relevance, impact and communication. This does not only concern dissemination but may also feed back the BIOMOT research itself (e.g. the cases to be selected, the questions to be pursued).

#### **Target audiences and Detailed Communication Plan**

Apart from the scientific and professional fora, the target audiences for dissemination can be grouped by sector and by level of scale.

Sectors are:

- biodiversity conservation
- natural resource management (usually including biodiversity issues)
- landscape and physical planning (usually including natural resource management)
- enterprise with a potentially high biodiversity impact (agriculture, tourism, mining etc.)

Levels of scale are:

- the public at large and general citizen groups
- local projects, NGOs, business, government and consultant firms
- national government (working on a national scale but also involved at the global level)
- EU (working on the European scale but also involved at the global level)
- global agencies (GO, NGO) and corporations.

Early in the BIOMOT project, the communication team will draft a Detailed Communication Plan to specify the dissemination target groups in each country and plan the specific communication actions and media to engage and reach them. This plan will also go into the precise time of the actions connected to the messages that can be communicated (not too early because messages are still too vague, but often not too late either because in that stage, feedback and real two-way engagement is no more possible).

In this sense of timing, the Plan will follow a three-tiered approach. Some actors will be identified as good to invite for the Advisory Board and be engaged in BIOMOT early on. Others will be approached about mid-way so as to be able to also give feedbacks, and yet others will be reached out for relatively late, through the typical one-way dissemination media of policy briefs, TV and so on.

## **Two-way engagement**

Two-way engagement is an essential part of the communication plan. The Advisory Board and the second-tier actors will total some 90 individuals that will be involved in two-way communication. Some 10 researchers from TEEB (see preceding section) will be added to this group through the specific memorandum to be drawn up with TEEB.

The research actions of BIOMOT will add a substantial number of professionals engaged in BIOMOT. In WP 1, 2 and 3, extensive interviews will be staged with economic practitioners (WP 1), governance actors (WP 2) and non-governmental leaders in success for biodiversity (WP 3). Their approximate numbers are 60, 30 and 105, respectively. During these interviews, the BIOMOT project will of course also be part of the discussions, giving feedback and establishing a lasting interest of the actors in the project.

In total, the number of actors engaged in two-way communication will be about 300.

## **Modes of dissemination**

The scientific target groups in economics, psychology, governance science and philosophy will be served through the usual routes of peer reviewed journals, conferences and popularized contributions. The BIOMOT project involves 16 full professors and can therefore be expected to have a quite substantial scientific output.

Directed at the target groups in society, the Detailed Communication Plan will specify the choices to be made for each element in the sectors/scales matrix. Elements here will certainly be:

- the BIOMOT website (following the SSH guide of FP7)
- a promotional flyer
- policy briefs (4 pages) and professionals booklets (20 pages)
- TV, newspapers and other mass media
- Mid-Term Conference
- Final Conference
- CD ROM/Video with all project outputs.

During the drafting of the Detailed Communication Plan, it will be considered to possibly organise smaller and more informal final conferences, one in each country and one for the EC specifically in Brussels. This will somewhat reduce the external glory of the project but may result in substantially more non-scientific participants and an enhanced real understanding of the issues by the audience and open discussions, since all languages now can be the local ones and the subjects and examples can be tuned to the audiences.

BIOMOT will fully comply with the Open Access pilot in FP7.

BIOMOT will not encounter other intellectual property issues than the normal ones of open scientific research and communication (see also section 2.1, final paragraph).

## 4. Ethics Issues

The BIOMOT project will not encounter any ethical issues other than the normal privacy protection of respondents in the interviews. On this issue, we will follow common scientific standards of informed consent and anonymization in reporting.

### ETHICS ISSUES TABLE

<b>Research on Human Embryo/ Foetus</b>		<b>YES</b>	<b>Page</b>
*	Does the proposed research involve human Embryos?		
*	Does the proposed research involve human Foetal Tissues/ Cells?		
*	Does the proposed research involve human Embryonic Stem Cells (hESCs)?		
*	Does the proposed research on human Embryonic Stem Cells involve cells in culture?		
*	Does the proposed research on Human Embryonic Stem Cells involve the derivation of cells from Embryos?		
	I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL	X	

<b>Research on Humans</b>		<b>YES</b>	<b>Page</b>
*	Does the proposed research involve children?		
*	Does the proposed research involve patients?		
*	Does the proposed research involve persons not able to give consent?		
*	Does the proposed research involve adult healthy volunteers?		
	Does the proposed research involve Human genetic material?		
	Does the proposed research involve Human biological samples?		
	Does the proposed research involve Human data collection?		
	I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL	X	

<b>Privacy</b>		<b>YES</b>	<b>Page</b>
	Does the proposed research involve processing of genetic information or personal data (e.g. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)?	X	Some personal background data; see WP descriptions
	Does the proposed research involve tracking the location or observation of people?	no	
	I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL		

<b>Research on Animals</b>		<b>YES</b>	<b>Page</b>
	Does the proposed research involve research on animals?		
	Are those animals transgenic small laboratory animals?		
	Are those animals transgenic farm animals?		
*	Are those animals non-human primates?		
	Are those animals cloned farm animals?		
	I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL	X	

<b>Research Involving ICP Countries</b>		<b>YES</b>	<b>Page</b>
	Is the proposed research (or parts of it) going to take place in one or more of the ICP Countries?		
	Is any material used in the research (e.g. personal data, animal and/or human tissue samples, genetic material, live animals, etc): a) Collected in any of the ICP countries? b) Exported to any other country (including ICPC and EU Member States)?		
	I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL	X	

<b>Dual Use</b>		<b>YES</b>	<b>Page</b>
	Research having direct military use		
	Research having the potential for terrorist abuse		
	I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL	X	

## 5. Consideration of gender aspects

As visible in the partner descriptions, the project involves female senior researchers in basically all partner institutions. Since basically all partners also have a gender policy in the hiring of new personnel, the gender balance of the BIOMOT team is not expected to become anything out of the desirable.

In the empirical work of WPs 1, 2 and 3, gender will be an issue in the sampling (case selection) discussions (see for instance tasks 2.2 and 3.2). Our empirical questions being of the qualitative rather than the quantitative kind, sampling should be aimed at informational richness rather than randomness, thus leaving freedom to 'oversample' for female respondents if there is a theoretically relevant expectation that this could be worthwhile – which may well be the case in view of the commonly held notion that women tend to follow different ethical reasonings than men (e.g. more inclination towards narrative and contextual ethics). This freedom is not infinite, however. If, for instance, all economists working with and thinking about biodiversity valuation in one country happen to be male, WP 1 can only live with that.

In WP 4 as in the other work packages, the genderedness of responses to nature will be critically examined. Even though more feminine and more masculine types of reasoning and ethics are often theorized for good philosophical reasons (e.g. opposing a masculine 'ethics of rights and obligations' against a feminine 'ethics of care'), this does not imply that concrete men and women would, let alone should, follow these schemes on a one-to-one basis. In fact in quantitative survey research e.g. on Visions of Nature, hardly ever any gender difference is found. This point will also be made clear in the communications of the BIOMOT project any time that terms of feminine, masculine, gender, men or women are used.