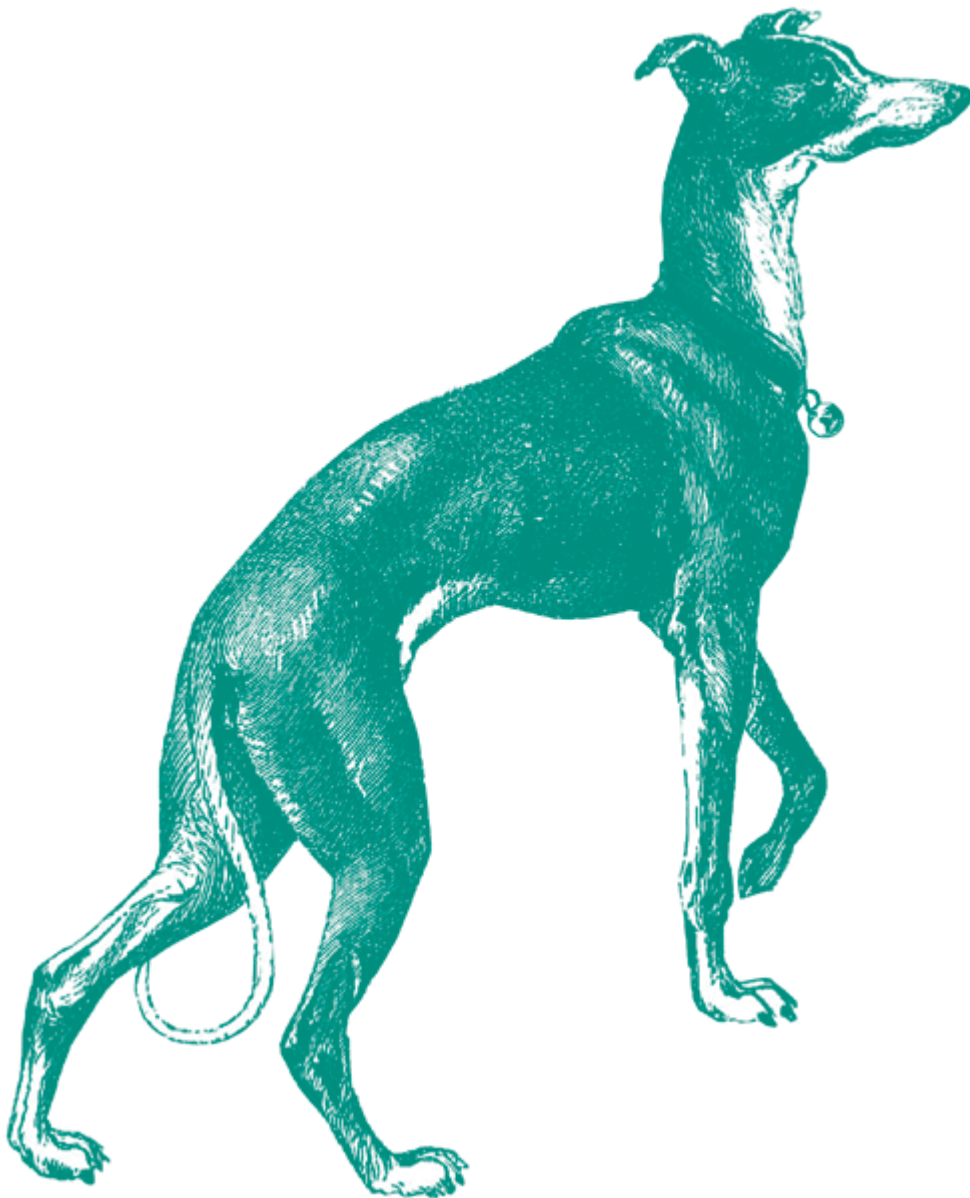


Natural Capital Markets

# TOOLKIT FOR NGOs



by the Global Nature Fund and the German Environmental Aid



# BACKGROUND

A yearly amount of € 200 to 300 billion<sup>1,2</sup> is required to avoid a loss of biodiversity. This only corresponds to a fraction of the value of ecosystem services provided by biodiversity, which are estimated to be worth up to € 55 trillion.<sup>3</sup> Therefore, in order to raise the required amount to adequately conserve natural capital, further private financial means must be mobilized on top of public funds for the conservation of natural capital.



## **WHAT IS NATURAL CAPITAL?**

Natural capital is an economic metaphor for the limited stock of natural assets that provide society with renewable and non-renewable resources and a flow of ecosystem services, the latter being the benefits that ecosystems provide to people and society.<sup>4,5</sup> Natural capital is supplying us with various ecosystem services. For example a species-rich forest provides timber, medicinal plants and clean drinking water, and regulates the climate by storing CO<sub>2</sub>.

This toolkit for non-governmental organisations (NGOs) is part of the project “naturalcapitalmarkets.org.” The paper provides NGOs with an overview of payments for ecosystem services (PES) and biodiversity offsets (see below) and the use of market-based instruments to conserve natural capital. A detailed overview of the design and (dis)advantages of natural capital markets is given in a complementary study. In addition, toolkits for the private sector and financial institutions as well as a policy paper have been developed and are available on the website.<sup>6</sup>

## **MARKET BASED INSTRUMENTS AND REGULATORY LIMITS**

### **Market based instruments will replace regulatory limits**

- Most NGOs observe the emergence of market based instruments very critically. They see a risk in the new approaches of involving the private sector and the use of market based instruments because they can potentially substitute the existing environmental and nature legislation. Since markets cannot be as easily regulated and monitored as regulatory law, a loss of biodiversity can be the effect while at the same time the illusion of government involvement and oversight exists.

### **Market based instruments will not replace regulatory limits**

- + However, if markets are not used to replace but to complement government command and control regulation, this kind of false security is not created. Command and control regulation is important and required, especially when setting limits to market operations. By applying these complementary mechanisms to areas that are not officially protected it is possible to improve natural capital outside officially protected areas. Valuing natural capital can also pave the way for a tax on products that pollute the environment.

In addition some progress has been made in the last decades to conserve biodiversity, we are still losing it rapidly. It is therefore time to complement existing nature conservation regulatory framework with new instruments. In addition, the financing gap to effectively protect biodiversity is so big that it is unrealistic to presume it can be closed by governments, for example by raising taxes.

## **BIG CORPORATIONS AND NATURAL CAPITAL**

### **Market based instruments will increase profits for big corporations without protecting natural capital**

- It is criticized that the increasing use of market based instruments is not helping to raise more money for urgently required biodiversity conservation projects but makes the poor poorer and the rich richer. The use of market mechanisms will benefit those actors that are familiar with them and those with a high buying power, mainly the rich corporations and financial institutions that are geared towards making a profit. They will use market mechanisms to make a profit on natural natural capital without conserving it. Using these mechanisms to govern common goods on which especially the poor in developing countries heavily depend would lead to negative consequences for natural capital.

### **Market-based instruments will not increase profits for big corporations and will protect natural capital**

- + Therefore, it is important to set clear limits to the use of market mechanisms and to distinguish between (cost) efficient solutions and clear prohibition of certain actions. Market mechanisms can be used to organise certain processes efficiently but they cannot prohibit certain actions, only discourage them. Legal standards should therefore not be weakened by removing bans or limits or by replacing them with positive incentives such as monetary rewards. This would lead to the condition that if the monetary rewards are discontinued the measures are not abided by any longer.

Experiences from previously used market-based instruments to conserve nature can be used to avoid the same mistakes. It is important to have incentives that favour behaviour that leads to nature conservation. In this way, corporations would favour destroying and offsetting nature somewhere else over buying a plot of building land. In addition to correctly aligning incentives in one market mechanism, market incentives for different goals should not contradict each other. A good example is the amount of money that is needed to protect the global biodiversity, which is estimated between US\$ 150

billion to US\$ 440 billion<sup>1,2</sup>, and the subsidies spent globally on fossil fuels, which is likely to have a negative impact on biodiversity and is estimated to be US\$ 480 billion in 2011.<sup>7</sup>

## **DECONSTRUCTING COMPLEXITY: EXTERNALITIES, NATURAL CAPITAL, COMMODITIES AND MARKETS**

There are four levels when we talk about markets and how they could be used to conserve natural capital.

1. measuring externalities
2. valuing natural capital
3. expressing biodiversity and ecosystem services in tradable units
4. creating markets

### **1. MEASURING IMPACTS ON BIODIVERSITY**

#### **Impacts on biodiversity cannot be measured**

- The first level, the measuring of external effects of activities is very complex due to the complexity of biodiversity and ecosystem services. Unlike carbon emissions and carbon sequestration, biodiversity is not easily quantifiable. Therefore there are no standard measuring systems that can be transferred easily. Moreover, there are timely and geographically staggered causes and effects.

#### **Impacts on biodiversity can be measured**

+ Proxies can be used to measure and compare one aspect of natural capital at different places. In this way, if it becomes clear that an area will be destroyed, it can be offset by another area with similar characteristics. Offset schemes therefore should include rules that certain ecosystems can only be offset by ecosystems that are similar which means that an alpine extensive pasture cannot be offset by a flood plain.

### **2. INTRINSIC VALUE OF NATURAL CAPITAL**

#### **Methods to value natural capital do not take intrinsic value into account and are not standardised**

- The second level, the valuation of natural capital is concerned with the methods of measuring intact

biodiversity and ecosystem services. In contrast to measuring externalities it addresses natural capital that is not impacted such as certain species (i.e. bees) or habitats (i.e. bogs). However, just like in the case of measuring externalities there are various heterogeneous methods. Economic valuation, often labelled as “price tagging”, applies an anthropocentric view, in the sense that the value of the ecosystem services for humans is expressed in economic terms. In addition, the value for natural capital that is derived is a subjective value that is different for different actors.

#### **Methods to value natural capital will be standardized and offers a complementary view of natural capital**

+ Even if the methods are not mature yet, they make natural capital visible. Currently, natural capital is not taken into account at all because its value is invisible. To make the different valuation studies comparable, a standardised method needs to be developed and agreed upon, so that certain quality requirements for the valuation are fulfilled and robust estimates can be calculated. Given the discussion of the intrinsic value these estimates often have to be considered as minimum values.

One should also keep in mind that many things have different values that are not necessarily the same as the price that is paid on the flea market. Holiday photos for example only fetch a few Euros on the market but often constitute a far greater value for those persons that are depicted on the photos.

Applying an anthropocentric view to the valuation of natural capital does not contradict the intrinsic value of nature and biodiversity. Rather, it adds another viewpoint by showing the monetary value of natural capital in addition to the intrinsic and other non-monetary values it has. In this way, the value of natural capital becomes tangible for decision makers that need to work with concrete figures like policy makers and politicians but also for the private sector and financial institutions. Politicians are more likely to respond to numbers than to emotional values and therefore valuation methods enable showcasing the need for conservation of natural capital. Also, different environmental policies can be made comparable. Up to now, natural capital was only insufficiently integrated into calculations and not valued properly; only the price of timber was known but

not the total value including the associated ecosystem services.

Valuing the impact of a product or a production process and integrating the external effect in the final price of the product or service will further improve transparency for consumers. If a product has a severe negative effect on the natural environment, for example during extraction or processing, then the “true price” of the product might be higher as money is needed to restore the damage done to ecosystems. When the product has a positive impact, the price should reflect this as well and be lowered. This will also correctly align consumer incentives as the environmentally friendly products would be cheaper than the polluting products, which is currently not the case.

### **3. COMMODIFICATION OF NATURAL CAPITAL**

#### **Natural capital is not a commodity**

- The third level encompasses the conversion of natural capital in tradable units. Markets need simple units – so the highly complex biodiversity and ecosystem services must be expressed in credits or “eco-points” (this process is called monetization and commodification). Only comparable units of biodiversity and ecosystem services can be integrated into decision making and balance sheets of companies.

The process of monetizing and then commodifying (functions of) ecosystem services is highly doubtful as it would create a common denominator (eco-points or Euros) for a good that cannot be standardized or wholly captured in a single unit.

#### **Natural capital can be a commodity**

- + Commodification of natural capital only takes place when it is given a common denominator that is accepted across different markets. At the moment, monetary valuation methods are not yet mature enough. In some offset schemes a common denominator has already been defined. Without them, markets do not function. As explained above, it is possible to find comparable ecosystem aspects in different areas. Based on these aspects commodification is possible.

The same applies to a certain degree to PES schemes. The private sector paying for ecosystem

services in a PES scheme demands other actors to limit their use of that part of natural capital: a critical issue when effectively privatizing public goods and services.

However, if one actor is paying for the conservation of natural capital, it is normal that the use of it by others is limited. The same applies to national parks in which the government largely pays for the conservation and therefore limits the use of the park.

## **4. MARKET FAILURES**

### **Markets are prone to failure**

- The fourth and last level in this context is the creation of markets and payment platforms which can be used by buyers and sellers to exchange units of natural capital (i.e. offsets in a habitat bank). Just like with any market there is the possibility of market failures. This toolkit does not discuss this issue in detail as market failures are independent of the goods that are traded.

When trading standardized natural capital units of an ecosystem, the risk is that only the obviously valuable parts of an ecosystem will be protected. If valuation is done without taking non-monetary values into account then market mechanisms have the wrong incentives and large parts of natural capital can be lost.

### **Safeguards against market failure can be put in place**

- + Measures must be implemented early enough to prevent and eliminate market failures. NGOs often refer to the failure of the European carbon market, which failed since the cap for CO<sub>2</sub> emissions had been set too high resulting in too low market prices to motivate companies to take steps to limit their CO<sub>2</sub> emissions. However, not all market-based instruments have failed as the rules and regulations in Germany for biodiversity offsets show.

As explained above, with a correct regulatory framework the dangers of investors only investing in those assets with which they can earn the most can be minimised: certain areas can be taken out of market schemes and spatial-temporal limits on trading of natural capital can be set. Incentives have to be set right too: when the unit value of high value biodiversity is very low market mechanisms will not work properly. In general, for a market to function properly

not only the market has to be correctly designed but the measurement of natural capital, the valuation and the commodification all have to be done properly.

### CONCLUSION

NGOs should continue to critically review and question the development of market-based instruments including offsets and PES programmes. Sense and purpose of these instruments regarding biodiversity conservation should always be critically assessed in order to really add to the goals of biodiversity protection. When market-based instruments are applied, their effect on biodiversity conservation (if there is any) must be monitored and controlled to detect any flaws. Only biodiversity offsets that go beyond the legal obligation to compensate for an impact contribute to a net gain of biodiversity. However, best practice examples of offsets contributing to a net gain of biodiversity or PES schemes as defined above are still lacking.

Therefore, NGOs should inform about participation opportunities at the same time outlining risks and limitations of these instruments. NGOs should also influence the setup, diversification, the implementation and above all the improvement of such market-based instruments.

### WHAT ARE NATURAL CAPITAL MARKETS?

Natural capital is mostly considered as a freely available public good resulting in two principal problems: the user normally does not pay for the costs arising from the usage of ecosystems. These are externalised to society. Secondly, actors contributing to the conservation of natural capital are in most cases not reimbursed – except when there are

state-funded programmes in place. This means that the entire society bears the costs.

Natural capital markets are market-based instruments internalizing external costs caused by damages to natural capital. Ideally

- the polluter pays for damages incurred to ecosystems (polluter pays principle) and
- the beneficiary pays for the usage of ecosystem services (beneficiary pays principle).

Two natural capital markets are biodiversity offsets and payments for ecosystem services (PES). Depending on the amount of government involvement, these systems can be Over The Counter (OTC) deals, markets or highly regulated payment platforms in which everything from the price to the definition of the traded goods are controlled by the government.

### BIODIVERSITY OFFSETS

Compensation measures or biodiversity offsets are required by law in some countries like Germany and comprise measures taken to compensate for impacts on habitats and species. They are implemented after measures to avoid, reduce and restore (see figure 1) have been applied.

Only additional offsets that are implemented after compensating all impacts lead to a net gain in biodiversity. Although voluntary offsets have so far been virtually non-existent, some companies now have started to voluntarily offset their impact on natural capital.

Compensation measures or offsets can be expressed in credits representing a compensation measure of a certain size and quality. Several credits can be bundled in so-called habitat banks, allowing

Figure 1: The mitigation hierarchy.<sup>8</sup>

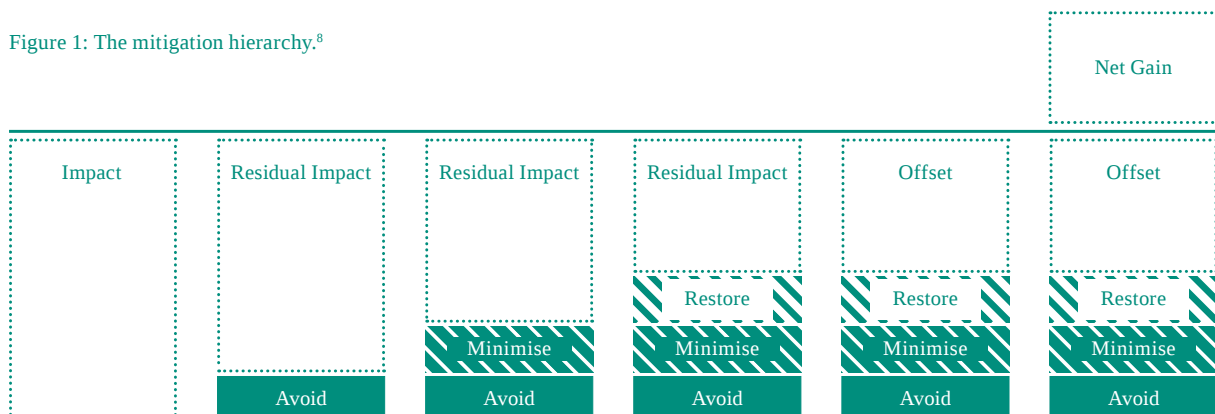
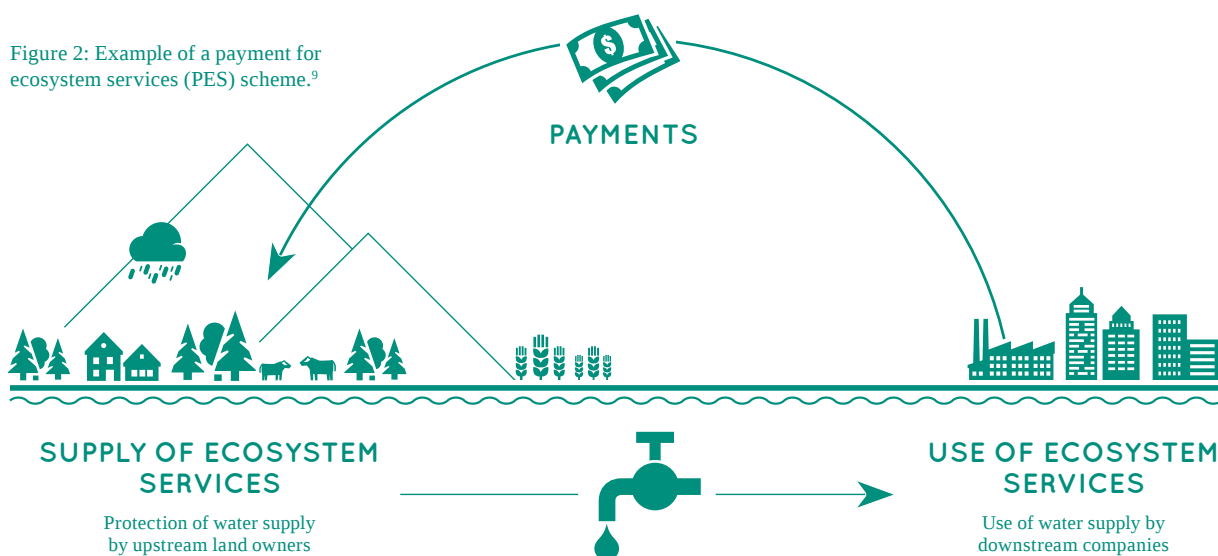




Figure 2: Example of a payment for ecosystem services (PES) scheme.<sup>9</sup>



building up a surplus of credits, which means that more is offset than destroyed. These credits can then be sold to other companies that need or want to offset or they can be saved for future impacts that need to be offset. Habitat banks also allow for larger compensation areas to be created instead of many small areas, contributing to more resilient natural capital.

In countries like the USA, Germany and Australia where habitat banks and habitat-bank-like systems currently exist, companies and other infrastructure project developers that must comply with compensation rules can use habitat banks to increase planning security and help to reduce their costs for search, planning and realization of compensation measures.

Offsets and habitat banks work best in a legal framework or a strict voluntary offset framework. To protect additional biodiversity, offsets need to be combined with a goal of achieving a net gain of biodiversity. Attention must also be given to which aspects of biodiversity can be replaced with similar aspects at another spot. In some cases, the uniqueness of an area might lead to the creation of no-go areas in which no impacts can take place because they cannot be compensated by offsets.

## PAYMENTS FOR ECOSYSTEM SERVICES (PES)

Many enterprises use ecosystem services such as clean water or a stable climate without investing in the permanent conservation of natural capital producing these important ecosystem services. With payments for ecosystem services (PES) the benefi-

ciary pays for the provision and thus the conservation of biodiversity and ecosystem services. More precisely, it can be defined as a direct, voluntary, conditional payment by the user of ecosystem services to the supplier of ecosystem services.

The classical example is a brewery requiring clean water for production. The quality of water decreases for users downstream due to agriculture or forestry, situated upstream. In this case, one option for the brewery situated downstream would therefore be to voluntarily pay land owners upstream within the scope of a PES programme under the condition that the use of fertilizers and pesticides is reduced or deforestation is halted. The land owners are thus compensated for any harvest losses, while the brewery benefits from the water purification services of intact ecosystems and can thus secure its business foundation not having to invest in costly water purification systems. As is the case with PES programmes, the brewery is neither paying to compensate its impact on natural capital nor are any credits created or traded. The beneficiary (in this example the brewery) solely pays for the usage of ecosystem services. However, opportunities for a PES scheme are limited to cases in which an ecosystem service cannot be substituted and is of strategic importance to a company. Even then, upfront costs or capital expenditure (capex), as well as the operational expenditure (opex), can be relatively high, so that it is not always worthwhile pursuing the establishment of a PES programme. Finally, risks remain high that despite the investments, the ecosystem service is negatively affected by other actors.

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