Experiment / pilot

> Blue services

IDEA/EXPLORATION → PROOF OF CONCEPT → **EXPERIMENT/PILOT** → IMPLEMENTATION/IN OPERATION

INHOUD

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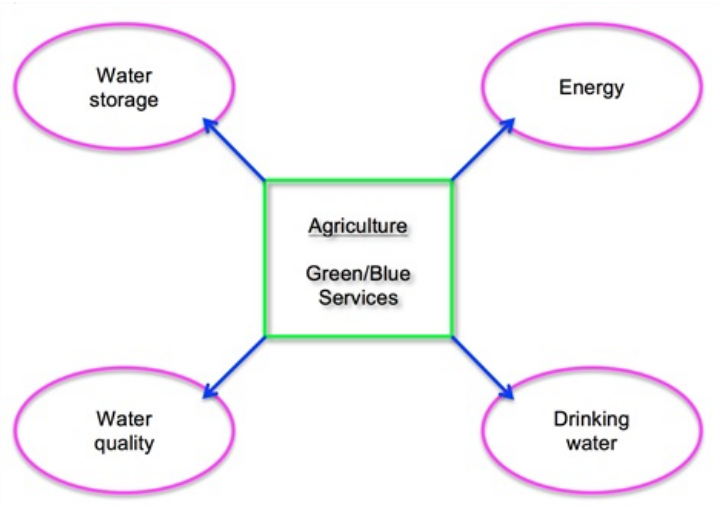
INTRODUCTION

Green and blue services are voluntary activities that exceed the statutory minimum, undertaken by private landowners and land users. The services are directed at realizing societal needs or societal goals in the field of nature, landscape, water management and shared recreational use. Green services are mainly focused on landscape, nature and the accessibility of rural areas. Blue services provide a contribution to a healthy and robust water system and can be viewed as a tool for meeting major water challenges.



Climatological and social circumstances ensure that course changes in policy are necessary with regard to water. Climatological developments such as increased annual precipitation and extreme downpours will result in the Netherlands having to process more water in future. In certain parts of the Netherlands, subsidence increases the risk of waterlogging and flooding. In addition, rising temperatures will lead to water shortages and increasing dehydration. The challenge facing us in the 21st century with regard to water is how to deal with potential surpluses and anticipating potential shortages. This requires sustainable water management where water offers more possibilities than ever before for influencing the various forms of use or consumption. Land users can supply blue services for water conservation, water storage and water quality. Although blue services seem to be promising for meeting current and future water challenges, experience with blue services is limited in the Netherlands. This Delta Fact addresses the application of blue services as an instrument to be used for water challenges.

RELATED TOPICS AND DELTA FACTS

Key words: Fresh water supply, water conservation, flooding, water storage, rewetting, water quality

Delta Facts: soil as a buffer, controlled drainage

STRATEGY: HOLD, STORE, SUPPLY

(*1 Hold*, 2 Store, 3 Supply)

Blue services can be used to contain (future) water problems. Within the framework of fresh water supply, blue services can be applied for water conservation (hold). This concerns:

- storing supply for tiding over dry periods
- seasonal irrigation where the water surplus in winter and spring is used to tide over the dry periods in spring and summer and in doing so, also reducing the intake of water foreign to the area (conserving water belonging to the area from the wet winter period)

Besides contributing to the fresh water supply, blue services can be utilized to improve the water quality and to prevent flooding by realizing water storage areas (peak storage).

PERFORMANCE

The blue services concept is making ecosystem services (ESS) operational. The services provided by ecosystems for the wellbeing of humans – this is the simplest definition of ecosystem services. An ecosystem can be defined as a collection of plants, animals and micro-organisms that interact with each other and with their abiotic environment. In ecosystem services, think along the lines of providing building materials, foods, water purification, water storage, a pleasant climate, ground to build on, enjoying nature (Brils and van der Meulens, 2010). Charming examples are provided in the brochure "What nature offers human beings – ESS in the Netherlands" (Planbureau voor de Leefomgeving, 2010).

The leading document for ESS is the 'Millennium Ecosystem Assessment' (2005), abbreviated: MEA. From 2001 to 2005 a group of more than 1300 international experts, lead by the United Nations, scrutinized the consequences of changing ecosystems and the effects of this on human wellbeing. The MEA postulates that our wellbeing depends on ESS. The results of the MREA research were recorded in the previously mentioned document. It provides a scientific evaluation of the conditions and trends concerning global ecosystems and the services these ecosystems provide. In addition, it provides a scientific foundation for taking action and measures to protect these ecosystems and ensuring sustainable use.

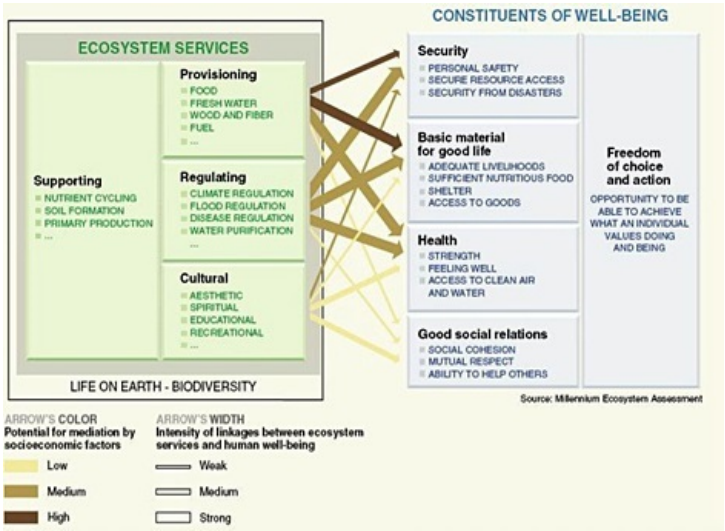
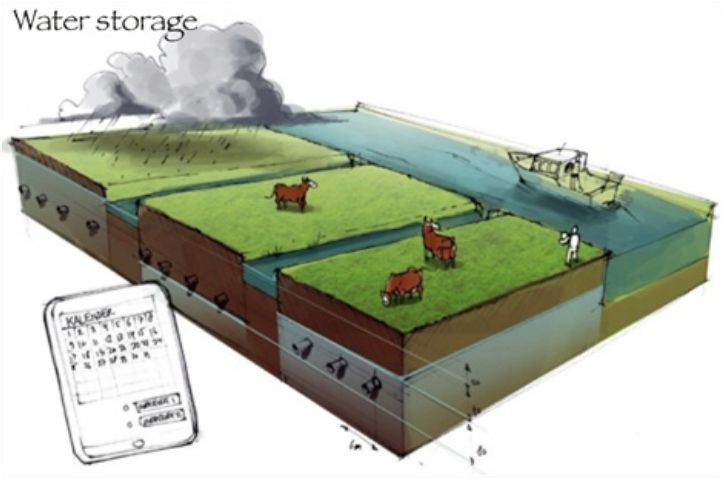


Figure 1: Ecosystem services and their relation to human wellbeing (Millennium Ecosystem Assessment, 2005)

Blue services can be defined as water related services or management that has a positive impact on the water system and yields added value to society and while these services are provided by (groups) of farmers and horticulturalists on a voluntary basis, these same farmers and horticulturalists are given compensation in conformity with market prices. This approach is based on new forms of cooperation between the water managers and the users of the rural areas. Blue services are interesting for several reasons. Firstly, it could be a means to realize policy objectives in the field of water management. Secondly, it offers agriculture an opportunity to provide services of societal value, which will positively contribute to the image of agriculture.



Farmers and gardeners can offer blue services on three different levels:

1. on the level of the individual company, 2. a cooperation of several companies and 3. collective activity in a particular field. By integrating the services for landscape, environment and water as completely as possible, each party has a natural advantage. In an integrated approach of a defined area, the providers of blue and green services also develop more interest in the importance of blue and green services, which increases the chances of success.

Blue services are primarily related to dehydration mitigation, flood prevention, improvement of water quality. Examples of blue services are:

- water conservation, for instance the construction and management of nature-friendly banks, water level increase in ditches, controlled drainage, renovation and maintenance of watercourses, construction of water-basins, etc.
- water storage, particularly the enlargement of open waters / construction of water storage areas
- improving the water quality by reducing the runoff and leaching of nutrients and by reducing the emissions of crop protection products or by the construction of purification bogs
- supporting the water related landscape, for instance by means of higher water levels, level management, constructing nature-friendly banks and embankment maintenance.

PRECONDITIONS

Blue services offer farmers a position for broadening their income base and inquiring parties, among which water managers, have more opportunities to rapidly and cost effectively realize their objectives (in water challenges) on area level. The report Vision on Balance describes the critical success factors for (green) blue services. In order to successfully implement blue services in practice, the following preconditions have to be met:

- **Long-term agreements**: Both the users and suppliers of blue services often benefit from long-term contracts. It provides certainty with regard to business operations and provides a foundation so the investment plan can be adjusted accordingly. This particularly applies to major services such as level increase, which is accompanied by structural loss of income or structural adjustments to the company.
- **Clear business agreements**: In blue services, contracts and other tools play an important role. The most favourable tools and instruments for blue services are: easement (or licensing), a management agreement and a one-off fee.
- **European regulation**: Green and blue services (GBS) always have to be checked and scrutinized against European regulations. This is particularly the case when the government purchases blue services as the European Commission could interpret the service to be state aid. See governance.
- **Full-fledged involvement of users and suppliers**: In the development phase, it is important that all parties are given sufficient joint decision-making participation. All parties would like early involvement in the set-up and development. The chances of success are much greater if the farmer is specifically involved in the developments of GBD in the initial phase. In many projects, the suppliers mainly consist of farmers, who are insufficiently involved from an early stage. Building a relationship of trust is a critical success factor.
- **Area oriented and integrated approach**: Ensure that green and blue services are an integral part of a larger approach. By taking an integrated area approach, green and blue services become more visible, more apparent and more cost effective. Farmers can be persuaded into realizing services with demos and pilot projects.
- **Well organized**: To utilize green and blue services cost effectively in an area, it is imperative that farmers are professionally organized (in agricultural nature associations for instance).
- **Maintain a balance of interests**: Do not only pursue own objectives for 100% but try to find a win-win situation with the highest achievable for all parties concerned, in the short as well as the long-term.

COSTS AND BENEFITS

A great deal of knowledge about the (economic) valuing of ecosystem services is still in development. The principle of blue services seems to be cost effective in most cases as agricultural activities can continue under normal circumstances. In drought or flood events, an extra societal service is provided in the shape of water conservation or water storage. This does not require the purchase of land and less is paid out in damages compared to situations where there are no

arrangements for blue services. The following foundations for settlement can be distinguished for long-standing commitments (5 to 7 years):

- Investment (installation)
- Extra costs (maintenance, monitoring, professionalizing and organisation)
- Loss of income (land contribution: loss of income / decrease in value)
- Transaction costs (additional costs)
- Benefits (possible income)

However, there is no clear-cut rate for blue services yet. Reimbursements for blue services are made-to-measure and differ per area. The reimbursement systematics for service provision is based on the principle of rural development and the relevant legislation on European and (inter) national level. Remuneration for services should be based on the following basic principles:

- Exclusively and only pay for efforts that exceed the statutory obligations
- Exclusively and only pay for something that cannot be provided gratuitously
- Know what is being paid for

Supporting one may not harm another (no competitive disruption)

GOVERNANCE

Purchasers of green and blue services are diverse parties but in most cases it concerns government authorities (provincial, municipal, water boards). Suppliers are individual agriculturalists, horticulturalists or agricultural nature associations. Good cooperation between authorities and farmers is essential for successful implementation of blue services. For many water boards, it is impossible and cost inefficient to come to individual agreements with many farmers and monitor this. Blue services can only really be deployed on a large scale if the service suppliers are organized – for instance in the shape of an agricultural nature association or some other kind of collective. A precondition for remuneration in conformity with market price for blue services is a professional organization to represent the suppliers of blue services.

The development of nature and environment and its accessibility are increasingly gaining the attention of all government authorities in the Netherlands. More so than in the past, there is a role to play for private land users as it does not only concern the valuable state designated nature and environmental areas (National Ecological Network (EHS) and National Landscapes). The realization that the exceptional value of other areas besides the designated areas should also be cherished and reinforced is abundantly clear. In many areas provincial authorities, municipality councils, water boards and social organisations are realizing this by formulating environmental policies or development plans with accompanying incentive schemes.

The European Union (EU) is amending the Common Agricultural Policy (CAP). The new CAP came into effect on 1 January 2014. The Netherlands and the EU want to increase rewards given to farmers for the societal performance they provide. This could, for instance, be agricultural nature management. The amended CAP seems to be a significant track along which agricultural nature and environmental management will be shaped in future. This provides opportunities for the implementation of blue services.

Green and blue services must always be verified against European regulations. This is especially important if the government is the purchaser of the blue service, as the European Committee could consider this serviced as state aid. The objective of the Catalogue Green Blue Services is to provide clarity with regard to the rules regarding remuneration possibilities for green and blue services. The European Committee has validated the Catalogue against the requirements set by the Committee regarding state aid. The Committee has passed positive judgment on the catalogue and stated that if the catalogue is applied, entrepreneurs will not receive improper financial support. Based on the catalogue, authorities (provincial, water boards) can use their own instruments to compile service packages that qualify for subsidy. This concerns performances over and above the statutory minimum in the field of nature, environment, cultural history, recreation, water management and accessibility of rural areas.

CURRENTLY ACTIVE PROJECTS AND RESEARCH

Even though the Netherlands has a lot of experience with green services, blue services are hardly found in practice. The following provides a few examples of experience (being) gained with blue services:

- Waterschap Rijn en IJssel started executing pilots with blue services in 2010. The water board has three subsidy schemes for blue services: processing vegetation cut from watercourse banks, water conservation, and last but not least, ecological maintenance. The blue service for water conservation is aimed at improving the sponge action of the water system and increasing the water levels in the capillaries of the water system.
- In the Dinkeldal, the Regge en Dinkel water board came to an agreement with landowners to periodically use their land for water storage at times of high water levels in the Dinkel River.
- Groot Salland Water Board, together with Alterra in the lead, executed a project near Wesepe called Farmers with Water. "Farmers with water" entails that besides their primary agricultural function, farmers actively create possibilities to include water in their business management. The societal objective was to assist in achieving the water quality and quantity objectives, such as (peak) water storage, water conservation and the quality improvement of ground and surface water. Farmers were given a compensation for supplying these 'blue services'. This research showed that temporary water storage, on a dairy farm with fifty hectares of grassland, had little effect on the economic result of the

farm.

- In various places in the Netherlands, experience was gained with the concept Farmers for Nature. Farmers for Nature is a vision on rural areas that have a much larger role for the farmer to play in managing nature and environment than currently is the case. It is of paramount importance that the farmer can earn his income in this way and that long-term agreements are made – for at least 30 years. Green and blue services are used to realize this. Positive experiences were gained on the Twickel farm estate in Overijssel
- The project Water conservation 2nd generation of the Limburg and Brabant water boards. This project was started in 2001 and ended in 2004. In total, 1200 environmental interventions were executed, among which the construction of 983 weirs. Agriculturalists can hold onto 2.8 million m3 of ditch water with weirs. The groundwater level increased and in dry summers, less irrigation is required.

KNOWLEDGE GAPS

Blue services, whereby landowners make efforts on behalf of water management, come off the ground to a very limited degree. There is insufficient insight into the actual request for these services and the way in which free market processes should be given shape. This also applies to all the legal aspects and the social costs and benefits.

All the attention for blue services during the past years has not yet resulted in large-scale application of these services. The primary reason is the lack of sufficient instruments to compensate for the services. There are various examples of situations whereby farmers want to actively participate in water management but because there is no proper framework for agreement, the cooperation never comes off the ground. Blue services will only really take off when there are sufficient instruments that can be used to establish the cooperation with land users in a business-like manner.

The concept of ecosystem services is very important because it forms a link between the ecosystems on the one hand and our society with its socio-economic system on the other. Experience has shown the relevance of blue services in practice. Then again, there still is a serious lack of knowledge that prevents easy application. Additional knowledge is required about the link between an ecosystem service (e.g. Buffering water to prevent flooding) and the hydrological and ecological processes that provide the foundation. In short, the concept of blue services is a very promising approach but more research is required to quantify the ecosystem services and underlying processes. After that, the concept can be further translated into organization and management (Meire, 2006).

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