



WATER STEWARDSHIP IN SUSTAINABLE AGRICULTURE BEYOND THE FARM TOWARDS A CATCHMENT APPROACH



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Sustainable agriculture is the efficient production of safe, high quality agricultural products, in a way that protects and improves the natural environment, the social and economic conditions of farmers, their employees and local communities, and safeguards the health and welfare of all farmed species.

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1. Introduction

1.1. Overview

Agriculture uses 70% of the world’s freshwater withdrawals, and up to 90% in some developing countries. The agricultural sector, therefore, provides a vital opportunity to improve global water stewardship over the coming decades of increasing population and water demand.

The food and beverage industry is in a strong position to influence farm level water stewardship, either as owners or major customers. Industry leaders have already achieved significant advances in sustainable water management in their operations. More focus must now be applied to the supply chain, starting with farms as a major source of raw materials. Some have already started on this journey, as shown in accompanying case studies.

This document sets out the main principles to help industry representatives understand the issues, and to explain the importance of a catchment approach. The principles are also relevant to operations where farming is important in the local landscape and community.

Water stewardship begins on the farm, but must also extend to the surrounding landscape through a catchment approach. Stakeholder engagement with neighbours and the community is critical to success.

1.2. What is a catchment?

A catchment (or river basin) is the area of land from which all surface run-off flows through a sequence of streams, rivers, aquifers and lakes into the sea or another outlet at a single river mouth, estuary or delta. A catchment can be divided into smaller units or ‘sub-catchments’.

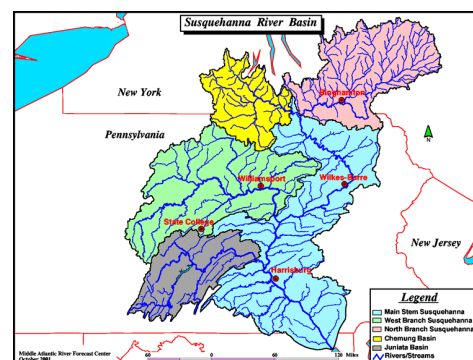
Surface water is the most visible, but groundwater is also important in most catchments. Groundwater flows in layers of rock (aquifers), which may extend across catchment boundaries allowing groundwater flow between catchments.

Catchment boundaries generally do not align with political or international boundaries so political cooperation is often an important component of effective water management.

Example catchment



Defining a catchment (1)



River catchment with sub-catchments in different colours (2)

1.3. Why apply a catchment approach?

Sustainability should encompass production, society and the natural environment. A catchment approach to water management provides a logical and practical way to address these components in a coordinated and locally relevant context, and is in line with the concept of Integrated Water Resources Management (IWRM).

A catchment contains many entities – farms, farmers, landowners, industry, habitation, people, conservation areas and regulators. Also important are ecological and biodiverse features not formally protected and managed. Actions by one entity can impact others. Therefore, sustainable management (not only of water) requires interaction and cooperation, best achieved through a process of stakeholder engagement. The accompanying case studies demonstrate the benefits of a catchment approach. Case Study 3, on large scale commercial asparagus farming in Peru, presents an example of the need to balance the benefits and negative impacts, while also interacting with other activities. In this case, the *benefits* are: the boost to the local economy and employment; and the *negative impacts* are: increased water scarcity and pollution.

1.4. A catchment water balance

There are four main components to a water balance: inflow, throughflow, outflow and recycling. Soil moisture is also a critical component for agriculture.

The **natural inflow** to a catchment is from precipitation (rain or snow). Each drop then does one of three things: (i) evaporates, (ii) runs-off into a surface water body, or (iii) infiltrates the ground to become either 'soil moisture' or continue down to replenish the aquifers. **Man-made inflow** to a catchment could be via canals or the pumping up of deep groundwater.

Natural throughflow is along surface water courses or as steady groundwater flow through aquifers. Water can flow from surface water to groundwater or vice versa. It is steady out-seepage of groundwater (base flow) that maintains river flows in dry periods. **Manmade throughflow** may be along canals or pipelines.

Natural outflow is at the mouth of the main river, as evaporation from surface water and soil and as transpiration from vegetation. **Manmade outflow** is via export of goods, vegetables and livestock, and evaporation from processing activities and reservoirs. It is normally small compared to evapotranspiration (natural evaporation + transpiration).

Recycling is where water is used (for a whole range of uses), but then returned within the catchment, ideally of good quality, but often polluted.

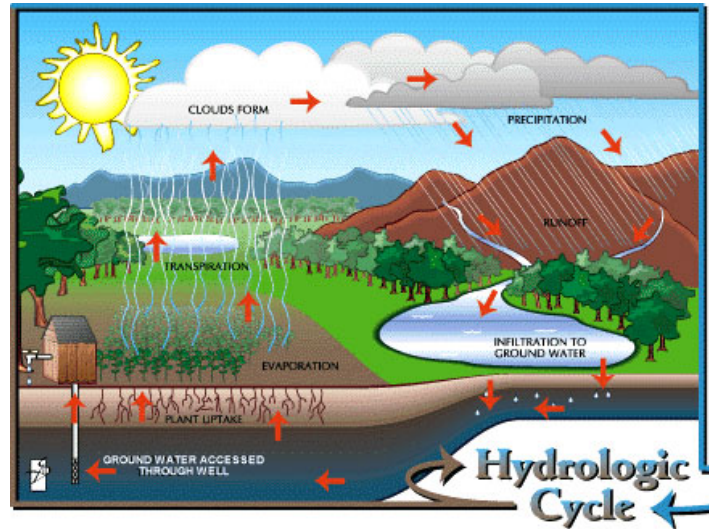
Soil moisture is a critical component of the agricultural water cycle. It is the principle water reserve for growing plants, bringing with it vital minerals and nutrients. Some water remains in the plant as part of its structure, but most transpires from the leaves.

Water that returns to the local water cycle is termed '**non-consumptive use**'. That which leaves permanently (via evapotranspiration or exported goods) is termed '**consumptive use**'.

In principal, water is a renewable resource (except when taken from aquifers not receiving modern replenishment, known as 'fossil aquifers'). Water is 'lost' if either more water is abstracted than is naturally replenished each year, or made unusable due to pollution. Good

water stewardship is about ensuring the water 'borrowed' is returned for others and the natural environment to use safely, again and again.

For a catchment water balance, hydrogeologists put estimates on each flow component, which collectively must balance mathematically. This exercise allows you to compare the scale of your own water use to the other natural and man-made components, and helps identify risk and problem areas.



Agriculture within a catchment water cycle - an example (3)

2. Water management on and beyond the farm

2.1. General farm water management

Most water management activity is *on* the farm. However, a catchment approach means being aware of the potential impacts *beyond* the farm in terms of water volumes, water levels and water quality.

2.2. Water abstraction impacts

The largest use of water in agriculture, by far, is for crops. This may be rain-fed (sometimes termed ‘green’ water), irrigated (sometimes termed ‘blue’ water) or a combination of the two. Abstraction impacts are applicable to irrigation water, pumped or diverted from surface or groundwater, and include:

- Over-pumped sources lower water levels nearby (surface water and groundwater)
- Many over-pumped sources together lower water levels over a wide area
- Lower water levels will increase the energy needed and costs of pumping (at your farm and for other users), and at worst may dry up streams, wetlands and wells

Water efficiency is highly dependent on the irrigation method. Generally, flood irrigation and over-application should be avoided, with drip irrigation often considered the best option. However, there may sometimes be beneficial impacts from irrigation losses, such as recharging aquifers or excess water reaching nearby small farms. An understanding of the wider hydrological impacts of a chosen method in a local and social context is important.

In dry environments dependent on irrigation, more thirsty crops will result in greater impacts.

2.3. Water quality impacts

Over-irrigation in hot dry climates can lead to soil salinization due to high evaporation rates. The salt is bad for the crops, for soil health, and may contaminate underlying groundwater.

Pesticides and fertilisers may pollute groundwater and surface water (via run-off). Basic ploughing may also release damaging nitrates.



Flood irrigation (4)

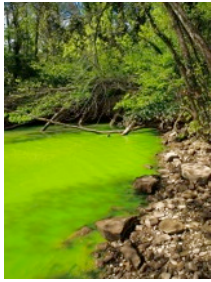


Spray irrigation (5)



Drip irrigation (6)

Pollution of water courses by fertilisers causes ‘eutrophication’. This is when nutrients in the fertilisers (mostly nitrates and phosphates) feed excessive growth of algae (often creating algal blooms) that use up oxygen needed by natural species, and may also be toxic to wildlife, drinking water sources and recreational waters (for bathing, boating, etc.).



Eutrophication (7)



Soil salinization (8)



Soil erosion (9)

For livestock farming, the main risks are from animal waste, especially where they gather or are kept together in enclosures or buildings. High risk points are where animals gather to drink, where concentrated run-off from livestock enclosures can enter watercourses directly or via drains, and where animal slurry is used as fertiliser. The main concerns are organic wastes washed into watercourses, which use up the oxygen needed by wildlife, and faecal contamination of drinking water sources. Groundwater may also become polluted. A subject of emerging concern is contamination from veterinary pharmaceuticals excreted in their waste.

Bare soil from over-grazing and/or dense animal movements creates a soil erosion risk.



Congregating livestock polluting surface water (10)



Pollution from livestock drinking in open water (11)



Use of water troughs provides protection (12)

For water used in general farm management, cleaning and pre-processing, the main risk is from chemicals and animal waste.

Poorly managed sanitary/domestic wastewater is a pollution risk. Latrines and septic tanks may contaminate groundwater and nearby surface water (for example, with nitrates) and present a micro-biological health risk to drinking water sources, including nearby water wells.

Poorly managed run-off from rain events can cause soil erosion and carry pollutants rapidly into sensitive watercourses. Buffer strips and field margins are an important management technique.



Field terracing protects against erosion (13)



Buffer strips reduce run-off and erosion (14)



Buffer strips protect water courses (15)

2.4. Additional considerations beyond the farm

An important aspect of water stewardship at catchment scale is to ensure water needs are shared equitably and sustainably between all users and the natural environment.

Larger commercial scale farms are more likely to have the resources to survive water scarcity by piping in water or drilling deep wells. Smaller farms without such options (especially at family and subsistence scale) and the natural environment are more vulnerable to extremes. The larger farms have a responsibility to ensure they do not exacerbate impacts. For example, pumping more water may further decrease water availability for others.

An advanced approach to catchment water management would include support for actions, via stakeholder engagement, to assist the more vulnerable, either directly via water provision projects, or indirectly through environmental improvement projects.



Transporting water for irrigation (16)



Pumped water (17)



Concentrated discharge can increase erosion (18)

Physical structures, like dams, may also have a negative impact on natural flows and wildlife if not sensitively designed and managed. Building on, or changing land use on flood plains, or channelling natural flows, may increase flood risk to others up or downstream.

Pollution from a farm can cause problems far downstream in the catchment. When there are many farms in one catchment, the risks are multiplied. This is especially true for diffuse (non-point source) pollution such as eutrophication and contamination of groundwater with pesticides and nitrates.

Good water stewardship will protect and promote bio-diversity, which in turn will have a beneficial impact on farming, for example by promoting natural forms of pest control and pollinating insects.

2.5. Improved productivity versus cancelling out water efficiency gains

Better water management can improve farming productivity through improved efficiency and water quality.

Water efficiency is not only about managing irrigation. For rain-fed agriculture, productivity can also be improved through better management practices. For example, a healthier soil protected from erosion and drying, will retain more moisture (and nutrients), and support greater crop productivity.

Where water efficiencies are achieved, it is important to consider how the 'benefit' is best used. The most important consideration is sustainability. Where sustainability allows, there

can be an economic benefit of increased food production ('more crop per drop'), for the original farmer and/or nearby community. However, where efficiencies are required to bring a system to a sustainable condition, then using the 'new' water would cancel out any gain. (See case study 3 – Asparagus farming in Peru).

Water efficiency gains do not normally affect water allocations. Some areas have, however, started to make a link where water is considered to be already over-allocated, a trend that could become more common as water scarcity concerns rise.

2.6. Good water stewardship practices

Key requirements for good water stewardship are given here. More detailed guidance is provided in SAI Platform documents including *Principles and Practices for Sustainable Water Management in Farming Production*, a range of SAI Platform *Technical Briefs*, and other publications listed in References.



SAI Platform publications:

***Principles & Practices for Sustainable Water Management in Agriculture* (19)**

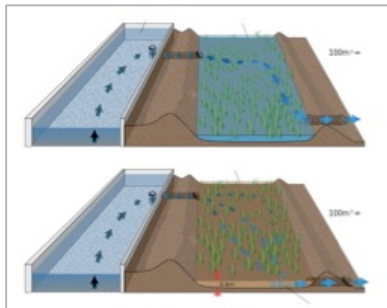
***Technical Briefs* (20)**

Water volumes:

- Know your water sources
- Know your water needs, and do not pump or use more
- Measure water volumes and water levels and monitor trends
- Distinguish consumptive and non-consumptive use
- Minimise consumptive use, and manage non-consumptive use to return clean water to the local water cycle
- Re-use and recycle water where possible
- Minimise or prevent negative impacts on flow and water levels, especially in water scarce locations and during extended dry periods.
- Understand impacts of abstractions in the wider catchment, including those on other users and the natural environment, especially conservation sites
- Select appropriate irrigation methods (not just easiest, cheapest or locally traditional)
- Respect relevant regulations and permit conditions

Water quality

- Apply a source-pathway-receptor approach, as below.
- Reduce and control pollution at source
 - Know where pollution risks occur
 - Know the chemicals used; store, handle and use responsibly
 - Manage livestock and livestock waste so as to minimise pollution impacts
 - For more hazardous waste, collect and treat before proper and legal disposal
 -
- Manage pollution pathways
 - Know the pathways
 - Use barriers and/or vegetation to control run-off rates and encourage dispersion and dilution. These may include maintaining areas of natural vegetation, including trees.
- Protect potential receptors
 - Prevent uncontrolled run-off and discharge
 - Use buffer strips between fields and water courses to prevent/reduce run-off
 - Do not store chemicals or solid waste where they could contaminate watercourses or groundwater
 - Managed and constructed wetlands are effective for treating run-off and certain types of pollution



Wetland for water treatment: design (21)



Wetlands for water treatment: in action, treating livestock waste (22)

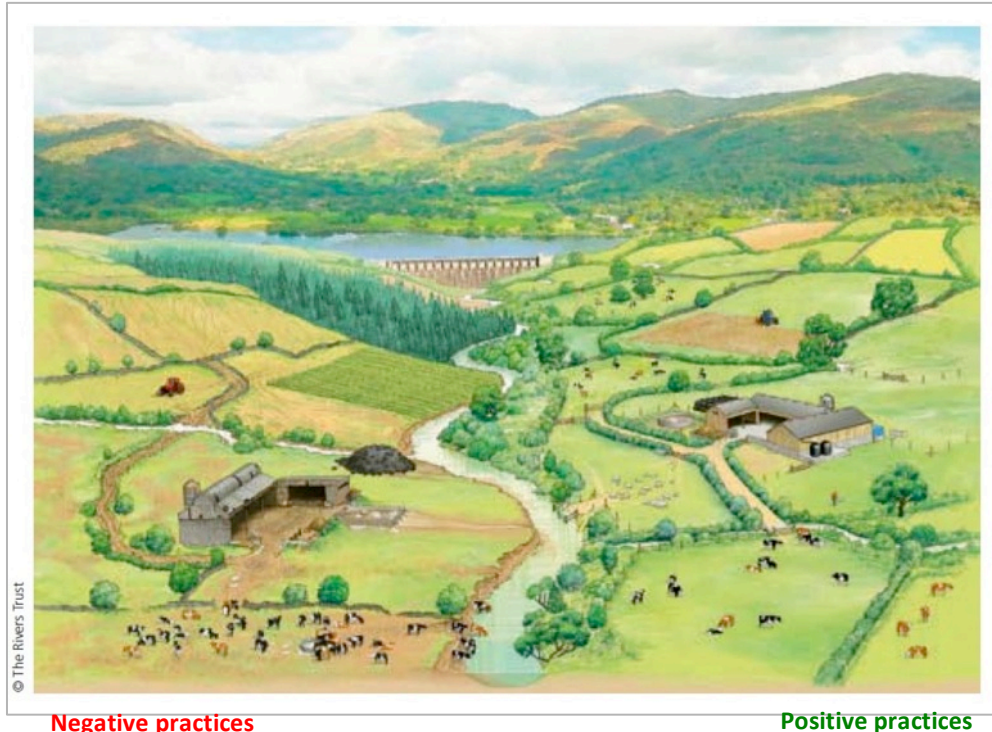
Soil management: Good water stewardship must include attention to soil management by retaining soil moisture and preventing erosion:

- Apply conservation tillage techniques, mulching and winter cover crops to retain soil moisture and general good health, which in turn will reduce the chance for water or wind erosion.
- Avoid erosion of steep slopes by either not farming on them (crops or livestock) and maintaining natural stabilising vegetation, or by re-landscaping to terraces.
- Manage plough lines and vehicle tracks on slopes to avoid rapid run-off and erosion along them
- Manage irrigation to avoid salinization

Catchment level

- Map the catchment, identifying water sources, flow routes and discharge points
- Understand the catchment water balance and water cycle, and the role and significance of your water use and discharges within them
- Through stakeholder engagement (next section), encourage and share responsibility for water stewardship across the catchment.

- Understand the policies and institutions relevant to water management at catchment scale. Stewardship should support and complement existing structures, not supplant or conflict with them.
- Support projects to generally improve water management in the catchment, such as: restoring natural flows; rain water harvesting; re-planting and maintaining natural vegetation (particularly important in upland areas to reduce run-off and erosion); restoring and improving wetlands; improving river water quality to help fish stocks and general biodiversity



Farm management: the negative and the positive (23)

3. Other water users and needs in the Catchment

3.1. Water users

Good water stewardship includes knowing other water users in the catchment, understanding their needs and how they could be impacted by your own actions. Other users may include:

- Farming
 - Large commercial farms
 - Small ('family business') commercial farms
 - Subsistence farmers
- Private domestic: individual homes with their own water well
- Private industry: Factories often have their own water wells (boreholes), especially in rural locations with no or limited public supply capacity
- Public supply
 - Public supply water companies with their own water sources are typically large users of water
 - Public supply customers, mostly domestic and private industry. They may not be in the same catchment, where supply is transported long distances.
- Natural environment: the plants, wildlife and scenic water bodies dependent on an adequate supply of high quality water



Example water users in the catchment (24, 25, 26, 27)

3.2. Needs

You should know whether the local community has full access to safe drinking water for every day needs. If not, the priority is to be sure your farm does not contribute to the problem. In addition, good stewardship would include promoting collective measures or programmes to improve their access.

When water scarcity occurs, it is often the smaller, weaker users who suffer first. When streams or wells dry, they are less likely to have access to alternatives. Regulators may impose short-term restrictions or bans on water use. Wildlife may suffer, temporarily or permanently.

Stakeholder engagement is a tool to encourage water users to work together to share resources and limit negative consequences of water scarcity. This may include an acceptance that water use must reduce at critical times.

3.3. Monitoring change

In most areas, society and environment undergo constant change, some of which may impact on water availability and sustainability, both physically and politically. Changes and trends in the catchment should be observed and monitored. This may include: government investments, demographics, policy and regulation, climate trends, and infrastructure (such as dams). Change presents risks. Although conditions may be sustainable and stable today, it is important to be aware of, and to prepare for the changes ahead. It may also be appropriate to influence some changes through stakeholder engagement.

4. Stakeholder Engagement

4.1. The importance of collective action and leadership

Within a catchment, all physical processes and all activities are interconnected. It is in the interests of all parties to communicate and cooperate, even though they may not have the same priorities, and may be competitors for the same water resources. Understanding each others' priorities and interests will provide a better chance of benefit for all.

Leadership will often need to come from larger private sector companies who have the resources and largest interest in cooperation and engagement.

4.2. Your stakeholders

Stakeholders include any organizations, groups or individuals that have some interest or 'stake' in the farm's activities. There are three main categories

- Those who impact on you (eg. regulators, protest groups, news media)
- Those on whom you have (or are perceived to have) an impact (eg. nearby water users, neighbours, natural environment)
- Those who have a common interest (eg. similar farms)
- Neutral. Those with no specific link, but with whom it is beneficial to maintain a positive impression and relationship



Example stakeholders (28, 29, 30, 31)

Priority is to any links associated with water management. However, Stakeholder Engagement should be much broader than this as many issues are interlinked, including community welfare, local economy, natural environment and your reputation.

Every location is different, but typical stakeholders include the following:

- Community
 - Role and influence varies significantly between countries and cultures. In some, it is critical to have the support of local community leaders
- Farmers and landowners
 - Small farmers who independently may have limited resources and influence, but who may participate in a collective which can be vocal if concerns arise
 - Large scale farms similar to your own. Partnerships with them will help spread your own investment and responsibility
- Other water users: industry, private homes, public supply
- Environment
 - Commonly represented by conservation groups, NGOs, or even hunting and fishing clubs who have a strong interest in protecting the natural habitats
- Regulatory and government agencies



Stakeholder engagement in action (32, 33, 34)

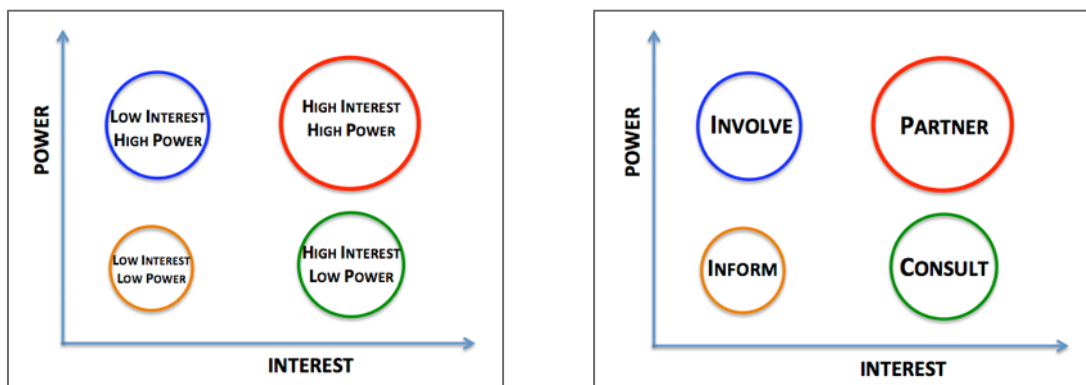
4.3. How to start engagement

The key stages in Stakeholder Engagement are:

- Mapping of stakeholders
- Categorising stakeholders
- Knowing the water policy framework and institutions
- Assigning responsibility within your team
- Plan of action

Actions

- Getting to know your neighbours
- Informing stakeholders of what you do and your sustainability actions
- Physical meetings
- Participate in relevant groups
- Create a stakeholder forum
- Form partnerships, eg with other farms or with NGOs to promote positive action such as supporting conservation projects.



Mapping stakeholders and planning action

4.4. Long-term engagement and influencing policy

The most advanced stage in stakeholder engagement is to establish a programme of long-term engagement combined with active promotion of improved water management policies.

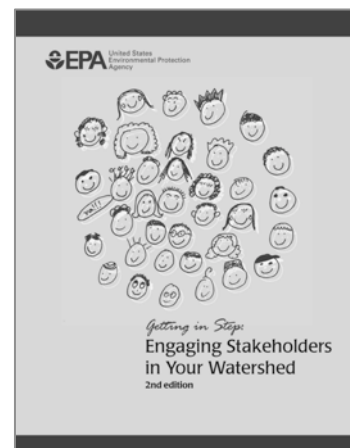
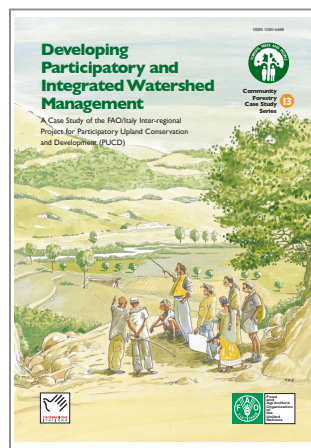
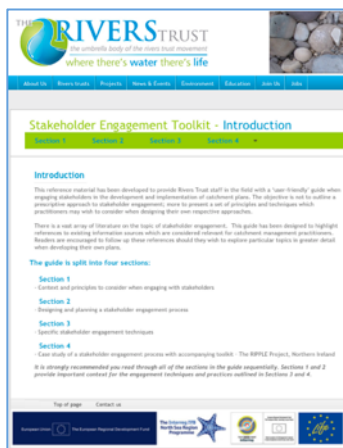
The AWS International Water Stewardship Standard (Step 6) requires you to “Communicate about water stewardship and disclose your stewardship efforts” including ‘implementation of

an education program within the catchment'. The European EWS standard has a similar requirement (Principal 4).

This form of transparency is a first step towards influencing policy by example. The ultimate aim is to influence policy so as to encourage good water stewardship by all.

The influencing of policy needs to be managed carefully and sensitively. How it should be done is very specific to the local political landscape and culture. Considerations include:

- For small farmers and businesses, their priority is survival, and they therefore need to understand the benefit to their own business and livelihood.
- Farming communities are typically conservative and sceptical to change and 'new ideas' from perceived 'outsiders'. It may require a programme of long-term engagement (perhaps over years) to demonstrate the benefits of change by those they trust.
- Some NGOs, such as WWF are highly experienced at influencing policy, and can therefore make good partners in stakeholder engagement.



Guides to stakeholder engagement – publicly available and free (See 'Image Sources and Credits' for links 35, 36, 37)

5. Methodology

5.1. Managing the approach

The road to successful water stewardship must be structured, and must have clear management commitment from the start. There are a number of guidance documents and tools (many are listed and summarised in Water for Business, WBCSD 2012). Although mostly written to address industry and business, many principles are applicable to water stewardship in agriculture.

WWF: “The water stewardship journey involves learning, acting, doing and improving. These are the steps that companies can take to better manage freshwater resources..”

Note: In some WWF guidance, the ‘stakeholder engagement’ term is replaced by ‘collective action’, implying a more pro-active cooperative approach.

© WWF International

WWF guidance to a water stewardship (38)

Another good guide to methodology is given in the ‘CEO Water Mandate: Corporate disclosure guidelines’ (see References), which includes Five Principles of Responsible Engagement with Water policy:

1. Advance sustainable water management
2. Respect public and private roles
3. Strive for inclusiveness and partnerships
4. Be pragmatic and consider integrated engagement
5. Be accountable and transparent

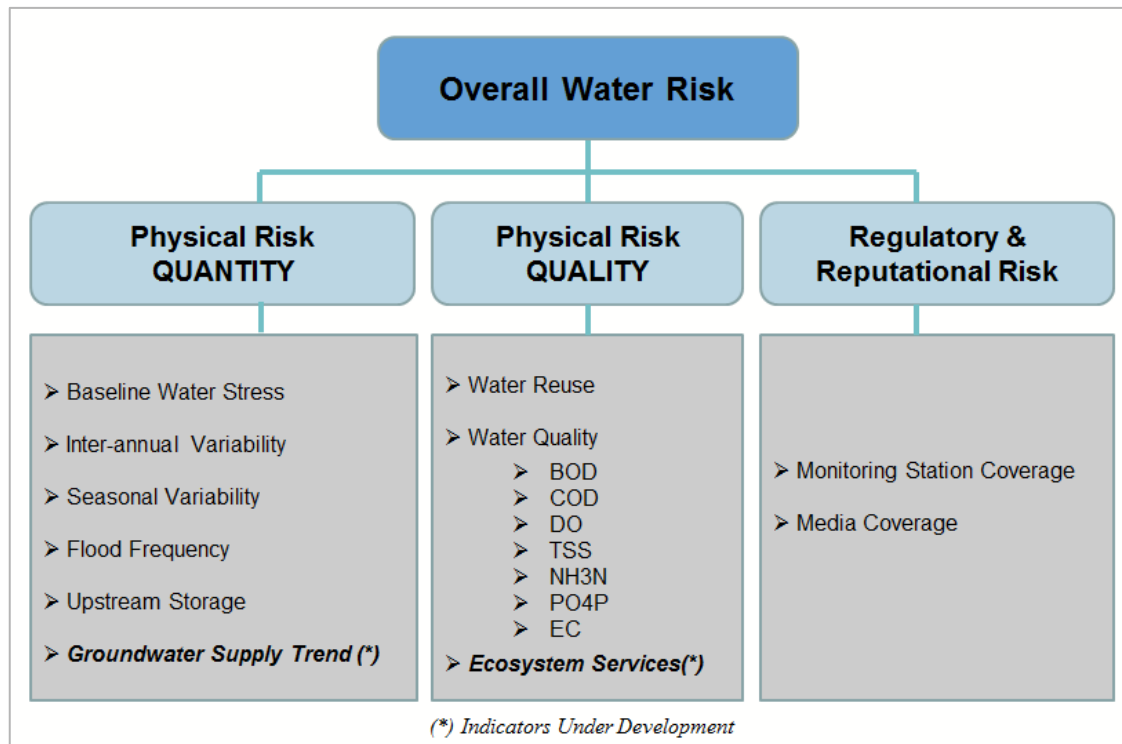
A successful process requires coordination of a range of experts in the following subject areas: Agriculture, Water resources, Ecology, Regulation, Communications, Agricultural outreach and extension.

5.2. Risk categories and assessment tools

Good citizenship is a key component of the motivation for responsible water stewardship and the need to achieve and maintain sustainability - in the economy, society and the natural environment.

An additional incentive for industry are three main categories of business water risk: (i) Physical **‘water quantity’** risk, (ii) Physical **‘water quality’** risk, and (iii) **Regulatory & Reputational** risk (both closely linked). All three have potential financial and sustainable business implications, as summarised in the chart below.

For the food and beverage industry, these risks apply across the supply chain, starting with agriculture. For example, a severe drought may seriously impact on the availability and/or cost of an important ingredient. Regulatory risk at farm level may have limited impact on a customer down the supply chain, but the negative impacts of poor practice could impact on customer reputation.



A water risk framework from Aqueduct and the World Resources Institute (39)

A crucial element of water risk is recognising that, due to scale and water’s role as a shared resource, businesses, and individual farming operations, cannot mitigate the risks by acting alone. Stakeholder engagement and collective action are essential (as described in Section 4).

Many tools are now available to assist in assessing water stewardship status and risk. As with guidance documents, most are addressed to industry and business, but can also have relevance to agriculture. The tools are particularly useful for an initial risk assessment and comparison between sites, for example, by linking site location with known water scarcity and quality issues from global mapping databases. One example is the WWF Water Risk Filter which includes Agriculture (plant or animal products) as an ‘industry type’ option (see References for link). This and other tools are listed in Water for Business (WBCSD 2012 – References for link).

5.3. Water stewardship standards

The priority of water stewardship is to understand and manage risk, and reduce negative impacts with a goal of long term sustainability. There is now the possibility to encompass and recognise this work through water stewardship certification. Two leading schemes are:

- AWS Standard, an international standard from the Alliance for Water Stewardship
- European Water Stewardship (EWS) Standard, led by the European Water Partnership, EWP

See References for links. Both promote a catchment approach to water stewardship, and offer a progressive level of certification. Following their route to certification provides a structure and framework for achieving good water stewardship.

A decision to follow certification needs to take account of two things: cost and scope. These need to be proportionate to the scale of the farm and expected benefits. In particular, the area of influence must be clearly defined and agreed with certification agencies to avoid disproportionate commitments and action plans.

REFERENCES FOR FURTHER READING

GENERAL

Coping with water scarcity: An action framework for agriculture and food security, FAO Water Report No. 38 , ISSN 1020-1203, FAO Rome 2012
<http://www.fao.org/docrep/016/i3015e/i3015e.pdf>

Reducing Risk: Landscape approaches to sustainable sourcing, A series of reports and case studies from EcoAgriculture Partners, 2013 (Includes case studies by SABMiller, Starbucks and the Rainforest Alliance)
http://landscapes.ecoagriculture.org/global_review/reducing_risk

Simply Sustainable Water – Six simple steps for managing water quality and use on your land, LEAF (Linking Environment and Farming) <http://www.leafuk.org/leaf/farmers/ssw.eb>

WBCSD 2012 - Water For Business, Initiatives guiding sustainable water management in the private sector (ver 3, August 2012) Joint publication of WBCSD and IUCN
<http://www.wbcd.org/waterforbusiness3.aspx>

WBCSD 2013 – Sharing water: Engaging business – Why watershed approaches are important to business sustainability
<http://www.wbcd.org/sharingwaterengagingbusiness.aspx>

WWF Water Risk Filter <http://www.waterriskfilter.panda.org/>

STAKEHOLDER ENGAGEMENT

Developing participatory and integrated watershed management (a case study of upland conservation and development), FAO, 1998
<http://www.fao.org/docrep/012/x0704e/x0704e00.pdf>

Engaging and Involving Stakeholders in Your Watershed, 2nd edition, 2013, US EPA Office of Water, EPA-841-B-11-001. <http://cfpub.epa.gov/npstbx/files/stakeholderguide.pdf>

Good water stewardship: guidance for agricultural suppliers, M&S (Marks & Spencer) and WWF, 2010
http://corporate.marksandspencer.com/documents/publications/2010/good_water_stewardship

Participatory watershed management, FAO, 2000 (?). 5 page primer
http://www.fao.org/sd/ruralradio/common/ecg/24516_en_factsheet7_1.pdf

WATER STEWARDSHIP METHOD AND GUIDANCE

The CEO Water Mandate: Guide to water related collective action, Beta 1.0 August 2012
http://ceowatermandate.org/files/guide_to_collective_action.pdf

The CEO Water Mandate: Corporate water disclosure guidelines (Public exposure draft), August 2012

<http://ceowatermandate.org/files/DisclosureGuidelinesFull.pdf>

WWF & HSBC, 2009, Investigating shared risk in water – Corporate engagement with the public policy process (authors Guy Pegram, Stuart Orr, Christopher Williams)

http://awsassets.panda.org/downloads/investigating_shared_risk_final_low_res.pdf

WWF – Steps to better water stewardship (website)

http://wwf.panda.org/what_we_do/how_we_work/conservation/freshwater/water_management/stewardship_steps/

WATER STEWARDSHIP STANDARDS

The AWS International Water Stewardship Standard, developed by the Alliance for Water Stewardship, www.allianceforwaterstewardship.org 'Beta' version for stakeholder input and field testing released 04/03/2013

The European Water Stewardship Standard, developed by the European Water Partnership (EWP) www.ewp.eu/activities/ews/ Launched 2012

SAI PLATFORM LIBRARY

<http://www.saiplatform.org/library>

Principles and Practices for Sustainable Water Management in Farming Production

<http://www.saiplatform.org/uploads/Library/Principles%20and%20Practices%20for%20Sustainable%20Water%20Management%20At%20a%20farm%20level-final-2.pdf>

Technical Briefs (search library <http://www.saiplatform.org/library>)

TB13 – Technical brief on soil erosion control

TB14 – Technical brief on salinity control

TB15 – Technical brief on drip irrigation and water scarcity

TB 9 – Technical brief on the use of conservation tillage to reduce water footprint

TB 11 – Technical brief on the use of conservation riparian buffers to preserve water quality

TB 3 – Technical brief on metrics for improving water management in agriculture

(plus many others)

GLOSSARY OF TERMS

Alliance for Water Stewardship (AWS) An alliance that aims to establish a global water stewardship program that will recognize and reward responsible water managers and users by creating opportunities for enhanced community standing and competitive advantage. It also aims to encourage continuous improvements in water stewardship. It is an open alliance and welcomes new organizations. Accordingly, organizations that formally join AWS are also referred to as Board Organizations. www.allianceforwaterstewardship.org

Aquifer A geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to springs, wells and boreholes. (Source USGS)

Base flow The component of surface water flow that originates from groundwater seepage. Base flow is what maintains a steady flow in rivers and streams when there is no direct rainfall and run-off. Base flow gradually diminishes over time until the next rainfall or snowmelt replenishes the aquifers.

Biodiversity: The variability among living organisms from all sources and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems. *Source: Adapted from AWS.*

Catchment

The area of land from which all surface run-off flows through a sequence of streams, rivers, aquifers and lakes into the sea or another outlet at a single river mouth, estuary or delta. A catchment can be divided into smaller units: “sub-basin” may better correspond with a site’s sphere of influence. *Source: Adapted from European Water Partnership, Draft Standard version 4.6, 2010 (via AWS).* (Alternative terms: watershed, river basin, drainage basin)

Consumptive water use: Water used, but which is **not** returned to the original source or local water cycle at an equivalent or better quality. It involves evaporated water: transpired water: water that is incorporated into products, crops or waste; water consumed by man or livestock; or water otherwise removed from the local resource.

Eutrophication The process by which water becomes enriched with plant nutrients, most commonly phosphorus and nitrogen (Source: USGS)

Evaporation The process by which water is changed to gas or vapour; occurs directly from water surfaces and from the soil.

European Water Stewardship Standard (EWS Standard) European Water Stewardship (EWS) is the integrative system for business and agriculture to assess, verify and communicate sustainable water management practices. It is the result of a wide stakeholder process, coordinated by the European Water Partnership (EWP), and embodies the collective effort and know-how of water users in agriculture and industry. The EWS defines a system of clear steps towards sustainable water management at operational and river basin levels. European Water Stewardship provides an applicable system to change the behaviour and practices of all water users towards sustainable water management.

<http://www.ewp.eu/activities/ews/>

Evapotranspiration The process by which water is discharged to the atmosphere as a result of evaporation from the soil and surface-water bodies, and **transpiration** by plants. **Transpiration** is the process by which water passes through living organisms, primarily plants, into the atmosphere (Source USGS).

Fossil water Water that infiltrated, usually millennia ago, and has been stored underground since that time and frequently denominated as old water and non-renewable. *Source: UNESCO. (via AWS)*

IWRM – Integrated Water Resources Management A process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. (GWP, The Global Water Partnership)

Non-consumptive water use: Water used, but which is returned to the original source or local water cycle at an equivalent or better quality. Examples included, irrigation water that infiltrates deep enough not to be taken up by plants, and water used for processing or washing but which is treated to good quality before being returned locally.

Non-point source (or diffuse) pollution is where often low levels of pollution occur over a large area over a long period of time, with the result that the cumulative pollution is of concern. An example is the infiltration of pesticides at the surface of agricultural land which may contaminate soils and groundwater.

Point source (of pollution): Primarily discharges from fixed sources, such as municipal wastewater treatment plants, associated with population centres or effluent discharges from industry, chemical leakages and spillages, etc. *Source: Adapted from EWP and AWS*

Sub-catchment: A subset of a catchment. Sub-catchments, when aggregated, make up the full catchment. Alternative term: sub-basin.

Stakeholders: Individuals, groups of individuals, organizations or environmental features and species that affect and/or could be affected (positively or negatively) by the activities of a business or farm. *Source: Adapted from AWS.*

Transpiration – see Evapotranspiration

Water stewardship: The use of freshwater that is socially equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder-inclusive process that involves site- and catchment-based actions. Good water stewards understand their own water use, catchment context and shared risk in terms of water governance, water balance, water quality and important water related areas—then engage in meaningful individual and collective actions that benefit people and nature.

- Socially equitable water use recognizes and implements the human right to water and sanitation and helps to ensure human well-being and equity.
- Environmentally sustainable water use maintains or improves biodiversity, ecological and hydrological processes at the catchment level.
- Economically beneficial water use contributes to long-term efficiency and development and poverty alleviation for water users, local communities and society at large
- Water stewardship is intended to support and contribute to Integrated Water Resource Management by all actors. *Source: AWS*

IMAGE SOURCES AND CREDITS

- (1) US EPA. Available via Long Tom River Watershed Council <http://www.longtom.org/about-ltwc/watershed-diagram/>
- (2) Middle Atlantic River Forecaster Center, October 2001, via US National Weather Service <http://www.erh.noaa.gov/marfc/Rivers/susquehanna.gif>
- (3) US EPA. Available via Lamprey River Advisory Committee <http://www.lampreyriver.org/about.river-terms>
- (4) Photo by Jeff Vanuga, USDA Natural Resources Conservation Service <http://commons.wikimedia.org/wiki/File:LevelBasinFloodIrrigation.JPG>
- (5) Photo by Tim McCabe, USDA Natural Resources Conservation Service. http://commons.wikimedia.org/wiki/File:NRCSCO92001_-_Colorado_%281651%29%28NRCS_Photo_Gallery%29.jpg
- (6) Photo by Tim McCabe, USDA Natural Resources Conservation Service. http://commons.wikimedia.org/wiki/File:NRCSCA82008_-_California_%281317%29%28NRCS_Photo_Gallery%29.tif
- (7) Photo by Sasha Trubetskoy http://commons.wikimedia.org/wiki/File:Potomac_green_water.JPG
- (8) Photo by Frank Vincentz http://commons.wikimedia.org/wiki/File:Botthrop_-_Halde_Haniel_16_ies.jpg
- (9) Photo by **Rodney Burton** http://commons.wikimedia.org/wiki/File:Soil_erosion,_Warmwell,_Dorset_-_geograph.org.uk_-_52279.jpg
- (10) Photo by Lynn Betts, USDA Natural Resources Conservation Service. http://commons.wikimedia.org/wiki/File:NRCSCIA99205_-_Iowa_%283105%29%28NRCS_Photo_Gallery%29.jpg
- (11) Photo by John Haynes http://commons.wikimedia.org/wiki/File:Cattle_in_the_Llangollen_Canal_-_geograph.org.uk_-_586116.jpg
- (12) Photo by Jeff Vanuga, USDA Natural Resources Conservation Service. http://commons.wikimedia.org/wiki/File:NRCSCVA02042_-_Virginia_%286611%29%28NRCS_Photo_Gallery%29.tif
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- (14) Photo by Natural Resources Conservation Service (NRCS) http://commons.wikimedia.org/wiki/File:Contour_buffer_strips_NRCS.jpg
- (15) Photo by Lynn Betts, USDA Natural Resources Conservation Service http://commons.wikimedia.org/wiki/File:NRCSCIA99613_-_Iowa_%283861%29%28NRCS_Photo_Gallery%29.jpg
- (16) Photo by Luís Bonifácio http://commons.wikimedia.org/wiki/File:Canal_do_Sorraia.JPG
- (17) Photo by Its Masud http://commons.wikimedia.org/wiki/File:Water_Pump_watering_cultivating_fields.JPG
- (18) Photo from US Department of Agriculture http://commons.wikimedia.org/wiki/File:Discharge_pipe.jpg
- (19) SAI Platform Policy & Practices for Sustainable Water Management in Agriculture <http://www.saiplatform.org/uploads/Library/Principles%20and%20Practices%20for%20Sustainable%20Water%20Management%20At%20a%20farm%20level-final-2.pdf>
- (20) SAI Platform Technical Briefs <http://www.saiplatform.org/library>
- (21) Author: JKW Chui (www.jkwchui.com) http://commons.wikimedia.org/wiki/File:Treatment_pond_blank.svg
- (22) Photo by Tim McCabe, USDA Natural Resources Conservation Service. http://commons.wikimedia.org/wiki/File:NRCSCIA99036_-_Iowa_%282777%29%28NRCS_Photo_Gallery%29.jpg
- (23) Copyright: The Rivers Trust <http://ccmhub.net/the-catchment-approach/what-is-catchment-management/>
- (24) Author: USAID Africa Bureau http://commons.wikimedia.org/wiki/File:Water_pump_provided_by_USAID_%287250593162%29.jpg
- (25) Photo by Glyn Baker http://commons.wikimedia.org/wiki/File:Egrets_and_Naze_Lagoon_-_geograph.org.uk_-_1390204.jpg
- (26) Photo by Peter Easton
- (27) Photo by Peter Easton
- (28) Author: ILRI (International Livestock Research Institute) http://commons.wikimedia.org/wiki/File:Ploughing_with_cattle_in_West_Bengal.jpg
- (29) Photo by Neil Palmer (CIAT) http://commons.wikimedia.org/wiki/File:Farmer_in_bean_field,_Nicaragua.jpg
- (30) Photo by Jeff Vanuga, USDA Natural Resources Conservation Service. http://commons.wikimedia.org/wiki/File:NRCSCVA02030_-_Virginia_%286587%29%28NRCS_Photo_Gallery%29.jpg
- (31) Author: Daniel Schwen <http://commons.wikimedia.org/wiki/File:Birdwatching.jpg>
- (32) Photo by Colleen Taugher <http://www.flickr.com/photos/70268842@N00/5136700373/> (Creative Commons licensed)
- (33) Photo by Michael Rieger http://commons.wikimedia.org/wiki/File:FEMA_-_43595_-_Buttonwoods_Community_Center_public_meeting.jpg
- (34) Photo credit APB-CMX http://commons.wikimedia.org/wiki/File:Bartlett_-_Extension_Meeting_-_Laos%282006%29.jpg
- (35) Website guidance: **Stakeholder Engagement Toolkit**, The Rivers Trust (UK) <http://www.theriverstrust.org/projects/stakeholder/index.html>
- (36) Published guidance and case study document: **Developing Participatory and Integrated Watershed Management**, FAO and Italy Inter-regional Project for Participatory Upland Conservation and Development (PUCD), ISSN-1020-4466, by Patrizio Warren, 1998. Download from: <http://www.fao.org/docrep/012/x0704e/x0704e00.pdf>
- (37) Published guidance document: **Engaging and Involving Stakeholders in Your Watershed**, 2nd edition, 2013, US EPA Office of Water, EPA-841-B-11-001. <http://cfpub.epa.gov/npstbx/files/stakeholderguide.pdf>
- (38) WWF Steps to better water stewardship http://wwf.panda.org/what_we_do/how_we_work/conservation/freshwater/water_management/stewardship_steps/
- (39) Aqueduct/World Resources Institute, Framework to Evaluate Global Water Risks <http://insights.wri.org/aqueduct/2012/05/aqueduct-launches-new-framework-evaluate-global-water-risks>

CASE STUDIES

Case Study 1:

Agrivair's watershed conservation and biodiversity protection (Nestlé Waters)

Case Study 2:

A Landscape approach to sustainable sourcing, Bogota, Colombia (SABMiller)

Case Study 3:

Catchment impacts of commercial asparagus farming in Peru (Study by Progressio)

Case Study 4:

**AQUA Lestari: protect water resources and empower local communities
(Danone, Indonesia)**

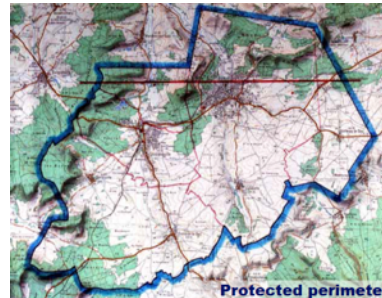
Case Study 5:

**Building Local Capacity and Ownership to Support Watershed Stewardship
– The CYAN Movement (Anheuser-Busch InBev)**

Case Study 1: Agrivair's watershed conservation and biodiversity protection

Company: Nestlé Waters

Summary: Stakeholder engagement and support to farmers in an agricultural catchment to protect mineral water sources



In 1992, Nestlé Waters established the agricultural advisory firm Agrivair, based in Vittel, France to assist local farmers in "greening" their agricultural practices to preserve the quality of the Vittel, Contrex and Hépar Springs in the Vosges water basin. It is vital to protect mineral water sources, which must be untreated and untouched up to the final consumer. The quality, integrity and sustainability of the sources are directly connected to the land above. In the 1980s, Nestlé Waters began working with historians, sociologists, economists, agronomists, animal technicians and hydrogeologists, as well as the French National Institute for Agricultural Research (INRA), to create the Agrivair project.

Through partnerships with local stakeholders over 20 years, the project has helped to initiate positive action to preserve the quality of water resources. Agrivair now protects 10,000 hectares of land, making it one of the world's largest private protected areas.

By providing financial, research and technological assistance to local farmers to promote guidelines on environmental farming techniques, the project has encouraged farmers to:

- Stop using artificial fertilisers and pesticides
- Implement crop rotation to improve soil conditions
- Compost animal waste, and
- Abandon farming of crops such as corn, which create nitrogen pollution.

Similar assistance to other landowners, such as a golf course, a park and race track establishments, has also eliminated the use of pesticides, herbicides and nitrates. Today, the Agrivair guidelines have been implemented on 92% of the Vittel and 70% of the Contrex water resources land areas.

Future Agrivair projects will focus on improving the already rich biodiversity of the basin, to include tree planting – in collaboration with farmers and other land owners – to recharge the aquifer, protect soil from erosion and to provide recreational and educational areas for the local community. There are also plans to reshape the river to flow more slowly, to encourage greater biodiversity on and near to the riverbanks. Catchment conservation projects will also be delivered through the *Terre-Eau* (Earth-Water) association, a regional stakeholder partnership for protecting water resources, of which Agrivair is a founding member.

Agrivair has proven a valuable model for catchment conservation. Many of its initiatives have been adopted at other NW sites, and it has won external recognition from the French Ministry for Ecology, Energy, Sustainable Development and the Sea, of the French Environment and Energy Control Agency and the ESSEC business school in France.

For more information:

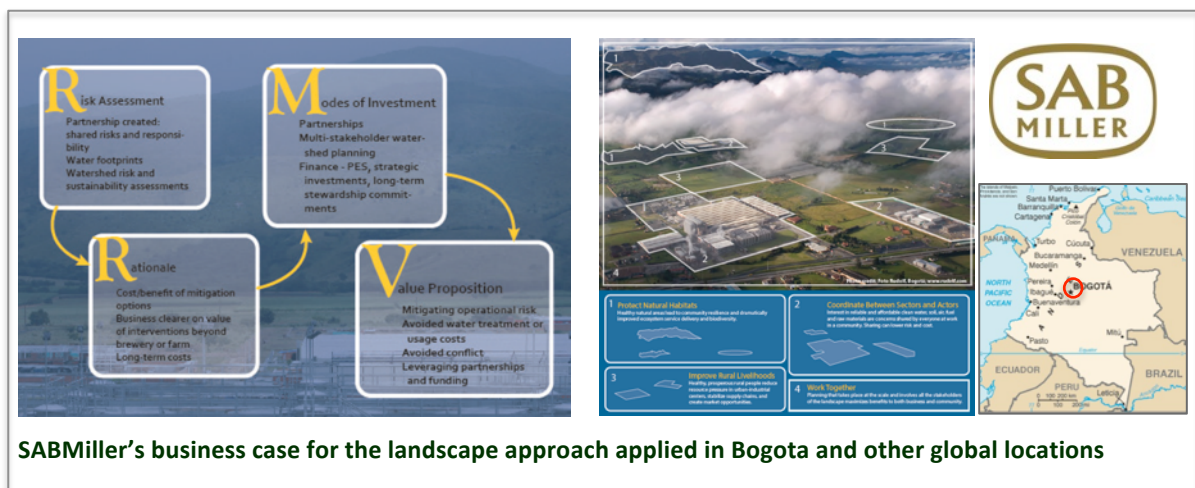
<http://www.nestle-waters.com/media/featuredstories/agrivairq-celebrates-its-20th-anniversary>

Case Study 2: A Landscape Approach to sustainable sourcing, Bogota, Colombia

Company: SABMiller

Summary: Through promotion of partnerships, funding of technical studies and support to payments for eco-system services (PES), SABMiller led a program that helped farmers, saved on municipal water treatment costs and improved water security for itself and regional stakeholders.

SABMiller's Colombian subsidiary, Bavaria, operates a brewery in the vicinity of Bogota. Deforestation and degradation of the upper river catchments for farming had negatively impacted on the quality of the city's public water supply on which the brewery relies. Bavaria recognized the solution lay in addressing unsustainable agricultural and land management practices in the water catchment.



SABMiller promoted and supported the following activities:

- Studies on water catchment mapping and projection of water demand and impacts
- Partnership development with The Nature Conservancy (TNC), National Parks and Bogota water company to prevent sediments entering the river basin
- Financial support for a 'payments for ecosystem services' (PES) scheme led by TNC and the municipality to encourage better practices by farmers to prevent erosion, such as planting trees and keeping livestock off steep slopes
- Partnership with WWF Colombia to promote water efficiency

Outcomes:

- 2 million tonnes reduction in sediments
- Projected saving of nearly US\$3.5M on annual water treatment costs for municipal supplier, significantly more than the project investment cost
- Bavaria brewery achieved 20% water efficiency improvement
- Restoring 60,000 hectares of cloud forests (significant contributors to precipitation)
- Improved public water supply quality

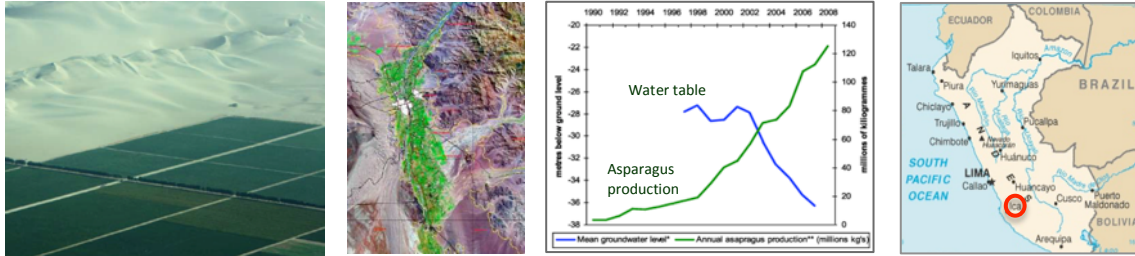
Report: Reducing Risk: Landscape Approaches to Sustainable Sourcing. Washington, DC. Landscapes for People, Food and Nature Initiative. Kissinger, 2013. SABMiller case study.

This and other studies available at:

http://landscapes.coagriculture.org/global_review/reducing_risk

Case Study 3: Catchment impacts of commercial asparagus farming in Peru
Study by: Progressio (charity), CERES organisation, Water Witness Intl (charity)

Summary: Rapid expansion of commercial asparagus production in a desert environment to meet a year-round international demand, led to rapidly declining water tables and negative economic/social impacts on traditional farmers. Proposed solutions recognise the local economic benefits.



Commercial asparagus farming in the Ica region of Peru exploded from near zero in 1990 to 100 km² by 2008. Peru is now a world leader in asparagus exports, its main markets being the USA and Europe. It's a boom for the local economy, contributing to 40% of employment. The asparagus is grown on formerly desert land watered by drip irrigation. By 2002, pumped water exceeded recharge (from just 1 mm/yr rainfall), causing a rapid fall in the water tables, on average 2m per year, and up to 8m/year.

Despite the initial positive economic impact, negative impacts include:

- Spiralling water supply costs for the asparagus farming sector
- Falling water tables, drying of wells and groundwater salinity for traditional farmers and domestic wells
- Groundwater pollution from nitrates, fertilisers and waste
- Increased regional water scarcity due to diversions from traditional communities

Without action, the impacts will eventually deny the population and economically important farming industry the water they need for survival.

The solutions lie not in technical exploitation of yet more water resources, but instead require improved regulatory control and better governance through multi-stakeholder engagement at local, national and international levels.

Recommendations:

- Studies to collect data and better understand the water resources and social issues
- Regulation: Application of the Peruvian water law to ensure more effective water resource management, and to address concerns about water privatisation by stealth.
- Civil society: NGOs and the media have a role to play in promoting accountability within government, both nationally and internationally
- International investors and retailers: to better understand the impacts of their product demand on local water resources, and take these into account in sustainable procurement policies.
- Some existing global sustainability standards (as used by major customers) should be improved to take better account of water impacts. The Alliance for Water Stewardship (AWS) standard is promoted as a good approach.

For 2010 report: http://www.progressio.org.uk/sites/default/files/Drop-by-drop_Progressio_Sept-2010.pdf

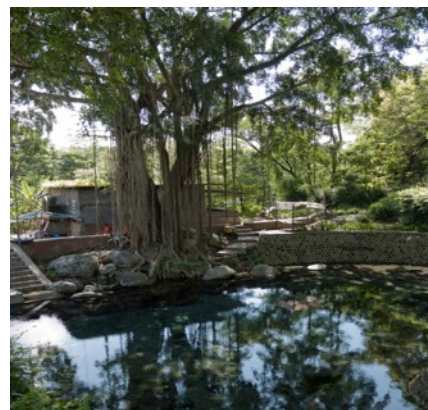
2013 update. A review of media reports indicates proposals have not yet been implemented and water problems continue. Not yet a success, but demonstrates the enormous challenges.

Case Study 4 AQUA Lestari: protect water resources and empower local communities

Company: Danone / Aqua Natural Spring Water, Indonesia

Summary: Coordinated actions to support water access, sanitation and agricultural needs for growing population, to improve the environment, protect mineral water sources and maintain the social licence to operate.

Since the Aqua brand's establishment in 1972, pressures on water resources (qualitative and quantitative) have increased rapidly due to population increase, agricultural needs and a lack of water management structure. Social responsibility was in Aqua's DNA before Danone's acquisition in 1998, but since 2006, Lestari, Aqua's sustainability road map, has aligned the organisation on key sustainability issues, with more than 40 projects implemented around the country, working in partnership with 30 NGOs, universities and research centres.



Indonesia

The programme aims at improving water access and hygiene practices and reducing water borne diseases, to which, to date, more than 70,000 people have benefited directly.

Supporting communities is essential for promoting environmentally friendly practices and protection of water resources. In the Aqua catchment, organic farming and agro-ecological practices are promoted and supported by micro-finance schemes to community groups, whose crops include mushrooms, fruit, rice and vegetables.

Better irrigation methods, soil rehabilitation, chemical reduction and erosion control are systematically promoted.

Hydrogeological studies are conducted, and the exploitation of groundwater is monitored to ensure sustainable use of water resources, although a complete understanding of the complex deep volcanic aquifers remains a challenge. Engaging local government to exercise more responsibility in this work is an important long term aim.

The Aqua Lestari model has shown great results, with improved environmental and water resources management by local communities and farmers. Stakeholder engagement has included networking between scientists, NGO's and authorities. Farmers who were initially concerned about the impact of spring water bottling on their own water needs are now more accepting of the mutual benefits. However, challenges and risks remain, so that long term engagement, communication and education are key to long term sustainability of shared water resources.

For more information: <http://downtoearth-danone.tumblr.com/post/13500273442>

For a short film on co-operation between Aqua and the local community, see: "The Water of the Merapi" www.youtube.com/watch?v=et4rbVwyMbg.

Case Study 5 Building Local Capacity and Ownership to Support Watershed Stewardship – The CYAN Movement

Company Anheuser-Busch InBev

Summary: Through collective action with local stakeholders and a wide variety of actions, Anheuser-Busch InBev is leading an initiative to improve local watersheds in high-risk areas of Brazil.

On World Water Day in 2010, Anheuser-Busch InBev (AB InBev), through its local company Ambev, kicked off the CYAN Movement in Brazil. The CYAN Movement is an ongoing collective action initiative to promote the responsible use of water in high-risk watersheds. Key elements of the program include:

- Launching communication campaigns on responsible water use in routine daily activities
- Establishing the “CYAN Bank,” a reward program that incentivizes consumers to lower water consumption levels at home. Almost 300 million liters of water have been saved to date
- Sponsoring preservation initiatives in water basins important for Ambev’s breweries and Brazil and driving positive change in high-risk watersheds through the collective action of local stakeholders

A centerpiece of the preservation initiatives is a partnership with the World Wildlife Fund to advance sustainable water management in the Corumbá-Paranoá Basin - the primary source of water for the company’s Brasilia brewery. The project is bringing together local communities, employees, government agencies and other stakeholders to preserve and recover springs, aquifer headwater and replenishment areas.

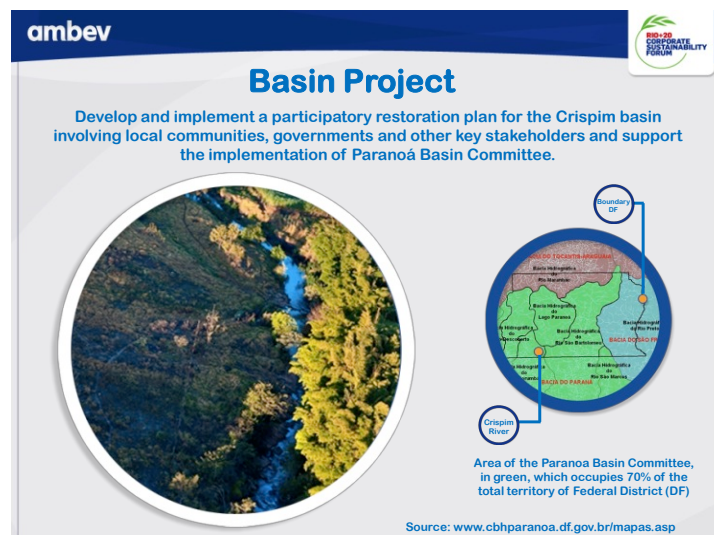
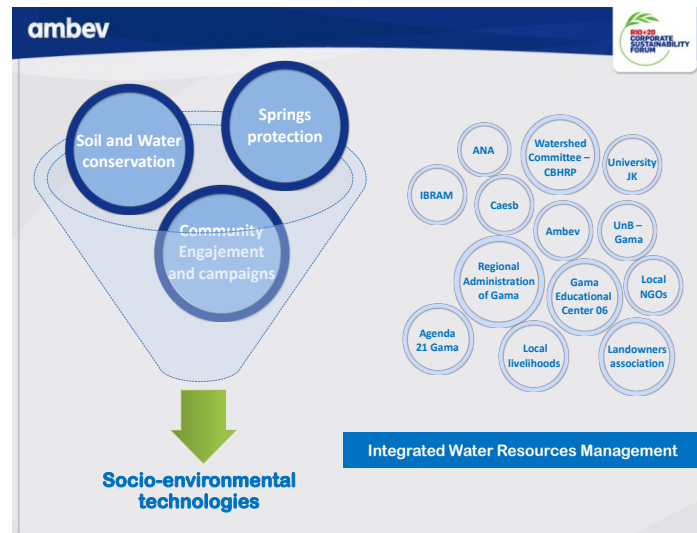
AB InBev has placed a priority on local capacity building for this project by implementing a model in which decision-making gradually transfers to other project partners as partner buy-in and capacity builds. This evolution should provide a basis for AB InBev to hand over the project to local partners, gradually changing its role from key driver to supporting partner and helping to ensure the project’s long-term sustainability. Results achieved to date include:

- Eco-mapping to identify stakeholders and determine appropriate partners, and the most impactful areas for restoration
- Established a nursery at the Brasilia brewery to grow 10,000 native saplings used to restore critical areas. This includes building the capacity for seed harvesting and agro-forestry that has the added benefits of providing food sources and potential income for residents. More than 5,200 trees have been planted and will be monitored during the project
- Regular monitoring of 6 streams to assess baseline water quality and improvement over time
- Engaged 7,000 people locally through capacity building activities
- Established a local water basin committee that will make future management decisions, which promotes sustainability of the project through improved local governance. Sixty members have been trained on water governance.

Brazil



In 2012, AB InBev began planning a new stage of the CYAN Movement in the Jaguariúna region of Brazil with The Nature Conservancy (TNC). The aim is to conserve the basin that supplies a portion of the water to the greater São Paulo region and the company's beverage facility in Jaguariúna. The initial phase of the work involves creating a group of local partners and identifying the most critical areas that need restoration. It is centered on the idea that natural areas provide a range of services for society, with the supply and quality of water being one of the most important. AB InBev is supporting the social, environmental and economic research to create the right incentives for private landowners to protect critical natural areas that produce water resources. The company will report its progress in the future.



For further information, see the links below

- http://www.ab-inbev.com/pdf/ABI_CSR11_Global.pdf, pages 40 and 41.
- http://www.ab-inbev.com/pdf/2012_GSR_REPORT.pdf, page 28
- http://ceowatermandate.org/files/guide_to_collective_action.pdf, page 41
- <http://www.movimentocyan.com.br>
- <http://www.bancocyan.com.br>



The Sustainable Agriculture Initiative is a food industry organization aimed to support the development of sustainable agriculture involving stakeholders of the food chain

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