RAINFOREST ALLIANCE

Chapter 6: Environment

6.5 Water Management and Conservation

How does water consumption look like on a farm?

- Crop irrigation and processing require large quantities of water
- People living on a farm need water for cooking, bathing, and laundry

Each farm should pay attention to whether water is being wasted.

- Are there leaks in the irrigation system or water distribution pipes?
- Is the irrigation method water efficient?
- Is the crop processing method consuming too much water?

What happens if we continue wasting water?

The groundwater level will gradually go down, and less and less water will be available for crops and for people.

Streams may start to dry up.

Wells may dry up.

And the soil will eventually become drier and drier.

Let us now look at the requirements on this topic to learn different ways to manage and conserve water.

6.5 Water Management and Conservation

No.	Base requirement	Group certification			Ind. cert.
		S-farms	L-farms	Group mgt.	S/L
6.5.1	Management complies with the applicable law for withdrawal of surface or groundwater for agricultural, domestic or processing purposes. If required, compliance is demonstrated through a license or permit (or a pending request).		✓	✓	✓

Read the requirement and its applicability before you move on to the next page

6.5.1

Management complies with the applicable law for withdrawal of surface or groundwater

This applies for withdrawal of surface or groundwater for agricultural, domestic or processing purposes.

If a country has laws regarding the extraction of groundwater or withdrawal of water from rivers, streams, or lakes, group manager Sonia needs to comply with these laws.

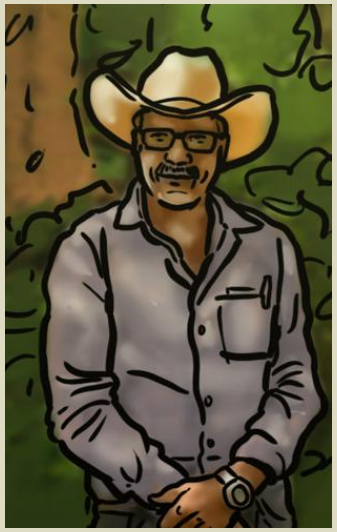
Sonia must also ensure that there is no illegal extraction of water.

- In some cases, Sonia must obtain a license or permit to extract groundwater or to withdraw water from rivers, streams, or lakes.

- In some countries, the process to obtain a permit takes very long. In such a case, proof of a pending permit request is also acceptable.

Case scenario

Let's look at an example on the water management requirement 6.5.1.



James has a large banana plantation. James drilled a borehole in the farm to withdraw groundwater for irrigation.

The municipality of the area requires producers to obtain a permit to drill a borehole.

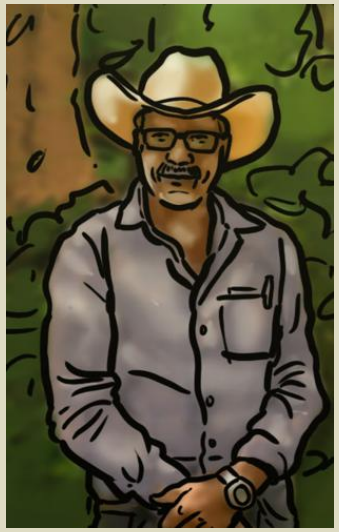
The plantation submitted all the required documents to the municipality a few years ago, but the permit is still under process.

?

What is the correct process that James should follow to be compliant with 6.5.1?

Think about the answer before you move on to the next page

Case scenario - Solution



As is required in his municipality, James needs to obtain a license or permit to extract groundwater.

Even though the permit is not yet granted, James has a pending a request for obtaining the permit.

Therefore, **James is compliant with the requirement 6.5.1.**

No.	Specialized requirement				
6.5.2	Irrigation and water distribution systems are maintained to maximize crop yields while reducing water wastage, soil erosion, and salinization.		✓	✓	✓

Read the requirement and its applicability before you move on to the next page

6.5.2

Irrigation and water distribution systems are maintained, reducing water wastage, soil erosion, and salinization

Water distribution and irrigation systems maximize crop yields. Group manager Sonia must ensure that her group's systems are functioning correctly and maintained regularly.

- **Sonia must look at the pipes, are there leaks or blockages?**
- **If there are leakages or broken parts, Sonia should get them fixed to prevent further waste of water.**

If a small farm in her group needs support with maintenance of the irrigation system, Sonia should support the farm.

Case scenario

Let's look at an example on the water management requirement 6.5.2.

Amina is an individually certified coffee farmer. She uses the flooding method for irrigation, which consumes significantly more water than sprinkler or drip irrigation.

Her irrigation pipes also had many leaks, so she fixed these leakages. She continues to irrigate through the flooding method.

What do you think about the irrigation method with respect to water management?

Think about the answer before you move on to the next page

Case scenario - Solution

To comply with 6.5.2, conducting regular maintenance of the existing irrigation system is sufficient. Repairing leaks on irrigation pipes is a good maintenance procedure.

While Amina is not required to change her irrigation system, she should be considering ways to reduce the water wastage on her farm. A lot of water is wasted due to the flooding method.

6.5 Water Management and Conservation

No.	Continuous improvement requirement				
6.5.3	Irrigation and water distribution systems are managed to optimize crop productivity, considering factors such as: • Crop evapotranspiration at different growth stages • Soil conditions • Rainfall pattern Not applicable to small farms in groups Producers record the amount of water used for irrigation starting from year one onwards.		✓	✓	✓
6.5.4	Management takes measures to reduce the use of processing water per unit of product. Water use and reduction are monitored and documented from year one onwards. For Group Management, this is applicable if groups have central processing facilities.		✓	✓	✓
6.5.5	Producers use rainwater harvesting for irrigation and/or other agricultural purposes.	✓	✓		✓
6.5.6	Producers participate in a local watershed committee or initiative and take action to help maintain or restore the watershed's health as part of this collective process. The nature of the participation and actions taken are documented.	✓	✓		✓

Read the requirements and their applicability before you move on to the next page

6.5.3

Farms avoid irrigating excessively

To continue improving irrigation practices, farms need to avoid irrigating excessively and irrigate **only the exact amount of water that is necessary for the healthy growth of crops.**

Considerations for irrigation:

- **The crop's water requirement at each growth stage**. A small young crop needs much less water than a mature old crop.
- **Soil conditions.** Some soil types can retain water more than others. You should check the soil moisture level to determine how much irrigation is necessary.
- **Rainfall patterns.** On a sunny day, your crop needs more irrigation than a cloudy day. On a rainy day, you do not need to irrigate.

This requirement does not apply to small farms in groups.

Photo credit: IGN Andre Stiana

6.5.3

Farms record the amount of water used from year one onwards

To demonstrate effort and improvement over time, farms should **record the total amount of water used for irrigation.**

The basis is to calculate **the amount of irrigation water used per unit of product**.

Over time farms will be able to see whether their water usage remains stable, or if there is an increase or reduction.

For example, if production is expanded, the total amount of water used for irrigation may increase.

Alternatively, efforts to optimize irrigation can lead to a reduction of the amount of water used per unit of the product.

Photo credit: IGN Andre Stiana

Case scenario

Let's look at an example on the water management requirement 6.5.3.

James' banana plantation uses drip irrigation.

The farm is equipped with a soil moisture meter to measure the soil humidity, and it has a rain gauge to measure rainfall.

The farm manager James calculates the amount of irrigation water needed every day, using data of the crop, soil humidity, and rainfall .

The quantity of irrigation water is recorded for each irrigation.

?

Is James' using appropriate methods for water management monitoring?

Think about the answer before you move on to the next page

Case scenario - Solution

The answer is "**Yes**", James' plantation is using appropriate methods and is fully compliant with the requirement.

James' is using an advanced and scientific method of determining the **optimal amount of water needed for irrigation and is therefore minimizing water waste.**

He is also able to **report water usage** accurately.

Case scenario

Let's look at another example on the water management requirement 6.5.3.

Alex has a small banana farm with an individual certificate. Alex irrigates his crop with sprinklers.

Whenever he intends to irrigate, he **checks** his crop, soil condition, and weather conditions **visually**. Based on his visual assessment, he decides on the irrigation quantity.

He records the total amount of irrigation water used for each production cycle.

?

Is Alex using appropriate methods for water management monitoring?

Think about the answer before you move on to the next page

Case scenario - Solution

The answer is "**Yes**", Alex is using appropriate methods and is fully compliant with the requirements.

While Alex uses much more basic methods for determining the irrigation quantity, compared to the earlier example, he still complies with the requirement.

6.5.4

Management takes measures to reduce the use of processing water

For example, **you may consider recycling water, when possible,** to reduce water consumption.

Many coffee mills have installed a pump that brings back the water used for washing the coffee cherries into the system so that the same **water can be used multiple times**.

Old coffee mills can be renovated to a modern system that can process coffee with much less water.

6.5.4

Management takes measures to reduce the use of processing water

For banana processing, water is used to remove latex from bananas in a big pool.

A banana farm can take measures to reduce the use of water by for example:

- Making the washing pool shallower by raising its bottom
- Changing the irrigation nozzle to a fan type so that the same pressure can be achieved with much less water

6.5.4

Management records the water used for processing

To monitor improvement, farms need to record the **water used for processing**.

Farms must:

- **Record the total amount of water used** for processing
- **Calculate the amount of water used for processing per unit of product**

Case scenario

Let's look at another example on the water management requirement 6.5.4.

Sonia's coffee producer group has a central mill. The mill is very old and uses a lot of water.

Following the management plan, group manager Sonia invests in a pump to **recycle the water used for washing the coffee cherries**. Recycling of water reduced its water consumption by 20%.

In three years, the group intends to invest in a modern processing facility, which will further reduce its water consumption.

?

What do you think about the group's water reduction plan?

Think about the answer before you move on to the next page

Case scenario - Solution

Sonia's group made its own plan to reduce water use for processing and followed it successfully.

Therefore, the group is compliant with the requirement 6.5.4.

Photo credit: Matthew Harmer/Nice and Serious

6.5.5

Farms use rainwater harvesting for irrigation and/or other agricultural purposes

Harvesting rainwater can save people from going to faraway rivers to fetch water and gives them more security when the water supply is unstable.

For example, the rainwater that falls on roofs can be collected and stored in a tank.

Rainwater can be used for:

- Irrigation
- Inputs application (application of fertilizers or agrochemicals that need to be dissolved in water)
- Washing

This requirement also applies to small farms in a group.

Photo credit: Sergio Izquierdo

6.5.6

Farms participate in a local watershed committee or initiative

If there is a **local irrigation committee** that collectively manages water sources of the area, farms should participate in it to contribute to the sustainable use and conservation of the watershed.

Reforestation is also very important to restore the water sources of the area. If there are **local reforestation initiatives** to restore the watershed, farms should consider participating.

Example of a local watershed initiative

In Costa Rica, a group of fishermen reported that water in the watershed has become severely contaminated by **sediments, agrochemicals**, and **wastewater** and consequently the population of fish in the area has significantly declined.

These fishermen, farmers, people from the community, and the local government **came together to protect the watershed**.

They developed a **plan to control soil erosion** and to **prevent water contamination**.

Together, they **reforested** the upper part of the watershed to **restore the water source**.

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