Water Stewardship Action Learning Project in Rubber Processing

Jambi, Indonesia

Summary Report

14 January 2020

This Action Learning Project was a collaboration between:

- Global Agribusiness Alliance
- Alliance for Water Stewardship Asia-Pacific Indonesia
- Halcyon Agri Corporation and HeveaConnect

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1. WATER STEWARDSHIP: AN INTRODUCTION

The importance of water in ensuring a prosperous and sustainable future is clear. Without responsible and inclusive stewardship of this critical resource, all aspects of development are threatened. Yet the many challenges in achieving responsible water stewardship are diverse and complex. In a globalized world, water stress is one of the standout challenges of our time and affects all regions. Pressures on water are increasing globally due to many factors including population growth, economic growth, increasing demand for food production, and climate change. Sustainable and responsible water use is necessary to protect and ensure all water needs, now and in the future.

The Alliance for Water Stewardship (AWS) is a global membership-based platform consisting of over 120 member and partners worldwide, including the Global Agribusiness Alliance. Its vision is a water-secure world that enables people, cultures, business and nature to prosper, now and in the future. To achieve this, AWS's mission is to ignite and nurture global and local leadership in credible water stewardship that recognizes and secures the social, cultural, environmental, and economic value of freshwater. The AWS System provides a globally-endorsed definition of water stewardship, the AWS International Standard, that helps water users to understand and improve their water use, while building trust and collaboration to address shared water challenges. The Standard lays a pathway for companies to achieve five outcomes: 1) sustainable water balance, 2) good water quality, 3) good water governance, 4) healthy important water-related areas, and 5) safe water and sanitation for all.

Over the last four years AWS has embarked on a rollout of the AWS System in different sectors, countries, and local contexts which has led to over 70 certified sites worldwide and over 200 other water stewardship initiatives. This growing uptake around the world confirms the opportunity for water stewardship to drive real change in water users' relationship with the resource and with one another as water users.

This Action Learning Project (ALP) of the Global Agribusiness Alliance (GAA) is a collaboration between AWS Asia-Pacific Indonesia (AWS A-P Indonesia), Halcyon Agri Corporation (HAC), and HeveaConnect (HC). It builds on lessons learned from the first ALP in India with Phoenix Group and aims to provide GAA members with insights into the process and outputs of water stewardship trajectories. This project is driven by HC's water stewardship ambitions as a digital marketplace for sustainably-processed natural rubber. A subsidiary of HAC, HC views this ALP as an opportunity to set standards for sustainably-processed natural rubber and promote the uptake of good water stewardship in the rubber sector. It is hoped that this ALP offers rubber processing sites with a tool for informed decision-making on good water stewardship using the AWS Standard.

Picture 1: Rubber farmer (image credit: HeveaConnect)

RUBBER CONTEXT

Indonesia is the second biggest natural rubber producer and largest rubber growing area in the world. Rubber landscapes are complex in Sumatra, overlapping with other crops, primarily palm, which impacts water resource use, availability, and quality. Rubber processing requires vast amounts of water for processing of "cup lumps" or latex coagulated in collection cups from tapping rubber trees to produce rubber slabs, as water is required throughout almost all stages of processing. Water is used for cleaning as well as being a transportation medium of the rubber as part of the cutting and cleaning process. This makes natural rubber processing a water intense business, but is rubber processing a business exposed to water risks? With the participation of Halcyon Agri's rubber processing sites, this ALP aimed to provide insights into this by doing a AWS assessment following the core indicators of Step 1 and 2 of the AWS Standard for one selected rubber processing site in Jambi and by undertaking a desk research and online survey into all 18 rubber processing sites of HAC in Indonesia.

The rubber processing factory in Jambi started its operations as early as 1938. Located next to the Batanghari river, the site is connected to water in many aspects. The Batanghari river has been the life vein of the once-powerful sultanate of Jambi for centuries, an area resource-rich in rubber, palm oil, coal, and gold. Historically, the site has a strong connection with the area's people and water resources. At the time of establishment, people fetched their water from the Batanghari river directly. As the site installed a water intake system for the factory, it embraced the role a business can play for society by also connecting the water intake to around 100 households in the direct vicinity of the factory without requesting any payment. This practice is still applied today. Due to the site history in relation to water supply for neighbouring communities, the site is already playing a role as water steward in the catchment. The site could strengthen and build on this role to benefit site operations, neighbouring communities, and the catchment as a whole.

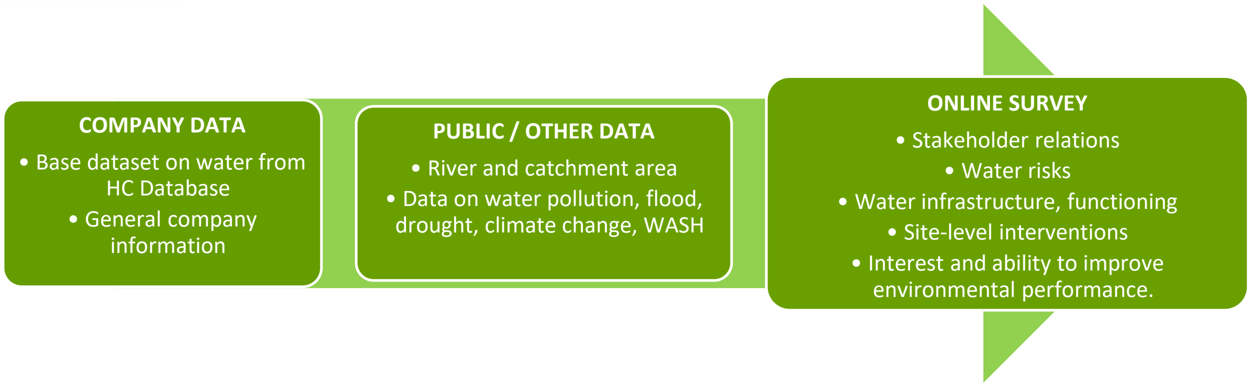
When looking into rubber processing of Halcyon Agri in Indonesia as a whole, what would be the main drivers and challenges to improve water stewardship and reduce water-related risks? Which practices are already in place and what would be the highest priorities for water stewardship? Through desk research and an online survey for 18 rubber processing sites, AWS provides guidance on the relevance to introduce good water stewardship in rubber processing.

2. ACTION LEARNING PROJECT DESIGN

This ALP consisted of two components: 1) An AWS assessment at one rubber processing site in Jambi and 2) A survey for all 18 Halcyon rubber processing sites in Indonesia. The site-level AWS assessment for the site in Jambi focussed on the first two steps of the AWS Standard, to provide the site and company with insights into the readiness for AWS certification and provide recommendations for actions at site level to improve performance related to water. AWS A-P collaborated with engineering firm PT Witteveen+Bos Indonesia as part of this assessment. As this ALP is geared towards taking the site as a pilot case to create learnings for further uptake of water stewardship at site and company level. The gap analysis was strengthened with additional data gathering, analysis and recommended actions.

1. **Step 1 Gather and Understand** aims to ensure that the site gathers data on its water use and its catchment context and that the site uses these data to understand its shared water challenges as well as its contributions to these challenges, water risks, impacts, and opportunities. This information informs the development of the site's water stewardship strategy and plan (Step 2).
2. **Step 2 Commit and Plan** aims to ensure there is sufficient leadership support, site authority, and allocated resources for the site to implement a water stewardship plan in alignment with the AWS Standard. It focuses on how a site will act on site and shared water challenges and improve its performance at site and catchment level related to the five AWS water stewardship outcomes. Step 2 links the information gathered in Step 1 to the actions implemented in Step 3.

The survey assessed challenges and opportunities related to water at all 18 rubber processing sites of Halcyon Agri in Indonesia. For this, AWS developed an online survey, analysed company data on water, developed catchment maps for each site and further assessed water-related challenges in these catchments.



The 27-question online survey to factory managers and staff touched on four main categories: 1) Site perceptions on site and catchment water risks, environmental performance, and stakeholder relations; 2) Water infrastructure and functioning on-site; 3) Site-level water interventions; and 4) Interest and ability to improve water performance. Survey responses were complemented with company and public data as presented in the flow diagram above.

3. KEY FINDINGS AND AWS 'READINESS' AT SITE LEVEL

Based on the results of the AWS assessment, the site would already comply with multiple core indicators (fully and partially) of the AWS Standard. The initial assessment per indicator can give the site an indication on the readiness for AWS certification, but more importantly on the level of integration of good water stewardship practices in current site operations and the site's current role as stakeholder in the larger catchment. The assessment gave detailed information of existing measures, policies and procedures at the rubber processing site in Jambi and provided: 1) insights into current gaps according to the AWS core indicators, 2) recommendations on how to tackle gaps, and 3) additional analysis and recommendations on site and catchment data. The results of the assessment can provide insights into current risks and opportunities related to water and can be used as a practical guidance to site staff and company management to prepare for AWS certification.

This report provides a summary of the AWS assessment at the rubber processing site in Jambi, which can be clustered mainly around four types of risks and opportunities to know: finance, water quality, legal, supply chain and multi-stakeholder collaboration, as presented in the table.

<table>
<tr><th>CATEGORY</th><th>RISKS</th><th>OPPORTUNITIES</th></tr>
<tr><td>Financial</td><td>Potential financial burden from operating below optimal capacity and potential future risks of increased water tariffs.</td><td rowspan="2">• Optimize current water flow and water quality measurements to gain more control over water use on site from intake till outlet.
• Install biogas system for sludge from the waste water treatment plan for own energy supply and reducing need for sludge storage.
• Optimize operations of the waste water treatment plan to reduce electricity use and reduce costs for water treatment
• Reduce dependence on river water by using and re-using rainwater as alternative source of water for domestic and productive use</td></tr>
<tr><td>Water quality</td><td>Potential water pollution risks from storage and disposal of sludge and domestic waste water, as well as increased industrial activities upstream of the site impacting the water used at site level.</td></tr>
<tr><td>Legal</td><td>Potential legal risks due to non-compliance as well as potentially stricter regulations in the (near) future.</td><td>• Engage with key local government agencies on any expected changes in environmental regulations that might be affecting the site and preparing for these accordingly
• Ensure domestic waste flows are according to national and local regulations, also by providing validated data from site</td></tr>
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Supply chain	Latex supply risks due to increased catchment challenges, droughts and floods, affecting the amount of cup lumps sourced by the site.	• Assess water risks in rubber growing areas and take action accordingly • Engage in existing programs to increase resilience to climate change impacts and improve Good Agricultural Practices (related to water) of rubber farmers to reduce financial and environmental risks related to supply and quality of cup lumps sourced by the site.
Multi-stakeholder collaboration	Reputational risks and potential impacts on internal and external (sustainability) reporting.	• Strengthen existing participation in community WASH programs and building upon the historical role the site had in water service provision • Support sustainable agroforestry programs and/or sourcing from farmers to increase stakeholder relations around the site and in the catchment.

4. SITE-LEVEL ASSESSMENT FINDINGS

This section highlights some of the key findings as part of the AWS site assessment for the rubber processing site in Jambi. It only focuses on specific indicators of Step 1 and 2 of the AWS Standard and give information on the definition of the indicator, the 'why is this relevant' behind each indicator, guidance on how to comply with it, and specific findings from the site assessment. This aims to inform others on the process for assessing water stewardship at site level and the practical application and benefits of using the AWS Standard for improving water stewardship at site and catchment level.

STEP 1: GATHER AND UNDERSTAND

STAKEHOLDERS AND STAKEHOLDER RELATIONS

Water challenges often go beyond the boundaries of a specific site, for example ground water depletion or salt water intrusion, a site therefore does not face these challenges alone but others are also affected. To understand these so-called shared water challenges, a site first needs to be aware of the main stakeholders for the site. A stakeholder is any organization, group or individual that has some interest or 'stake' in the site's activities and that can affect or be affected by them. Of most relevance to water stewardship are stakeholders associated with water use and dependency of and towards the site. Once a site understands its key stakeholders, it can start to assess its relations with these stakeholders and how it could start the tackle shared water challenges jointly.

Stakeholders were identified through desk research prior to the site visit and interviews during the site visit by with various site staff, i.e. PR and EHS manager, Office Manager and QA/QC manager, by identifying key government, private sector, civil society organizations and other stakeholders to the site and in the catchment. Stakeholders that the site is engaging with so far were listed and complemented with additional stakeholders that could be relevant to the site. Key stakeholders for the site are:

SUBNATIONAL GOVERNMENT AGENCIES

The key agencies are Environmental Protection Agency at district and provincial level. These agencies can influence SCL's ability to obtain the mandatory operational and environmental permits.

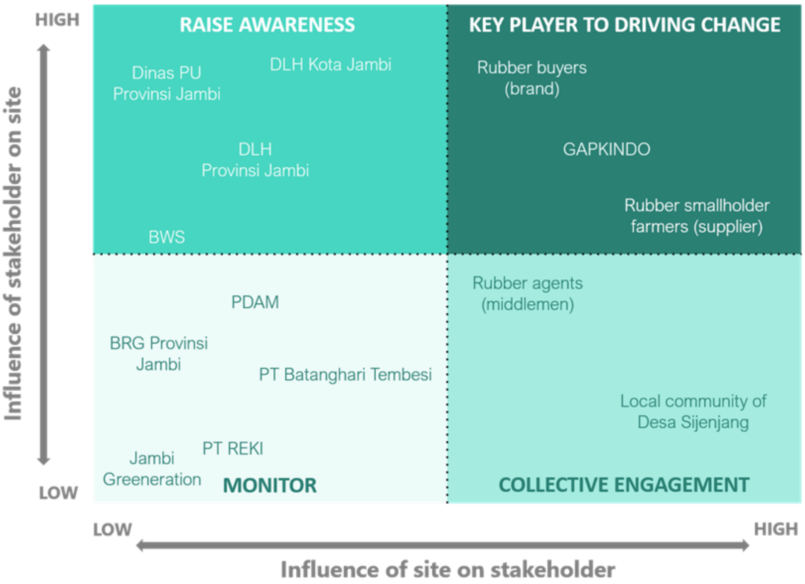
SMALLHOLDER RUBBER FARMERS

Rubber supply can be highly affected by water risks, like floods and droughts. Engaging in upstream activities will support SCL to reduce risks in cup lumps supply and quality. Via existing initiatives, the site can improve Good Agricultural Practices and build resilience of rubber farmers to reduce risks in cup lumps supply and quality and improve relations with rubber growers.

BRANDS

Buyers of the site are Michelin, Goodyear, Bridgestone and Sumitomo. The activities are regular visits to monitor the production quality, providing updates from the brands' sustainability policy and annual audits for sustainability reporting. The site can improve its reporting and reputation towards these buyers, if water stewardship is better integrated in site operations and reporting.

It is not the responsibility of the site to bring together all stakeholders to tackle shared water challenges. This exercise is geared towards identifying those most crucial to the site and decision-making by the site on how to engage with these. The site should make a judgement on its potential to influence water stewardship in the catchment, to be able to assess how it can make a contribution to catchment water governance and stakeholder relations. The potential to actually influence can depend on the political culture of the area. For each stakeholder, the site can have a different potential to influence, depending on roles, interests and relations. Based on the stakeholder listing, the expected level of influence these stakeholders have on the site as well as the level of influence the site has on these stakeholders has been reflected in the diagram below. This can support the site in its process of stakeholder engagement and thus in activities as part of its which can support the site for the stakeholder engagement process.



It is important to note that water-related challenges nor the level of influence have been identified through a stakeholder engagement process, as required by the AWS Standard. This can be done by the site through focused group discussions or a multi-stakeholder meeting.

SITE AND CATCHMENT WATER BALANCE

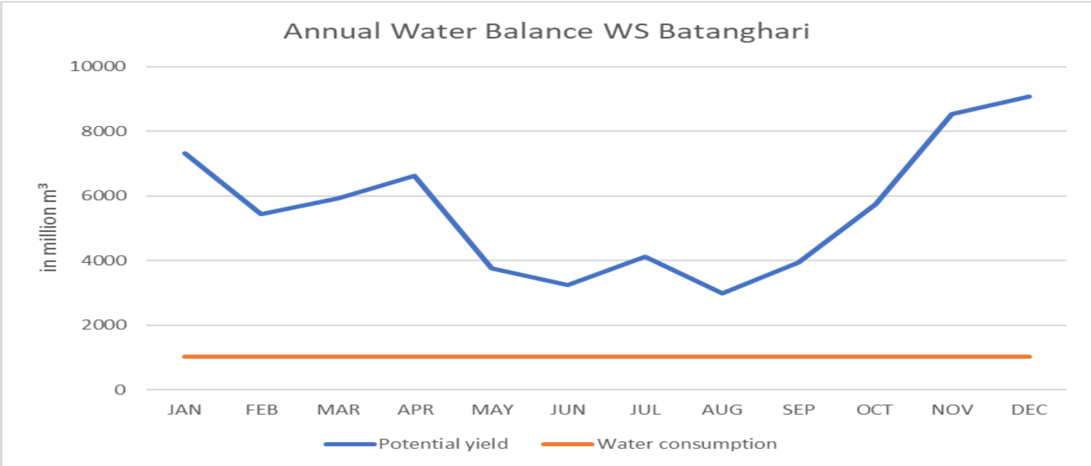
The water balance is an important component as this gives the site information on any water quantity related risks at the site as well opportunities for increasing efficiency (through re-use and recycling) by assessing of water inflows, throughflows and outflows, water storage and changes in storage at site level, but also into catchment water flows and fluctuations. Site water balance is also important to assess legal compliance to permits, while the catchment water balance can give insights into current and future risks related to water quantity in the catchment.

The first step for the site water balance is to identify and map each main water flow and water storage component on site. Any temporal fluctuations in water intake, for example due to changes in water availability in dryer or wetter seasons and any water distributions issue with the water service provider, are important to assess, as these can hold large risks to operations at a site. The water flows of the site in Jambi was divided into two parts, i.e. the office and the factory. Water flows at the factory and office are summarised as follows:

WATER IN	WATER OUT
River water	• Steam and evaporation. • Spills on the factory floors moving towards drains and direct discharge to the river. • Flushing of toilets in the factory. • Discharge of waste water from the factory and discharged to the river.
Waste water, which is partially re-used after treatment in WWTP	Same as above
PDAM water	• Discharge of waste water via septic tanks and ground water infiltration • Discharge via a drainage system to the WWTP of the factory
Bottled water for drinking water	• Via toilets in office building and factory. See above.
Rain water	• Discharge via surface runoff and drainage system in workshop. • Discharge of waste water via septic tanks and ground water infiltration.

The water quantity data is monitored by the site and recorded. It was found that the largest component in water consumption for the site is the water used in the factory, which is river water. Water in the factory is used to clean the raw product from contaminants such as sand, plastics, etc. and is used to transport the material inside the factory. The intake water from the river is partly mixed with recycled water (approximately 30% based on site staff information) from the factory. It was found that water spills on the factory floor due to processing and water used for cleaning purposes are collected in collection pits and pumped back to the WWTP, and recycled back into the processing system. Rain water from the roof of the factory is only collected and re-used for cleaning of materials in the workshop, but flows largely via direct runoff from paved surfaces, roofs and the drainage system to the surrounding area and the river.

The water intake, based on monitoring data from the site, plus the recycled water from the WWTP accounted for a total estimated amount of approximately 1.14 million m3 of water per year. Since several of the water flows are calculated based on amount of product produced or based on inaccurately monitored data due to incorrectly installed flow meters, the water balance for the site is still uncertain. It is recommended to install proper monitoring equipment at crucial points in the factory, also to assess opportunities for increasing water recycling rates. The current water balance was verified against legal requirements as set in local and national permits and standards related to intake and discharge water.



Annual water balance of Batanghari Catchment

The catchment water balance was derived from secondary data of the Water Resources Management Plan of the Batanghari basin from the Ministry of Public Works and Housing (2012). The graph below shows the annual potential yield and water consumption in the catchment, as provided by the Ministry. Based on the data, the water consumption in the catchment remains well below the water yield, which would indicate sufficient water availability throughout the year. It can occur that data reflects other results than what is experienced in reality and it is therefore important to assess shared water challenges with other stakeholders to identify any water supply challenges in the catchment. This site indicated not to have faced any water supply shortages at site level since it commenced operations. It was mentioned however that water supply in upstream rubber growing areas, especially in the dry season, is an issue and flooding in the catchment does hamper transportation of rubber to the site.

A catchment water-balance calculation and assessment has been done for the site based on best-available public data for this indicator. However, accuracy of this data is doubtful. In order to comply with this indicator, the site must show proof of gathering data for the catchment, but cannot be held responsible to ensure accuracy of the data. It is recommended that more recent information on catchment water balance data is gathered from relevant government authorities as part of the stakeholder engagement process. This can help the site assess its catchment challenges and include actions on these accordingly in its water stewardship plan.

WATER-RELATED COSTS

Water-related costs are an important component of the AWS assessment, as it gives the site an overview of potential financial risks as well as cost-efficiencies in its operations. The site also has to ensure it has included sufficient costs for developing and managing its activities as part of the water stewardship plan. Costs can be for such items as: costs for (new) water infrastructure, costs for chemical use for water treatment, water bills, payment for experts and technical studies, operation and maintenance costs related to water infrastructure (also including electricity costs), risk mitigation actions, stakeholder engagement activities, external communications and staff training. These should include 'one-time', yearly and long-term investment costs. A full cost overview should be completed by the site, to give site management better insights in water-related costs and seek areas for improving cost-efficiency and guide any new investments.

INDIRECT WATER USE

Indirect water use is the water used within an organization's supply chain. That is, the water used in the creation, processing and transportation of goods and services supplied to the site. Indirect water use is often overlooked as risk component, but can pose serious financial and legal risks to sites operations. Assessing and understanding indirect water use can help a site to understand associated risks to its own business or activities. For example, a severe drought may impact on the availability or cost of raw material processed at the site. It is also an opportunity for the site to influence the water stewardship practices of its suppliers, by assessing risks at the supplier level and taking measures accordingly.

As an initial step in understanding indirect water use, the site is required to gather information on primary inputs and its estimated origins, as well as outsourced water use. The main raw input for the site in Jambi are "cup lumps" supplied via rubber growers in the upstream parts of the catchment. The site is already aware of trends between floods and droughts and the volume and quality of cup lumps supplied to the site. Floods are known to hamper transportation, while droughts cause decrease of supply and quality of the cup lumps.

It would be relevant to start assessing water-related risks in these sourcing areas and any measurable impact on cup lump production. This can be done by mapping the upstream part of the rubber supply chain for the site and assessing the current and projected impacts of both floods and droughts on quality and volume of rubber production at these locations. To estimate the impact of droughts, the site can analyse using data on annual volume of cup lumps per area, calculate or estimate water use and analyse information on water sources availability and quality in those areas. To support the site with an initial assessment of indirect water risks, flood and drought risks were listed for the 11 sub-districts in the catchment, based on data (2015) from the National Disaster Agency (called Badan Nasional Penanggulangan Bencana). It is highly recommended that the site starts analysing its indirect water risks, as most cost efficiency gains and profitably for the site might be coming from upstream measures.

Picture 2: Worker at sorting process in rubber processing. (image credits: HeveaConnect)

WATER GOVERNANCE

Water governance encompasses all aspects of how water is managed by governments, regulators, suppliers and users. It includes water resources management, protection, allocation, monitoring, quality control, treatment, regulation, policy and distribution. Good water governance ensures responsible sharing of water resources in the interests of users and the natural environment in line with the principles of water stewardship. The maturity of water governance in the catchment of the site, can have a high impact on the site ability to participate in good water governance. This can be a complex and time-intense process, but it is one of the key elements to start tackling shared water challenges and investing in joint action in the catchment.

The site can first start to identify the initiatives, plans, policies and goals relevant to its catchment. A starting point is the water-related organizations with which the site already has contact, such as a municipal water supplier or water resources regulator. This information was gathered for the site in Jambi via interviews site staff based on existing knowledge on water governance, complemented with publicly available data from mainly government websites and other sources. This resulted in the overview of water-governance initiatives in the catchment of which a few are highlighted below:

IMPROVEMENT OF PDAM CAPACITY AND WASTE WATER TREATMENT

The program aims to support the PDAMs (water utilities) in providing high quality drinking water and expanding their service coverage, mainly in Jambi City. The program is funded by local government and World Bank.

IMPROVING SANITATION

Due to lack of access to sufficient sanitation, Jambi Province together with various development agencies is implementing centralized domestic waste water treatment facilities at sub-district level to expand access to sanitation.

PROTECTION AND SUSTAINABLE MANAGEMENT OF FOREST AND PEATLAND

Forest and peatland conservation are starting to take centre stage in Jambi due to the increasing risks and conflicts due to climate change impacts and agricultural practices in the area. Several initiatives are now ongoing in Jambi Province to reduce deforestation and development on peatland and support good agricultural practices.

The Batanghari river basin is a national priority basin, but the catchment management plan found as part of the assessment was published in 2012. It is recommended that the site starts engagement with BWS Batanghari (the river basin authority) as part of the stakeholder engagement process to gain access to the most recent management plan and assess any new or planned developments in the catchment that might benefit or affect the site. It is also highly recommended to seek collaboration with others, like the initiatives on good agricultural practices for reducing indirect water risks in rubber growing, in order to strive for more joint and hence cost-effective investment in the catchment.

SHARED WATER CHALLENGES

Shared water challenges are those shared by the site and one or more of its relevant stakeholders and are related to challenges beyond the site level. Shared challenges provide an opportunity for collective action in the catchment and will guide the water stewardship plan for the site. This can improve shared understanding and awareness of risks, joint action, joint investment and better water governance between these stakeholders in the catchment. Where shared water challenges are identified, it is important to understand their cause, in order to accurately prioritize, to develop appropriate mitigation actions, and to know whether collective action is appropriate. The shared water challenges below are based on the findings of this site assessment and a summary has been provided in the table. It is important for any site to analyse these shared water challenges in collaboration with the relevant stakeholders as part of a stakeholder engagement process.

SHARED WATER CHALLENGE	SITE RISK	CATCHMENT RISK	PRIORITY
Intense economic development, rapid plantation expansion and climate change might and are leading to more or more	Reduced supply and quality of natural rubber due to impacts of flooding, droughts, climate change and related risks (like fires) Reduced availability and quality of water for processing	Flooding, droughts (and fires) and climate change impacts the economy, environment and livelihood of the catchment, as can now be observed due to intense fires.	High

intense flooding and prolonged droughts and associated risks (like fires)	Flooding affecting transportation of cup lumps to the site	This is a shared risk between government, companies and communities living and working in the area.	
Unreliable electrical supply from PLN	Unstable operation of the WWTP and other machinery due to recurring blackouts from the electricity provider PLN, will affect site production and might lead to water pollution due to malfunctioning of the WWTP.	This risk affects all stakeholders depending on PLN for their electricity supply.	Medium
Water supply cuts for domestic water use from PDAM	Insufficient water for use in the office building leading to inadequate access to WASH, which might increase in the future if the plans for expanding connections to the water supply system will continue and the ultimate water source of the PDAM is not well managed or impacted by climate change.	The coverage of connections to the PDAM is said to be 65%, which makes access to water (or WASH) a shared water challenge.	Low
Stricter environmental and specifically water regulations (also due to the recent approval of the new Water Law, or UU Sumber Daya Air)	This would affect existing permits and compliance to these permits of the site and could lead to punishment or even termination of production.	Other industrial stakeholders would also be affected by stricter or updated regulations.	Medium

SITE RISKS

Understanding water risks to the site is one of the most important parts of the business case for water stewardship. By understanding the risks, and then acting to remove, reduce or mitigate them, a site will be able to manage (unexpected) costs and impacts, which are important for ensuring business continuity. Understanding risks and opportunities can inform water-related challenges, and identifying challenges informs about risks and opportunities. The identified risks for the site in Jambi have been categorised as physical, financial, regulatory and reputational risks or a combination of these.

STEP 2: COMMIT AND PLAN

WATER STEWARDSHIP STRATEGY AND PLAN

To embed water stewardship within site level operations, a Water Stewardship Strategy and Plan are two key components that will reflect the higher-level goals and activities of the site related to water. The Strategy includes the site's vision and mission on stewardship, with some high-level overarching goals The Water Stewardship Plan then details the goals, activities and targets and specifics as defined in the Standard and as set by the site. The two are distinct documents, but can be combined and can be part of other documents already in place at the site, like the site's operational plan or the site's CSR or EHS strategy and plan.

The water stewardship plan is the key document that should address identified both the site and shared catchment risks and opportunities. In creating the plan, the site is expected to use the information gathered in Step 1, supported by leadership commitment and provision of resources as will be explained under COMMIT. In the table below, an initial set-up of such a site water stewardship has been provided to guide the site towards the development of the plan.

TARGET	ACTIONS	AWS OUTCOMES	PLANNING
At least 30% recycling at site level	• Install meters at intake and crucial points in the processing on site to monitor water consumption • Implement measures to increase recycling rate • Use rainwater as alternative water source	Water Balance	Short-term
Meet legal compliance on all water-related permits and other regulations	• Review legal permits • Connect all toilets to domestic waste water treatment plant and improve current septic tanks • Ensure high-quality water sampling tools in accordance to the water quality parameters • Install small biogas plant for sludge and toilets	Water Quality, WASH, Water Governance	Short-term

	• Engage with relevant local government stakeholders on potential changes in regulations related to environment and water		
Source at least 30% from sustainable rubber farmers as part of small holder programs	• Map sourcing areas (traceability factory to plantation) and assess high water risk sites and increase sourcing from less risky areas • Identify smallholder initiatives in catchment and area; support programs to work towards more resilient rubber growing • Support reforestation initiatives	Water Quantity, Important Water-related Areas	Medium-term / longer-term

The water stewardship plan, consisting of prioritised actions, should contain SMART targets, i.e. Specific, Measurable, Achievable, Relevant and Time bound. The plan should also demonstrate the site's responsiveness and resilience to respond to water risks. Meaning, plan must also address how the site is ready to respond to issues as appropriate.

COMMITMENT

Commitment to a water stewardship plan will lead to ownership of the plan by the site and will ensure that the site is committing to work towards the actions and targets set in the plan. The commitment ensures that the plan developed will be implemented and managed by the site. Commitment from the senior executive, with public disclosure, further increases the credibility of the commitment, and helps to lock it in as part of the long-term corporate strategy. If the site aims to prepare itself for AWS certification, it should develop a site-level commitment as stated above. The commitment can also be included in other strategies and plans of the site, but should be clearly following the AWS Guidance.

COMPLIANCE SYSTEM

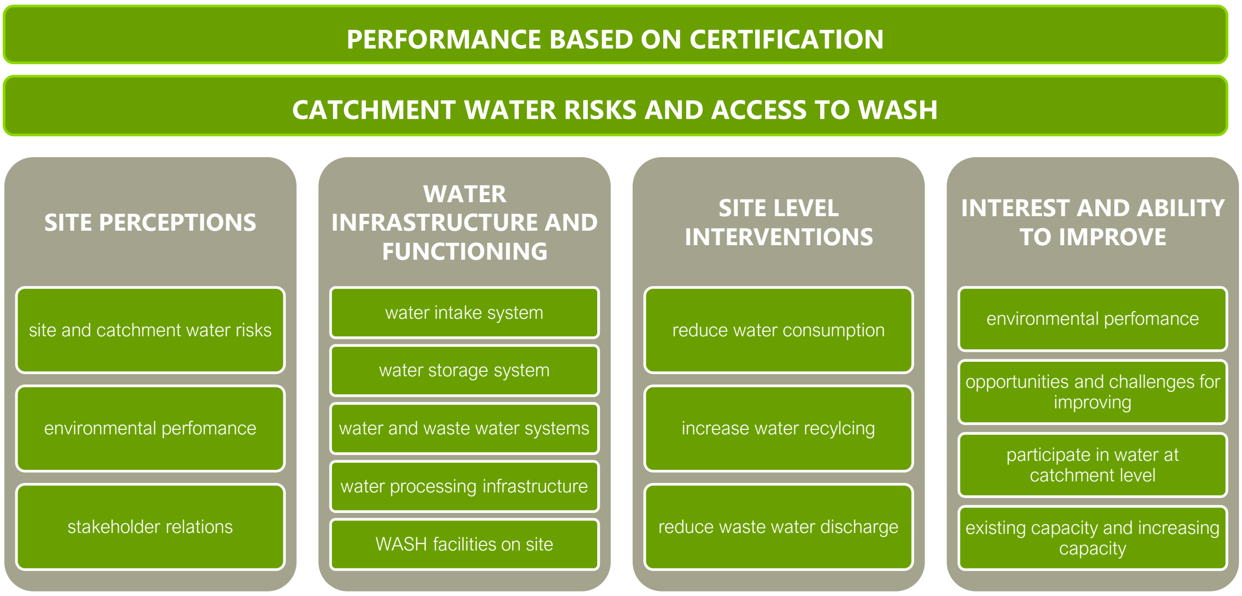
The site should also be able to demonstrate its processes and procedures for ensuring compliance to regulations and obligations. The system should record any non-compliance warnings or events, including fines, and report on corrective actions. If the site already has a documentation system, this may be referenced. The site should reference appropriate standards, whether local, national or accepted international standards and to other compliance requirements, such as water withdrawal and wastewater discharge permits.

The site is already compliant with ISO14001, ISO9001 and PROPER Blue, which include systems for ensuring legal compliance. It is recommended to the site to assess if these are sufficiently covering all water-related permits and other legal aspects to ensure compliance. For AWS certification, legal compliance and a compliance system is a minimal requirement to show proof of good water stewardship on site.

Picture 3: Water intake system with the water source, the river Batanghari in the background (image credits: Witteveen+Bos)

5. KEY SURVEY FINDINGS

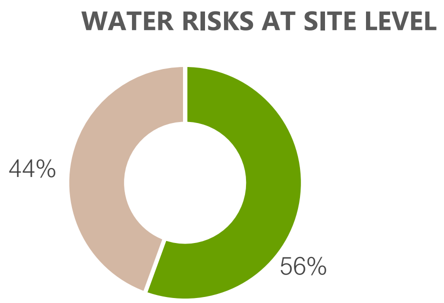
The survey for all 18 rubber processing sites was organised around the four main topics and sets of sub-questions, as presented in the diagram. These aim to provide HAC and HC with insights into site perceptions on water risks, current functioning of water infrastructure and functioning, the extent of site-level interventions related to water, and the sites' interest and ability to improve environmental performance related to water. The information was gathered via an online survey. Besides this, a ranking was done for all sites based on existing certification, catchment water risks and access to WASH, which was done via desk research of company and publicly available data:

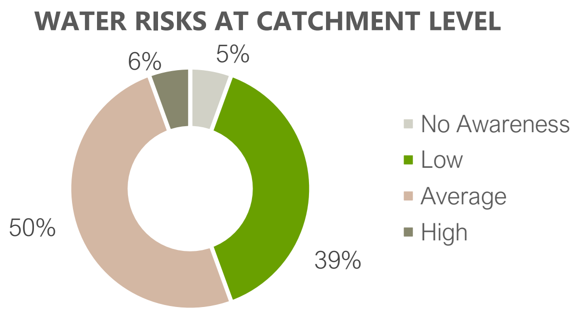


SITE PERCEPTIONS

The following prioritized water risks have been identified by the sites: 1) insufficient or unreliable quality of water resources (water quantity and quality risk), 2) insufficient WASH facilities (WASH risk), 3) droughts and insufficient and unreliable water supply for fire extinguishing (water quantity risk), 4) floods (water quantity risk), and 5) unreliable access to water and increase of water costs (financial risk).

Almost all these water risks are beyond the site leveland inclusion in risk mitigation plans is recommended. All sites have the potential to expand production and it would be recommended to assess the level of impact of site and catchment level water risks to inform any site level expansion plans.





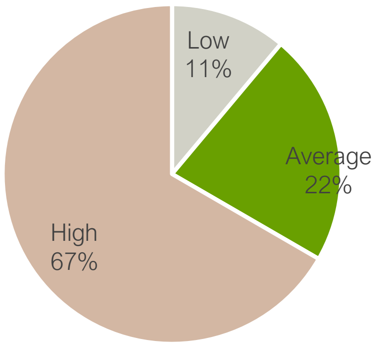
WATER INFRASTRUCTURE AND FUNCTIONING

Almost all sites indicate to have well-functioning water infrastructure on site. Sites are using river water as primary source of water for processing and just a few sites have complemented this with groundwater. All sites indicated to have intake water treatment systems, as water is required to be of sufficient quality for processing. As insufficient or unreliable quality of water resources was indicated as a high risk, it would be recommended to assess if intake water (surface water) and intake water infrastructure are indeed functioning sufficiently and how risks related to fluctuating quantity and quality of river water are incorporated at site level. These might pose financial risks to the site as often electricity costs of waste water treatment can be a substantial part of the operational costs. Some sites seem to have more advanced water infrastructure in place, which could be used as good practice.

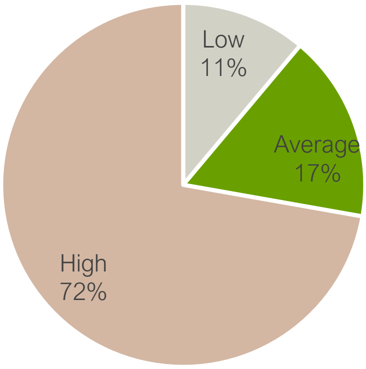
SITE-LEVEL INTERVENTIONS

Almost all sites are already taking interventions to reduce water consumption and increase water recycling. One site is re-using 100% of its intake water and it would be recommended to assess cost efficiency gains which could serve as good practice towards other sites. Increasing water recycling leads to reduction of intake water and hence reduction of costs for treating intake water, which is one of the highest operational costs for rubber processing sites. It would also be recommended to assess re-use of waste water, for example by installing biogas plants for sludge from the waste water treatment plant or by increasing waste water re-use for gardening or infiltration on site, if the water quality would allow for this use.

INTEREST AND ABILITY TO IMPROVE



Interest to improve performance



Interest to participate in water at catchment level

Overall, the interest to improve environmental performance is high. Although most sites indicated in the beginning of the survey that their performance is already high, at the end they have nevertheless indicated wanting to improve their performance. This might be related to the set-up of the survey, which was also geared towards creating more awareness on water within rubber processing. There are different opportunities and challenges indicated by the sites to improve their performance. While recycling (even up to 90%), re-using waste (sludge) as fertilizer and implementing infiltration wells were seen as opportunities, at site level opportunities to implement specific interventions are largely limited by, for example, high investment and maintenance costs of infrastructure, increased operational costs due to increased water tariffs and increased electricity costs, or limited availability of land to implement specific solutions. Around the site or in the catchment, the sites indicated several interesting opportunities like implementing water treatment units for community water supply, collaborating with other industries in the area on waste (water) management and participating in reforestation projects. The main challenges in implementing these opportunities were seen in unreliable water quality in the catchment due to pollution, unclear government regulations and funding opportunities, lacking technical capacity and forest fires affecting rubber growing areas and their communities.

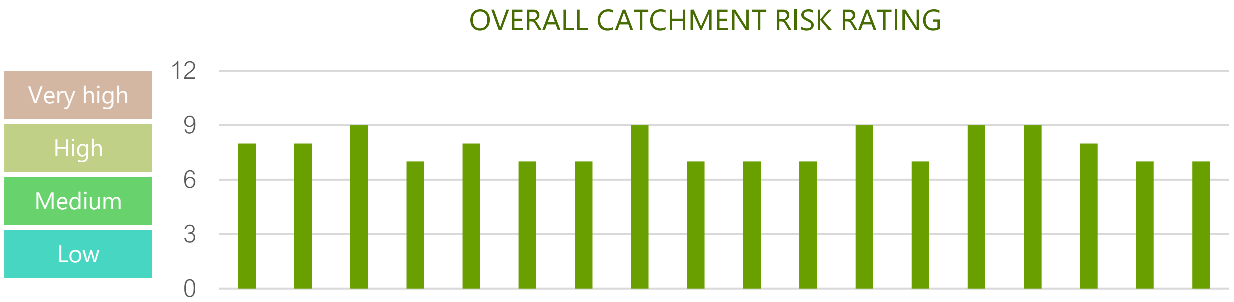
There is a high level of understanding of relations between performance at site level and catchment opportunities and challenges, as 72% of the sites indicated to be highly interested to participate in or improve their participation in catchment initiatives. It would be recommended to build upon the interest from the sites, as most opportunities could provide interesting financial, social and reputational benefits through better stakeholder engagement beyond the site. Most sites have a high interest to expand knowledge on water, both at site and catchment level, and already have staff that have been trained on multiple related topics. The sites indicated the following motivations and specific interests to build capacity on water:

- Commitment to protect the environment and reduce its fresh water consumption.
- Interest to keep involving key staff in internal and external training related to water management to improve factory performance, especially aspects of water resources and WWTP operators.
- Water expertise is required to improve the site level operations.
- Interest to update knowledge and understanding of water as part of larger catchment and relations to site.
- Level of knowledge and understanding on all implications of water risks at catchment level are still low and should be improved.

It could be an opportunity for sites to participate in a site staff training programs, that are geared towards the development of water stewardship plans to directly translate learnings into site-specific plans.

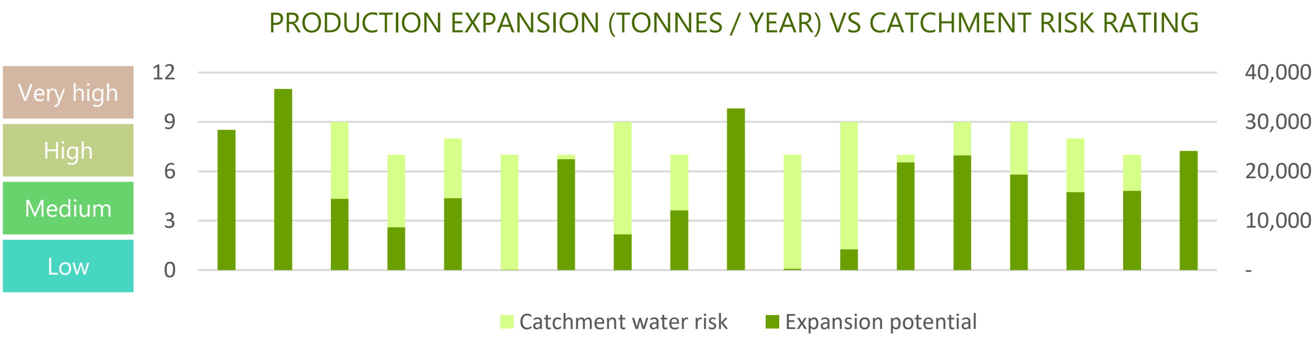
CATCHMENT RISK RATING

To provide more information on catchment risk rating between the 18 rubber processing sites, a catchment risk rating was done based on publicly available data in which the following risk were assessed: water pollution, flood, drought and climate change. The scores were then used to develop a total catchment risk rating per site, which can range between 0 (low risk) to 12 (very high). All sites are located in high risk areas, with a scoring between 6-9, out of which 5 sites have a score of 9. HAC and HC can use this information to prioritise action between the sites, by for example first starting with site staff trainings and water stewardship assessment at the highest risk sites.



PRODUCTION EXPANSION

Another important aspect to take into account for prioritising action, would be to assess potential for production expansion versus the catchment water risks. As rubber processing site rely on sufficient volume and quality of cup lumps supplied to the site, it is important to assess catchment water risks, as indirect water risks (water risks in rubber growing areas) was found to be a high-risk factor. Any expansion at these sites, should take into account catchment related risks in their expansion plans. Expansion potential at the sites ranges from 0 to almost 40.000 tonnes per year, which is between 0 to 2.5 times the current production. Some sites with highest expansion potential, also have the highest catchment water risks. It is recommended that the company takes into account the catchment water risks and performance prior to further expansion at site level and prioritises water stewardship actions at these sites.



Picture 4: Rubber farmer (image credits: HeveaConnect).

6. NEXT STEPS

This ALP aims to inform HeveaConnect, natural rubber industry players such as Halcyon Agri and other GAA members by providing better insights in the challenges and opportunities of applying the AWS Standard as a tool for informed decision-making at site and country level.

For the rubber processing site in Jambi, insights into its readiness for AWS certification and clear actions required for a water stewardship trajectory were provided on all core indicators of the Standard. At a country level, insights into risks, opportunities, interventions, performance and capacity related to water of all 18 rubber processing sites in Indonesia have been provided.

Rubber processing is a water intense business as it uses vast amounts of water for cleaning, cutting and transporting of the rubber at the factory level. Although costs of water are currently a minor component of operational costs as water tariffs are low, there are sites that face water shortages and water pollution issues which are already hampering production or increasing costs. It is recommended to look beyond the direct costs for water only and more broadly assess water-related costs to strive for cost-efficiency gains and reduction of risks. As most sites are located in catchments with high water risks, these might be affecting current expansion plans and catchment related risks should therefore be included in further expansion at site level. At the same time, there are maybe good practices taking place at sites in increasing water recycling and re-using waste water for other purposes on site. There is a solid understanding of the relations between catchment challenges and site risks, but it is not yet clear if these are already included in site level plans.

Water stewardship is often not new, just like for these rubber processing sites in Indonesia. But it is something that requires more attention and prioritisation. Water risks are often still seen from a water bill perspective or water quantity issue only, which makes other risks go unseen and opportunities go unexplored. Water affects stakeholders beyond the site, and water risks for a site can be far outside the site's gates. To systematically assess risks and opportunities, the AWS Standard can be used to make more informed decisions and guide more strategic investment.

To build upon what is in place and upon the findings of this ALP, the following next steps can be recommended across all rubber processing sites in Indonesia:

- For site-specific actions: select quick wins out of the recommendations in the site assessment with focus on legal compliance, monitoring and water and cost efficiency improvements like increasing the percentage of recycling of water in the factory (following practices of other sites in Indonesia), installing water flow meters at crucial locations and connecting all waste flows to septic tanks or the WWTP.

- Engage with key stakeholders as part of the stakeholder engagement process, targeting mainly local government and rubber farmers, to gather catchment data, assess opportunities for collaboration and/or strengthening of existing initiatives related to water security for example by collaborating in existing NGO and government programs on good agricultural practices, reforestation and WASH.
- Undertake a study to analyse embedded water risks in the rubber growing areas supplying to the site as well as implementing actions on how to address these as indirect water use in the rubber supply chain might pose the largest financial and environmental risks.
- Decide on the path towards water stewardship at site level, meaning either integration of principles of water stewardship into the site's operations or work towards AWS certification to ensure rigorous embedding of water stewardship in the site's plans and procedures. AWS certification can also improve the site's reputation towards other stakeholders in the catchment, but also towards buyers and brands.

For companies overseeing multiple sites:

- Assess the impacts of catchment risks and indirect water risks in site level operations and prioritise actions per site. It is important to assess to what extent catchment water risks are already included in site level operations and risk mitigation plans. From the survey of Halcyon's rubber processing sites, most sites indicated that these water risks are affecting cup lumps supply and quality, which is the highest operational risk to rubber processing sites. Water risks in rubber growing areas and their impacts on cup lumps supply and quality can be quantified, and practical solutions can be sought to integrate water stewardship into good agricultural practices in rubber growing to help reduce these risks.
- Analyse and promote existing good practices within the rubber sector and build upon these for other sites, by for example developing a learning program. From the survey of Halcyon's rubber processing site, several sites cited more advanced infrastructure for water recycling and waste water treatment which can be used as best practices. It is recommended to include a cost-benefit analysis of these different interventions and promote good practices to the broader rubber sector to boost actions of multiple companies, preferable located or sourcing from the same catchment areas to increase efficiency and effectiveness.
- Integrate more in-depth analysis of water risks and opportunities (including cost-benefit analysis) in the overall strategy for expansion plans at rubber processing sites. The highest cost efficiency and risk mitigation might be created when working towards more secured cup lumps supply.

Picture 5: Rubber latex in harvesting cups (image credits: HeveaConnect)