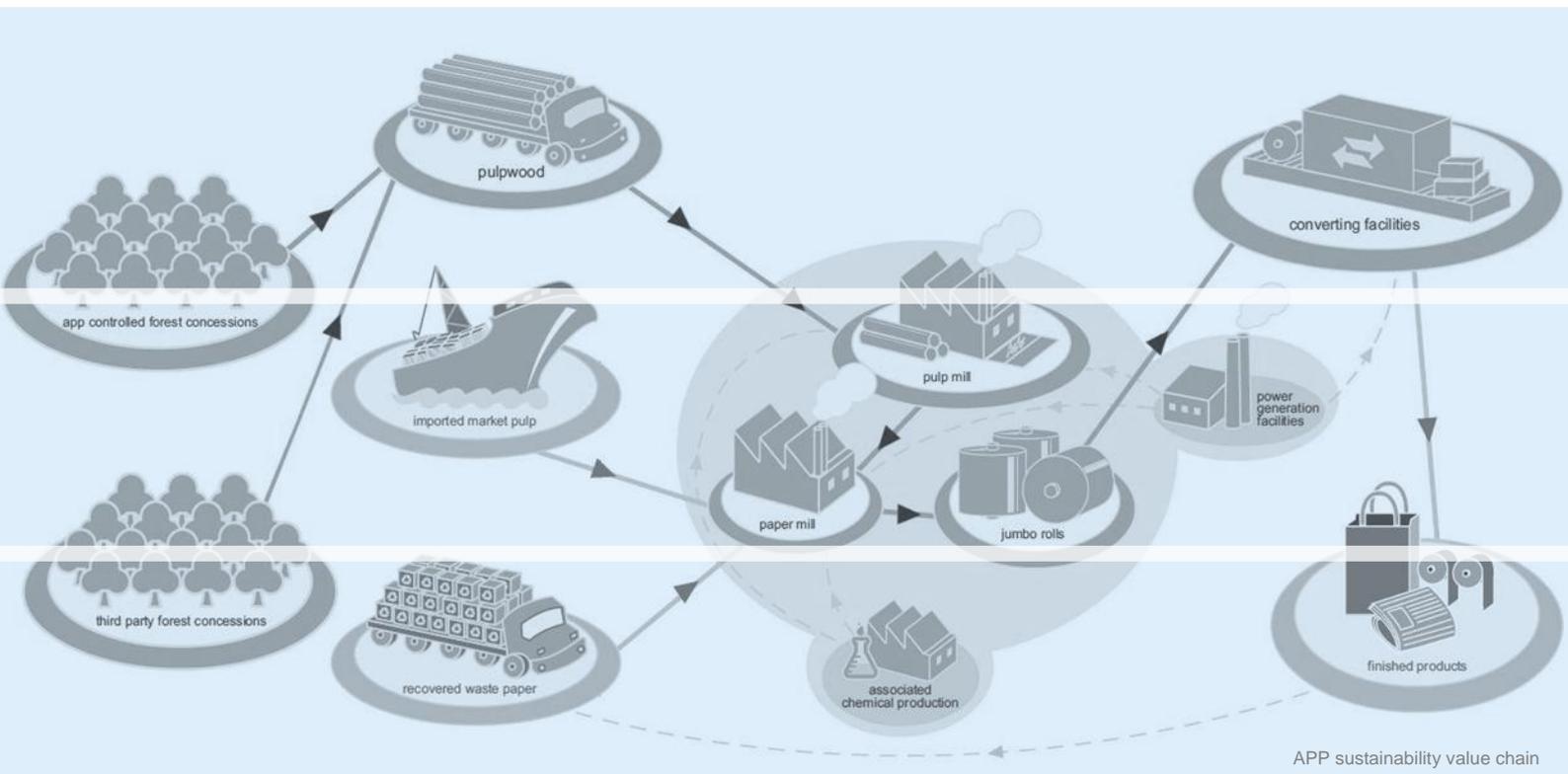


ICC GREEN ECONOMY ROADMAP

Sustainable Value Chains - Examples of Asia Pulp & Paper (APP)

Commission on Environment and Energy, Task Force on Green Economy



APP sustainability value chain

Best practices

Sustainability Roadmap Vision 2020

Conservation and Production in the Value Chain

This publication is part of the ICC Green Economy Roadmap series. See also:



ICC Green Economy Roadmap - a guide for business, policy-makers and society

The Roadmap represents a comprehensive and multidisciplinary effort to clarify and frame the concept of “green economy” and promote a more common understanding.

It highlights the essential role of business in bringing solutions to common global challenges and sets out 10 conditions needed for a “green economy” in which economic growth and environmental responsibility work together in a mutually reinforcing fashion while supporting progress on social development (please see graphic below).



ICC Green Economy Roadmap - best practices and calls for collaboration

From recycling cooking oil for transport refrigeration to resourcing efficient manufacturing plants, companies around the world are coming up with solutions towards greener economies.

ICC has compiled 57 best practice examples and calls for collaboration showcasing sustainability solutions across a variety of sectors and regions.

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Disclaimer

Please note that the information contained in this document has been supplied by APP, and has not been verified by ICC. The inclusion of a case study in this document does not imply any warranty by ICC of its accuracy or pertinence, nor does it imply any endorsement by ICC of particular actions or projects. We invite you to visit their websites to learn more about these accomplishments and projects.

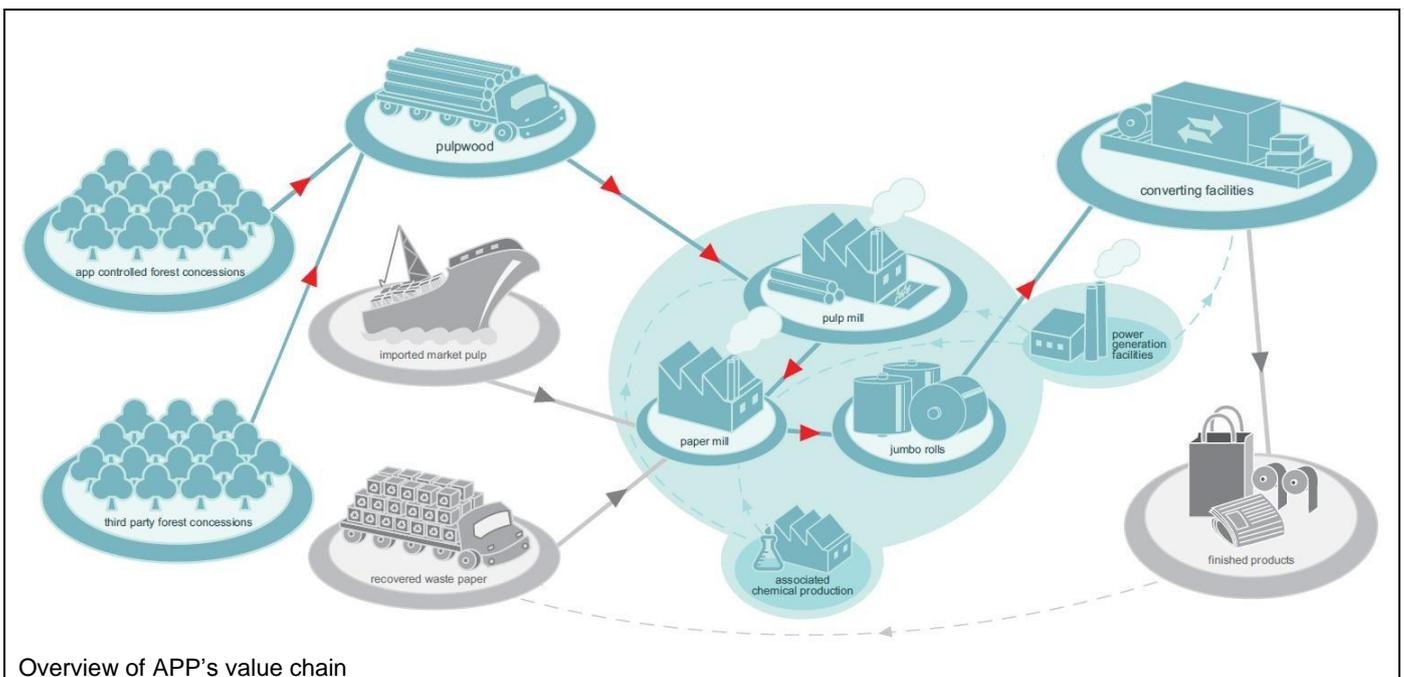
Asia Pulp & Paper Sustainability Roadmap Vision 2020



Key alignments with the ten green economy conditions

- Awareness
- Integrated environmental, social and economic policy and decision-making
- Governance and partnership

Description



Asia Pulp & Paper (APP) believes that sustainability is supported by three pillars that are equally important: economic sustainability, social sustainability and environmental sustainability. Reflecting this belief, in June 2012 APP announced the “APP Sustainability Roadmap : Vision 2020”. The Roadmap sets out a guideline for all of its operations and sets goals and targets required for APP in order to achieve its aim to become the sustainability leader in the industry by 2020.

The Roadmap covers a wide range of key aspects, from fiber sourcing and climate change, to emissions and water management, to protection of the rights of indigenous people and community empowerment and welfare.

BASED ON OUR CURRENT UNDERSTANDING OF ISSUES RELEVANT TO OUR INDUSTRY AND US, WE EXPECT THAT THE SUSTAINABILITY ROADMAP WILL AT A MINIMUM ADDRESS THE FOLLOWING SIX INTERWOVEN ASPECTS OF OUR OPERATIONS:



APP Sustainability Roadmap vision at a glance.

A cornerstone of the Sustainability Roadmap is the Responsible Fibre Procurement and Processing Policy for which the operation-wide High Conservation Value (HCV) principle is among the most critical components. As of 1 June 2012, APP suspended all natural forest clearance and peat land conversion on all of APP owned concessions in Indonesia, with the independent suppliers to follow, while the HCV assessments took place.

As part of its commitment on transparent reporting on the progress of the Roadmap implementation, in February 2013, APP announced its Forest Conservation Policy (FCP). This policy committed the group to an immediate halt to all natural forest clearance across its entire supply chain in Indonesia, effectively bringing forward the implementation of forest moratorium in its independent suppliers concession area by two years.

Initiating Organization

Asia Pulp & Paper Group (APP) / www.asiapulppaper.com

Geographic Scope

Indonesia & China

Type of Partners Involved/Wanted

APP invited The Forest Trust (TFT)¹ to monitor the implementation of FCP in Indonesia and China. In the FCP implementation itself, APP is engaging with TFT, Asia Pacific Consulting Solutions (APCS) and Ekologika for High Conservation Value and High Carbon Stock forest assessment within all APP land concessions in Indonesia in order to identify and protect such forests.

APP welcomes any party that is interested to be involved in the monitoring and implementation of Sustainability Roadmap and Forest Conservation Policy.

Experience of Best Practice

The FCP implementation throughout the supply chain is being monitored by The Forest Trust (TFT), a reputable independent non-profit organization based in Geneva. TFT will undertake the High Carbon Stock (HCS) assessments in the suppliers' concessions to determine areas classified as forested and non-forested. Once completed, this assessment will ensure that all of APP's future plantation development will not take place in areas defined as having high conservation value or high carbon stock forest.

In the FCP, APP also committed to protecting one of the most environmentally valuable tropical forest ecosystems, peatland. No further canal or other infrastructure activities will take place within undeveloped suppliers' concessions on non-forested peatland until HCV assessments have been completed.

In June 2013, APP announced a deadline of 31 August 2013 for all natural forest wood felled prior to 1 February 2013 to have reached its pulp mills. After this date, no natural forest fiber was allowed to enter APP log yards.

In addition to the plantations in Indonesia and China, APP also sources fibre from all around the world. APP has worked together with all of its existing fibre suppliers overseas to develop measures to ensure that the company's sourcing supports responsible forest management.

• **Procedures and Protocols for Handling Social Conflict**

Under the FCP, APP is implementing a Free, Prior and Informed Consent (FPIC) policy in its engagement with local communities. In addition, APP has developed a number of procedures and protocols to handle social conflict. These are "living" documents and they will be regularly updated as lessons are learnt from on-the-ground implementation.

These documents include Responsible Conflict Resolution Procedure, Collaborative Conflict Management Approach, Free Prior and Informed Consent, Implementation Procedure and APP Grievance Protocol. APP and TFT have sought detailed feedback and input on these social procedures through Focus Group Discussions with Indonesian civil society, in particular on Conflict Resolution Processes and Free Prior and Informed Consent.

¹ The Forest Trust (TFT) is a global non-profit organisation which helps companies run responsible supply chain. TFT works in various industries, such as forestry, agriculture, and farming to help create and bring responsible products to markets. APP works with TFT to develop and implement the APP Sustainability Roadmap: Vision 2020 (SRV2020). TFT were deploying technical forestry experts to help APP accelerate its commitments. Their work, together with that of the APP's top management, led to a significant industry milestone, which is the announcement of the Forest Conservation Policy (FCP).

- **Ensuring Transparency**

To ensure transparency, APP is engaging with various local and international NGOs and academics to also monitor the implementation of the policy. A Grievance Procedure has been established to address and investigate concerns raised by stakeholders in relation to the implementation of the FCP. The result of these investigations are published on the APP website. Both APP and TFT, individually, also publish regular progress reports on the FCP implementation.

In addition, a pilot online monitoring dashboard that gives access to up-to-date technical information relating to the implementation of FCP was introduced. Developed by TFT using its SURE technology, the dashboard enables stakeholders to review current progress on the ground and to see moratorium boundary maps, HCV/HCS progress, grievance and verifications reports and FCP protocols. APP consulted its stakeholders on the format and content before its official launch.

Obstacles and challenges encountered and how to overcome

- **Suppliers' buy-in of FCP**

The main challenge to the implementation of the FCP is to get the suppliers to buy into the policy. There was lack of knowledge and understanding amongst the suppliers on the issue. The fact was that when we started sounding out this policy to the suppliers, most of them do not understand about HCV, HCS, FPIC and how these were critical to them. Further, there were also big concerns from the suppliers on how committing to this policy would affect their business in short run.

APP worked with the suppliers to minimise any negative impact the FCP might have on their business. Together with TFT and Sinarmas Forestry, who is our exclusive pulpwood supplier, we did extensive socialization to the suppliers, including capacity building, to help ensure that the policy can be implemented in the supplier level. We also worked together to find solution to their immediate concerns in implementing the FCP.

- **Breaches of APP's moratorium**

Ever since the FCP has been implemented, APP commits to further improving the sustainability performance and the implementation of the FCP. However, in 2013, 70 hectares of natural forest cleared by PT. Riau Indo Agropalma (RIA) in Riau, in breach of APP's moratorium. This clearance took place because RIA had, two years previously, entered into an agreement with a local community to develop the area – an obligation of concessions owners. APP conducted continuous monitoring of FCP together with TFT after the breach, particularly the natural forest clearance, and further disclosed another breaches in South Sumatra due to, as well as the RIA case, overlap in concession licenses. Overlaps in concession licenses are a common issue in Indonesia. This is due to the complex nature of land use allocations and the process of issuing licenses. The complexity of the license issuing process in Indonesia represents a fundamental threat to all private sector attempts to implement forest conservation measures. There are many documented cases across plantation sectors of the same area being licensed to different industries at the same time.

APP and TFT not only self-disclosed the cases, but also introduced new administrative procedures and more stringent supervision and monitoring process to prevent any such issues from occurring again. APP are addressing the issues, as well as using the findings to improve the FCP implementation.

Greenpeace issued a progress report regarding APP's FCP in October 2013. In response to Greenpeace's suggestion for APP to release more detail about the extend of overlapping license

issues in its supply chain, APP, together with its pulpwood suppliers and The Forest Trust (TFT), has initiated a mapping exercise to identify potential overlaps in licenses. A summary will be shared in the Focus Group Discussion with Indonesia civil society on the FCP monitoring dashboard, following stakeholder consultation. Also, APP has engaged relevant government, industry and civil society stakeholders and is currently reviewing their positions. It is also assessing which are the most appropriate platforms that will help resolve this challenging issue.

Conditions for Success

- **Management Support**

APP's Chairman publicly committed the company to the new Forest Conservation Policy at a major event in Jakarta on 5 February 2013. The new policy also has the full support of APP's top management and the management of APP's pulpwood suppliers.

Sustainability has always been part of APP's core foundation since it began its operation. In Indonesia, APP is one of the pioneers in the industry on sustainability – it was one of the first Indonesian companies to achieve ISO 9001 and ISO 14001, and in implementing the voluntary traceability system in its operations.

The issue of fiber sourcing is further highlighted in various important markets for its business, where government policies requiring clear traceability and excellent environmental stewardship for products to be marketed there. The main examples are the US Lacey Act, the European Union Timber Regulation (EUTR), and Australia's Illegal Logging Prohibition Bill.

The influence of the NGO campaigns cannot be downplayed. APP recognizes the important role that the NGO communities played in terms of driving sustainability agenda, and appreciates any constructive input to its activities.

- **Growth and Yield Assessment**

To ensure the long-term sustainability of APP operations, independent assessments were undertaken to assess the availability of raw materials for APP pulp mills' long-term forecast demand. The assessments focused on the growth and yield of APP suppliers' plantations. Other than an internal company assessment, two additional assessments were performed. One initial assessment was conducted by TFT and a second was done by Ata Marie Group, a professional services group that specializes in forest inventory, growth and yield modeling and wood supply forecasting. These initial evaluations were completed in January 2013, and indicated that APP will have sufficient plantation resources to meet the long term forecast demand of its pulp mills.

In parallel, a wood loss study is taking place to account for wood losses during the wood handling processes from the harvesting site right through to the mill, and to seek possibility to reduce the losses. By improving the efficiency, APP will gain an opportunity to secure more wood supply as a buffer should unexpected disturbances such as fire and disease occur.

- **Monitoring by Independent Parties**

Continuous monitoring by independent parties through the Independent Observer program allows them to file complaints, by use of the Grievance Protocol, when they see any breach of the policy/forest moratorium. This monitoring work allows the implementation of the FCP to be kept on the right path and direction to achieve its goals.

Next steps after completion

Greenpeace issued a progress report regarding APP's FCP in October 2013. APP welcomes the publication as the scrutiny of Greenpeace and many other stakeholders has been an important driver of our progress towards No Deforestation and greater transparency. APP appreciated Greenpeace's highlighting the positive elements of our progress since the FCP was announced as well as the suggestions that would further improve our work in the future.

A peatland expert team is currently being assembled and will shortly be announced. This follows input and recommendations from a variety of stakeholders. The team will be an integral part of APP's Integrated Sustainable Forest Management Plan. Based on the results of HCV/HCS and peatland assessments, the team will be tasked with helping APP to adopt best practice management to reduce and avoid GHG emissions within the peatland landscape.

Also, APP has completed social conflict mapping across all 38 suppliers. The key objective for conducting conflict mapping is to ensure that social conflicts are handled systematically. The mapping result has categorised conflicts into low, medium and high priorities, which enables APP to develop actions plans for these priority areas. TFT has reviewed the mapping results and direct technical support has been provided to align the quality of the conflict mapping and APP suppliers' staff understanding of the methodology and approach. TFT and APP are now in the process of developing actions plans for all APP suppliers to determine whether any follow-up training is needed. APP will provide opportunities for relevant stakeholders to support APP in the implementation of action plans to address social conflicts.

Concluding message

APP believes that the effort to protect and conserve the world's forests is not a responsibility of just one party, but should be a collaborative work between private sectors, government, civil societies and communities. APP welcomes interest by parties who would like to monitor and be involved in the implementation of our Forest Conservation Policy.

Focal point

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Asia Pulp & Paper/Hainan Jinhai

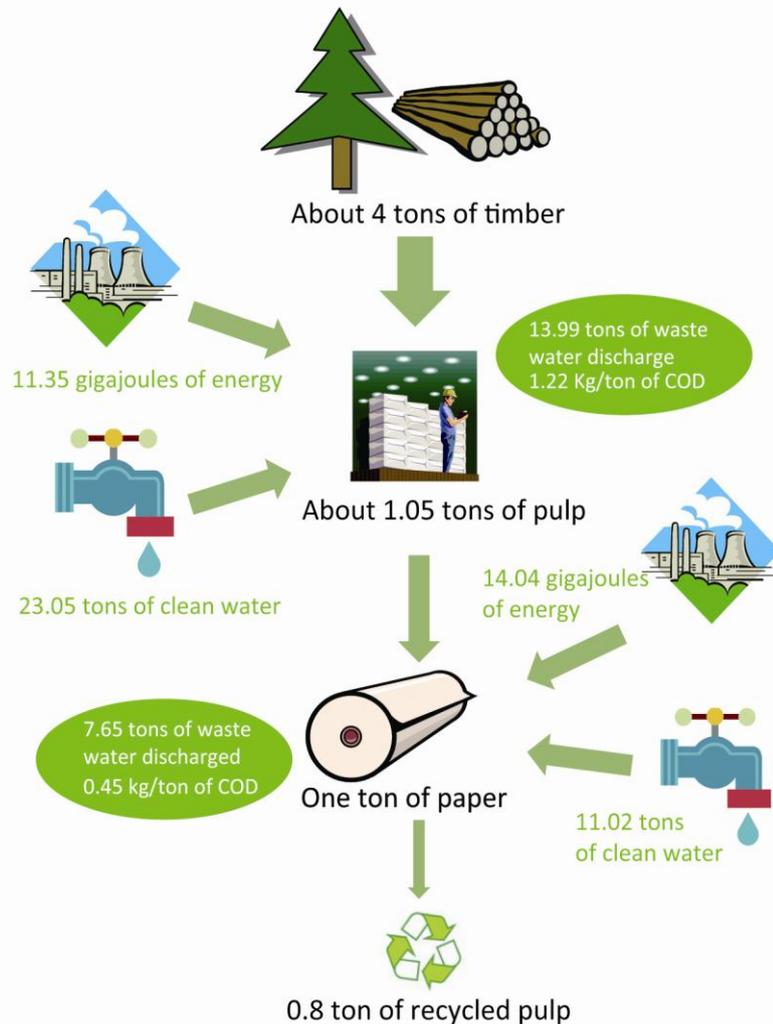
Conservation and Production in the Value Chain



Key alignments with the ten green economy conditions

- Resource efficiency and decoupling
- Life cycle approach
- Employment

Footprint of One Ton of Paper



Note:

“About 4 tons of timber”: figure based on actual data from Hainan Jinhai Pulp & Paper

“About 1.05 tons of pulp”: pulp consumption varies greatly in product of different types of paper, here we refer to household paper based on actual data from Hainan Gold Hongye and Hainan Gold Shengpu;

“0.8 ton of recycled pulp”: source of data: Almanac of China Paper Industry 2011;

The remaining data comes from average statistics of various mill documented in the scope of the APP-China Sustainability Report 2011.

Description

Asia Pulp & Paper (APP)'s Hainan Jinhai Pulp & Paper² is one of the largest wood pulp and paper mills in the world, and the host of China's largest solar-roof power plant. It also successfully met the requirements of the *Special Inspection of Prevention of Marine Pollution*³.

Hainan Jinhai Pulp & Paper is the 13th enterprise invested and constructed by APP in China, and has been first put into production in 2005. Taking the advantages of "Plantation-Pulp-Paper" integration, with world's largest paper machine, water conservation at the heart of its operations, and extensive filtration and separation techniques, it produces 1.2 million tons of pulp and 900,000 tons of paper per year.

Under the management philosophy of Afforestation to Benefit Mother Nature (planting trees and forests to benefit nature), Pulp and Paper Innovation to Benefit Mankind (making pulp and paper to benefit people), Hainan Jinhai Pulp & Paper realizes its economic, social and ecological contribution simultaneously by cultivating paper plantations, environmental friendly production of pulp and paper.

Initiating Organizations

- Asia Pulp & Paper Group (APP) / www.asiapulppaper.com
- Asia Pulp & Paper Co. Ltd. (APP-China) / www.app.com.cn
- Hainan Jinhai Pulp & Paper Co. Ltd. / www.appjh.com.cn

Geographic Scope

Pulp, paper and paper products are supplied nationwide in China and worldwide.

Type of Partners Involved

- Global, national and local suppliers, local research institutes and universities and global customers
- Clenergy is the solar park solution provider

Experience of Best Practice

Voith-manufactured PM2, the world's largest paper machine located in Hainan Jinhai Pulp & Paper requires the absolute minimum of plantation fibre in the paper making process by increasing the coat application, and on average 5 litres of water per kilogram of paper produced, well below the European average of 8 litres for comparable machines or the Chinese government stipulated maximum of 10.5 litres.

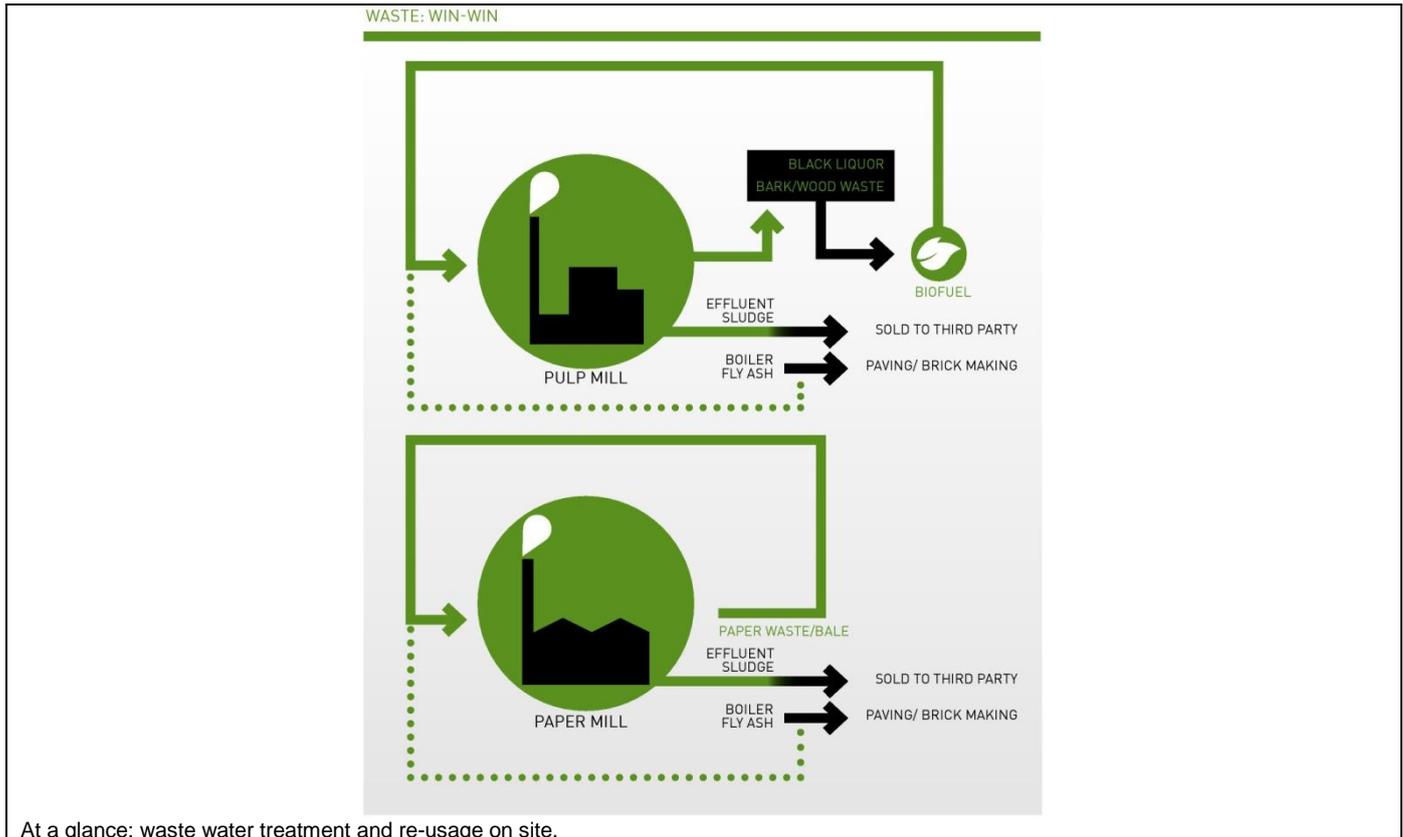
² Hainan Jinhai is 100% APP owned, and is co-invested by Sinar Mas Paper (China) Investment Co., Ltd. and Gold East Paper (Jiangsu) Co., Ltd., which are subsidiaries of APP.

³ This certification demonstrates the results of Hainan Jinhai's efforts to protect the coastal environment in which it operates, particularly on the prevention of oil spills. Hainan Jinhai had been consigned by Environmental Monitoring Center in Hainan Province to do the monitoring and inspection of the environmental impact (i.e. water quality) since its production for continuously 11 years (2 years before production in 2002 and 9 years after production). According to the data and index of the monitoring, there is no change of water quality and no adverse environmental impact on the coastal area of Hainan Jinhai.

With Clenergy's PV-ezRack SolarRoof, a solar power mounting system on top of the pulping line facility, Hainan Jinhai Pulp & Paper can produce more than 36 million KWh of green power per year.

To date the facility's accumulated water savings amount over 110 million tons of water.

- Water conservation by filtration and separation technologies reduce its water consumption per ton of produced pulp by 36% from 38m³/ADT to 24m³/ADT.
- Compact press during pulp separation is notable for using significantly less water than a traditional diffuser wash press.



Wastewater is treated on-site and then re-used, discharged or used to supply on-site projects.

- Sealing water for the mill's pumps is collected, filtered and reused – generating a daily saving of 3,500m³.
- Water used to "backwash" the cooling water filters is reused in the re-cauterising process to wash limestone – generating a daily saving of 2300m³.
- Recovery of condensed water from the steam produced by chlorine dioxide plant required for Element Chlorine Free process - generating a daily saving of 660m³.
- Water condensing on the facility's pipe rack is collected and re-used in the facility's boiler - generating steam for the steam turbines and saving 600m³ daily.

Element Chlorine Free DualD™ process during pulp bleaching significantly reduces the formation of highly toxic dioxin compounds or other carcinogenic substances.

New development in technology made it possible to take advantage of the economy of scale when building new pulping lines. Jinhai recovery boiler is characterized by high capacity, environment-friendly process solutions, low air emissions and handling and burning of both diluted and concentrated odorous

gases. Boiler is designed for high dry solids firing of 80% black liquor dry solids content in virgin black liquor. Maximum capacity of the boiler is 5,500TDS daily.

Black liquor treatment during the initial chemical separation process via an evaporation system before burned in the facility's alkaline recovery boiler, supplies 70-80% of the pulp mills required high pressure steam volume. This is important for chemical Alkali recovery and for environmental protection.

Ecological monitoring programs are carried out through collaboration between APP-China Forestry with research institutes and universities in Hainan, which are focused on various aspects including biological diversity, watershed water quality, top soil displacement, carbon sink research for Eucalyptus forest plantations.

PEFC-CoC certified ensures the legality and sustainability of raw materials via the most stringent raw materials procurement systems and Chain of Custody policies.

Hainan Jinhai Pulp & Paper brings **great economic and social benefits** to local community such as offering over 6,600 job opportunities and stimulating the development of local transportation and catering business.

Obstacles / challenges encountered and how to overcome

- **Sourcing of raw materials**

Hainan Jinhai consumes vast amount of raw materials. The gigantic continuous digester swallows about 30 cubic metres of chips, or about a truckload per minute. The need is supplied from APP's own plantations, mainly in Hainan but also in the provinces of Guangdong and Guangxi provinces in mainland China. Wood chips for domestic portion are sourced from South of mainland China, while those for import portion are from South East Asia, especially Vietnam. The pulp produced is consumed mostly by its own paper machine and tissue machine.

- **Operation experience of recovery boiler**

Most of the operators did not have any experiences of recovery boiler operation and therefore training of operators was a very important topic in the delivery. Managers of operators who had been working in APP's other pulp mills in Indonesia and China conducted training courses about one year before the boiler was started up in June 2004 and the boiler simulator and interactive multimedia training was proved to be very useful. Black liquor firing started in November 2014 with experienced operators and start up people for other departments came from Perawang mill in Indonesia were there to support Hainan Jinhai.

Conditions for Success

Hainan Jinhai Pulp & Paper has invested RMB5.72 billion in pollution treatment. Besides reclaiming the wastes in production process for comprehensive use, the company also brings in advanced treatment equipment for waste gas, waste water and solid wastes as well as pollution-proof production process. It implements strict management and control in daily production, in order to ensure all discharges after treatment finally reach or even go beyond Class I discharge standards of China.

Hainan Jinhai Pulp & Paper has invested considerably to protect the coastal environment in which it operates, particularly the prevention of oil spills. It has deployed a team that conducts 24-hour patrols on Jinhai piers seven days a week to ensure all ships are berthed soundly and without collisions to avoid oil leakage.

Concluding message

Developing business operations in a sustainable manner is a strategic priority for APP, and pulp and paper sector has tremendous potential to be environmental friendly across its operations while ensuring robust growth. Hainan Jinhai is a “Plantation-Pulp-Paper Integration” operation model which is the core concept of APP’s business operations. Its achievements in water management and reduction, and energy efficiency, can contribute substantively to this vision.

Focal point

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The International Chamber of Commerce (ICC)

ICC is the world business organization, a representative body that speaks with authority on behalf of enterprises from all sectors in every part of the world.

The fundamental mission of ICC is to promote open international trade and investment and help business meet the challenges and opportunities of globalization. Its conviction that trade is a powerful force for peace and prosperity dates from the organization's origins early in the 20th century. The small group of far-sighted business leaders who founded ICC called themselves "the merchants of peace".

ICC has three main activities: rule setting, dispute resolution, and policy advocacy. Because its member companies and associations are themselves engaged in international business, ICC has unrivalled authority in making rules that govern the conduct of business across borders. Although these rules are voluntary, they are observed in countless thousands of transactions every day and have become part of the fabric of international trade.

ICC also provides essential services, foremost among them the ICC International Court of Arbitration, the world's leading arbitral institution. Another service is the World Chambers Federation, ICC's worldwide network of chambers of commerce, fostering interaction and exchange of chamber best practice. ICC also offers specialized training and seminars and is an industry-leading publisher of practical and educational reference tools for international business, banking and arbitration.

Business leaders and experts drawn from the ICC membership establish the business stance on broad issues of trade and investment policy as well as on relevant technical subjects. These include anti-corruption, banking, the digital economy, marketing ethics, environment and energy, competition policy and intellectual property, among others.

ICC works closely with the United Nations, the World Trade Organization and intergovernmental forums including the G20.

ICC was founded in 1919. Today its global network comprises over 6 million companies, chambers of commerce and business associations in more than 130 countries. National committees work with ICC members in their countries to address their concerns and convey to their governments the business views formulated by ICC.

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