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APP

SUSTAINABILITY REPORT 2008/2009

APP

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2008/2009

Externally assessed

This report has been externally assured to a GRI Application level of A+ by Société Générale de Surveillance (SGS). The assurance statement is presented on page 110 and an index of GRI indicators used within the report is given on page 108. For more information on SGS, visit www.sgs.com. For more information about GRI, see www.globalreporting.org

This is our second bi-annual Sustainability Report. For the latest updates and press releases, please visit our web-site at www.asiapulppaper.com

Your thoughts

How is our reporting? Reader comments on our reporting are welcome.
Please send your feedback to environment@app.co.id

[3.2, 3.3, 3.4, 3.11]

Contents

Report Scope

Responsible paper making and the pursuit of sustainable development targets

APP is the brand name used throughout this Sustainability Report as a reference to PT. Purinusa Ekapersada, an Indonesian company that operates pulp and paper mills in the Republic of Indonesia, and its five operating companies: PT. Lontar Papyrus Pulp & Paper Industry in Tebing Tinggi; PT. Indah Kiat Pulp & Paper Tbk. with operations in Perawang, Serang and Tangerang; PT. Pindo Deli Pulp And Paper Mills in Karawang; PT. Pabrik Kertas Tjiwi Kimia Tbk. in Sidoarjo; and, PT. Ekamas Fortuna in Malang. These mills are located on the Indonesian islands of Java and Sumatra.

This report covers APP's activities between January 1st 2008 and December 31st 2009, related to responsible pulp and papermaking and our progress towards our sustainable development targets. The report also covers the activities related to responsible and sustainable plantation management of APP's exclusive pulpwood suppliers, operating under the coordination and management of Sinarmas Forestry.

There were no significant changes or improvements to the governance of APP's operating companies during the reporting period.

Sustainability

We use the World Bank's operational definition of sustainable development: "A process of managing a portfolio of assets to preserve and enhance the opportunities people face." We define sustainability as "the maintenance of a responsible balance of economic, environmental, and social interests."

Our roadmap towards environmental sustainability demands that we seek continuous improvements in raw material sourcing and utilisation, in process efficiency and waste minimisation, and in supply chain management to reduce carbon emissions and improve the environment.

Indonesia still has many significant areas of high conservation value forests that are home to endangered species of wildlife and plants and important to local communities. APP believes in, and strongly supports, the Indonesian government's programmes for ensuring the sustainability of all such habitats. Using both national and international protocols as guidelines such as the ITTO/IUCN guidelines, we intend to be partners in the protection of such forests, both within and adjacent to our pulpwood supply areas.

In working towards economic sustainability, we have a responsibility to our employees and their families, to our customers and shareholders, and to the communities who depend on us for their livelihoods. In encouraging social sustainability, we respect and protect human rights in our operations and along our supply chain, and aim to contribute towards the long-term development of communities, both local to our operations and beyond. This Sustainability Report is one of the tools through which we endeavour to make our operations transparent to stakeholders.

[2.1, 2.2, 2.3, 2.5, 2.9, 3.1, 3.5, 3.6]

Our vision is to become the 21st century's premiere, world-class pulp and paper manufacturer – a company dedicated to providing superior value to shareholders, employees and the community.

Our mission is to increase our global market share, use cutting edge technology in the development of new products and mill efficiency, improve the capacity of human resources through training, and realize sustainability in all our operations.

[4.8]

Introduction to APP

Achieving APP's goal of being the 21st century's premier pulp and paper manufacturer needs the concerted effort and commitment of all involved with the production, marketing and distribution of our products.

Asia Pulp & Paper (APP) is a brand that encompasses pulp and paper products manufactured at eight pulp and paper mills in Indonesia. APP started in 1972 with the establishment of a chemical plant, PT Tjiwi Kimia, producing caustic soda and associated products in Mojokerto, near Surabaya in East Java. The company's name was changed in 1978 to PT Pabrik Kertas Tjiwi Kimia (Tjiwi Kimia Paper Mill), to reflect the addition of two small paper machines to the site, which produced a modest 12,000 tonnes of paper a year for the domestic market.

The subsequent growth of APP through a combination of acquisitions, the redevelopment of existing paper mills and the green-field development of both integrated pulp mills and stand-alone paper mills, has created a world-scale company. APP now has a wood pulp production capacity approaching 3M tonnes/annum and a paper production capacity of some 7.3M tonnes/annum, with products sold in Africa, America, throughout the Asia Pacific region, in Europe and in the Middle East.

Two companies within APP, Indah Kiat and Tjiwi Kimia Tbk., are publicly listed and trade on the Jakarta and Surabaya Stock Exchanges in Indonesia.

APP's two integrated pulp and paper mills are located in the provinces of Jambi and Riau on the island of Sumatra. Our other six mills are stand-alone paper mills on the island of Java. Four are in the provinces of Banten and West Java, all relatively close to the capital, Jakarta; one is close to Surabaya, Indonesia's second largest city, in East Java, and one is close to Malang, a large but relatively isolated city, also in East Java.

The widespread distribution of our mills, our company history of both green-field developments and growth by acquisition, makes for a complex corporate structure and culture. The mix of operational and cultural considerations – sometimes inherited through acquisition – within the mills means that APP must take a decentralized approach to the management of its sites. We describe, in subsequent sections of this report, how each of our sites has uniquely responded to its distinct set of operational, cultural, community, socio-economic and environmental challenges and statutory obligations within our corporate framework for sustainability and social responsibility.

APP sells its paper products through distributors and directly through its own regional marketing offices around the world. Today, APP's products include bleached hardwood paper pulp and a full range of fine paper, tissue, packaging and stationery products. This spans commodity-grade base papers, tissue and industrial papers, value-added writing and printing papers, art paper and boards, converted hygiene products, speciality papers, carton and box boards, plus a wide range of converted stationery products and office supplies.

[2.6, 2.8]

To become the 21st century's premier pulp and paper manufacturer demands the concerted effort and commitment of all involved with the production, marketing and distribution of our products – in short, it requires the support of APP's management, our operational, engineering and administrative employees, and all of our suppliers and contractors. In 2009, APP had directly employed 43,617 people and indirectly employed 19,037 third-party workers at our facilities, including pulpwood suppliers.

[2.8]

Chairman's Statement

We believe in operating our business transparently and seeking regular stakeholder engagement.

Welcome to our third sustainability report.

At Asia Pulp & Paper (APP) we have a single, focused mission: To be the world's number one pulp and paper manufacturer and a responsible global leader in all aspects of our business.

We recognise that company size, reach and sales revenue are incomplete benchmarks, and not the only meaningful indicators of global leadership and responsibility. This is why we judge our success by the impact our activities have on Indonesian society at large, on the environment and on the nation's economy. By what we do every day to promote positive social and economic benefits for our employees, their families and the wider communities in which APP operates. And by what we do every day to minimise the environmental impact of our operations and to protect Indonesia's natural treasures. We are long-term players and we take these long-term obligations seriously.

Our goal, with this APP 2008 / 2009 Sustainability Report, is to discuss both our operational performance and our progress with the environmental and socio-economic initiatives we have underway. We believe we owe our shareholders, worldwide stakeholders, employees and their families, the country of Indonesia and the people living in and around the communities where we operate transparent reports of our achievements and of our challenges. This Sustainability Report is an effort to present an objective, fair and balanced picture of our activities.

Social responsibility often requires complicated and delicate balance, especially in Indonesia's pulp and paper industry, where virtually every major decision we make must take into account potentially serious social, demographic, economic and environmental challenges. We take very seriously our responsibility, as one of Indonesia's leading corporate citizens, to play an active role in advancing Indonesia's social and economic priorities. But we are equally aware that this must not come at the expense of the environment, or of community and social cohesion.

We recognize that there is still space for improvement in the way we balance these various aspects when conducting our business. Our commitment to sustainability analysis and reporting and to Environmental Management Systems are some of the ways in which we try to ensure that we will always seek to achieve an optimum reconciliation of the – sometimes competing – interests of all of our stakeholders.

In 2008 and 2009 we made great strides advancing our leadership in critical areas that impact the world around us. In this report we are proud to report on our efforts in these key areas:

- Achieving 100 percent certified sustainable sourcing of our pulpwood supply, as well as efforts to help ensure we protect the integrity of APP products from the inclusion of any illegal wood.
- Increasing investment in new technologies and expanding reliance on bio-fuel sources in our mills to reduce the carbon footprint across our production processes.
- Expanding community investment programs to support UN Millennium Development Goals and to make poverty alleviation in Indonesia a number one priority through social, economic development, health and education programs that create opportunities for our people to better their lives.
- Establishing public-private partnerships to create and actively manage conservation initiatives to provide real, long-term protection of Indonesia's High Conservation Value Forests and preservation of critical habitats for endangered wildlife.
- Creating genuine opportunities for our employees to advance within the APP family through a disciplined commitment to implementing world-class training and development programs.
- Increasing the transparency of APP operations with stakeholders worldwide while measuring our progress through first-of-its-kind carbon and social footprint assessments that both track our work to date and help keep us on the right path for ongoing improvement.

We accept our responsibility to be a good steward of the social and natural environments in which our mills operate because we recognise this represents sound, long-term business practice. We view social responsibility as an opportunity rather than as a cost of doing business. We believe that weaving social responsibility into the fabric of our operations will ultimately provide a greater return to our shareholders, as well as improve the lives of employees and the communities in which we operate. In the long run, this helps ensure the sustainability of all aspects of our operations, reduces operating costs, improves employee recruitment, satisfaction and retention, and can directly impact on sales. Improving our return on investment, in turn, provides greater opportunity for investment and innovation in social, environmental and conservation initiatives that can increase the positive impact we have on the world around us. This is part of the "lifecycle balance" we strive to achieve.

Global leadership and responsibility is an ongoing journey. As we progress on our path we must always re-examine our performance and raise the bar on how we make a positive impact on society. We have set ambitious goals for our future, for the overall growth of our business, for our sustainable forest management and certification programs, for our carbon footprint reduction initiatives, for our social and economic development activities – all to advance Indonesia's economy and better the lives of its citizens. Our commitment to our stakeholders worldwide is to continue to grow our business responsibly, to measure our performance honestly and transparently, and to communicate to you our continued efforts and progress.

Sincerely,

Teguh Ganda Wijaya
Chairman – Asia Pulp and Paper

[1.1, 1.2]

[1.1, 1.2]

APP is proud of its commitment to a wide range of responsible initiatives that help advance the societal and environmental interests of our stakeholders world-wide. These are a few examples of milestones and highlights achieved in 2008 and 2009 presented in this report:

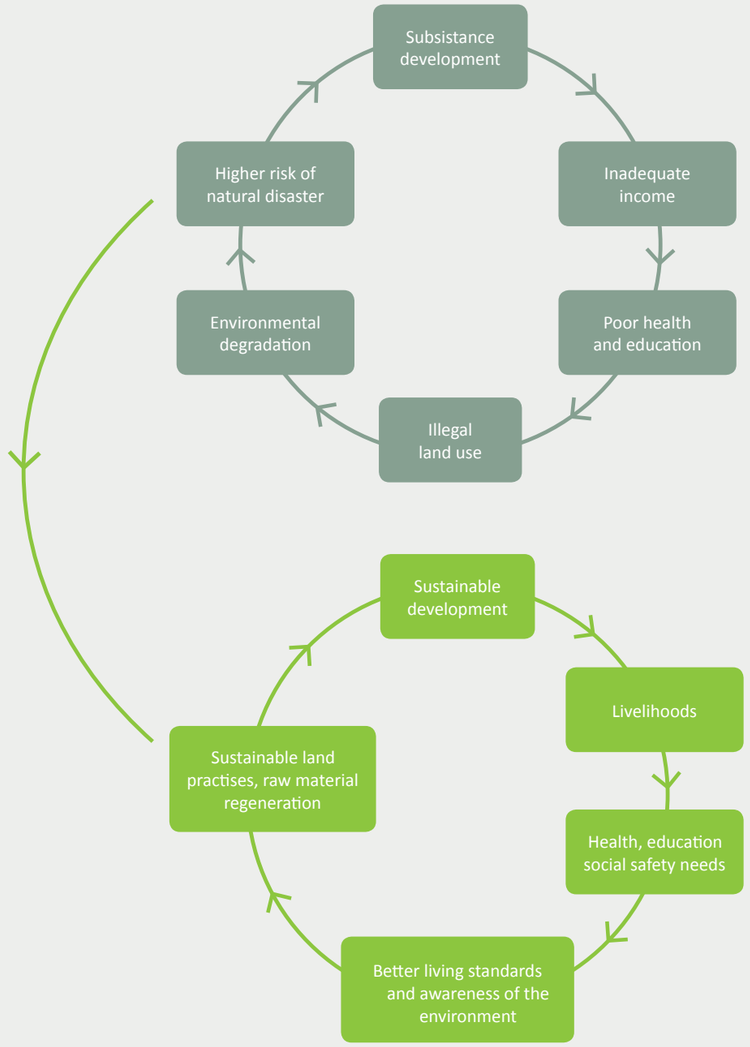
- APP secured PEFC Chain-of-Custody certification for all of its major mills: Pindo Deli, Indah Kiat Tangerang, Indah Kiat Serang, and Tjiwi Kimia were certified in 2008, and Indah Kiat Perawang and Lontar Papyrus were certified in 2009.
- PT WKS, a major APP pulpwood supplier, achieved Indonesian Ecolabelling Institute (LEI) Sustainable Forest Management (SFM) certification in September 2009, making it the largest LEI-certified plantation forest in Indonesia.
- APP achieved LEI Chain of Custody certification for four major mills in July 2009: Indah Kiat Perawang, Lontar Papyrus, Pindo Deli and Tjiwi Kimia.
- Indah Kiat Pulp and Paper mils were honoured in 2008 with a Presidential Primaniyarta Award, for outstanding achievements and contributions to increasing Indonesia's exports.
- APP joined the UN Global Compact Network (UNGCN) in 2008, aligning our operations and strategies with the Compact's 10 principles in the areas of human rights, labour practices, environment and anti-corruption measures, and adopting the UN Millennium Development Goals (MDGs) into our company corporate social responsibility (CSR) activities.
- At the 2008 conference by the UN and Indonesian National Development Planning Agency (Bappenas), our Tjiwi Kimia mill received two of 10 awards presented to private companies and local government agencies recognized to have noteworthy contributions toward achieving Indonesia's MDGs.
- APP completed its first company-wide carbon footprint assessment in 2008. It was part of APP's initiative to provide a baseline for its greenhouse gas (GHG) emissions and to develop programmes to reduce them in future.
- The flagship Giam Siak Kecil – Bukit Batu Biosphere Reserve, the world's final Biosphere Reserve initiated and co-managed by a private sector conservation project, supported by APP and its pulpwood suppliers in Riau Province, Sumatra, received official recognition by the UNESCO International Coordinating Council Man and the Biosphere programme, in May 2009.
- APP completed the first company-wide social footprint assessment (SFA) undertaken within the worldwide pulp and paper industry in 2009 to better understand the social and economic impacts of APP operations on local communities, and to design ways to measure and respond to such impacts.
- APP held its first Open House in 2008 for customers and stakeholders at its Riau, Sumatra facilities to provide insight into sustainable forest management practices and the implementation of chain of custody (CoC) protocols across our operations.
- In 2009, APP held a global webcast for the first time in partnership with ProPrint Magazine to help continue to establish a greater open dialogue with stakeholders worldwide.

[2.10]

Chairman's Statement ▶

Graphic 1 - Sustainable development

Addressing the poverty cycle and environmental degradation



Corporate Governance

Each major APP operating company, with the exception of Ekamas Fortuna, publishes a formal annual report and audited financial statements made available to shareholders, bondholders and the public. The reports outline in detail the companies' board structures, composition and relevant background, governance committees, results of independent financial audits in compliance with Indonesian accounting standards. This section summarizes the key elements of governance at work.

Formal Reports from Group Companies [2.6]

Two APP companies, PT. Indah Kiat Pulp & Paper Tbk., ("Indah Kiat") and PT. Pabrik Kertas Tjiwi Kimia Tbk., ("Tjiwi Kimia") are publicly listed and abide by Indonesia Stock Exchange (IDX) and capital market regulations relating to transparency, reporting and disclosure of financial conditions and operational performance. Audited financial statements and annual reports are available to the public and interim results are published in both the Indonesian and English language. The balance sheet and income statement are published in two Indonesian daily newspapers, one of which is of national circulation and the other in the domicile of the company, no later than the end of the third month after the date of the annual financial statement.

PT. Pindo Deli Pulp and Paper Mills ("Pindo Deli") and PT. Lontar Papyrus Pulp & Paper Industry ("Lontar Papyrus"), which have issued Rupiah denominated bonds listed on the IDX, also produce audited financial statements and annual reports.

During the reporting period, APP did not receive any financial assistance from the government and have no monetary sanctions for non-compliance to laws and regulations.

The APP Governance Structure

Companies in the APP Group have a supervisory board of commissioners as required under Indonesian company law, with independent members representing the interests of third-party shareholders and bondholders, as applicable under capital market regulations for listed companies and securities. Individual, published company annual reports provide a detailed description of the board's role and composition.

Performance Based Compensation

During the two reporting periods, the performance targets and basis for remuneration of the APP boards of directors were reviewed and approved by their respective boards of commissioners. Details of the total remuneration of both boards are published by Indah Kiat, Tjiwi Kimia, Pindo Deli and Lontar Papyrus in their respective annual reports.

Shareholders attending the Annual General Meeting of Shareholders (AGMS) for Indah Kiat, Tjiwi Kimia and Pindo Deli and its subsidiary Lontar Papyrus must approve the contents of the published annual reports as an account of the performance of each company and its directors, and the effectiveness of the oversight provided by its board of commissioners and members of audit committee, whose combined role is to protect the interests of all shareholders, including minorities.

Conflicts of Interest

Employees shall avoid any direct or indirect conflicts of interest with the company. This includes personal benefits or benefits received by people or organizations connected with an employee. Members of both boards may not hold any other position which place him or her in conflict of interest or which violates the companies statutes, except with the agreement of a general meeting of shareholders.

Anti-corruption program

As a part of its good governance program, APP launched a "Whistle Blowing" program in late 2008, led by the Internal Control and Audit Division (ICAD). Each company's ICAD team, which operates at the company's headquarters and at the appropriate mills, conduct regular audits of areas that have a high risk of corruption, such as departments related to finance and those that have frequent contact with external parties, such as purchasing, sales and marketing.

ICAD also operates an ethics call center and email reporting system to collect reports of corrupt behaviour within APP operations and it investigates every report. In cases where corruption is found to have occurred, employees involved will receive either warning or termination letters, depending the severity of the case. Suppliers found to be involved in corrupt practices are usually terminated and prevented from working with APP again.

Mechanisms for Feedback to the Board of Directors or Board of Commissioners

APP has installed a system called i-suggest that allows employees to submit suggestions for operational improvements through the company intranet portal system. Incentives are available for employees whose suggestions are implemented.

Mission, Vision

All APP companies share a strong common vision and mission. See page 3.

Values and Codes of Conduct

APP companies follow common, clearly defined mission and value statements, maintain codes of conduct, and establish policies related to economic, social, and environmental performance. These apply to all employees, including board members, and are available for employees to view through the APP intranet portal as well as the public APP corporate website.

Policies guiding procurement and fibre supply are discussed on page 94. In terms of environmental performance, APP companies at a minimum comply with all relevant national standards and legislation. See page 16 onwards.

Risk Management

A central part of the annual business planning process is an assessment of risks associated with changes in the global, regional and local economic outlook, risks relating to social conditions, the environment, weather and climate conditions, market and consumer trends, technological, regulatory and legislative change and reputational risks arising from external factors, erroneous communications, publications or media reports. These are assessed and monitored with any implications reviewed at each mill's regular monthly board meetings.

Oversight of the Triple Bottom Line and Sustainability Performance

The role of the APP companies' directors is to conduct ongoing reviews and monitoring of financial results and measurement of progress towards meeting or outperforming environmental targets, limits or guidelines, as well as completing social programs in a timely and responsible manner.

External Charters, Principles or Initiatives Endorsed by APP

This report follows, as fully as possible, the Global Reporting Initiative's Third Generation (GRI G3) Guidelines, as an international standard of responsible disclosure on the Group's business, social and environmental performance and governance. The GRI Guidelines are among the most used, credible and trusted framework for monitoring corporate sustainability largely because of the way they have been created: through a multi-stakeholder, consensus-seeking approach. GRI seeks to make sustainability reporting by all organizations as routine as, and comparable to, financial reporting.

GRI Guidelines are widely used. As of January 2009, more than 1,500 organizations from 60 countries use the guidelines to produce their sustainability reports. G3 is the latest version of the guidelines, requiring greater levels of disclosure and performance metrics than previous guidelines.

In addition, the adoption of the 6 key performance criteria, expressed as questions supporting the framework for this report, has been deliberately aligned with a number of internationally recognized principles considered directly relevant to APP in the context of the pulp and paper industry and Indonesia (see table overleaf). These include the Global Compact on Human Rights, International Tropical Timber Organization (ITTO) Criteria for Sustainable Tropical Forest Management and the World Business Council for Sustainable Development (WBCSD).

[2.6, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6 , 4.10, EC 4, SO 2, SO 4, SO 8]

[4.4, 4.8, 4.9, 4.11, 4.12]

Table 1 - Our Performance Criteria at APP

APP Criteria	
1	Are our products credible, viable and legal?
2	Are we responsive to our stakeholders?
3	Have we responded to the needs of local communities in Indonesia?
4	Have we addressed the issue of climate change?
5	Have our forest and other raw materials sources been sustainably managed?
6	What has been done to protect sensitive ecosystems close to our areas of operation?

VS The Global Compact	APP Criteria
Human Rights	
Support and respect the protection of internationally proclaimed human rights.	2,3
Make sure that they are not complicit in human rights abuses.	2,3
Labour Standards	2,3
The freedom of association and right to collective bargaining.	2,3
The elimination of forced and compulsory labour.	2,3
The abolition of child labour.	2,3
The elimination of discrimination in employment.	2,3
Environment	
Support a precautionary approach to environmental challenges.	4,5,6
Undertake initiatives to promote environmental responsibility.	4,5,6
Encourage the development and diffusion of environmentally friendly technologies.	4,5,6
Anti-Corruption	
Businesses should work against corruption	1,2

VS ITTO Criteria for Sustainable Tropical Forest Management	APP Criteria
Enabling conditions for sustainable forest management	5
Extent and condition of forests	5
Forest ecosystem health	5,6
Forest production	5
Biological diversity	5,6
Soil and water protection	5,6
Economic, social and cultural aspects	1,2,3

VS WBCSD	APP Criteria
Sourcing and legality aspects	
Origin of products.	1,5
Information accuracy: Is information about products credible?	1
Have the products been legally produced?	1
Environmental aspects	
Have forest been sustainably managed?	5
Have special places, including sensitive ecosystems, been protected?	6
Have climate issues been addressed?	4
Have appropriate environmental controls been applied?	1,4
Has recycled fiber been used appropriately?	5
Other resources	
Have other resources been used appropriately?	5
Social aspects	
Have the needs of local communities and indigenous peoples been addressed?	3

(Source APP, published information)

Association Memberships

Indah Kiat, Tjiwi Kimia, Pindo Deli, and Lontar Papyrus are members of the Association of Indonesian Public Listed Companies (AEI), the Association of Indonesian Pulp and Paper (APKI), and the Association of Indonesian Entrepreneurs (APINDO). Through these associations, APP contributes to the development of various regional and national regulations by offering industrial insights during the development process.

Board Member Qualifications

Biographies of all board members appear in published annual reports for the four principal operating companies, as required by capital market authority guidelines.

[4.3, 4.7, 4.13]

Corporate Governance ▶

Sustainable Products

Our products form an essential part of daily lives in consumer markets across 65 countries. APP customers seek the assurance that our products originate in sustainably managed mills using renewable resources.

The acceptance of our products in markets around the world is a matter of quality and customer choice. And selection by customers increasingly depends on their being confident that our products originate in mills that are sustainably managed, with a particular emphasis on evidence of environmental performance and on our commitment to source fibre from renewable sources. This chapter looks in detail our production operations and our compliance with national and international standards, including product labelling and certification. We also provide examples of customer feedback and describe some of our latest environmentally responsible products.

Two of the eight production facilities are integrated pulp and paper mills: Indah Kiat Perawang and Lontar Papyrus. A proportion of their pulp product is converted on-site to paper products, and the balance is sold to other APP mills and on the world market. The other six facilities are stand-alone paper mills: Indah Kiat Tangerang, Indah Kiat Serang, Pindo Deli I, Pindo Deli II, Tjiwi Kimia, and Ekamas Fortuna, which depend on purchased virgin pulp or waste paper for their fibre requirements.

Both our pulp mills also sell quantities of process-related chemicals produced on site which are surplus to on-site requirements. Two of our paper mills close to major urban areas (Pindo Deli II, near Jakarta, and Tjiwi Kimia, near Surabaya) operate chlor-alkali plants. The chlorine and sodium hypochlorite generated at these mills is sold locally for municipal water purification and other industrial uses, and the caustic soda produced contributes to the chemical requirements of our pulp mills in Sumatra.

Quality

APP is one of the world's largest and technically advanced integrated pulp and paper producers and its products form an essential part of daily lives in consumer markets in 65 countries across the globe. We characterise our range of papers in nine basic categories, listed below, each designed for a specific market segment and use. We remain focused on maintaining quality through efficient, responsible and sustainable manufacturing, and by rigorous product testing. And we seek to demonstrate that our products are environmentally friendly by assuring that all our principal raw materials are from sustainable, renewable sources. We are committed to continually improve our performance through ongoing investment in technology and the adoption of industry-wide best-practices, with a view to ensuring that our manufacturing activities leave the lightest possible overall environmental footprint.

Our Nine Classes of Paper Product
Coated paper
Printing paper
Industrial packaging
Office products
Tissues
Specialty
Stationary
Publishing
Fancy products

Product sales

Taken together, APP's eight mills generated sales revenues of US$4,400 million in 2009, a decline of 14 percent from the previous year. This reflected the general softening of international paper prices in line with the significant downturn in world economic conditions from Q3 of 2008. Prior to the downturn, sales revenues had shown a stable growth trend of 16 to 17 percent annually.

Total pulp volumes produced for the period under review were marginally lower, by some 2 percent. Pulp prices were clearly impacted by weaker market sentiment as reflected in 10 percent lower revenues at Lontar Papyrus and 27 percent lower revenues at Indah Kiat-Perawang – together these two mills contributed 17 percent of total APP sales revenues in 2009.

APP continues to expand its range of low-impact and eco-friendly products in line with our ultimate goal to become carbon neutral. A major step in this journey has been completed through our first carbon footprint assessment, which was conducted to better understand the overall carbon balance of our activities. Further information regarding the result of APP's first Carbon Footprint Assessment can be found in the chapter on Climate Change in this report.

Table 2 - APP sales revenues (US$ million)

2008								
Mills	**Indah Kiat Perawang**	**Lontar Papyrus**	**Indah Kiat Serang**	**Indah Kiat Tangerang**	**Pindo Deli**	**Tjiwi Kimia**	**Ekamas Fortuna**	**Total**
Pulp	904	327	–	–	–	–	–	1,231
Paper	551	–	–	106	873	990	71	2,591
Packaging	–	–	701	–	10	31	–	742
Stationery	–	–	–	–	–	286	–	286
Tissue	–	48	–	–	158	–	–	206
Chemicals & Others*	–	3	15	0	17	52	0	87
Total	**1,455**	**378**	**716**	**106**	**1,058**	**1,359**	**71**	**5,143**
2009								
Mills	**Indah Kiat Perawang**	**Lontar Papyrus**	**Indah Kiat Serang**	**Indah Kiat Tangerang**	**Pindo Deli**	**Tjiwi Kimia**	**Ekamas Fortuna**	**Total**
Pulp	575	293	–	–	–	–	–	868
Paper	485	–	–	93	821	867	64	2,330
Packaging	–	–	608	–	8	26	–	642
Stationery	–	–	–	–	–	237	–	237
Tissue	–	43	–	–	190	–	–	233
Chemicals & Others*	–	34	12	1	19	44	11	121
Total	**1,060**	**370**	**620**	**94**	**1,038**	**1,174**	**75**	**4,293**

* Others can be low grade pulp and scrap. For Indah Kiat Tangerang, 'others' represent writing books they sold only for that particular year

Table 3 - APP production volumes (000 ADMT)

2008								
Mills	**Indah Kiat Perawang**	**Lontar Papyrus**	**Indah Kiat Serang**	**Indah Kiat Tangerang**	**Pindo Deli**	**Tjiwi Kimia**	**Ekamas Fortuna**	**Total**
Pulp	2,100	648	–	–	–	–	–	2,748
Paper	590	10**	1,231	94	825	1,048	160	3,958
Packaging	–	–	–	–	30	67	–	97
Stationery	–	–	–	–	–	215	–	215
Tissue	–	39	–	–	43	–	–	82
Chemicals & Others*	510	424	–	0	103	281	0	1,318
Total	**3,200**	**1,121**	**1,231**	**94**	**971**	**1,611**	**160**	**8,324**
2009								
Mills	**Indah Kiat Perawang**	**Lontar Papyrus**	**Indah Kiat Serang**	**Indah Kiat Tangerang**	**Pindo Deli**	**Tjiwi Kimia**	**Ekamas Fortuna**	**Total**
Pulp	1,984	736	–	–	–	–	–	2,720
Paper	608	11**	1,255	90	868	1,001	153	3,986
Packaging	–	–	–	–	33	58	–	91
Stationery	–	–	–	–	–	214	–	214
Tissue	–	41	–	–	69	–	–	110
Chemicals & Others*	445	510	–	0	118	262	0	1,335
Total	**3,037**	**1,298**	**1,255**	**90**	**1,088**	**1,535**	**153**	**8,345**

* Others can be low grade pulp and scrap. For Indah Kiat Tangerang, 'others' represent writing books they sold only for that particular year
** Low grade paper

Labelling and Certification

Product certification and labelling is a way to reassure our customers that APP products are manufactured using raw material sourced from sustainably managed plantation forests and produced using environmentally responsible processes.

Raw Material Credentials

Assuring customers of the legal and non-controversial origin of fibre used in their paper products is essential to APP Indonesia, as we market our products globally. In addition to the integrity of our own stringent legal-origin-verification and chain-of-custody protocols, APP offers customers the added reassurance of independently certified compliance with global chain-of-custody standards set by the Programme for the Endorsement of Forest Certification Schemes (PEFC).

PEFC is a leading, internationally recognised forest certification endorsement programme. It promotes forest certification through an independent verification process and assures purchasers of wood and paper products that the fibrous raw materials in their purchases are derived from responsibly managed forests. Its forest certification standards seek to balance economic, social and environmental concerns related to the commercial use of forests. With about 30 nationally endorsed certification systems and more than 220 million hectares of certified forests around the world, PEFC is the world's largest forest certification system.

In 2008, four of APP's paper mills (Tjiwi Kimia, Pindo Deli, Indah Kiat Serang, and Indah Kiat Tangerang) earned chain-of-custody (CoC) certification in accordance with the PEFC standard. The certification signifies that these mills can make credible claims that specified percentages of PEFC-certified fibres in their products have come from sustainably-managed forests.

Some products made at Tjiwi Kimia paper mill will bear the PEFC's new "recycled product" logo. Recycled product certification is a relatively new category within the PEFC scheme, and is part of the organisation's campaign to promote the value of recycling in addition to sustainable forest management. To use the PEFC recycled label, products must contain PEFC-certified recycled raw material or a combination of at least 70 percent PEFC-recycled raw material and PEFC-certified virgin fibre. One of Tjiwi Kimia products that will bear this logo is art paper, which will contain 30 percent PEFC-recycled and de-inked raw material and at least 40 percent PEFC certified virgin fibre.

Lontar Papyrus and Indah Kiat Perawang achieved their PEFC CoC certifications in 2009. In late 2009 Ekamas Fortuna mill, which produces packaging papers from 100 percent post-consumer recycled fibre, implemented a programme for achieving PEFC certification by the end of 2011.

In addition to bearing the PEFC recycled label, several products from Tjiwi Kimia mill are also entitled to use the Green Seal logo, which means the products were produced in compliance with the United States-based certification scheme for recycled products. The mill achieved the Green Seal certification for its recycled fibre photocopy paper in December 2009. This marks the first Green Seal-certified printing and writing papers produced outside of the U.S. and Canada.

In 2009, four APP mills, Indah Kiat Perawang Mill, Lontar Papyrus, Pindo Deli and Tjiwi Kimia, also achieved CoC certification under the Indonesia Eco-labelling Institute (LEI) scheme and launched the first LEI-certified paper. The LEI-CoC certification is a wood-tracking scheme designed to ensure that LEI-COC certified products are produced using fiber sourced from responsibly managed forests.

The LEI certification scheme is structured to address Indonesia's social and economic challenges as a developing country, and is transparent and multi-stakeholder-based. For the LEI CoC certification, APP mills were audited by TUV Rheinland Indonesia which is part of the TUV Rheinland Group, a global player in independent testing and assessment services.

To ensure continuous production of LEI pulp, part of the pulpwood for both of APP's pulp mills was supplied by the largest certified forest in Indonesia, managed by Wirakarya Sakti (WKS), one of APP's exclusive pulpwood suppliers. WKS achieved Sustainable Forest Management (SFM) certification against the LEI standard in late 2008. Currently LEI is the only voluntary (non-governmental organization) Sustainable Forest Management (SFM) certification programme applicable to pulpwood plantation forestry in Indonesia.

APP takes very seriously the provenance and legality of its fibre raw material. We use a number of complementary and overlapping pulpwood verification schemes to ensure full legality of our purchases. We work with Société Générale de Surveillance (SGS), a Geneva-based company recognised as one of the world's leading inspection, verification, testing, and certification houses, to confirm the legality and traceability of our pulpwood supply. Beginning in 2008 SGS commenced auditing of our pulpwood supplies annually, using its Timber Legality and Traceability Verification (TLTV) protocol. In addition, we verify the legality of pulpwood coming into APP operations via the LEI Chain of Custody Legal Origin Verification (LEI CoC-LOV) mechanism. APP also uses the PEFC's "Non Controversial" scheme to ensure the traceability of its pulpwood supplies.

Indah Kiat Perawang and Lontar Papyrus were first awarded verification statements for their pulpwood sources in 2005, under the LEI CoC-LOV standard, followed by endorsement under the PEFC Non Controversial scheme guidelines and under the SGS TLTV VLO protocol in 2008 and 2009, respectively.

Product Certification and Labelling

All APP mills are certified under the ISO14001:2004 Environmental Management System (EMS) Standard, and the ISO 9001:2008 Quality Management System (QMS) Standard. APP mills and products have also been certified under a range of other international certification guidelines, including the Indonesian, European and Japanese Ecolabelling schemes.

Indah Kiat Perawang, Ekamas Fortuna and Pindo Deli products bear labels showing the mills have achieved the ISO 9706:1994 international standard for "permanent," acid-free papers, suitable for archiving purposes.

In the following pages, we provide a complete list of all certifications achieved by mill and product.

Table 4 - Product certification 2008 – 2009

Certification	Classification	Indah Kiat Perawang	Lontar Papyrus	Indah Kiat Serang	Indah Kiat Tangerang	Pindo Deli	Tjiwi Kimia	Ekamas Fortuna
Verification of Origin & Chain of Custody	Product Sustainability	Wood material supply to Indah Kiat Perawang mill; Validity: 2009					Printing and Photocopy Paper	
ISO 9706	Permanent Product Standard	Paper product				Cast Coated Paper; Photocopy Paper; Instant preprint; Art Board; Woodfree Paper	Printing and Photocopy Paper	Paper product
HALAL – Religious Standard	Product Quality		Pulp and Tissue Product		Photocopy paper	All Tissue Product		
Ecolabel – Indonesian Standard	Product Quality	Uncoated printing paper. Validity: 2007 – 2010				Uncoated printing paper	Uncoated Printing Paper. Validity: 2009 – 2010	
Ecolabel – European Union Comission Standard	Product Quality					Photocopy paper; graphic paper	Exercise Book, Note Book & Loose Leaf. Validity: 2009 – 2010	
Green Mark – Taiwan Ecolabel Standard	Product Quality					Photocopy paper recycle grade		
FDA – USA	Product Safety			Paper board. Validity: 2010		Cast Coated Paper & Board; Art Board, Napkin Tissue, Kitchen Towel, Cup Stock Base, Corrugated products, Woodfree, MG Paper	Cast Coated Board; Art Paper; WoodFree Paper; Litho Paper; Extra Print Paper; Greaseproof Paper	
ISEGA							Art Paper; Paper Board; Greaseproof Paper;	
Korean FDA	Product Safety					Cup Stock Base		
Japanese FDA	Product Safety					Cup Stock Base		

Table 9 - Aggregated Mill Production

(ADT)	2008	2009
Pulp	2,100,040	1,983,507
Paper*	589,953	607,666
Chemical (tonnes)	510,150	444,568

* Raw material inputs for paper production includes 444,224 tonnes (2008) and 455,792 tonnes (2009) of pulp produced on-site, which is discounted in arriving at an aggregate product- sales tonnage for the respective years

Pulp Production

Pulp Mill Raw Material Inputs

Pulpwood

Pulpwood supply to Indah Kiat Perawang is co-ordinated predominantly by PT Arara Abadi, acting as an exclusive supplier under the management of Sinarmas Forestry. There were some changes in the mix of pulpwood supplies between 2008 and 2009, due to changes in the harvesting rotation schedule, as indicated in the table below. However, all wood was confirmed as coming from legitimate sources under one or more of the protocols described in the earlier "Raw Material Credentials" section of this report. The overall amount of pulpwood purchased increased by 2.5 percent in 2009, to 8,028,046 green tonnes (GT), although pulp production decreased by 5 percent. This was due to a low pulp yield being achieved because an increased percentage of mixed wood residues were processed that year.

Table 10 - Pulpwood supply

(GT)	2008	2009
Non-controversial (NCONT) Plantation Wood	–	5,176,317
Verified Legal Origin (VLO) Plantation Wood	8,230,304	865,787
LEI certified Plantation Wood	–	486,340
MWR* (VLO)	251,751	1,521,029

* Mixed Wood Residues

Pulp Mill Chemical Inputs

The pulp mill part of Indah Kiat Perawang's operations generates and recycles the vast majority of its process chemicals in a sequence of interconnected chemical plants. However a certain percentage of the basic inorganic chemical raw materials needed to generate the caustic soda, chlorine, sodium chlorate, chlorine dioxide, hydrochloric acid and calcium oxide must be replenished. Basic pulp mill chemical raw material purchases of sodium cloride (NaCl), Sodium Sulphate (Na_2SO_4) and Calcium Carbonate ($CaCO_3$) were made in 2008 and 2009.

Certain other bleaching chemicals, including oxygen and hydrogen peroxide are required to achieve optimum pulp brightness. Oxygen requirements were generated on-site and the corresponding production of liquid nitrogen was sold.

Chemical Production

Due to the remote location of the Indah Kiat mill, it is more cost effective to manufacture some of the chemicals for production in-house. The chemicals produced on-site include HCl, Oxygen (in gas and liquid form), and Caustic Soda. Indah Kiat Perawang

[EN 1]

Product Safety and Hygiene

Product safety and hygiene testing occurs primarily during the certification stage of each product's life cycle. Food packaging is produced in accordance with international food safety standards and certified by international bodies, including Europe's pulp and paper product testing agency ISEGA, and the United States Food and Drug Administration. General packaging is tested for strength and durability, and tissue paper is tested for its suitability for both industrial and consumer use.

Indah Kiat Tangerang, Indah Kiat Serang, Indah Kiat Perawang, Lontar Papyrus and Pindo Deli mills all test at the certification stage to ensure their products meet safety and hygiene standards. Tjiwi Kimia tests products at the distribution stage. Continuous improvements are implemented to ensure that all APP products meet health and safety standards.

Customer Satisfaction & Feedback

Customer satisfaction is a key performance indicator within all APP businesses. In 2008 and 2009, five APP mills took part in customer satisfaction surveys. A response rate of about 20 percent was recorded among more than 2,000 large local and international customers contacted. Lontar Papyrus and Ekamas Fortuna did not participate in the surveys. Lontar Papyrus produces only jumbo rolls of tissue product for conversion off-site. And our Ekamas Fortuna mill is, in some respects, a special unit within APP's portfolio of mills, supplying 100 percent post-consumer, waste-based, "value-grade" packaging and industrial products, almost exclusively into the local Indonesian marketplace.

The results of our customer satisfaction surveys showed that APP mills performed above average over the 10 key categories viewed as important by our customers in 2008 and 2009. Mills consistently scored "good" or higher rankings (a score of four of a possible five) regarding contact with sales people, product quality, responsiveness of the supplying mill and after-sales service.

Table 6 - Customer Satisfaction Survey PR5 - Domestic (average from max. of 5.0)

	2008	2009
Indah Kiat Perawang	4.01	4.04
Lontar Papyrus*	–	–
Indah Kiat Serang	3.86	3.94
Indah Kiat Tangerang	4.03	4.01
Pindo Deli	3.93	3.91
Tjiwi Kimia	3.87	3.88
Ekamas Fortuna*	–	–

Table 7 - Customer Satisfaction Survey PR5 - Export (average from max. of 5.0)

	2008	2009
Indah Kiat Perawang	4.01	3.62
Lontar Papyrus*	–	–
Indah Kiat Serang	3.79	3.77
Indah Kiat Tangerang	3.69	3.71
Pindo Deli	3.93	3.63
Tjiwi Kimia	3.67	3.55
Ekamas Fortuna*	–	–

* Lontar Papyrus produces only jumbo roll tissue product for conversion off-site while Ekamas Fortuna market is mostly Indonesian Market therefore both mills not included in the above survey

[PR 1, PR 5]

Opportunities for improvement were identified in on-time delivery for local customers and customer complaint handling for international customers. We are addressing these issues by identifying what specifically caused the complaints and to improve coordination across related departments. To ensure long-term improvement, we have increased the frequency and content of training for our branch offices and sales agent personnel, to enhance their knowledge both of our products and our complaint-handling procedures, so they can rapidly respond to customer queries and complaints.

Our customer service department (CSD) for Indonesia has a toll-free number for clients to quickly contact our service team. Contact and and customer feedback can also be achieved via our web-site at www.asiapulppaper.com. The Pindo Deli mills also maintains a direct customer feedback hotline.

Non-Compliance

APP recorded no fines or warnings regarding non-compliance with labelling or product safety and hygiene regulations in either 2008 or 2009. Similarly, no notifications of breaches of customer confidentiality were received and APP has experienced no complaints of misuse of customer data or proprietary information over the two year period.

New Products: Caring for the Environment

APP's mills and its corporate "Techno-Centre" research and development department take both a reactive and proactive approach to new-product development, listening to customer feedback regarding product performance and requirements, and exploring the technical scope of mills to bring new and improved products to market.

The following three new environmentally friendly products are from a range of 16 products that APP developed and introduced during 2008 and 2009.

Exceedo. Produced at our Tjiwi Kimia mill, this is a premium-quality, environmentally friendly printing paper with four grades, containing between 30 percent and 100 percent recycled, de-inked waste paper. Exceedo's paper is suitable for photocopy machine and laser printing use.

Enova. This is available in two grades of premium coated paper containing 30 percent and 50 percent recycled fibers, respectively. Enova products are designed for the high-quality offset printing market and used in the production of glossy magazines, company reports and posters. Enova is also a certified "wood-free" paper that uses post-consumer waste and virgin pulp fibre from sustainably managed forests.

Extraprint Recycled. This is a "wood-free," premium-quality paper, containing 30 percent recycled fibre. Designed for the high-quality colour-offset printing market, Extraprint has a high degree of runnability, a fast ink drying time and a high level of brightness and, like Enova, is used for premium printing, including magazines, annual reports and brochures.

[PR 2, PR 5, PR 6, PR 7, PR 8, PR 9]

Sustainable Mill Operations and the Environment

This section of the Sustainability Report provides an overview of our mill operations in terms of our statutory obligations, process inputs and technologies and our environmental management performance.

All of our mills are somewhat unique in terms of their sites and their location-specific circumstances. The scale and range of products manufactured at each location is determined by the interplay of many factors. These include: the physical size of the site and the availability of process water; the age, scale and efficiency of the production machinery; the availability of pulpwood, pulp, local wastepaper and other raw materials; the scope and the technological options available for further development of the site, and the site's socio-economic and community considerations and obligations.

We provide a brief summary of the development history and socio-economic circumstances for each site in subsequent sections within this report, to provide the context that shapes operations and activities. We also provide key operational data for each mill, covering environmental compliance with respect to waste, wastewater management and atmospheric emissions, details of each mill's energy mix and usage, and its use of fibre and other process raw materials.

Environmental legislation and compliance

APP believes achieving statutory compliance is the minimum standard for operations and that we must continually set higher goals for our operations. We strive to continuously improve our process efficiency and to reduce environmental impact of our mills' operations. We do this through a range of improvement programmes, co-ordinated through each mill's ISO 14001:2004 Environmental Management System (EMS) Objectives and Targets and through APP's Millennium Development Goals (MDGs). Typically, EMS / MDG goals at each mill will include minimising the use of natural resources, promoting the recycling of materials, reducing waste generation and wastewater and atmospheric emissions and optimising the use of energy and process water.

Indonesia has in place comprehensive, detailed and evolving environmental legislation and all eight APP mills are subject to statutory environmental impact assessment, process authorisation and environmental monitoring obligations. After many government functions were devolved in the early 2000's, the administration of these regulations is generally handled at the provincial or regency (Kabupaten) level, under supervision by the national Ministry of Environment (Kementrian Lingkungan Hidup / KLH). Local administrations have the authority to impose stricter environmental standards than those set nationally, so that APP mills may be required to work to differing emissions standards.

The most significant legislation affecting APP are the AMDAL (Environmental Impact Analysis) Regulations. These require the preparation of an ANDAL (Impact Assessment), an RKL (Management Plan) and an RPL (Monitoring Plan), which must be submitted and approved before any large-scale business is granted permission to operate or expand.

BAPEDAL (the Indonesian Environmental Impact Monitoring Agency) has issued strict guidelines on AMDAL composition and reporting. In the spirit of "Sustainability," AMDAL Regulations set requirements for socio-economic and health-related monitoring in the vicinity of mills, in addition to operational and environmental management and monitoring.

Some key issues specified as management / monitoring obligations in the RKL / RPLs for one of our integrated pulp and paper mills include:

- Process and boiler emissions to the atmosphere
- Odour and other ambient air quality
- Effluent discharges and related river water quality
- Waste recycling, disposal and landfill management
- Process and ambient noise levels
- Any effluent-related and respiratory health issues arising in local communities
- Potential local income disparity and social division issues
- Any disruption of road traffic and river navigation linked to mill activities.

Many substantial Indonesian businesses whose establishment predated the introduction of AMDAL Regulations were operating under the less strict predecessor requirements, UKL-UPL Environmental Management and Monitoring Plans. Authorities permit some APP businesses, such as Pindo Deli, to remain within the original regulatory framework, which has less onerous monitoring and reporting obligations. The authorization permitted because these businesses were not considered to represent any significant environmental risk.

All APP mills undergo an annual environmental performance review by KLH under the PROPER initiative, the Indonesian Programme for Pollution Control Evaluation and Rating. PROPER reflects a national objective of encouraging community interest and participation in environmental management issues, an important element of Indonesia's 1982 Environmental Law, and uses a five-colour scale to grade a company's environmental performance. All APP mills received either blue or green ratings in 2009, indicating satisfactory compliance with Indonesian environmental standards. The Ekamas Fortuna mill had received a red grading for 2008, due to an accumulation of boiler ash on-site, awaiting safe disposal, but its rating was upgraded in 2009 upon disposal. PROPER ratings for each mill are discussed in the respective sections of the report.

At APP we are keen that, as a fundamental part of working towards our goal of being the world's number one pulp and paper manufacturer, we benchmark our operational and environmental performance against those of our international competitors. To do this, we have made comparisons, where practicable, of our performance against the Environmental, Health and Safety Guidelines for Pulp and Paper Mills, published in December 2007 by the World Bank / International Finance Corporation (WB / IFC). We share those comparisons in the individual mill sections of this report.

Key Process inputs

We examine in more detail our two pulpwood suppliers, who provide the key raw material for our pulp mills, in chapter five. All APP pulp and pulpwood suppliers must meet the strict requirements of our procurement policy, which demand that both domestic and imported pulpwood and pulp raw materials are confirmed / certified from sustainably managed sources. APP's environmental credentials also include the adoption of, and compliance with, a number of national and international standards as detailed in the product labelling section of the report.

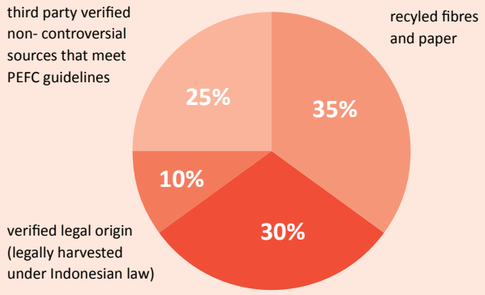
Pulping Raw Materials

Sustainably managed, plantation-grown acacia and eucalyptus pulpwood log account for more than 80 percent of our total pulping raw material. There is also a small (and diminishing) percentage of mixed wood residues arising from plantation preparation activities. We aim to be entirely supplied by forest certified wood under the mandatory certification scheme in 2015.

The predominant raw material used in manufacturing APP's high-quality printing, writing and tissue papers is bleached pulp. Our own short-fibre hardwood pulp, (Leaf Bleached Kraft Pulp / LBKP), produced at Indah Kiat Perawang and Lontar Papyrus mills, must be augmented with a limited percentage of purchased, imported long-fibre softwood kraft pulp (Needle Bleached Kraft Pulp / NBKP) when used on most of APP's paper machines. This is necessary to achieve enhanced sheet strength and to improve the "runnability" or smooth operation of our high-speed paper machines.

Recycling of fibre at APP's mills is done in several ways. Paper mills are able to re-pulp any substandard paper that results from machine operation or paper specification problems, and to incorporate it into the pulp raw material used in production. The concern for the mill here is not any loss of raw material, but the loss of operational efficiency that this material – always referred to as "broke" – represents. Two mills, Indah Kiat Serang and Ekamas Fortuna, purchase and recycle low-grade, post-consumer wastepaper to produce packaging papers.

Graphic 2 - APP Raw Material Composition



* Imported fiber

We also de-ink a small percentage of the repulped post-consumer waste to produce an upgraded pulp that can displace virgin wood pulp fibre in some paper grades.

The Energy Mix

Our two integrated pulp and paper operations, Lontar Papyrus and Indah Kiat Perawang, together generate about 4 million MWHr of electricity a year, in addition to all of their process steam requirements. Lontar Papyrus is essentially energy self-sufficient, while Indah Kiat Perawang does require some supplementary energy inputs. This high level of energy independence is largely due to the incineration of renewable, wood-derived, process-related by-products.

Much of this renewable fuel resource is in the form of "black liquor," which comprises dissolved organic matter generated in the pulping process, plus the associated and recycleable pulping chemicals. Incineration of this material as a concentrated liquor in our recovery boilers enables us to reclaim some pulping chemicals for reuse and simultaneously contributes most of the energy needed at both mills. Black liquor is augmented as a fuel in separate, multi-fuel boilers with bark and other wood waste resulting from on-site wood preparation, and with other purchased, waste-derived fuels, such as palm-oil mills and sawmill residues.

Indah Kiat Perawang mill converts a substantial percentage of the pulp it produces to paper on-site, and this requires some supplementary use of coal to meet that site's overall power and process steam needs. This coal-fired generation represents approximately 20 percent of total energy inputs.

To meet their energy requirements, APP's six paper mills rely to varying degrees on a range of fossil fuels, including coal, natural gas, diesel oil and marine fuel oil, and on both purchased and self-generated electricity. In the case of Pindo Deli mill, 70 percent of total steam and power requirement is generated using natural gas. At Indah Kiat Tangerang mill, waste heat from a sophisticated gas turbine power generation unit is used to augment coal-fired process steam. In addition, wastewater treatment plant sludge was also used at Indah Kiat in 2008 and 2009 as a source of renewable fuel.

We are currently in the planning and development stages of enabling all our paper mills to use wastewater treatment plant sludge to produce energy. The implementation will take place as soon as practicable.

[EN 5]

Chemical Inputs and Process Expertise

Most chemicals from the pulp cooking process can be recovered and reused, supplemented with a small amount of fresh chemicals to maintain the correct chemical conditions and concentrations for subsequent cooking cycles. Our key process-chemical inputs include salt, limestone and sodium sulphate, and these basic, un-reactive chemical compounds are converted on-site to the highly reactive chemicals needed for the cooking and bleaching processes. The relative remoteness of our two pulp mills in Sumatra means that virtually all pulping chemicals must be produced on-site. This has implications both in terms of energy requirements and sophisticated chemical engineering and maintenance. High-specification construction materials are needed for all the chemical processing and containment required.

In our paper mills, we use a range of additives to impart specific properties to our different papers. These include fillers, such as calcium carbonate for opacity and smoothness; sizes, which help manage ink penetration; starches, which provide stiffness, strength and surface properties; optical bleaching agents, used to enhance whiteness and brightness, and dyestuffs, which are used for both pastel tints and highly-coloured grades. Other additives are used to enhance paper machine operational performance, improve machine drainage and maintain system cleanliness.

Our Tjiwi Kimia and Pindo Deli mills have a particular expertise in the coating of papers with finely ground mineral matter to produce paper surface properties suitable for a wide range of high-quality printing techniques and finishes.

Indah Kiat Serang and Ekamas Fortuna mills specialise in the production of packaging papers using, predominantly, lower-grade, post-consumer wastepaper as their raw material. And there is now a general move towards recycling at other APP fine-paper sites through the incorporation of some higher grades of wastepaper in response to market demands for recycled-content products.

Any sub-standard or rejected product within paper mills (broke) – is recycled internally, ensuring the material is not lost from the system or wasted. Some pulping-process-related chemicals, surplus to on-site requirements – particularly hydrochloric acid (HCl) – are marketed externally. And two of our paper mills in Java, which are close to major urban population centres, produce chlorine on-site for sale to local municipal water purification systems and industrial companies. The sodium hydroxide co-product is sold within APP to our two pulp mills for use in production.

External sale of chemicals increased by some 6 percent in value and tonnage in 2009, in comparison to 2008, but this represents less than 2 percent of total APP sales revenue.

In recent decades, there have been growing international concerns about traces of dioxins found in wastewater discharges from pulp mills. This has been tentatively linked to excessive use of elemental chlorine for pulp bleaching, and has led, over time, to a marked reduction in chlorine usage world-wide, and the introduction of elemental-chlorine-free (ECF) bleaching, usually in conjunction with alkaline / oxygen (A/O) and/or peroxide (H_2O_2) bleaching stages. ECF bleaching uses a diluted solution of chlorine dioxide gas – generated on-site in a sequence of electro-chemical and chemical reactions – rather than gaseous chlorine.

Elemental Chlorine Free (ECF) bleaching was introduced to APP pulp mills starting 1996 and have markedly increased their CF bleaching ever since.

Water Management

APP's mills are typical of pulp and paper manufacturing operations in using substantial quantities of water. Indeed, pulp and paper mills worldwide are invariably located adjacent to substantial watercourses. About 85 percent to 90 percent of the water used in both integrated and stand-alone paper mills is for process purposes with some 10 percent to 15 percent used to produce steam, and for cooling associated

with power generation. In aggregate, APP mills drew 262 million m^3 of raw water in 2009, an increase of 12 percent over the previous year. Meanwhile, water discharged directly back into rivers after wastewater treatment rose by 14 percent, to an aggregate of 190 million m^3. The differential between raw water withdrawn from rivers and wastewater discharged is accounted for both by evaporation and by the amount of uncontaminated water used only for cooling purposes, which by-passes our wastewater treatment plants.

All of our mills are legally required to monitor the composition of their wastewater discharges, with respect to the biological oxygen demand (BOD), chemical oxygen demand (COD), suspended solids and pH values. We must also monitor river water quality upstream and downstream of our plants. Frequently, both the upstream and downstream waters are found to be outside national river water quality standards. This can be due to agricultural or industrial activities upstream of our operations, and requires us to operate extensive raw water treatment plants, to ensure the purity of our process water.

Water consumption per tonne across all of our paper mill operations increased from an average of 9.1 m^3/tonne of production in 2008 to 9.9 m^3/tonne in 2009.

Water usage and wastewater discharge considerations are further discussed in the individual mill sections of this report.

[EN 10, PR 3, PR 4]

Air Emissions

Indonesian national and/or regional regulatory bodies require APP mill operations to regularly monitor atmospheric emissions. Because of the chemicals used in their operations, our pulp mills deal with more strict parameters, including particulates, sodium oxide (SO_x), nitrogen oxide (NO_x), opacity, chlorine gas (Cl_2), chlorine dioxide (ClO_2) and hydrochloric acid (HCl). In addition, our paper mills are required to monitor combustion-related atmospheric emissions.

We also have obligations to monitor ambient air quality in specified locations surrounding our operations, against Indonesian regulatory standards. The key parameters monitored are sodium oxide (SO_x) , nitrogen oxide (NO_x), particulates, carbon monoxide (CO) and ambient noise levels. All APP mill operations are in full compliance with applicable national and/or regional ambient air quality standards.

Waste Management

Many "wastes" in APP's pulp and paper mills can correctly be considered co-products or by-products since they are integral to production, and are reabsorbed in the process or have an external commercial value. In this respect, bark and wood waste incineration is integral to the thermal balance of a pulp mill, "black liquor" is similarly important as an energy and chemical resource and sub-standard paper (broke) is repulped on-site, or sold for use in lower grades of paper.

The main forms of waste requiring disposal from APP operations are boiler ash and sand from power generation, lime mud and dregs-and-grits from pulp mill chemical recovery operations, screening rejects from both pulp and paper manufacture (particularly significant in wastepaper-based mills), and wastewater treatment plant sludge. As in most countries, there is increasing pressure in Indonesia to move away from landfill disposal of residual wastes. In 2008 and 2009, all of APP's mills have continued to pursue innovative ways to eliminate or minimise landfill disposal.

These include the use of biomass boiler ash as a fertiliser in forestry operations nearby both Lontar Papyrus and Indah Kiat Perawang; the use of boiler residues, also from Lontar Papyrus and Indah Kiat Perawang for soil pH correction in forest road consolidation, and in cement manufacture; on-site incineration of wastepaper screening rejects at Indah Kiat Serang, and composting trials with wastewater treatment plant sludges at several mills.

In 2008 / 2009, Indah Kiat Serang mill piloted the use of methane captured from the anaerobic digestion of its wastewater treament sludge to generate electricity – a programme now to be expanded to other mills. Design work was in hand during 2009 for a plant to similarly digest all of the effluent sludge arising from the Ekamas Fortuna mill.

Some wastes generated on our sites are designated as hazardous (B3) wastes and must be handled, labelled, stored and disposed of in accordance with specific Indonesian government regulations. APP recorded no significant spills, leaks or other incidents with such wastes during 2008 and 2009.

Overall APP expenditure on waste handling declined from US$17.5 million in 2008 to US$13.6 million in 2009, primarily due to a reduction in spending at Perawang mill. Here, a reduction of 67 percent in liquid non-hazardous waste, 62 percent in liquid hazardous (B3) waste and 50 percent in solid non-hazardous waste was achieved through increased use of boiler ash as a forest fertiliser and the increased incineration of other wastes as alternative liquid and solid fuels.

While APP does not reclaim all its packaging materials, we purchased more than 1 million tonnes of waste paper from all over the world to feed its recycled paper mills in East and West Java.

Mill Improvement Programmes

A wide range of environmental improvement programmes were implemented and/or continued during 2008 / 2009 across all of our mills, details of which are given in the reports on individual mills. By way of examples, an investment of US$3.3 million has been made in water treatment technology at Indah Kiat Perawang to reduce COD levels from evaporator condensate. Indah Kiat Serang has responded to meet newly-imposed, tighter local air emissions standards, and all mills operate programmes to reduce waste levels and increase the rate of water and pulp recovery.

In 2008 APP mills began identifying potential clean development mechanism (CDM) projects for their operations. CDM is a programme developed by the United Nations Framework for Climate Change Convention (UNFCCC). Its objective is to assist developing countries in achieving sustainable development, while reducing green house gas (GHG) emissions. Twenty-eight projects were identified across APP's operations during 2008 and 2009 as potentially eligible for implementation, with a potential aggregated GHG reduction of more than 1 million tonnes of CO_2.

We began developing the project design documents (PDDs) required by UNFCCC for four potential CDM projects during 2008 and 2009. Projects planned at Indah Kiat Serang and Ekamas Fortuna mills are for methane recovery from the anaerobic digestion of waste water. Indah Kiat Serang's PDD was endorsed by an independent verifier appointed by the UNFCCC in late 2008, and has since been uploaded onto the UNFCCC website. In Indah Kiat Perawang, a project is planned to substitute fossil fuel to biomass for thermal energy and/or power generation. This is done by retrofitting existing boilers for biomass use beyond historical levels and establishing a reliable biomass supply chain with choices of biomass from: a) debarking at site; b) palm oil empty fruit bunches; c) crushed palm shell; d) tree stump from peat land; e) waste wood debrize; f) utilization of waste from landfill; g) other new sources. This project is now submitted for consideration in UNFCCC.

Indah Kiat Pulp & Paper Perawang Mill

Overview and Background

Indah Kiat Perawang Mill is an integrated pulp and paper mill located on a 2,400-hectare site in Riau Province, Sumatra. It was originally authorised in 1976 and started up in 1984 in a relatively isolated and heavily-logged, degraded forest area adjacent to the River Siak, as a small, 205-tonne/day market pulp mill. The area was then very sparsely populated, with the few local inhabitants engaged in subsistence agriculture.

The mill's location was determined by two principal factors: The large, navigable Siak River provided process water and raw material and product transport, and the adjacent, extensive, state-owned degraded forest areas, then being designated and awarded by the Indonesian Ministry of Forestry as concessions for the establishment of plantation forestry, which offered the prospect of a uniform pulpwood supply. APP acquired the mill from its developers in 1987 and progressive expansion has seen it grow to encompass four pulp production lines – two with batch and two with continuous digesters – with a combined nominal annual capacity of 2.4 million AD (air-dry) tonnes of pulp per annum. Approximately 40% of pulp production is consumed by Indah Kiat paper machines, but the majority is sold, predominantly as AD pulp, to other APP mill.

The paper mill operates six paper machines with a combined annual production capacity of more than 600,000 tonnes. It produces wood-free printing, writing and copier papers, and on-machine coated products that are predominantly exported. New brands of wood-free paper (Forza, Andalas) and photocopy paper (Hybrite) were launched during the period covered by this report.

Indah Kiat mill is powered by three co-generation power plants. The pulp mill has an efficient chemical recovery system and all wastewater generated in both the pulp and paper operations is processed at four treatment plants. Elemental chlorine free bleaching was introduced in 1996 and continuing until now, essentially eliminating dioxins in the mill's wastewater.

Some 65 percent of pulpwood logs are received by barge, and 90 percent of other raw materials and pulp and paper products are also shipped using large seagoing barges on the Siak River.

The mill has remarkable employment stability, given the difficult economic conditions.

Table 8 - Employment

	2008	2009
Direct employees	8,731	8,687
Indirect employees	18,904	10,826

Current population in the nine villages in districts immediately adjacent to the site, and on the Indah Kiat Perawang residential complex now exceeds 90,000, virtually all of whom depend – directly or indirectly – on the company for their livelihoods. We take very seriously our responsibility for the well-being of this large population.

Statutory Obligations: Environmental Permits and Compliance Reporting [EN28]

Indah Kiat Perawang's operations are governed by AMDAL / RKL / RPL documentation approved in 1995 by the Riau provincial office of the Ministry of Environment (Kementrian Lingkungan Hidup / KLH), including its authorisation to operate, its environmental and social management and its monitoring and reporting obligations.

Work was in progress in 2009 on the preparation of a new AMDAL document for the site. Authorisation is being sought to increase capacity of units eight and nine of the pulp mill to produce an additional 1.01M AD tonnes to 2.83M AD tonnes/year, plus the installation of necessary utilities upgrades to support such an expansion.

Statutory monitoring data specified in the RPL is submitted to KLH and other provincial and regional authorities quarterly. The mill retained a "blue" ranking under the PROPER appraisal scheme operated by the Indonesian Government for both 2008 and 2009.

The mill had its certification under the ISO 14001:2004 Environmental Management System (EMS) Standard renewed in 2009 and is valid until 2012.

Table 9 - Aggregated Mill Production

(ADT)	2008	2009
Pulp	2,100,040	1,983,507
Paper*	589,953	607,666
Chemical (tonnes)	510,150	444,568

* Raw material inputs for paper production includes 444,224 tonnes (2008) and 455,792 tonnes (2009) of pulp produced on-site, which is discounted in arriving at an aggregate product- sales tonnage for the respective years

Pulp Production

Pulp Mill Raw Material Inputs

Pulpwood

Pulpwood supply to Indah Kiat Perawang is co-ordinated predominantly by PT Arara Abadi, acting as an exclusive supplier under the management of Sinarmas Forestry. There were some changes in the mix of pulpwood supplies between 2008 and 2009, due to changes in the harvesting rotation schedule, as indicated in the table below. However, all wood was confirmed as coming from legitimate sources under one or more of the protocols described in the earlier "Raw Material Credentials" section of this report. The overall amount of pulpwood purchased increased by 2.5 percent in 2009, to 8,028,046 green tonnes (GT), although pulp production decreased by 5 percent. This was due to a low pulp yield being achieved because an increased percentage of mixed wood residues were processed that year.

Table 10 - Pulpwood supply

(GT)	2008	2009
Non-controversial (NCONT) Plantation Wood	–	5,176,317
Verified Legal Origin (VLO) Plantation Wood	8,230,304	865,787
LEI certified Plantation Wood	–	486,340
MWR* (VLO)	251,751	1,521,029

* Mixed Wood Residues

Pulp Mill Chemical Inputs

The pulp mill part of Indah Kiat Perawang's operations generates and recycles the vast majority of its process chemicals in a sequence of interconnected chemical plants. However a certain percentage of the basic inorganic chemical raw materials needed to generate the caustic soda, chlorine, sodium chlorate, chlorine dioxide, hydrochloric acid and calcium oxide must be replenished. Basic pulp mill chemical raw material purchases of sodium cloride (NaCl), Sodium Sulphate (Na_2SO_4) and Calcium Carbonate ($CaCO_3$) were made in 2008 and 2009.

Certain other bleaching chemicals, including oxygen and hydrogen peroxide are required to achieve optimum pulp brightness. Oxygen requirements were generated on-site and the corresponding production of liquid nitrogen was sold.

Chemical Production

Due to the remote location of the Indah Kiat mill, it is more cost effective to manufacture some of the chemicals for production in-house. The chemicals produced on-site include HCl, Oxygen (in gas and liquid form), and Caustic Soda. Indah Kiat Perawang produced 510,150 tonnes and 444,568 tonnes of chemicals in total in 2008 and 2009.

Some chemicals, particularly hydrochloric acid (HCl), are produced in quantities in excess of mill requirements. There is a need to find outlets for chlorine, surplus to requirements since the advent of ECF bleaching, and a steady demand for food-grade HCl produced from it is a useful disposal pathway.

Our other major (cooking) process chemicals – a blend of sodium hydroxide and sodium sulphide – are not produced as discrete chemical entities, but cycle continuously through our chemical recovery systems.

[EN 1]

Paper Production

Raw Material Inputs

Purchased Pulp

Around 20 percent of the pulp produced in the mill is used to produce paper on-site. The remaining fibre required for paper production, the long fibres (NBKP), is purchased from the market. During the reporting year, total pulp purchases increased by 9 percent from 37,976 AD tonnes in 2008 to 41,226 AD tonnes in 2009. The amount of PEFC or equivalent certified pulp purchased increased almost 300 percent from 2008 to 2009, while the rest was obtained from verified producers. Our goal to increase the amount of certified pulp that we purchase. The complete breakdown of the types and amounts of pulp purchased is shown in the table below.

Substandard paper production or "broke" is routinely recycled into the fibre used in our papers. The amount of mill broke used in 2009 at Indah Kiat Perawang mill decreased by some 10 percent, from 30,510 AD tonnes to 27,606 AD tonnes.

Other Paper Mill Inputs

These are predominantly fillers and starches. Use of non-fibre fillers in papermaking imparts specific properties, such as brightness and opacity, and reduces the amount of virgin fibre required. Starch plays an important role in enhancing sheet strength and surface properties.

There were no significant alterations to non-fibre inputs to our papers between 2008 and 2009. There was an increase of 1.4 percent of calcium carbonate fillers used in 2009, to 143,215 tonnes, from 141,287 tonnes in 2008, when the amount of paper produced over the same period of time increased by 3 percent. Starch usage fell slightly from 28,287 tonnes in 2008 to 27,305 tonnes in 2009.

Energy

Indah Kiat Perawang is able to generate most of its needed energy: 70 percent in 2008 and 66 percent in 2009 from process-generated by-products recycled as renewable fuels. These include primarily black liquor generated from the pulp production process and bark and screenings from the pulpwood raw material. Purchased renewable fuels accounted for between 2 percent and 3 percent of the mill's energy inputs in these years.

Non-renewable fuels, mainly comprising coal, contributed 24 percent and 30.5 percent of energy inputs, respectively, in 2008 and 2009, with diesel oil and marine / heavy fuel oils for start-up and stand-by use accounting for just over 2 percent.

Installation of a new multi-fuel boiler and gas turbine facilities in 2008 provides Indah Kiat Perawang with a greater capacity to burn non-fossil fuels, and we are committed to finding additional sources of renewable fuels, such as palm bunch residues from palm oil production facilities in Riau area.

Table 11 - Raw material inputs - Purchased pulp

(ADT)	2008		2009	
	LBKP	NBKP	LBKP	NBKP
Local Certified (LEI)	–	–	–	–
Local Non-controversial (NCONT)		–	455,792	–
Local Legal Origin Verified (LOV)	444,224	–		–
Import Certified (PEFC / FSC)	–	6,150	–	23,347
Import Verified (NCONT / CW)		31,826	–	17,879
Total	**444,224**	**37,976**	**455,792**	**41,226**

[EN 1, EN 3, EN 4]

Table 12 - Fuel Sources

	2008		2009	
	(GJ)	%	(GJ)	%
Renewable Sources	72,939,518	69.8	71,793,190	66.1
Non-Renewable Sources	31,578,241	30.2	36,824,888	33.9
Total	**104,517,759**	**100.0**	**108,618,078**	**100.0**

Overall energy efficiency at Indah Kiat Perawang declined in 2008 and 2009, in comparison with the preceding year. One reason for this was that several new, large paper machines operated at 20 percent or more under capacity during the economic downturn of 2008 / 2009. And the installation and commissioning of an additional power plant in 2008 / 2009 meant that efficiency of the other power generation units was compromised to some extent, during the integration phase.

The new power generation installations increased on-site electricity generation by 6.7 percent, from 2,975,915 MWh in 2008 to 3,175,349 MWh in 2009. Comparison of electricity consumption per tonne of product produced to IFC World Bank Guideline proved to be difficult because the mill produces electricity, pulp, paper and chemicals on-site.

For both years there was a surplus of electrical energy generated over and above mill requirements, hence none was purchased from PLN – the state electricity company. The small surplus available of about 7,000 MWh, produced in both 2008 and 2009, was used for community use.

Water

Indah Kiat Perawang is APP's largest mill, and it uses substantially more water than our other units. Water is sourced from the adjacent Siak river. Our water use increased by 18% in 2009, as compared to 2008, from 124.5M m^3 to 146.2M m^3. Notwithstanding the increased water drawn from the Siak river, our discharges of treated wastewater back to the river fell from 90.8M m^3 in 2008 to 87.2M m^3 in 2009. This apparent anomaly of increased abstraction but reduced discharge can probably be explained by the commissioning of new machinery in 2009, in conjunction with uncontaminated water used for power generation cooling purposes now by-passing the wastewater treatment plant.

Two new boilers installed in 2008 formed as part of our mill upgrading and equipment replacement plan have resulted in a 2 per cent reduction in water usage associated with steam losses. Approximately 42.02 m^3 of water was used to produce a tonne of pulp and paper products in 2008 and this figure increased to 50 m^3 in 2009. This figure is well within IFC World Bank Guideline for water consumption for paper products.

Heavy metal content from discharged wastewater measured at Indah Kiat Perawang mill since 2008 has been below the threshold set in the provincial standard during the reporting period. Other water quality parameters are also in compliance with local regulatory standards.

Water Quality: Effluent Discharged

While complying with Indonesian and local wastewater discharge standards, we were somewhat over the World Bank / IFC Guidelines for total suspended solids and BOD_5 discharges. We expect that a new wastewater treatment plant being installed in 2010 will bring us closer to the World Bank / IFC goals.

Table 13 - Water Quality: Effluent discharged

Key Parameters	2008	2009	Local Standard	2008	2009	WB / IFC Standard
			(mg/l, except pH)			(kg/ADT, except pH)
BOD_5	84.33	66.40	100	3.39	2.66	1
COD	302.17	283.80	350	12.15	11.52	20
TSS	79.22	77.16	100	3.28	3.13	1.5
AOX*	6.56	10.97	–			0.25
pH	7.12	6.99	6 – 9			6 – 9

* AOX is not required to be monitored by local regulation therefore no local standard provided

[EN 8, EN 21]

River water quality sampling is undertaken upstream from our raw water intake and downstream of our discharge point. As such it takes into account the impact of other users as well as domestic waste from nearby communities. In 2008 and 2009 our monitoring recorded several parameters that exceeded local regulatory standards, some of which we believe were influenced by third party activities, upstream. These were sulphide, copper (2009 only), BOD, COD (2008 only) and, also, dissolved oxygen (DO) levels. [EN 9]

Emissions to Atmosphere

Stack air quality monitoring

The mill's statutory obligations, as defined its AMDAL / RPL / RKL authorisations, identify 51 point source locations within the plant which must be either continuously (5 locations) or periodically (46 locations) monitored and the data reported.

Indah Kiat Perawang mill's monitoring data indicates, as summarised in the table above, that atmospheric emissions from its processes did not exceed statutory limits in either 2008 or 2009.

Due to the complexity of the interlinked power generation to various pulp making facilities, it is impossible to compare the air emission to World Bank standards.

Ambient Air Quality Monitoring

We complied with all air quality monitoring requirements specified in our RPL, in both 2008 and 2009, and found fully satisfactory air quality in the vicinity of our mill. Ambient air quality within our site was similarly monitored and found to be fully satisfactory.

Ozone Depleting Substances

Indah Kiat Perawang monitored its consumption of ozone depleting substances (ODS) and undertook independent tests to ensure its pulp and paper products do not contain ODS substances. The first lab test was done by Société Générale de Surveillance (SGS) in 2006. Another test was planned for 2010.

Table 14 - Stack air quality monitoring*

Parameter (mg/m^3)	2008	2009	Local Standard
SO_2	49 – 96	20 – 187	<800
NO_2	8 – 118	43 – 112	<1,000
H_2S	1 – 6	1 – 5	<10
Particulate	30 – 195	13 – 141	<230

* Due to the complexity of the interlinked power generation to various pulp making facilities, it is impossible to compare the air emission to World Bank standards.

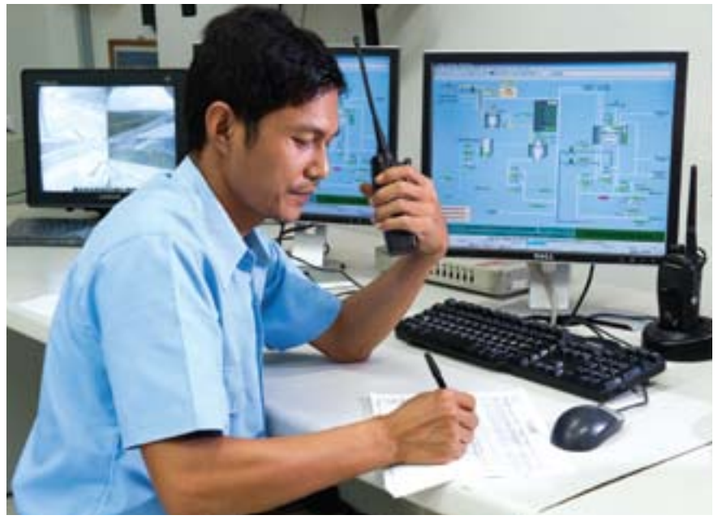
During 2008 and 2009, Indah Kiat Perawang freon consumption was 544 kg and 643 kg, respectively. The mill has reduced its ODS substances consumption by recycling freon and minimizing leaks in refrigeration systems.

Waste Management

Solid waste is managed according to the 3R system – reduce, reuse, recycle – and is divided into hazardous and non-hazardous categories, each processed accordingly. Incineration of all bark and wood waste – considered more as by-products than wastes – is critical to our mill's central energy balance.

We have worked for many years to secure useful outlets for all other wastes arising from our operations. Our range of solid wastes, and their reuse and/or disposal pathways explain below.

We are proud that we reduced our total waste disposed in landfills to about 35,000 tonnes in 2009, and seek new ways to achieve further reductions. Many wastes listed above would be considered hazardous waste if licensed, beneficial outlets for them could not be found.



[EN 9, EN 19, EN 20, EN 22, EN 23]

Hazardous Waste

Solid hazardous waste decreased markedly in 2009, as additional useful outlets were found for many of the materials. Oil-based liquid hazardous wastes can now be routinely disposed of by incineration on-site, resulting in a 67 percent reduction in the quantity of these materials in 2009, which would otherwise require licensed off-site disposal.

Our range of solid hazardous wastes, and their reuse and/or disposal pathways are indicated below.

No significant spillages of either hazardous or non-hazardous waste were recorded at either Indah Kiat Perawang mill during 2008 or 2009.

Environmental Expenditures

Ongoing investment in environmental programs supports our pursuit of continual improvement in the operation and maintenance. Environmental expenditures decreased from 2008 to 2009, from US$7.7 million to US$3.7 million, thanks to the elimination of aluminium sulfate usage in a newly installed wastewater treatment plant.

Plant Efficiency and Plant Improvement Programmes

Improvement programmes for the period 2008 / 2009 included new air flotation systems to enhance the backwater and pulp recovery and new projects to reduce water, steam, power and chemical consumption. Additional efforts are being made on waste minimisation projects and increased utilisation – rather than disposal – of waste streams.

Table 15 - Solid hazardous waste

(tonnes)	2008	2009	Re-use and/or disposal pathways
WWTP sludges*	34,957	33,956	Processed into trial composting or firing in boilers
Biomass boiler ash	73, 139	49,226	Used as forest fertiliser and for peat-land pH correction
Coal fly ash	122,313	164,459	Cement manufacture, road sub-base, trial project as forest fertiliser and for peat-land pH correction
Boiler sand & bottom ash	69,458	70,458	Used for ground and road consolidation in forests
Dregs & Grits	92,134	32,257	Used as trial project as peat-land pH correction
Knots & reject pulp	84, 448	7,041	Sold as low-grade fibre, and composting or incinerating in boilers

* dry base

[EN 6, EN 26, EN 30]

Lontar Papyrus Pulp & Paper Industry

Overview and Background

Lontar Papyrus mill was developed in 1994 on a remote and heavily-logged site adjacent to the navigable Tungkal / Pengabuan river system in Jambi Province, Sumatra, some 137 km from Jambi City. It has a single-line production facility with a nominal capacity of 650,000 tonnes per year of bleached hardwood kraft pulp (LBKP). A substantial village settlement – Tebing Tinggi – has grown up adjacent to the mill, drawn by the direct and indirect employment opportunities created by the mill and the associated pulpwood supply and haulage companies. The overall population in the vicinity of Tebing Tinggi – including mill employees and their families – is now about 1,403,000.

Table 16 - Employment

	2008	2009
Direct employees	2,298	2,323
Indirect employees	1,399	1,211

There has also been substantial development of palm oil plantations in the same area. In 1997, a substantial part of the dry land areas of the original pulpwood plantation concession awarded to PT Wirakarya Sakti, Lontar Papyrus' exclusive pulpwood supplier, were reassigned by the Ministry of Forestry to other concession holders for palm oil production. The land awarded in substitution contains peat swamp, which meant substantial changes to the pulpwood supplier's operations, including the tree species being planted and the environmental management practices needed to ensure minimal disturbance of this more fragile habitat.

The mill site extends to 1,150 hectares and contains three co-generation power plants (two chemical recovery boilers and one multi-fuel boiler that predominantly burns wood-waste), raw water and wastewater treatment plants and extensive chemical manufacturing and recovery facilities. Process chemicals manufactured on-site include chlorine, caustic soda, sodium chlorate, hydrochloric acid and chlorine dioxide, an elemental chlorine free (ECF) bleaching agent.

Lontar Papyrus introduced ECF bleaching in 2005. The ECF process essentially eliminates dioxin in pulp mill wastewater, a notable accomplishment in pollution prevention.

Some 4 percent of the mill's pulp production is converted to tissue products on-site by a single paper machine and converting facility installed in 1998. The majority of pulp produced is sold to other APP mills in Sumatra and on the world market. Chemicals produced in excess of the pulp mill's needs, particularly hydrochloric acid, are also sold on the open market.

Statutory Obligations: Environmental Permits and Compliance Reporting

Lontar Papyrus' operations are authorised by, and its environmental and social management, monitoring and reporting obligations are defined in AMDAL / RKL / RPL documentation submissions. These were initially approved in February 1995, with subsequent new facilities and expansions endorsed in April 2002 by the Jambi provincial office of the Ministry of Environment (Kementrian Lingkungan Hidup / KLH). Statutory monitoring data specified in the RPL is submitted to KLH and other provincial and regional authorities semi-annually. No penalties were imposed on Lontar Papyrus mill for non-compliance with environmental laws and regulations in either 2008 and 2009.

The mill retained a "Blue" ranking under the PROPER appraisal scheme operated by the Indonesian government in both 2008 and 2009.

The mill had its certification under the ISO 14001:2004 Environmental Management System (EMS) Standard renewed in 2009 and remains valid until 2012.

[EN 28]

Production

The mill's pulp production was 648,241 AD tonnes in 2008, 736,385 AD tonnes in 2009. Tissue production was 39,473 AD tonnes in 2008, 41,328 AD tonnes in 2009. The mill also operates a small additional machine to produce second-quality-grade paper boards from reject or sub-standard pulp.

Raw Material Inputs – Pulpwood

All pulpwood supplied to Lontar Papyrus is co-ordinated by PT Wirakarya Sakti, acting as an exclusive pulpwood supplier under the management of Sinarmas Forestry. There were some changes in the mix of pulpwood supplies between 2008 and 2009. The amount of non-controversial (NCONT) wood increased by 9 percent from 2008 to 2009 and the consumption of verified legal origin wood decreased, replaced with pulpwood from LEI-certified plantations. APP is committed to increase the amount of SFM-certified (LEI) pulpwood used in its production process.

Raw Material Inputs – Chemicals Manufacture for Pulp Production

Pulp Mill Chemical Inputs

Lontar Papyrus' pulp mill generates and recycles the vast majority of its process chemical requirements in a sequence of interconnected chemical plants. However a certain percentage of the basic inorganic chemical raw materials needed to generate the caustic soda, chlorine, sodium chlorate, chlorine dioxide, hydrochloric acid and calcium oxide must be replenished.

Table 17 - Aggregated Mill Production

(ADT)	2008	2009
Pulp	648,241	736,385
Tissue	39,473	41,328
Chemical (tonnes)	424,221	509,674

Certain other bleaching chemicals, including oxygen and hydrogen peroxide are required to achieve optimum pulp brightness. Oxygen requirements were met with materials generated on-site and the corresponding production of liquid nitrogen was sold.

On-site Chemical Production Levels

In order to supply process chemical in a cost effective way, the mill produced the required process chemicals in-house. This include the production of hydrochloric acid (HCl), oxygen, and caustic soda. In total Lontar Papyrus produced 424,221 tonnes and 509,674 tonnes in 2008 and 2009.

Some chemicals, particularly HCl, are produced in quantities in excess of mill requirements. There is now a need to find outlets for excess chlorine, surplus to requirements since the advent of ECF bleaching, and a steady demand for food-grade HCl, produced from it, is a useful disposal pathway.

Our other major process chemicals, a blend of sodium hydroxide and sodium sulphide, are not produced as discrete chemical entities, but cycle continuously through our chemical recovery systems with make-up sodium sulphate being added, as required.

Purchased Pulp for Tissue Production

On-site tissue paper production utilises slush pulp pumped directly from the adjacent pulp mill. To maintain high running speeds and process efficiency, long-fibred softwood NBKP pulp, imported mainly from Canada and Chile, is also used. This typically comprises some 19 percent of the total pulp requirement. The quantities imported were 8,030 and 7,139 AD tonnes, respectively, for 2008 and 2009.

Table 18 - Pulpwood supply

(ADT)	2008	2009
Non-controversial (NCONT) Plantation Wood	925,474	1,008,115
Verified Legal Origin (VLO) Plantation Wood	743,321	171,480
LEI certified Plantation Wood	–	1,536,053
MWR* (VLO)	1,106,349	611,889

* Mixed Wood Residues

Table 19 - Raw material inputs - Purchased pulp

NBKP (ADT)	2008	2009
Import Certified (PEFC / FSC)	8,030	7,139
Import Verified (NCONT / CW)	33,958	36,499
Total	**41,988**	**43,638**

[EN1]

Energy

Black liquor recycled from the pulp digestion process was the largest single component of the mill's energy input, representing 56 percent in 2008 and 56 percent in 2009. Bark and wood waste together contributed a further 22 percent in 2008, 19 percent in 2009. These two renewable energy sources were augmented by coal usage, which increased to 21 percent of total energy requirements in 2009, up from 18 percent in 2008.

The slight increase in the mill's total thermal input in 2009, compared to 2008, reflected the growth in pulp and paper production volumes by some 14 percent. Efforts continue to source additional quantities of local renewable fuels for energy generation.

Energy generation & efficiency

There was no reliance on electricity supplied by PLN, the Indonesian national power company, in either 2008 or 2009, although an inter-connector is in place to allow the transfer of power in either direction, should circumstances require. Medium- and low-pressure steam is also drawn from the turbines for process heating and tissue drying purposes.

Electrical energy production on-site was 857,349 MWh in 2008, 968,009 MWh in 2009, the 13 percent increase being a direct consequence of increased pulp (and paper) production in 2009, compared to 2008. Our consumption of energy for production remained essentially flat, at approximately 1320 kWh/AD tonne in both years. This is somewhat higher than World Bank / IFC Guideline values for electrical energy consumption of 600 – 1200 kWh/AD tonne for bleached kraft pulp mills, but reflects the mill's isolated location and the need to produce virtually all of its own chemical requirements, on-site.

Water

Process water is drawn from the adjacent Pengabuan River. Raw water intake increased by 10 percent, from 36.9 million m^3 in 2008 to 40.6 million m^3 in 2009, broadly in line with production increases of 14 percent for pulp, 5 percent for paper and 20 percent for process chemicals. Approximately 12 percent of our process water is used for steam generation.

The usage rate, at 57 m^3 per AD tonne in 2008 and 55 m^3 per AD tonne in 2009, represents a generally satisfactory performance, when compared against World Bank / IFC Guideline values for bleached kraft pulp mills of 20 – 100 m^3 water consumption per AD tonne. However, values above 50 m^3 per AD tonne would typically include significant volumes of cooling water.

Waste Water Quantity and Quality

Lontar Papyrus saw an 11 percent increase to 37.7 million m^3 in the amount of water discharged from the mill from 2008 to 2009, indicating – when compared to the raw water intake – evaporative losses of about 10 percent and no significant unmonitored leakage.

The mill maintained its wastewater discharges within regulatory requirements during both 2008 and 2009.

Table 20 - Fuel Sources

	2008		2009	
	(GJ)	(%)	(GJ)	(%)
Renewable Sources	34,097,054	79.3	33,955,801	75.3
Non-Renewable Sources	8,877,458	20.7	11,129,293	24.7
Total	**42,974,512**	**100.0**	**45,085,094**	**100.0**

[EN3, EN4, EN8, EN21]

Table 21 - Water Quality: Effluent discharged

Key Parameters	2008	2009	Local Standard	2008	2009	WB / IFC Standard
			(mg/l, except pH)			(kg/ADT, except pH)
BOD	40.55	43.90	100	1.67	1.79	1
COD	245.07	252.70	300	10.28	10.22	20
TSS	49.79	58.40	100	2.13	2.39	1.5
AOX	5.25	5.18	–	0.22	0.21	0.25
pH	7.49	7.05	6 – 9			6 – 9

The site's wastewater discharge, at 52 m^3 per AD tonne in 2008 and 51 m^3 per AD tonne in 2009, represents a generally satisfactory performance, when compared against World Bank / IFC Guideline values for bleached kraft pulp mills of 50 m^3 of effluent discharged per AD tonne of pulp.

River Water Quality

Our river water quality monitoring programme, undertaken both upstream of our raw water intake and downstream of our discharge point in accordance with our RPL statutory monitoring obligations, did not detect any significant level of non-compliance with local regulatory standards, other than for high BOD values. The quality of water in the Pengabuan river is influenced by activities upstream from the Lontar Papyrus site, and BOD readings in excess of regulatory standards are generally encountered at the point where our raw water is drawn. This prevailing poor river water quality makes it all the more important that our wastewater does not contribute further to the existing pollution load.

Emissions to Atmosphere

Stack air quality monitoring

The mill's statutory obligations, as defined its AMDAL / RPL / RKL authorisations, identify 36 point source locations within the plant which must be periodically monitored and the data reported. All specified emission points are monitored monthly and the results submitted to KLH semi-annually.

Lontar Papyrus mill's monitoring data indicates, as reported in our 6-monthly RPL submissions, that atmospheric emissions from our processes did not exceed statutory limits in either 2008 or 2009. The mill did not exceed any of the limit values set by local regulatory standards for all emission points measured.

Ambient Air Quality Monitoring

Ambient air quality monitoring specified in our RPL was fully complied with in both 2008 and 2009, and indicated fully satisfactory air quality in the vicinity of our mill. Ambient air quality within our site was similarly monitored and found to be fully satisfactory.

Ozone Depleting Substances

Lontar Papyrus has monitored its ODS consumption since 1996, through its ISO14001:2004 Environmental Monitoring System, and is seeking ways to replace any freon refrigerants with more environmentally friendly ones.

The use of freon in the mill now is purely for re-charging existing air conditioning and chiller units in buildings and in the process operations. We aim to phase out the use of all freon on-site, by 2030. The annual consumption of freon was reduced by over 60 percent, from 5,973 kg in 2008 to 2,186 kg in 2009.

Table 22 - Recovery + Multi-fuel Boiler Stack Air Emissions – Aggregated Values

Key parameter	2008	2009	Local Standard	2008	2009	WB / IFC Standard
			(mg/m^3)			(kg/ADT)
SO_2	23 – 49	19 – 106	800	0.21	0.43	0.4
NO_2	73 – 95	42 – 82	1,000	0.34	0.38	1.5
TRS	0.011	0.063	–	0.01	0.06	0.2
Particulate	81 – 254	28 – 204	230 – 260	–	–	0.5
Opacity (%)	11	24	35	–	–	–

[EN 9, EN 19, EN 20]

Waste Management

Solid waste is managed according to the 3R system – reduce, reuse, recycle – and is divided into hazardous and non-hazardous categories, each processed as required. Incineration of all bark and wood waste – considered more by-products than wastes – is critical to our mill's overall energy balance.

The mill is fortunate to have licensed, engineered waste disposal areas for both hazardous (B3) and non-hazardous wastes within the confines of its large site, but recognises that minimizing waste is both the environmentally responsible and economically sensible way forward. We have worked for many years to secure useful outlets for many of the wastes arising from our operations. Our range of major solid process wastes, and their re-use and/or disposal pathways are indicated below.

Other minor quantities of hazardous waste include medical wastes, which are disposed of in the on-site B3 landfill, and used oil and scrap batteries, which are sold to a third party for recycling.

We are pleased that we managed to reduce our total landfill waste disposal in 2009, and seek new ways to achieve further reductions.

No significant spillages of either hazardous or non-hazardous waste were recorded at Lontar Papyrus mill during 2008 or 2009.

Environmental Expenditure

Lontar Papyrus mill's expenditures on environmental management issues were US$4,740,114 in 2008, and US$4,598,210 in 2009. Understandably, the major expenditures were on the maintenance and depreciation of equipment, waste management and disposal and site labour costs for environmental management.

Plant Efficiency and Plant Improvement Programmes

In addition to increasing our environmental expenditures, we have implemented a range of programmes to improve our processes and efficiency and to increase recycling and responsible waste management. These are co-ordinated through our ISO 14001:2004 certified Environmental Management System. Perhaps our most significant project in 2008 / 2009 was our effort to promote sustainable forestry management, and improved environmental and community development performance by our pulpwood suppliers.

Other developments included the increased use of wastewater treatment plant sludges for compost production, and of boiler fly ash as fertiliser in the peatland forests of our pulpwood supplier (WKS). We also introduced the use of boiler sand wastes for brick making.

Other projects implemented to secure improvements in process efficiency have sought to:

- Reduce steam losses by 30 percent in 2009.
- Reduce steam generation costs by minimising oil firing. A 23 percent reduction in fuel oil consumption was achieved in 2009.
- Optimize clean condensate return and warm water usage. A reduction in boiler water consumption of 13 percent was achieved in 2008, and 25 percent in 2009.

Table 23 - Solid waste

(tonnes)	2008	2009	Re-use and/or disposal pathways
WWTP sludges*	13,900	11,725	Used in composting and fertiliser for in-forest use
Boiler sand & bottom ash	4,172	20,153	Used for road construction
	27	263	For brick making
Screen rejects	15,962	5,882	Disposal to licensed on-site landfill
Boiler ash from coal firing	27,955	65,388	Disposal to licensed on-site B3 landfill
Boiler ash from wood-waste firing	79,419	72,518	Potentially a hazardous (B3) waste, but there is authorised use in peat-land forests as a fertiliser and component of compost. Any balance to licensed on-site B3 landfill
Dregs & Grits	98,344	89,046	Disposal to licensed on-site B3 landfill
Brine sediment wastes	335	273	Disposal to licensed on-site B3 landfill

* Dry base

[EN 6, EN 22, EN 23, EN 26, EN 30]

Indah Kiat Pulp & Paper Serang Mill

Overview and Background

The Indah Kiat Serang mill was established in 1990 on a 550-hectare site adjacent to the Ciujung River on the outskirts of the town of Serang, now in Banten Province, some 60 km west of Jakarta. The site was formerly used for subsistence agriculture. The area around the mill continues to be used that way, but with a much-expanded local population drawn to the area by employment opportunities at the Serang mill. Progressive expansion has seen the mill develop from the initial single paper machine that produced 300,000 tonnes/year to six machines with a total nominal installed capacity of 1.6M tonnes/year of packaging papers and converted cartons and boxes.

The mill was originally developed by PT Sinar Dunia Makmur. Ownership was transferred to PT Indah Kiat Pulp and Paper Tbk. in 1991.

Table 24 - Employment

	2008	2009
Direct employees	5,302	5,359
Indirect employees	1,449	1,184

The close proximity of five villages to the mill, in conjunction with the disparity in earnings between mill employees and those villagers not working for Indah Kiat Serang, has occasionally caused some low-level tensions with, and complaints from, the adjacent communities. The company agreed to re-locate one village away from its on-site waste disposal facility in 2009, and gave substantial compensation to the community for the disturbance.

Much effort is now being expended to promote a range of small business and craft employment opportunities in local communities, and on educational support to maximise opportunities for disadvantaged local students to progress to tertiary education and/or to employment at Indah Kiat Serang and elsewhere.

Statutory Obligations: Environmental Permits and Compliance Reporting

Indah Kiat Serang mill operates under an AMDAL / RKL / RPL authorisation, re-issued in 2008 by the Serang regency authorities to incorporate details of several new installations. The mill submits semi-annual data on environmental and operational performance, and on socio-economic obligations, to both regional and national environmental agencies.

The mill's environmental management system is externally certified against the ISO 14001:2004 EMS standard, with re-certification due in 2010. An important feature within the ISO 14001:2004 programme is the "Local Stakeholder Liaison and Communications" procedure. The mill retained a Blue minus ranking under the PROPER industrial appraisal scheme operated by KLH, the Indonesian Environment Ministry.

Paper and Board Production

The mill's six paper machines and associated converting plants had an aggregate output of 1,231,355 AD tonnes in 2008 and 1,255,337 AD tonnes in 2009. Indah Kiat Serang's principal products are linerboard, coated boxboard and corrugated cases. Linerboard and boxboard generally have a white, top virgin-pulp and/or coated surface, overlain on wastepaper-derived plies. Hence our fibre raw material requirements comprise a mixture of wastepaper and bleached hardwood and softwood pulps. Post-consumer, recycled wastepaper represents approximately 70 percent of Indah Kiat Serang's fibre resource. Around 80 percent of the mill's products are sold within Indonesia.

Table 25 - Aggregated Mill Production

(ADT)	2008	2009
Board	1,231,355	1,255,337

[EN 28]

Table 26 - Raw material inputs - Purchased pulp

(ADT)	2008		2009	
	LBKP	NBKP	LBKP	NBKP
Local Verified Legal Origin (VLO)	127,200	-	76,500	-
Import Certified (PEFC/FSC)	-	16,000	-	45,600
Import Verified (NCONT/CW)	-	93,100	50,800	-

Raw Material Inputs

Purchased Pulp

The total amount of pulp purchased at Indah Kiat Serang mill decreased 13 percent from 263,800 AD tonnes in 2008 to 223,600 AD tonnes in 2009. A reduction in overall usage of APP's own hardwood pulp in 2009 was partly offset by increased use of imported NBKP (bleached softwood) pulp, generally used to enhance the strength properties of the papers produced. The total breakdown of purchased pulp can be seen in the chart above.

Wastepaper Purchases

The 1990 establishment of the Indah Kiat Serang mill at Serang, relatively close to Jakarta, was largely dictated by the availability of post-consumer wastepaper from this large urban area. The rapid expansion of Indah Kiat Serang means that local supplies of wastepaper can no longer meet the mill's fibre demands. Some 60 percent of the mill's wastepaper requirement is now met using wastepaper imports, principally from the United States, Australia and Europe.

Aggregate post-consumer wastepaper usage was 1,024,593 AD tonnes in 2008 and 1,180,951 AD tonnes in 2009. The mill also undertook some de-inking of its post-consumer waste to produce approximately 35,000 AD tonnes of de-inked stock in both 2008 and 2009, to substitute for virgin fibre pulp. This represents more than 3 percent of total fibre usage.

Table 27 - Recycled material volumes

(ADT)	2008	2009
Waste Paper (Post/pre consumer)	1,024,593	1,180,951

Other Raw Material Inputs

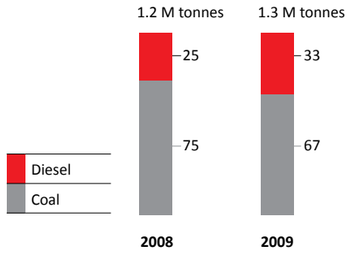
These are predominantly starches, calcium carbonate for surface coating and a range of process chemicals. Starch plays an important role, either when incorporated in the sheet or coated on its surface, in enhancing sheet strength and surface properties. Coating of, for example, box-board with calcium carbonate, can give a high whiteness surface with excellent printing properties. Other important process chemical components of our paper and boards are used to confer added strength, regulate water and ink penetration and act as system cleaners and drainage and retention aids in the production process.

A summary of all raw material inputs at Indah Kiat Serang can be seen in table 28.

Energy

Virtually all of the mill's steam and power requirements were generated on-site in four coal-fired co-generation units. Less than 1 percent of the mill's power supply was drawn from PLN, Indonesia's power company, and mainly for stand-by use. Around 30 percent of fuel consumed is diesel oil.

Graphic 3 - Fuel consumption (%)



Energy generation & efficiency

Indah Kiat Serang mill increased power generated on site by approximately 1 percent from 2008 to 2009, and the mill is virtually power self sufficient.

The production of paper at Indah Kiat Serang slightly increased in 2009, compared to 2008. At the same time, the amount of electrical energy required for the production process correspondingly increased. Electricity generated on-site in 2008 and 2009 was 1,024,000 MWh and 1,033,000 MWh, respectively.

Table 28 - Raw material inputs

(tonnes)	2008	2009
Wastepaper - Local	526,177	467,734
Wastepaper - Imported	498,417	713,216
Bleached H/W Kraft Pulp (LBKP)	247,800	185,000
Bleached S/W Kraft Pulp (NBKP)	16,000	45,600
Starch	50,971	50,114
Sizing & Dry Strength Agents	1,013.205	1,888
Alum	422.835	1594.83
Other Chemicals & Process Aids	26,699.83	33,649.52
Filler	107,005	94,144

[EN 1, EN 3, EN 4]

Electricity consumption per tonne of product was 831 kWh/AD tonne in 2008 and 824 kWh/AD tonne in 2009. Comparisons with IFC / World Bank standards are not possible since there are no specific standards for the amount of electricity consumed per AD tonne for recycled paper.

Water

Water Usage and Wastewater Discharge Quality

Annual water intake from the adjacent Ciujung River was essentially identical in 2008 and 2009, at 12.3M m^3. Raw water usage per tonne of product was 10.0 and 9.8 m^3/AD tonne of paper, respectively.

The mill operates three wastewater treatment plants, the latest of which was commissioned in 2008. The combined system, which consists of anaerobic followed by aerobic digestion stages, significantly improves the mill's wastewater quality, in comparison with our aerobic-digestion-only systems, and the methane gas generated is to be fired in our boilers so it can contribute to the mill's energy requirements. This installation was the first of APP's CDM projects. There was an approximately 8 per cent increase in the volume of wastewater discharged from Indah Kiat Serang mill between 2008 and 2009, from 10.3M m^3 to 11.1M m^3. The increased wastewater discharge reflects increased production of "white" grades, which require slightly more water usage. This translates into wastewater discharges of 8.4 m^3/AD tonne and 8.8 m^3/AD tonne, respectively, which compares favourably with World Bank / IFC Guidelines of 10 m^3/AD tonne for recycled mills without de-inking. The differential between raw water input and wastewater discharge volumes is mainly due to evaporative losses.

Local wastewater discharge standards were tightened in 2009, when the mill's third wastewater plant was brought on-stream.

The mean value of COD discharges (i.e. from all plants) was above the new limit, reflecting a need to improve the performance of the two older plants to match that of the new one. The mill's effluent discharges are still generally above the World Bank / IFC Guideline values for recycled fibre mills, without de-inking.

River Water Quality

The quality of river water downstream of Serang mill is influenced by other industrial and domestic discharges upstream of Indah Kiat Serang, evident in water quality monitoring readings being frequently in excess of regulatory standards at the point where raw water is drawn. However Indah Kiat Serang's wastewater discharge parameters are generally in compliance with relevant standards, as a result of the large wastewater treatment plant capacity, integral with our manufacturing processes.

Emissions to Atmosphere

Stack Emissions and Ambient Air Quality Monitoring

Local air-quality emission standards were revised during the period covered by this 2008 / 2009 report and is now stricter than Indonesian national standards. Mean values for air quality emissions monitoring are given below, and show that Indah Kiat Serang was still able to deliver full compliance with the new standards. The mill air emission were estimated to be close to zero kg/AD tonne throughout 2008-2009. Ambient air quality monitoring results also indicated that Indah Kiat Serang mill operations did not affect the air quality of the surrounding areas.

Ozone Depleting Substances

Indah Kiat Serang had taken measures in reducing their consumption of Ozon Depleting Substances and replace them with more environmentally friendly refrigerants. The table on this page shows the consumption of refrigerants that were included as ODS.

Waste Management

Non-hazardous Waste

Post-consumer waste generates significant quantities of rejects when re-pulped – typically 6 percent to 10 percent of the input weight – comprising plastics, envelope windows, staples, rags and other general debris. This pulper – and screening-rejects material, plus wire from bales of pulp and wastepaper, and rejects from the mill's de-inking plants, represents the major waste for disposal from Serang mill. Quantities of these solid non-hazardous wastes generated were 150,347 tonnes (140,103 tonnes of rejects and 10,244 tonnes of wire) in 2008

Table 29 - Wastewater Discharge Values

Key Parameters	2008	Local Standard	2009	Local Standard	2008	2009	WB / IFC Standard
				(mg/l) except ph			(kg/ADT) except pH
BOD	57.42	96	60.82	90 – 100	0.48	0.54	0.2
COD	221.58	250	204.87	175 – 300	1.85	1.80	4.0
TSS	56.75	92	67.57	80 – 100	0.47	0.59	0.3
pH	7.36	6 – 9	7.25	6 – 9			6 – 9

[EN 8, EN 9, EN 19, EN 20, EN 21]

Table 30 - Stack Air Emissions

Parameter	2008	2009	Local Standard (mg/m^3)
SO_2	14.99	19.20	250
NO_2	102.57	17.30	300
Particulate	12.34	28.89	50

Table 31 - Ozone Depleting Substances

(kg)	2008	2009
R-134 A	95	122
R-22	2,530	2,747
R-12	14	81

and 150,602 tonnes (137,896 tonnes of rejects and 12,706 tonnes of wire) in 2009.

Virtually all rejects are disposed of on-site in two rotary-kiln incinerators. Baling wire is sold for recycling. Some self-employment opportunities are being provided to local villagers, who segregate plastics and wire from the waste streams for on-site reprocessing into, for example, wire coat hangers, and for local craft use.

No significant quantities of liquid non-hazardous wastes requiring off-site disposal were generated during 2008 and 2009.

Hazardous Waste

The site's hazardous (B3) waste comprised of boiler fly ash and bottom ash, and WWTP sludge. There was an 11.6 percent increase in the amount of solid hazardous waste generated, from 104,303 tonnes in 2008 to 116,357 tonnes in 2009. No significant quantities of liquid B3 wastes requiring off-site disposal were generated in either year since all waste oils were incinerated on-site.

Boiler ash was sold to a licensed user for cement production, and used to improve the reactivity of the cement. Quantities were 34,200 tonnes in 2008 and 51,900 tonnes in 2009. Most of the Indah Kiat Serang WWTP sludge is disposed of on-site, in a licensed hazardous (B3) waste landfill. A small but increasing quantity – currently 3 percent – of separated, primary (biologically inactive) sludge is now being re-incorporated in some low-grade, packaging-medium papers. Total sludge quantities were 67,000 tonnes in 2008 and 61,500 tonnes in 2009.

No spills occurred in Indah Kiat Serang during 2008 and 2009.

Environmental Expenditures

Total expenditure on the treatment and disposal of waste at Indah Kiat Serang was US$5,532,000 in 2008 and US$5,590,000 in 2009. An additional US$58,200 in 2008 (US$51,100 in 2009) was spent on maintaining the external audit and certification of Serang's ISO 14001:2004 Environmental Management Systems, and the associated ISO 9001:2008 Quality Management Systems.

Plant Efficiency and Plant Improvement Programmes

A project to recover methane from anaerobic wastewater treatment for use as a fuel for the mill was successfully completed in 2009, and in the process of validation for eligibility for the sale of its carbon credits under the UNFCCC Clean Development Mechanism (CDM). This is the first CDM project for APP, and for the pulp and paper industry worldwide.

Other mill improvement programme highlights commencing or continuing in years 2008 / 2009 included:

- Reduced fibre consumption (of LBKP and low-grade pulp) by improving fibre recovery and upgrading equipment. The result is a 17 percent reduction in virgin pulp consumption on certain grades.
- Reduced energy consumption for production of liner and corrugating medium by upgrading equipment. The result is reduction of steam consumption by 10 percent and electricity consumption by 2 percent.
- Reduced fresh water consumption in stock preparation by 72 percent, by improving valve controls, recycling cooling water and adding alarms to alert overflows.
- Reduced overall site water consumption by recycling backwash water to the raw water treatment facility.
- Reduced moisture content of coal by building a coal yard roof. This has a projected energy savings of 3 percent to 5 percent.

Table 32 - Range of major solid process wastes

(tonnes)	2008	2009	Re-use and/or disposal pathways
Non-hazardous waste			
Wire	10,224	12,706	Sold to third party
Rejects	140,103	137,896	Disposal to on-site rotary kiln incinerators
Hazardous waste			
Sludge	67,000	61,500	Disposal through third party companies
Fly ash and bottom ash	34,200	51,900	Sold to cement plant

[EN6, EN22, EN23, EN26, EN30]

Indah Kiat Pulp & Paper Tangerang Mill

Overview and Background

This smaller mill is located in Banten Province in the city of Tangerang, some 30 km west of central Jakarta. The mill was established in 1978 as a joint venture between an Indonesian company and two Taiwanese companies. It operated two small paper machines on a 28-hectare site that had been a rubber plantation adjacent to the Cisadane River. Initial production was of general white writing and printing grade papers for the Indonesian market. When originally established, the mill was in a rural location, but westward expansion of Jakarta has surrounded it with substantial industrial and urban development.

Below is the mill employment in 2008 and 2009.

Table 33 - Employment

	2008	2009
Direct employees	1,144	1,109
Indirect employees	249	345

The evolution of the paper trade, both in Indonesia and world-wide, made the production on white printing and writing grade papers increasingly uneconomical on Indah Kiat Tangerang's relatively small paper machines. In addition, the constraints of the industrial / urban development make it difficult to expand or redevelop the site further. However, an increasing focus on the production of highly coloured papers has created a niche for the mill's machines.

The three paper machines now have an aggregate production capacity of around 100,000 tonnes of paper a year, produced using a mix of APP's own NBKP from the mills in Sumatra and imported LBKP.

Statutory Obligations: Environmental Permits and Compliance Reporting

Indah Kiat Tangerang mill operates under an AMDAL / RKL / RPL authorisation, re-issued in December 2006 by the Tangerang regency (Kabupaten) authorities to include the mill's new power generation and wastewater treatment plant improvements. Semi-annually, the mill submits data on environmental and operational performance, and socio-economic obligations to both regional and national environmental agencies.

The mill is certified under the ISO 14001:2004 EMS standard, with re-certification due in 2011. Indah Kiat Tangerang was, in fact, awarded the first ISO 14001 certificate in Indonesia, in 1996. The mill dropped from green to blue ranking under the PROPER appraisal scheme operated by KLH, the Indonesian Environment Ministry, on technical grounds.

Table 34 - Aggregated Mill Production

(ADT)	2008	2009
Paper	94,264	90,065

This related to the need for additional space to store chemicals. The need has subsequently been satisfactorily addressed.

Indah Kiat Tangerang mill was not required to pay any penalties for non-compliance with environmental laws and regulations in either 2008 and 2009.

Paper Production

Indah Kiat Tangerang's principal products include coloured printing, writing, and copier, computer and duplicator paper, sold as both rolls and sheets. Year-to-year production decreased some 5 percent, from 94,264 tonnes in 2008 to 90,065 tonnes in 2009. About 95 percent of Indah Kiat Tangerang's output is of coloured papers. Tangerang mill is one of the largest global producers of coloured grades.

Raw Material Inputs

Purchased Pulp

The total amount of pulp purchased at Indah Kiat Tangerang mill decreased from 2008 to 2009 by 3 percent, broadly in line with the decrease 5 percent in paper production over the same period.

[EN 1, EN 2, EN 28]

Table 35 - Raw material inputs

(ADT)	2008		2009	
	LBKP	NBKP	LBKP	NBKP
Local Non-controversial (NCONT)	–	–	13,023	–
Local Verified Legal Origin (VLO)	65,348	–	46,012	–
Import Certified (PEFC / FSC)	–	4,021	–	4,563
Import Verified (NCONT / CW)	873	–	4,418	–
Total	**66,221**	**4,021**	**63,453**	**4,563**

Recycled Materials

Mills making coloured grades of paper invariably have higher levels of "broke" than those producing only white grades, because of colour matching and grade change losses. The production of mill broke in the process rose from 9.29 percent in 2008 to 12.16 percent in 2009, while internal recycling of mill broke into paper production reduced from 15,938 AD tonnes to 12,579 AD tonnes, in 2008 and 2009, respectively. This is principally associated with smaller order sizes, linked to reduced overall production levels in 2009, plus off-site disposal of an accumulation of coloured broke, unsuitable for internal re-use.

Fillers

The filler predominantly used in our papers is ground calcium carbonate (GCC) obtained from grinding plants at one of APP's other mills near Jakarta. There was a 14 percent reduction in filler use in 2009, in comparison to 2008, from 24,260 tonnes to 20,911 tonnes, in line with the reduction in paper production.

Starch

Indah Kiat Tangerang mill uses tapioca starch to confer strength and surface properties to its paper. Consumption data for this was 11,318 tonnes in 2008 and 9,845 tonnes in 2009.

Other Chemicals and Process Aids

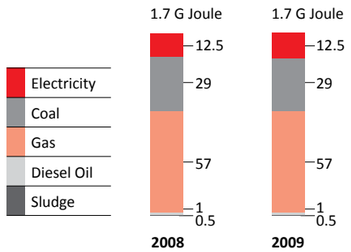
There was a slight decrease in the use of process optimisation chemicals such as drainage aids, and of those used in our wastewater treatment plant, amounting to 2,269 tonnes in 2008 and 2,382 tonnes in 2009. Smaller amounts of chemicals were used in waste water treatment, amounting to 315 tonnes and 319 tonnes in 2008 and 2009, respectively.

Energy

Sixty-five percent of the site's energy needs come from gas. Tangerang mill has a sophisticated gas turbine system for power generation, which exhausts into a waste heat boiler to produce additional steam. Introduction of the gas turbine unit in 1996 allows the mill's five diesel-engine powered generating units to be used now for standby purposes only. This has removed the the risk of noise and smoke nuisance to adjacent community. Thirty-three percent of the mill's energy requirements are met by coal, with minor inputs from diesel and marine fuel oil (for stand-by power generation) and with some incineration of wastewater treatment plant sludges in both 2008 and 2009.

An anaerobic digestion pilot plant operated at the wastewater treatment plant in both 2008 and 2009, seeking to to recover substantial amounts of methane from our effluent as a renewable fuel to augment the mill's energy balance.

Graphic 4 - Fuel consumption (%)



Energy generation & efficiency

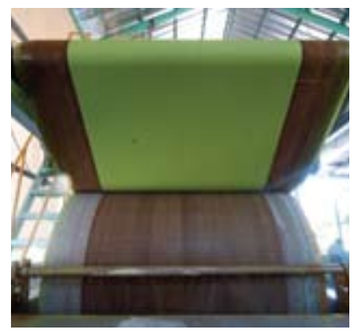
In 2009, Indah Kiat Tangerang increased power generated on-site by 10.5 percent, to 51,119 MWh, and reduced the amount of purchased electricity by 21 percent to 18,199 MWh.

Specific electrical energy consumption rose by some 4.6 percent, from 736 to 770 kWh/AD tonne, from 2008 to 2009. Mills producing coloured papers will generally have higher specific energy usage than those producing only white paper due to grade changes and wash-ups. These factors were compounded in 2009 by smaller production runs and more grade changes at Indah Kiat Tangerang in the tighter market conditions prevailing.

Water

Water Usage

Water withdrawal from the adjacent Cisadane River and transferred to production after initial water treatment remained essentially the same in 2008 and 2009. Usage per AD tonne of paper produced rose from 24.3 to 25.1 m^3/AD tonne over the



[EN 3, EN 4, EN 8, EN 21]

same period, both values are well within the World Bank / IFC "Paper Mill – Printing and Writing Paper" Guidelines of 5 to 40 m^3/AD tonne.

In terms of water quality, Indah Kiat Tangerang water discharges were consistently below the limits set by local standards. There were no cases where these water quality limits were exceeded during the 2008 to 2009 monitoring period.

Water Quality: Effluent Discharged

The metered volume of effluent discharged was 1.85M m^3 in 2008 and 2.07M m^3 in 2009, respectively, broadly in line with the values for water abstracted from the Cisadane River. The mill operates a very efficient wastewater treatment plant, as evidenced by the monitoring results presented in the table below.

The mill effluent quality is well within the national and regional limit. For particular parameters such as TSS, due to the poor quality of water at the intake point, the value is slightly higher than the WB / IFC Standard despite improvement in measured value at discharge compared to at the intake.

River Water Quality

Our monitoring programme for the waters of the Cisadane River showed that it did not meet Indonesian water quality standards in either 2008 or 2009, except for pH levels. The quality of water in the Cisadane River is heavily influenced by activities upstream from the Indah Kiat Tangerang site. The mill is now in the middle of an industrial zone where extensive urban development is also evident. Readings in excess of regulatory standards are generally encountered at the point where our raw water is drawn and this prevailing poor river water quality

Table 36 - Water withdrawal

(m^3)	2008	2009
Raw Water (River Water) extracted	2,294,583	2,260,778
Discharge to river	1,844,139	2,068,826

has caused us to re-double our efforts to improve further the quality of our wastewater discharges. Recent Indah Kiat Tangerang improvement programmes have included:

- Trials of several new chemical nutrients during both 2008 and 2009, which proved effective in improving the quality of our wastewater through the reduction of BOD / COD.
- More rigorous management of colour scheduling on our paper machines, which has improved our effluent plant loading.

Emissions to Atmosphere

Air Emissions

Local regulations in Tangerang impose tighter limits than Indonesian national standards for air quality and require the routine monitoring at Indah Kiat Tangerang of the four parameters tabulated. Our predominant energy input is now natural gas and this makes a significant contribution to compliance with air emissions standard. Data from both 2008 and 2009 monitoring programmes show that the mill did not exceed the local regulatory standards (other than for a single opacity value) on any occasion.

Emissions of ozone-depleting substances are not monitored in Indah Kiat Tangerang, however the amount of freon used in the mill decreased from 63.6 kg in 2008 to 50 kg in 2009. The use of freon in the mill is purely for building air conditioning.

Ambient Air Emissions Monitoring

Data measuring ambient air quality in the vicinity of Indah Kiat Tangerang shows that our mill operations do not adversely impact local air quality or generate odour levels detectable in the surrounding areas.

Table 37 - Water Quality: Effluent discharged

Key Parameters	2008	2009	Local Standard (mg/l, except pH)	2008	2009	WB / IFC Standard (kg/ADT, except pH)
BOD	22.54	30.90	100	0.26	0.29	0.25
COD	80.15	83.06	200	1.88	1.96	2.0
TSS	24.73	12.24	100	0.68	0.54	0.4
pH	7.24	7.31	6 – 9			6 – 9

[EN 9, EN 19, EN 20]

Table 38 - Air emissions

Key Parameters	2008 Coal fuel boiler	2008 Gas turbine	2009 Coal fuel boiler	2009 Gas turbine	Local Standard (mg/m^3)	2008 (kg/ADT)	2009 (kg/ADT)	WB / IFC Standard (kg/ADT)
SO_x	76	116	117	3.5	250 – 350	2.12	0.4	0.4
NO_x	81.5	83	234	151	650 – 1000	1.45	3.27	1.5
Particulate	39.6	9.62	103.1	14	150 – 800	0.27	0.54	0.5
Opacity (%)	5	7.5	10	10	20 – 35	<5	10	–

Waste Management

Non-hazardous Waste

Solid, non-hazardous waste generated on-site increased by 6 percent, from 1,462 tonnes in 2008 to 1,547 tonnes in 2009, partly as a result of the need to dispose of coloured broke that was unsuitable for internal re-use. The main other waste components comprised of baling wire from purchased pulp, pallets, drums, delivery packaging etc.

No liquid non-hazardous waste was generated during the 2008 / 2009 period. There was a 23 percent increase in the amount of general waste generated – from 120 to 148 truckloads – predominantly from domestic waste and site maintenance, including biomass from routine grass cutting and vegetation removal. Some non-hazardous waste was burnt in our multi-fuel boiler, with the balance disposed through a third party.

Hazardous Waste

In 2008 and 2009, the waste generated on a large scale was waste oil, sludge, fly ash and bottom ash. In 2008, 2,200 litres of waste oil was disposed of through third party companies and this amount increased to 3,800 litres in 2009. Similarly, in the case of non-hazardous wastes, Indah Kiat Tangerang stored its hazardous wastes in a closed area before disposing of them through third parties. Therefore, the increase in 2009 included stored waste from 2008 and waste generated in 2009. The amount of fly ash and bottom ash generated also increased from 265.2 tonnes in 2008 to 659.1 tonnes in 2009. This was principally the result of poor quality coal, which produced more ash for disposal. This was offset to some extent by wastewater treatment plant sludge being disposed of as supplementary fuel in the coal-fired boiler; the amount of sludge disposed of this way increased from 932.2 tonnes in 2008 to 943.7 tonnes in 2009. Indah Kiat Tangerang also converted some sludge to boards for internal packaging in 2009, amounting to 72.8 tonnes. Other hazardous waste leaving the site was disposed of through a licensed third party.

No significant spill occurred in Indah Kiat Tangerang during 2008 and 2009.

Environmental Expenditures

Indah Kiat Tangerang's expenditures on environmental management issues were essentially identical in both years at slightly over US$900,000, which represents approximately 0.9 percent of site revenue. Understandably, the major expenditures were on waste management and disposal, the maintenance and depreciation of equipment and site labour costs for environmental management.

Plant Efficiency and Plant Improvement Programmes

Indah Kiat Tangerang implemented various improvement programmes during 2008 and 2009 including:

- Minimisation of consumption of water, electricity steam and pulp
- Improved production efficiency for paper mill to 84% on average
- Minimised generation of sludge from waste water treatment to less than 10 kg dried sludge / Finished Metric Tonne
- Continued to improve the ordering of colour level and type (e.g. light, dark, and cyber colour) during production to reduce water consumption and reduce the load on the WWTP
- Maintained care to dampen noise at the boundaries of mill and surrounding areas as well as around open areas within the mill

Table 39 - Range of major solid process wastes

(tonnes)	2008	2009	Re-use and/or disposal pathways
Solid waste non hazardous	1,462	1,547	Burnt in the multi fuel boiler, sent to third party
Waste oil (litres)	2,200	3,800	Sent to licensed third party
Fly ash and bottom ash	265.2	659.1	Sent to licensed third party
Sludge	932.2	943.7	As supplementary fuel in the coal-fired boiler, convert to boards for internal packaging, sent to licensed third party

[EN6, EN22, EN23, EN26, EN30]

Pindo Deli Paper Mills

Overview and Background

PT. Pindo Deli Pulp And Paper Mills ("Pindo Deli") comprises two separate sites – Pindo Deli (I) and Pindo Deli (II), both located in Karawang, West Java some 60 km east of Jakarta.

Pindo Deli (I) was originally established by Indonesian entrepreneurs in 1976, with two small paper machines on a compact 45-hectare site, adjacent to the Citarum River at Kelurahan Adiarsa in West Karawang. Two paper machines were added in 1980 and subsequent expansion, both before and after the mill's acquisition by APP in 1992, has created a substantial mill complex. The mill now comprises six paper machines, a tissue machine, off-machine and on-line coaters, embossing and other finishing capacity, an internal waste-paper recycling plant, a calcium carbonate grinding plant, and associated co-generation and wastewater treatment facilities. The current installed production capacity is 300,000 AD tonnes of paper products per annum.

Space limitations at Pindo Deli (I) mill resulted in the establishment of Pindo Deli (II) mill in 1997, with three machines on a 450-hectare greenfield site, also adjacent to the Citarum River, some 15 km from Pindo Deli (I) at Desa Kuta Mekar in East Karawang. Pindo Deli (II) has subsequently seen substantial expansion and now has five paper machines, seven cast coaters, a carbon-less paper coater, paper finishing and tissue converting equipment and the requisite co-generation and wastewater treatment facilities. The current installed production capacity is 985,000 AD tonnes of paper products per annum.

Pindo Deli (II) mill also features a chlor-alkali plant on-site. This makes use of the site's proximity to the large industrial base surrounding Jakarta, to supply caustic soda, chlorine and hydrochloric acid to industrial and water treatment facilities, and also minor quantities of hypochlorites for industrial and domestic bleaching and disinfectant use. Some caustic soda is also supplied to APP's pulp mills in Sumatra. Pindo Deli (I) and (II) have a broadly similar mix of both roll and sheeted paper products, comprising writing, printing, copier, pre-print (premium wood-free paper) and other premium wood-free papers, cast-coated paper, paperboards, carbon-less, thermal and art paper, and tissue, as well as some packaging grades.

The two mills are managed essentially as a single entity, with many employees having roles and responsibilities on both sites. Numbers employed in 2008 and 2009 were:

Table 40 - Employment

Site	2008	2009
PD I - direct employees	1,471	1,428
PD II - direct employees	2,125	2,043
PD I & II - indirect employees	3,574	3,863
Common Responsibilities	3,212	3,118

Statutory Obligations: Environmental Permits and Compliance Reporting (EN28)

Both Pindo Deli operations are authorised, and their environmental monitoring and reporting obligations are defined, in a series of UKL / UPL submissions to the Environmental Service of Karawang Regency, most recently dated April 2006 for Pindo Deli (I) and May 2008 for Pindo Deli (II). Statutory monitoring data specified in the UPL is submitted to KLH and the regional authorities semi-annually.

Pindo Deli I mill retained a Blue minus ranking in both 2008 and 2009, under the PROPER appraisal scheme operated by the Ministry of the Environment, while Pindo Deli II dropped its ranking in 2009 from Green to Blue minus. This was attributable to third-party transport contractors of wastewater treatment plant sludges being unable to produce current permits for inspection. At the time, the permits were in the process of being processed (retrospectively) by the relevant transportation and environmental authorities. No penalties were imposed on either Pindo Deli mill with respect to this issue, or for any other non-compliance with environmental laws and regulations in 2008 and 2009.

Both mills had their certification under the ISO 14001:2004 Environmental Management System (EMS) Standard renewed in 2008, valid until 2011.

[EN 28]

Paper Production

Production from both mills is predominantly for export markets (62 percent in 2008, 56 percent in 2009), shipped from the nearby Tanjung Priok port.

Paper production, aggregated for both sites, increased from 898,396 AD tonnes in 2008 to 969,908 AD tonnes in 2009, the 8 percent increase in output reflecting some recovery in the worldwide demand for paper products. Tissue production increased by some 61 percent.

Chemical Production

Chemical production on the site is based on the electrolysis of brine (NaCl – common salt) to produce chlorine gas, sodium hydroxide (NaOH) and hydrogen (H_2), and further reaction of these products to generate the range of chemicals. Electrolysis is a very intense use of electrical energy. The chlor-alkali plant utilised 43,100 tonnes of purchased sodium chloride (NaCl – common salt) in 2008 (44,000 tonnes in 2009) to produce, among others, HCl, NaOH and Cl_2. Total chemicals produced by Pindo Deli were 103,370 tonnes and 117,302 tonnes in 2008 and 2009 respectively.

Table 41 - Aggregated Mill Production

(ADT)	2008	2009
Paper	825,218	868,373
Packaging	30,398	32,668
Tissue	42,780	32,668
Chemical	103,370	117,302

Raw Materials Input

Purchased Pulp

The total amount of pulp purchased by Pindo Deli mills declined by 6 percent between 2008 and 2009, from 741,070 to 696,880 AD tonnes. The majority of pulp used is produced at APP mills in Indonesia, from certified / verified pulpwood.

Our imported pulp is also sourced from certified / verified producers. Imported pulp is predominantly bleached softwood kraft (NBKP), used to enhance sheet strength and improve the "runnability" of our high-speed paper machines. Bleached chemi-thermo-mechanical pulp (BCTMP) is a high-yield imported hardwood pulp that can substitute for LBKP. The general increase in consumption of certified / verified imported pulp is largely in response to rising customer demand for paper products made only with pulp of certified / verified origin.

Both Pindo Deli mills have made further progress in 2008 and 2009 in reducing the percentage of fibre used in paper production, and replacing it with high-brightness inorganic mineral fillers. The total breakdown of purchased pulp can be seen in the chart below:

Recycled Materials

All paper mills re-incorporate substandard paper production or "broke," back into their products, so that it is not lost from the system. Pindo Deli mills recycled 59,875 AD tonnes of broke in 2008, 60,222 AD tonnes in 2009.

Pindo Deli (I) mill has an internal waste paper recycling plant and is able to produce a substitute for virgin pulp by recycling its internal waste. About 2 percent of the mill's total fibre usage was de-inked pulp in 2008 / 2009, with the quantity expected to grow over time.

Fillers

Fillers are insoluble, inorganic minerals, added to our papers to confer opacity and brightness, or coated onto its surface to give a smooth and receptive surface for high-quality printing. Typically, fillers amount for some 30 percent of the internal composition of printing and copier papers and more than 70 percent of any surface coating applied. They are now predominantly calcium carbonate-based, with some continuing use of china clay. Total usage of fillers at the Pindo Deli mills was 273,790 tonnes in 2008, 266,770 tonnes in 2009.

Starch

Starch is used both to improve internal strength of the paper sheet and, in modified form, to enhance its surface properties. Usage in 2008 was 52,230 tonnes and, in 2009, 52,020 tonnes.

Other Chemicals and Process Aids

A range of chemicals are used, either as components of the paper or to improve the drainage, operational efficiency and cleanliness of the paper machines. These materials include sizes (for ink hold-out), retention aids and biocides. Other chemical substances are needed as adhesives and inks for converting operations, for raw water and wastewater treatment processes, for boiler water treatment and a range of miscellaneous uses. The total amount of chemicals used in all processes at both Pindo Deli mills was 87,640 tonnes in 2008, 90,715 tonnes in 2009. The quantity used in wastewater treatment was 3,652 tonnes in 2008, 3,947 tonnes in 2009.

Table 42 - Raw material inputs - Purchased pulp

(ADT)	2008			2009		
	LBKP	NBKP	BCTMP	LBKP	NBKP	BCTMP
Local Certified (LEI)	–	–	–	20,560	–	–
Local Non-controversial (NCONT)	25,520	–	–	181,680	–	–
Local Verified Legal Origin (VLO)	594,880	–	–	338,700	–	–
Import Certified (PEFC / FSC)	5,970	29,660	–	21,470	81,100	18,840
Import Verified (NCONT / CW)	12,610	55,330	17,100	6,930	23,850	3,750
Total	**638,980**	**84,990**	**17,100**	**569,340**	**104,950**	**22,590**

[EN 1, EN 2]

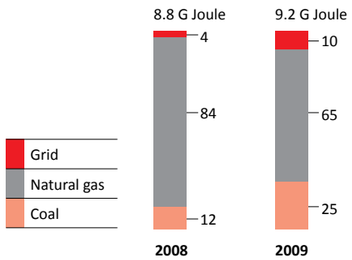
Energy Inputs

Both Pindo Deli mills operate co-generation plants, fueled predominantly by natural gas, with coal used as a supplementary fuel. Aggregate energy input – including the thermal value of purchased electrical energy – was 8,760,507 GJ in 2008, 9,224,200 GJ in 2009, the 5.3 percent increase being broadly in line with the increase in overall paper production. Problems with the combined-cycle gas turbine unit in 2009, led to a substantial increase in coal usage.

Energy Generation & Efficiency

Electricity generated at both sites was 758,405 MWh in aggregate in 2008, 625,875 MWh in 2009; gas turbine engineering problems necessitated a large increase in purchased electricity, from 98,270 MWh in 2008 to 266,822 MWh in 2009. Aggregate power usage was 742,037 MWh in 2008, 672,534 MWh in 2009.

Graphic 5 - Fuel consumption (%)



A direct comparison with World Bank / IFC Guidelines for electrical energy consumption in coated printing and writing paper mills (650 – 900 kWh/AD tonne) is difficult because of the large energy consumption associated with the Pindo Deli (II) site chlor-alkali plant, which shares utilities but operates independently of the paper mill. However, a general indication is that Pindo Deli's overall specific power consumption (including the chlor-alkali plant operations) was in the region of 740 kWh/AD tonne for 2008, 620 kWh/AD tonne for 2009.

Water

Both mills draw their raw water and discharge their wastewater into the Citarum River. Total aggregated extraction of raw water increased by 15 percent, and there was an increase of approximately 8.6 percent in wastewater discharge. This was somewhat above the percentage increase in paper production, and may be linked to an increase in boiler house cooling water by-passing the wastewater treatment plant.

The usage rate for water equates to approximately 8.6 m^3 per AD tonne of product in 2008 and 9.1 m^3 in 2009. World Bank / IFC Guidelines for water consumption in uncoated printing and writing paper show 5- 40 m^3/tonne.

Both mills had wastewater discharges below the threshold limit as provided by local standards. There were no instances where these limits were exceeded during the 2008 to 2009 monitoring period. Due to the diversity of products produced by Pindo Deli mills, no World Bank / IFC Guidelines for water discharge quality can be used for comparison.

River Water Quality

This is measured both upstream and downstream at both Pindo Deli plants, and was within local regulatory limits, except for instances of low levels of dissolved oxygen (DO) at Pindo Deli I mill in 2009. Both Pindo Deli mills monitor COD and BOD levels to international standards, even though this is not compulsory under regional regulations.

Table 43 - Water Usage

(m^3)	2008	2009
Uptake from river	15,172,412	17,869,787
Discharge to river	12,742,284	13,839,340

Table 44 - Water effluent discharge quality

Key Parameters (mg/l, except pH)	2008		2009		Local Standard*
	Pindo Deli I	Pindo Deli II	Pindo Deli I	Pindo Deli II	
BOD_5	39.15	7.77	64.23	6.10	100
COD	116.73	18.85	148.97	15.79	200
TSS	57.90	14.25	62.34	7.78	100
pH	7.27	7.30	7.32	7.60	6 – 9

Key Parameters (kg/ADT, except pH)	2008		2009		WB / IFC Standard
	Pindo Deli I	Pindo Deli II	Pindo Deli I	Pindo Deli II	
BOD_5	0.60	0.19	1.09	0.14	0.25
COD	1.79	0.48	2.52	0.38	1.5
TSS	0.90	0.10	1.07	0.09	0.4
pH	7.3	7.3	7.3	7.6	6 – 9

* Local Standard as per SK-Gub Jabar No. 6 March 13, 1999

[EN 3, EN 4, EN 8, EN 9, EN 21]

Emissions to Atmosphere

Both mills produce air emissions from their power plants. Pindo Deli (II) also has air emissions from its chlor-alkali plant and this is reported semi-annually through UKL / UPL. The emitted air quality from the mill is in compliance with the national standard.

Stack air quality monitoring is carried out at a range of locations and positions at every monitoring session. The stack air quality reported complies with local regulatory standards.

Due to the diversity of products produced by Pindo Deli mills, no World Bank / IFC Guidelines for emission quality can be used for comparison.

Ambient Air Quality

Ambient air quality monitoring within sites was conducted at both Pindo Deli I and Pindo Deli II mills. Overall, the figures show that both mills comply with local regulatory standards for maintaining a satisfactory ambient air quality.

Ozone Depleting Substances

Emissions of ozone-depleting substances are not monitored at Pindo Deli, however the quantity of freon used in the mills decreased from 2.3 tonnes in 2008 to 1.2 tonnes in 2009. Freon is used in the mills purely for re-charging existing air conditioning and chiller units in buildings, and on production equipment.

Table 45 - Stack Air Emissions*

Parameter (mg/m^3)	2008		2009		Local Standard
	Pindo Deli I	Pindo Deli II	Pindo Deli I	Pindo Deli II	
SO_2	154.5	3.5 - 281	146.5	4 - 338	750
NO_2	132.5	20 - 135	155.5	35.5 - 312.5	#
Particulate	23.4	6 - 16	15.1	7.3 - 22.4	150

• Due to the diversity of products produced by Pindo Deli mills, no World Bank / IFC Guidelines for emission quality can be used for comparison

[EN 19, EN 20}

Waste Management

No significant spillages of either hazardous or non-hazardous waste were recorded at either Pindo Deli mill during 2008 or 2009. Solid waste is managed according to the 3R system – reduce, reuse, recycle – and is divided into hazardous and non-hazardous categories, each processed accordingly. There are three types of waste that Pindo Deli manages in accordance to the regulation specified by the Ministry of Environment, which are:

- Solid wastes, consisting of sludge, fly ash and bottom ash
- Liquid waste, consisting of ink from corrugated, converting tissue and printing plants
- Other wastes, consisting of laboratory and clinical wastes, mercury lamps, contaminated saw dust, waste oil and scrap batteries; packaging-related wastes such as pallets, plastic wrappings, baling wire, carton drums for adhesives, plastic containers and raw materials bags, screen rejects from the de-inking plant, end-of-life machine wires and felts, scrap metal and paper cores.

Non-hazardous Waste

Both mills maintain designated areas ("avalans") for sorting and segregating recoverable wastes and considerable effort is made to re-use the waste items on-site or to sell them for re-cycling. This amounted to 5,703 tonnes in 2008 and 5,396 tonnes in 2009. Saw dust, amounting to 976 tonnes and 1,280 tonnes in 2008 and 2009, respectively, were burnt back in boiler. Other packaging wastes, screen rejects, plus general domestic and site-housekeeping wastes, were sent for off-site recycling wherever possible, or disposed of to a licensed landfill.

Hazardous Waste

The site's principal solid wastes are fly ash and boiler ash, arising from the coal fired in our boilers, and wastewater treatment plant sludges.

Other wastes which amounted to 1 tonne, 44 drums and some 500 pcs in both 2008 and 2009, were disposed of through licensed contractors, while Pindo Deli's liquid wastes amounted to 107,511 L in 2008 and 63,788 L in 2009.

Environmental Expenditures

About 90 percent of environmental expenditure in Pindo Deli mills is for treatment and disposal of waste and emissions monitoring. Environmental expenditures increased to US$2,234,225 in 2009 from US$2,169,132 in 2008, mainly due to the replacement of bag filters at the power plant.

Plant Efficiency and Plant Improvement Programmes

Plant improvement and cost-saving initiatives for the Pindo Deli mills are coordinated primarily through their respective ISO 14001:2004 Environmental Management System (EMS) programmes.

Active improvement initiatives during 2008 and 2009 included:

- Projects to reduce high fresh-water usage and white-water fibre losses on five paper machines.
- Reducing pallet costs by changing pallet specifications to use all local materials, re-using materials from broken pallets and pallet repair.
- Restricting operating hours for Main Office air conditioning.
- Increasing the on-site use of waste materials being separated out for reuse at the "avalan" waste segregation areas. This typically saves some US$40,000 in mill costs annually.
- Utilising sawdust waste from the pallet workshop as a fuel substitute in the Pindo Deli (II) coal-fired boiler, saving US$19,500 per annum.

Table 46 - Range of major solid process wastes

(tonnes)	2008	2009	Management Method
Fly Ash / Boiler Ash	2,710	4,630	Disposal through off-site licensed contractors
Fibrous, primary (biologically inactive) WWTP Sludge	11,027	7,038	As raw materials in the production of low grade paper through third parties
	11,364	4,188	Licensed landfill

[EN 6, EN 22, EN 23, EN 26, EN 30]

Tjiwi Kimia Paper Mill

Overview and Background

APP's Tjiwi Kimia operations began in 1972, with the establishment of a chemical plant, PT Tjiwi Kimia, producing caustic soda and associated products on a 200-hectare site in Desa Kramat Tumenggung, Sidoarjo, near Surabaya in East Java. The company's name was changed in 1978, to PT Pabrik Kertas Tjiwi Kimia (Tjiwi Kimia Paper Mill) to reflect the addition of two small paper machines to the site, which produced a modest 12,000 tonnes a year of paper for the domestic market. This was the initial venture of what has now become APP into the pulp and paper industry.

Progressive expansion of the mill has seen it grow substantially to include 12 paper machines and more than 100 converting and finishing units, representing a combined installed capacity of around 1,500,000 tonnes of paper products a year. These products include printing, writing, copier, carbon-less and other value-added papers, such as exercise books, writing pads, envelopes, computer forms, gift wrapping paper, shopping bags and fancy products.

The production complex houses a co-generation plant, a limestone grinding plant to produce filler, an incinerator, chemical and de-inking plants, a corrugated box manufacturing and other converting plants and extensive raw water and wastewater treatment facilities.

Tjiwi Kimia mill has retained and expanded its caustic soda production facilities, and its sodium hydroxide production supplies related chlorine, hydrochloric acid and hypochlorite to APP pulp mills in Sumatra and other process users in both the Indonesian domestic market and throughout South-East Asia.

Table 47 - Employment

	2008	2009
Direct employees	12,701	12,446
Indirect employees	416	541

Statutory Obligations: Environmental Permits and Compliance Reporting (EN28)

Tjiwi Kimia mill's operations are authorised, and its environmental and social management, monitoring and reporting obligations are defined, in both UKL / UPL and AMDAL / RKL / RPL documentation submissions. The UKL / UPL was initially authorised in April 1999 and an AMDAL submission relating to the more complex parts of the site was endorsed in July 2005, by the Governor's office of East Java Province. Statutory monitoring data specified in the UPL and RPL is submitted to KLH and other provincial and regional authorities semi-annually.

The mill dropped from its Blue ranking in 2008 to Blue minus in 2009, under the PROPER appraisal scheme operated by the Ministry of the Environment, as the mill experienced some problems in complying fully with all Ministry of Environment standards for hazardous waste management. The mill is working to rectify these issues and ensure its waste management complies with government standards. No penalties were imposed on Tjiwi Kimia mill for non-compliance with environmental laws and regulations in either 2008 or 2009.

The mill had its certification under the ISO 14001:2004 Environmental Management System (EMS) Standard renewed in 2007 and this is valid until 2010.

Paper and Chemicals Production

Aggregate mill production values for paper and paper-derived products were 1,330,000 AD tonnes in 2008 and 1,272,350 AD tonnes in 2009 and, for chlor-alkali plant chemical production, 280,680 tonnes in 2008 and 262,470 tonnes in 2009.

Table 48 - Production Volume

(ADT)	2008	2009
Paper	1,048,000	1,009,694
Packaging	67,000	57,509
Stationary	215,000	214,147
Chemicals (tonnes)	280,680	262,470

[EN 28]

Paper Production – Raw Materials Input

Purchased Pulp

There was a 9.7 percent increase in the total amount of pulp used in the mill from 2008 to 2009. The largest increases were in the consumption of imported PEFC-certified NBKP and local non-controversial LBKP. The Ecolabel certification received during the reporting period enabled Tjiwi Kimia to deliver paper products made with PEFC-certified pulp and customer demand for these products – and our need for PEFC-certified NBKP – rose accordingly in 2009. The total breakdown of purchased pulp can be seen in the table below:

Table 49 - Raw material inputs - Purchased pulp

(ADT)	2008			2009		
	LBKP	NBKP	BCTMP	LBKP	NBKP	BCTMP
Local Certified (LEI)	–	–	–	7,684	–	–
Local Non-controversial (NCONT)	83,341	–	–	246,306	–	–
Local Verified Legal Origin (VLO)	664,316	–	–	461,650	–	–
Import Certified (PEFC / FSC)	4,538	65,366	1,084	23,643	145,794	14,542
Import Verified (NCONT / CW)	–	–	2,021	–	–	–
Total	**752,195**	**65,366**	**3,105**	**739,283**	**145,794**	**14,542**

Recycled Materials

All paper mills reincorporate substandard paper production or "broke" into their products, so that it is not lost from the system. Tjiwi Kimia mill is also able to produce a substitute for virgin pulp by de-inking pre- and post-consumer wastepaper. About 4 percent of the mill's total fibre usage was de-inked pulp in 2008 / 2009, with the quantity expected to grow over time.

Table 50 - Recycled material volumes

(ADT)	2008	2009
De-inking pulp	32,366	25,578
Waste Paper (Post / pre consumer)	942	638
Mill Broke	44,589	40,875

Fillers

Fillers are insoluble, inorganic minerals, added to our papers to confer opacity and brightness, or coated onto the surface to produce a smooth and receptive surface for high-quality printing. Typically, fillers amount to some 30 percent of the composition of printing and copier papers and constitute more than 70 percent of the weight of any mineral surface coatings applied. Fillers are now predominantly calcium carbonate based, but some continue to use china clay.

Total usage of fillers at Tjiwi Kimia mill was 381,048 tonnes in 2008, 370,279 tonnes in 2009.

Starch

Starch is used both to improve internal strength of the paper sheet and, in modified from, to enhance its surface properties. Usage in 2008 was 61,764 tonnes and, in 2009, 61,210 tonnes.

Other Chemicals and Process Aids

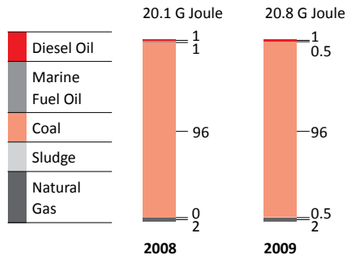
A range of chemicals are used, either as components of the paper or to improve the drainage, operational efficiency and cleanliness of the paper machines. These materials include sizes (for ink hold-out), retention aids and biocides, and adhesives and inks in the converting units. Other chemicals are needed for raw water and wastewater treatment processes, boiler water treament and a range of miscellaneous site uses. The total amount of chemicals used in paper production and site services at Tjiwi Kimia was 541,318 tonnes in 2008, 652,693 tonnes in 2009.

[EN 1, EN 2]

Energy Inputs

All of Tjiwi Kimia's fuel inputs are fossil-based. The predominant fuel used by the mill is Indonesian coal, sourced in Kalimantan. The mill's energy inputs during 2008 and 2009 were as shown in the table, below. Minor quantities – some 4,000 tonnes – of wastewater treatment plant sludge were incinerated in 2009, and this may increase, over time.

Graphic 6 - Fuel consumption (%)



Electricity generated on-site, in the mill's co-generation units, was as follows:

Graphic 7 - Electricity consumption (MWh)

A direct comparison with World Bank / IFC Guidelines for electrical energy consumption in coated printing and writing paper mills (650 – 900 kWh/AD tonne) is difficult because of the large energy consumption associated with the site's chlor-alkali plants, which share utilities but operate independently of the paper mill. However, a general indication is that Tjiwi Kimia's overall power consumption (including chlor-alkali plant operations) was in the region of 980 kWh/AD tonne for both 2008 and 2009.

Chemicals Production

Electrolysis of brine (NaCl – common salt) is used to produce chlorine gas, sodium hydroxide (NaOH) and hydrogen (H2), and a further reaction of these products is used to generate the range of chemicals including HCl, Caustic Soda and bleaching powder. Electrolysis is a very intense use of electrical energy. In total around 280,680 tonnes and 262,470 tonnes of chemicals were produced on-site in 2008 and 2009.

Water Usage and Wastewater Discharges

The Tjiwi Kimia mill draws its water from and discharges wastewater into the Brantas River. Raw water drawn from the river was 23.8M m^3 in 2008, 22.7M m^3 in 2009, which equates to an overall site usage rate of about 17.9 m^3/AD tonne for both 2008 and 2009. World Bank / IFC Guidelines for water consumption in coated printing and writing paper mills are 5 – 20 m^3/AD tonne.

The aggregate volume of wastewater discharged to the river was measured at 14.0M m^3 in both 2008 and 2009. The discrepancy with the raw water volumes suggests that a substantial volume of cooling water is now by-passing the wastewater treatment plant, in addition typically about 10 percent of water is lost through evaporation from the mill's steam-raising and drying processes.

Wastewater discharges are regulated under standards established locally, in East Java Governor Decree no. 45 year 2002, which impose stricter limits than Indonesian national legislation. There were no incidents in which these limits were exceeded during 2008 or 2009 monitoring period. Aggregated monitoring results are given below.

Table 51 - Wastewater Discharge Monitoring Results

Key Parameters	2008	2009	Local Standard	2008	2009	WB / IFC Standard
			(mg/l, except pH)			(kg/ADT, except pH)
BOD_5	10.04	10.18	70	0.1	0.1	0.2
COD	21.86	21.59	150	0.3	0.3	4.0
TSS	2.58	3.67	70	0.0	0.0	0.3
pH	6.8	7.0	6 – 9	6.8	7.0	6 – 9

[EN 3, EN 4, EN 8, EN 21]

River Water Quality

Our monitoring programme for the water of the Brantas River showed it did not meet local regulatory standards, as established in East Java Province Regulation no. 2 year 2008 in either 2008 or 2009, except for pH levels. The quality of water in the river is heavily influenced by activities upstream from the Tjiwi Kimia site. Readings in excess of regulatory standards are generally encountered at the point where our raw water is drawn and this prevailing poor river water quality makes it all the more important that our wastewater does not contribute further to the existing pollution load

Emissions to Atmosphere

Tjiwi Kimia mill has monitoring obligations for chlorine (Cl_2) and hydrochloric acid (HCl) emissions from several chemical plant stacks, and for nitrogen dioxide (NO_2) and sodium dioxide (SO_2) emissions from its soda flake stack and co-generation plant. Three

of the six stacks from the chemical plant were merged together in 2009, to improve plant efficiency, leaving four stacks now in operation.

Ambient Air Quality

Ambient air emissions monitoring, conducted in the vicinity of the mill and reported in RPL submissions, showed compliance with local regulatory standards.

Table 52 - Stack Air Emissions

Location (mg/m³)	Parameter	2008	2009	Local standard
Sodium Dryer Stack	Cl_2	< LD	< LD	10
Sodium Reactor Stack	Cl_2	< LD	< LD	10
Calcium Reactor Stack	Cl_2	< LD	–	10
Calcium Dryer Stack	Cl_2	< LD	–	10
HCl Plant Stack	HCl	1.79	0.97	5
	Cl_2	< LD	< LD	10
Soda Flake Stack	NO_2	93.53	142.10	1000
	SO_2	668.70	8.96	800

< LD = below limit of detection.

Table 53 - Average stack emissions from the co-generation plant

Parameter	2008	2009	Local Standard	2008	2009	WB / IFC Standard
			(mg/m³)			(kg/ADT)
SO_2	668.70	8.96	800	0.70	0.53	0.4
NO_2	93.53	142.10	1000	0.34	0.13	1.5
Dust				0.08	0.04	

[EN 9, EN 19, EN 20]

Ambient air quality monitoring was not conducted within the Tjiwi Kimia mill site.

Both stack emissions and ambient air quality monitoring at Tjiwi Kimia indicate compliance with new local regulatory standards, as established in East Java Governor Decree no. 10 year 2009.

Ozone Depleting Substances

Emissions of ozone-depleting substances are not exclusively monitored around Tjiwi Kimia. However, the amount of freon used in the mill, for re-charging of air conditioning and chiller units throughout the plant, decreased from 122.2 kg in 2008 to 103.3 kg tonnes in 2009. Tjiwi Kimia now utilises the more environmentally friendly freon R134-A for re-charging all such units in the mill.

Waste Management

Solid waste is managed according to the 3R system – reduce, reuse, recycle – and is divided into hazardous and non-hazardous categories, each processed accordingly.

Non-Hazardous Waste

The principal non-hazardous wastes arising from the mill processes were packaging-related, comprised of waste pallets, plastic wrappings, carton drums for adhesives, plastic containers and raw materials bags. Some screening rejects for disposal also arise from the post-consumer waste de-inking plant. Considerable efforts are made to reuse the waste items on-site, or to sell them for re-cycling.

Table 54 - Hazardous Waste

(tonnes)	2008	2009
Fly Ash / Boiler Ash	61,034	56,237
Sludge	40,755	47,590

Some 2,000 m³ of waste pallets were reused to produce new pallets on-site in both 2008 and 2009. Plastic drums – some 7,500 in total – were cleaned and reused as containers for chemicals produced in the chemical plant, in 2009. Other packaging wastes, plus general domestic and site-housekeeping wastes, were sent for recycling off-site wherever possible, or disposed of to a licensed landfill.

Hazardous Waste

The site's principal hazardous wastes are fly ash and boiler ash, arising from coal fired in our boilers, and wastewater treatment plant sludge.

Other minor hazardous wastes include waste oil, which increased from an estimated 301 drums in 2008 to 516 drums in 2009, and scrap batteries. All hazardous wastes are disposed of off-site, via licensed contractors.

No significant spillages of either hazardous or non-hazardous waste were recorded at Tjiwi Kimia mill during 2008 or 2009.

Environmental Expenditures

Around 90 percent of of environmental expenditure at Tjiwi Kimia mill was on the treatment and disposal of waste, and on emissions monitoring. Environmental expenditures for Tjiwi Kimia decreased slightly from US$1,772,395 in 2008 to US$1,627,438 in 2009.

Plant Efficiency and Plant Improvement Programmes

Tjiwi Kimia mill's programmes for achieving process and efficiency improvements are co-ordinated through our ISO 14001:2004 certified Environmental Management System. Programmes operating in 2008 and 2009 focused on minor process changes to achieve savings in water and power usage, and have included:

- Replacement of fresh water with white water on five paper machines, saving 49,500 m³ of fresh water per month.
- Changing sealing water on vacuum de-aerators, saving 15,120 m³ of fresh water per month.
- Changing mesh sizes on basket screens to save 983 kWh/day, equivalent to US$2,100 per month.
- Changing valve types in the plant, to prevent leakage.Enlarging the pulley size on a blower – from 275 mm to 410 mm – to save 20,000 kWh per month.

[EN6, EN22, EN23, EN26, EN30]

Ekamas Fortuna

Overview and Background

APP's Ekamas Fortuna mill is located in Desa Gampingan village, some 35 km south of Malang in East Java, and was established in 1984 on a 25-hectare scrubland site, adjacent to the Lesti River. It was originally constructed by a Malang-based cigarette manufacturer to produce outer cartons for use as delivery packaging for its products. Initially the mill had one 2.5- metre-wide, 20,000 tonne/annum multi-vat board machine, with a second 3.9 metre-wide twin-wire fourdrinier machine added in 1991.

The mill went into receivership in July 1993, just as an expansion of the second machine to more than 110,000 tonnes/annum was being commissioned, and was purchased from the administrators and become part of the APP group of companies, in September 1994.

Subsequent upgrades of both paper machines under APP's ownership, and expansion of the mill's converting capacity in 2001 has given Ekamas Fortuna a current nominal production capacity of about 175,000 tonnes/annum. Authorisation is in place for an expansion in capacity to 203,000 tonnes/annum.

The mill is the major employer in its locality.

Table 55 - Employment

	2008	2009
Direct employees	1,044	1,141
Indirect employees	864	1,141

Statutory Obligations: Environmental Permits and Compliance Reporting

The mill is regulated under a UKL / UPL schedule authorised by the KLH (Indonesian Environment Ministry) office for Malang Kabupaten, and reports its operational, environmental and socio-economic performance to that office on semi-annually and quarterly for waste.

The mill has current certification of its ISO 14001:2004 Environmental Management System (EMS), due for renewal in 2011. It improved its rating in the PROPER appraisal scheme operated by KLH from Red in 2008 to Blue minus in 2009. The improved rating resulted from progressive clean-up of open dumping and accumulation of boiler plant fly ash and bottom ash through licensed third parties, and the introduction of brick-making from it. The mill received a license in 2009 to convert its fly ash and bottom ash to bricks and paving for internal and external use. In addition, no penalties were given to Ekamas Fortuna for non-compliance with environmental laws and regulations in 2008 and 2009.

Paper Production

Ekamas Fortuna's packaging products include corrugating medium, wrapping papers, chipboard and kraft liner. The relatively small mill occupies a niche market, selling its mainly "value" grade packaging predominantly into the Indonesian domestic market - largely on the island of Java - with some 10 percent exported within Southeast Asia. Other value-added products include seamless and non-seamless cores / tubes, shopping bags, paper cones and sheeted paper. The mill's products are 100 percent post-consumer waste-based, with the exception of some of its kraft wrapping papers and kraft liner, which have a significant virgin unbleached softwood kraft pulp (NUKP) content.

Table 56 - Aggregated Mill Production

(ADT)	2008	2009
Board	159,994	152,555

[EN 28]

Raw Material Inputs

Waste Paper

The mill's principal raw material is post-consumer wastepaper, which comprises more than 95 percent of its fibre furnish. This is obtained both within Indonesia and by import from Singapore, the U.S. and Europe. Mill broke levels, re-incorporated into products, averaged 4 percent in both years.

Purchased Pulp

Post-consumer waste inputs are augmented with a much smaller quantity of imported unbleached softwood kraft pulp (NUKP) used to improve the strength, and particularly the tear strength, of certain paper grades. Consumption in 2008 and 2009 was 5,074 tonnes and 9,309 tonnes, respectively. Ekamas Fortuna occasionally obtains small quantities of low-grade bleached hardwood kraft pulp (LBKP) from Indah Kiat Perawang Mill (29 tonnes in 2008), for use in specific grades of plasterboard liner.

Starch and Process Chemicals

Raw and modified starches (oxidised on-site using hydrogen peroxide – H_2O_2) play an important role in enhancing the internal and the surface strength properties of most waste-based packaging papers. Hence starch represents the most significant non-fibre component of our raw material inputs. Other important components of our paper and board are sizing agents that are used to regulate water and ink penetration, aluminium sulphate ("alum") that is required as part of the sizing process (also for raw water treatment), and a range of dyes, system cleaners, and drainage and retention aids. Fillers are rarely added to packaging papers although they will be present to a limited extent from the wastepaper used. Total chemicals used in 2008 and 2009 respectively are 13,462 tonnes and 13,330 tonnes.

Table 57 - Raw material inputs

(tonnes)	2008	2009
Wastepaper - Local	83,993	87,915
Wastepaper - Imported	67,121	69,837

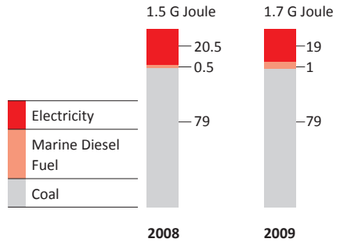
Energy

Thermal Energy Inputs

Locally-supplied (East Java) coal is used to fire our 3 x 20 tonnes/hour chain grate boilers and was the primary source of fuel at Ekamas Fortuna in both years, providing 99.5 percent of thermal energy requirements in 2008 and 98.1 percent in 2009. In addition, two marine fuel oil / heavy fuel oil boilers are retained for stand-by use.

The amount of coal consumed during this period increased by some 16 percent, from 46,125 tonnes in 2008 to 53,374 tonnes in 2009, with a mean caloric value of 6,050 Kcal/kg. Mill thermal energy input totalled 1,216,148 GJ in 2008, 1,413,662 GJ in 2009. This equates to a 12 percent increase in specific thermal energy consumption from 8.14 to 9.16 GJ per AD tonne of paper.

Graphic 8 - Energy consumption (%)



Energy Generation and Efficiency

No electricity is generated on-site. The amount of electricity consumed increased from 86,511 MWh in 2008 to 93,882 MWh in 2009. This gives a specific electrical energy usage of 579 kWh/AD tonne and 608 kWh/AD tonne for 2008 and 2009, respectively.

The increases in both thermal and electrical energy consumption from 2008 to 2009 were due to an increased production of high-energy consumption grades (chipboards, core boards and kraft liner grades). There are no World Bank / IFC thermal and electrical energy consumption guidelines for recovered fibre paper mills producing corrugating medium and packaging papers.

Water

Water Usage

Raw water abstraction from the adjacent Lesti River was 1,639,023 m^3 in 2008 and 2,117,243 m^3 in 2009. The mill's permitted water abstraction limit is 2.24M m^3/annum. Measured wastewater discharges were 972,226 m^3 in 2008 and 1,226,050 m^3 in 2009. The discrepancies between incoming and outgoing water volumes for both years (41 percent and 42 percent, respectively) was predominantly due to evaporative losses but, perhaps warrant further investigation.

[EN 1, EN 2, EN 3, EN 4, EN 8, EN 21]

Table 58 - Wastewater Discharge Monitoring Results

Key Parameters	2008	2009	Local Standard	2008	2009	WB / IFC Standard
			(mg/l, except pH)			(kg/ADT, except pH)
BOD_5	97.42	37.83	70	0.81	0.40	0.15
COD	233.25	103.92	150	1.93	1.09	1.5
TSS	83.50	65.33	70	0.69	0.69	0.15
pH	7.03	7.16	7 – 9	–	–	6 – 9

Using the incoming volume measurements indicates a water usage per AD tonne of 8.3 m^3 and 10.6 m^3 for 2008 and 2009, respectively, which, for 2009, is marginally above World Bank / IFC water consumption guidelines (1.5 to 10 m^3/AD tonne) for recovered fibre paper mills producing corrugating medium and packaging papers.

Water Quality: Effluent Discharges and River Water Quality

Wastewater discharge quality was unacceptable in 2008 for BOD, COD and TSS, partly as a result of electricity supply constraints compromising the operation of the aeration units in the WWTP. Introduction of a new Dissolved Air Flotation (DAF) fibre recovery unit in late 2008 and additional WWTP filtration, plus resolution of the power supply issues improved the situation. Legislation compliance was routinely achieved in Q3 and Q4 2009 and the recovered fibre from the DAF unit is contributing to a reduction in the mill's purchased fibre requirements.There is no requirement, under the mill's UKL / UPL obligations, for monitoring of river water quality, but there were no indications of the mill's wastewater discharges having had an adverse effect on the river during 2008 and 2009.

Emissions to Atmosphere

Routine air quality monitoring is undertaken on the three coal-fired boiler stacks four times a year to meet the local regency (Kabupaten) requirement for quarterly submission of UKL / UPL data. Results confirmed that Ekamas Fortuna was in compliance with all local air emissions regulatory standards and were estimated to be close to zero kg/AD tonne throughout 2008 and 2009. Ambient air quality data submitted for the area surrounding the mill also confirmed that local air quality was satisfactory and not impacted by Ekamas Fortuna's operations.

Ozone Depleting Substances

Emissions of ozone-depleting substances are not monitored in Ekamas Fortuna, however the amount of freon used in the mill was minimal at 27 kg in 2008 and 95 kg in 2009. The use of freon in the mill is purely for air conditioning purposes in buildings.

Table 59 - Air quality monitoring

Key Parameters (mg/m^3)	2008		2009		Local Standard
	Max	Min	Max	Min	
SO_2	645	3.75	73	10.4	750
NO_2	92.1	5.3	117	30	825
Particulates	207	51.5	207	73	230
Opacity (%)	0	0	0	0	20

[EN 9, EN 19, EN 20]

Waste Management

Non-hazardous Waste

Post-consumer waste does generate significant quantities of rejects when re-pulped – typically 6 percent to 10 percent of the input weight - comprising plastics, wire, envelope windows, staples, rags and other general debris, and this pulper / screening-rejects waste represents the major waste for disposal from Ekamas Fortuna mill. Other non-hazardous wastes include wastewater treatment plant sludge cake, scrap metal and general and domestic site wastes. These are sold for off-site recovery where possible, or disposed of to licensed landfills in the vicinity of the mill. No liquid non-hazardous waste was generated in 2008 or 2009. Sludge cake and other combustible wastes are also disposed of by incineration in the mill's boilers, whenever possible.

Hazardous Waste

The principal hazardous (B3) waste on site is fly ash and bottom ash arising from the mill's coal fired boilers. Some minor quantities of combustible hazardous waste (used oils etc.) can be incinerated on-site – other items such as empty chemical and oil drums go to a licensed B3 disposal contractor.

Ekamas Fortuna disposed of its other wastes through licensed third parties, consisting of 125 batteries in 2008 and oil and containers for hazardous chemicals, amounting to 41 drums and 2,323 pieces in 2008 and 14 drums and 1,622 pieces in 2009.

In 2008, Ekamas Fortuna was granted a license by the Ministry of Environment to convert its fly ash and bottom ash into bricks and pavement. The total amount of fly ash and bottom ash converted in 2008 and 2009 was 1,188 tonnes and 4,440 tonnes, respectively. These bricks were mainly allocated to the mill's social programs in supporting the renovations of several schools, mosques and other structures surrounding the mill, which are described further in chapter 3.

In 2008, high winds caused the wall of the aeration tank in the waste water treatment plant to crack and collapse. As a result, some of the mill's waste water spilled to the surrounding area. The mill acted quickly by shutting down the water treatment plant, transferring the remaining waste water to an emergency aeration tank and cleaning up the spill on the ground. The broken walls of the aeration tank were quickly repaired and thickened from 1 metre to 3 metres to avoid future incidents.

Environmental Expenditures

The environmental expenditures for Ekamas Fortuna increased significantly from US$993,730 in 2008 to US$2,768,205 in 2009. This increase was due to the introduction of a project to recover methane from the anaerobic treatment of wastewater, for use as a thermal energy input for the mill, installed during 2009. This project is scheduled for start-up in 2011 and is planned to be proposed to earn carbon credits through the UNFCCC Clean Development Mechanism. This is second such project for APP and for the pulp and paper industry world-wide.

Plant Efficiency and Plant Improvement Programmes

Plant efficiency and improvement programmes in Ekamas Fortuna include:

- Continued management of non-hazardous waste in January 2008.
- Development of a more rigorous system for hazardous waste handling in January 2008.
- Reduced water use from 6 m^3 per tonne of product to 4 m^3 per tonne of product from January 2009.
- Increased housekeeping in production areas, warehouse, utility and offices.
- Reduced levels of COD, BOD and TSS through improvements in waste water treatment.

Table 60 - Range of major solid process wastes

	2008			2009			Re-use and/or disposal pathways
Non-hazardous waste							
Pulp & Screen Rejects (non-hazardous)	1,830 tonnes	177,727 pieces	20 trucks	1,640 tonnes	166,008 pieces	22 trucks	Disposal through third parties
Hazardous waste (tonnes)							
Fly ash			1,137			2,266	Sent to licensed third party
Bottom ash			7,184			4,517	Sent to licensed third party
WWTP sludge cake – wet tonnes			553			1,725	Recycled back as raw material or burnt in boiler as fuel

[EN6, EN22, EN23, EN26, EN30]

Stakeholder Engagement

Care for the interests of stakeholders begins with training, safety, health and the well being of APP employees at each of our 8 mills but is equally important for the many others who rely on us for a livelihood or are affected, in forest areas, industrial regions and beyond. Understanding their needs is our priority.

Employees
Stakeholder Dialogue

"Stakeholders" are individuals and groups who are affected by or affect APP companies and their business activities. They can include all of the following:

Shareholders	Employees	Customers	Community leaders	NGOs / Associations
Investors	Contractors	Regulators	Community members	Government Ministries
Trade Unions	Suppliers	Distributors	Media	Local Government

A vital group among our stakeholders is our employees, whose career development, well-being, and safety are in our hands. This chapter looks at employee development and conditions, and occupational health and safety. We also discuss how we engage with external stakeholders, and we review the governance practices that underscore the approach we take to doing business.

Our communication with stakeholders at site level pursues the ISO14001 protocol while headquarter follows the Corporate Communication's protocol.

People: Shaping Our Performance

We rely on our people – their enthusiasm, their hard work and their commitment – to maintain and build on the success of our business. APP's operations directly and indirectly employ more than 60,000 staff, making us one of Indonesia's largest employers and an important part of the national economy.

As of December 31, 2009, APP directly employed 39,436 people across our pulp and paper mills and in our head office functions. That number has remained relatively stable over the two-year period since our last Sustainability Report was published in 2007, when the recorded total number of employees was 37,589. Our personnel are employed predominantly on a fulltime basis, with 96 percent retained on continuous employment contracts at the end of 2009 (97.3 percent at end of 2008). Temporary staff accounted for an average of 3.6 percent of the workforce in 2009 (2.2 percent in 2008).

APP has a reasonably decentralized management structure, which reflects the group's wide range of mills and locations, and its history of both organic growth, and growth by acquisition. As a result there is, within an overall framework of statutory compliance, some local variation in management approach, benefits provision and in documentation at our smaller or more remote mills.

APP is an equal-opportunity employer

Women in management positions increased between 2008 and 2009 from 151 to 164, making up 13.9 and 14.7 percent of total management in 2008 and 2009 respectively. The number of women employed in non-managerial positions was essentially stable during 2008 and 2009, at 15.9 percent and 15.7 percent of the workforce, respectively. APP pertain relatively equal opportunities of women to men in all professional aspects, including basic salary and leave entitlement.

Detail-oriented

APP products are in demand worldwide – reflecting the quality, scale and reliability of our production facilities. Operations Controller Ditos Capati, interviewed by Cosmopolitan magazine, revealed that up to 80 percent of leading luxury branded shopping bags world-wide are produced at APP's Tjiwi Kimia mill. Recycled raw materials can be incorporated in the paper used to make the bags if this is important to the customer's requirements. What is not evident, however, are the manual skills, the dexterity and accuracy of APP workers in the shopping bag division, who hand-finish each item. Most of these workers are women.

Pictured here, Siti Winari is one of 500 local women employed in the converting facility at Tjiwi Kimia in East Java, turning flat sheets of paper into carrier bags for some of the world's most prestigious fashion houses. The shopping bag converting facility is a key source of additional family income for the women, each of whom receives three months of preparatory training to meet the tough quality standards.

The women work quickly at long tables in bright light, with a little easy chatter. Wearing thin gloves with the thumb and forefinger cut out for better grip, the women fold, tape and press each bag together in around 90 seconds. With 500 people employed, the facility produces 300,000 bags per day. According to Production Manager Novanto B Utomo being detail-oriented is an essential skill.

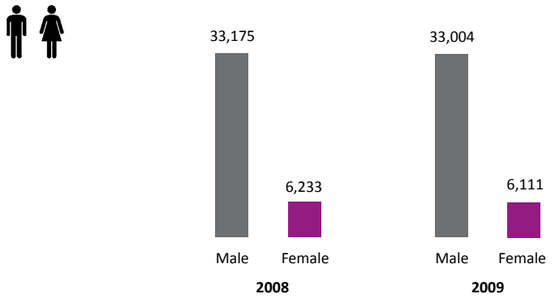
As part of a community development programme, women from surrounding villages are also taught how to make carrier bags, another source of useful income for the community.

[EC 1, LA 1, LA 13, LA 14]

Table 61 - Workforce Structure Number of Employees

By Location	2008	2009	% Change YoY
Headquarters	1,626	1,782	+9.6
Lontar Papyrus	2,298	2,323	+1.1
Indah Kiat Perawang	8,731	8,687	-0.5
Indah Kiat Serang	5,302	5,359	+1.1
Indah Kiat Tangerang	1,144	1,109	-3.1
Pindo Deli	6,808	6,589	-3.2
Tjiwi Kimia	12,701	12,446	-2.0
Ekamas Fortuna	1,044	1,141	+9.3
Total	**39,654**	**39,436**	**-0.5**

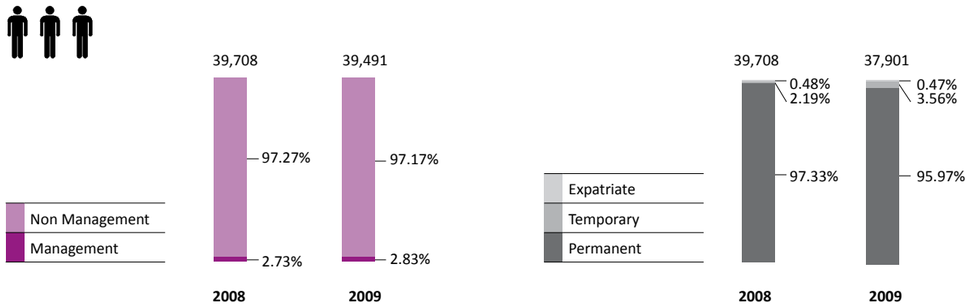
Graphic 9 - Workforce by Gender*



Graphic 10 - Management level by gender

* These numbers do not include Ekamas Fortuna's temporary employees (2008:300, 2009:376) as during the reporting period, it was not Ekamas Fortuna's policy to make a breakdown record of its temporary employees.

Graphic 11 - Workforce by Employment Group



[LA 1]

Graphic 12 - Workforce by Age and Type*

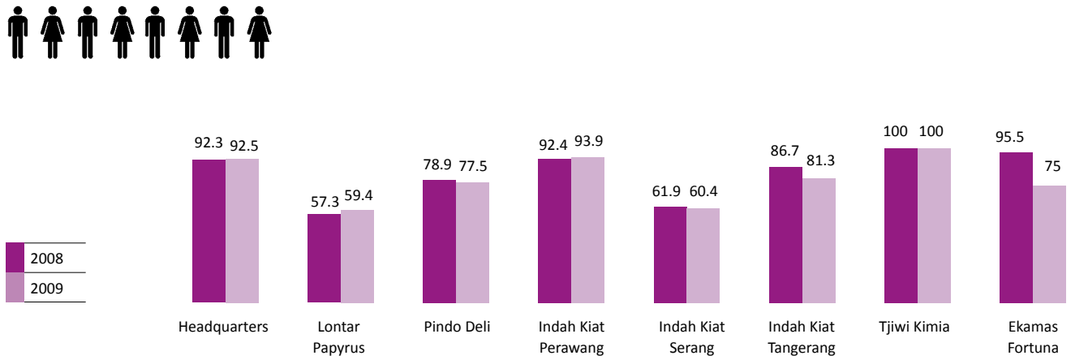
*These numbers do not include Ekamas Fortuna's temporary employees (2008:300, 2009:376)

About 84 percent of APP employees are male, which was consistent in both 2008 and 2009. This is largely a function of job specifications requiring the operation of heavy machinery. Most female workers who applied at the mills do not have the necessary qualifications to operate heavy machineries and instead applied for administrative and office related jobs, hence the significant amount of male compared to female employees.

APP employees are predominantly 30 to 50 years old, representing approximately 64 percent of the workforce in both 2008 and 2009, and reflecting the company's need for experienced, trained staff. There were 34.4 percent of employees below 30 years of age. Age seniority was more pronounced at the management level, where almost 13 percent of managers were over 50 years old during the reporting period.

In both 2008 and 2009, 99.5 percent of the staff employed across APP's operations were Indonesian. At management and senior management levels, approximately 84 percent (in both 2008 and 2009) were locally hired.

Graphic 13 - Number of Locally Hired Management & Senior Management Staff, by Mill, Number and Percentage (%)



[EC 7, LA 13]

APP Absentee and Sickness Rate

Both absentee rates (employees absent without prior notice) and sickness rates averaged less than 1 percent of the workforce across all of APP's operations, reflecting our disciplined workforce and clear channels of communication between staff and managers.

Table 62 - Absentee and Sickness Rate

	Absentee Rate		Sickness Rate	
	2008	**2009**	**2008**	**2009**
Lontar Papyrus	0.00088	0.00082	0.01077	0.00870
Indah Kiat Perawang	0.00054	0.00107	0.00014	0.00016
Indah Kiat Serang	0.00014	0.00011	0.00003	0.00008
Indah Kiat Tangerang	0.00028	0.00020	0.01231	0.01399
Pindo Deli	0.00047	0.00041	0.01113	0.01108
Tjiwi Kimia	0.00101	0.00062	0.00166	0.00122
Ekamas Fortuna	0.00017	0.00020	0.00595	0.00907

Employee Benefits

In Indonesia, minimum wage standards are set by provincial governments. All APP employee remuneration levels exceed statutory requirements set by provincial governments. The gap narrowed slightly in 2009, a reflection of the increase in statutory regional minimum wages during this period.

APP mean entry level salaries in 2008 and 2009 were around 127 percent and 118 percent, respectively, of the minimum wage standards of localities where mills operate

APP companies exhibit consistently low employee turnover. We believe this is a direct result of the high degree of job security, skills development and the health and welfare benefits provided to all employees. The company provides annual holiday entitlements, sick leave and maternity leave in line with Indonesian employment regulations, as well as social security and medical insurance in line with the Indonesian state social security fund (Jamsostek).

In 2009, 2,173 employees across APP's operations retired or resigned from their positions, a turnover rate of 5.5 percent, compared with 1,605 employees, or 4 percent in 2008.

Table 63 - Employee Turnover (based on Full Time Employees)

	2008	**2009**
By Gender		
Male	1,363	1,834
Female	242	339
By Age		
<30	655	752
30-50	825	1,054
>50	125	367
By Mill (Region)		
Headquarters	178	167
Lontar Papyrus	128	285
Indah Kiat Perawang	285	507
Indah Kiat Serang	369	452
Indah Kiat Tangerang	58	87
Pindo Deli	306	288
Tjiwi Kimia	254	333
Ekamas Fortuna	27	54
Total	**1,605**	**2,173**

[EC 3, EC 5, LA 2, LA 7]

Training

Each of our mills has a particular set of standard operating procedures and training programmes for employees, which are designed to meet its specific skills requirements. In 2008 and 2009 we conducted a total of 818,620 man-hours of training, which included job-specific skills development and health-and-safety awareness. Training participants numbered 70,403 and 51,794 in 2008 and 2009, respectively, representing 177.3 percent and 131.2 percent of our total employee numbers each year. Programmes included management training and motivation, quality control analysis, international trade policy and practice, as well as specialised technical skills training related to standard operating procedures, and the in-house maintenance of complex mill equipment, such as turbines and pulp and paper production machinery.

Introduction to and massive dissemination of anti-corruption policies to employees were executed via trainings and "Ayo Menjadi Karyawan Teladan" (Becoming a Good Employee) booklets. An outstanding effort was done by Indah Kiat Serang by translating the constructive ways of living into three discs of New Life Activity instructional movies.

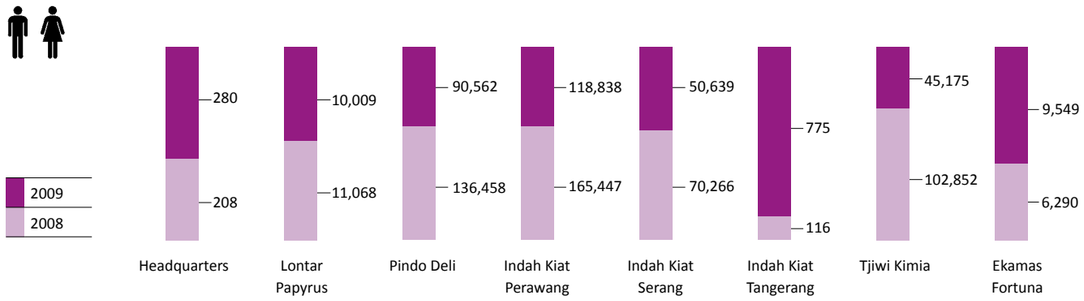
To enforce the anti-corruption program, APP launched a "Whistle Blowing" system in December 2008. As of end 2009, there 4,960 employees (12.6 percent of total workforce) had been introduced and trained about the anti-corruption policies and procedures and the whistle blowing system.

Training on human rights procedures was conducted for 6,948 and 10,863 employees in 2008 and 2009, respectively, representing 17.5 and 27.5 percent of the workforce. Total training hours on human rights topics amounted to 59,497 hours over both years.

Total Number of Hours of Training

In mills where separate records were kept, there was the following split of management and employee level training. Separate data was not recorded for Indah Kiat Perawang mill.

Graphic 14 - Training hours by Region



Graphic 15 - Training hours By Employee Category*

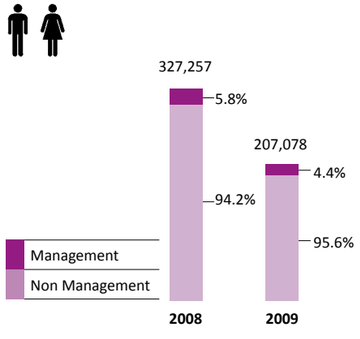


Table 64 - Human Rights Training

	Total hours		People trained	
	2008	2009	2008	2009
Head office	0	60	0	20
Lontar Papyrus	583	563	82	25
Indah Kiat Perawang	1,368	1,812	132	120
Indah Kiat Serang	6,728	7,119	5,294	4,113
Indah Kiat Tangerang	69	748	51	601
Pindo Deli	99	6,549	33	2,183
Tjiwi Kimia	10,055	16,921	1,177	3,475
Ekamas Fortuna	880	5,944	179	326

* Not included Indah Kiat Perawang

[LA 10, S0 2, SO 3, HR 3]

Severance pay is provided at all APP operations in compliance with Indonesian employment law. This is calculated according to the years an employee has worked (Indonesian employment law does not require employers to take into account the age of an employee when calculating severance pay, only the time of service). In addition, Indah Kiat Tangerang provides employees with a paid sabbatical prior to, and in preparation for, retirement. Indah Kiat Tangerang and Lontar Papyrus also provide job placement assistance for employees planning to continue working after retiring from the company. Lontar Papyrus offers pre-retirement counselling for employees, and Pindo Deli provides a retraining programme for retirees.

Notice periods are stipulated within individual employment contracts as required by Indonesian law. They are not a part of collective union contracts. Notice periods for resignation are typically 30 days for all mills, with for internal job transfers arranged between 3-30 days.

As part of career development, 98 percent of employees received performance reviews in both 2008 and 2009.

Freedom to Associate

APP employees may freely join unions. As of 2009, a total of 94.3 percent of APP employees were members of unions. In every mill, the company and the unions negotiate a collective labour agreement and both parties monitor its implementation. If a union meeting is held during company time, APP employees must seek a supervisor's consent to leave their posts in accordance with standard operating procedures and normal health-and-safety requirements.

Unions are part of the decision-making process at APP and union representatives are notified a minimum of one week in advance if major changes are to be implemented in factory operations. APP provides unions with the use of company premises to organise and allows unions to collect dues from staff and disseminate union-related literature.

Table 65 - Human Rights Clauses in All APP Contracts

	2008		2009	
Lontar Papyrus	12 – 15	20 – 25%	12 – 15	20 – 25%
Indah Kiat Perawang	387	100%	272	100%
Indah Kiat Serang	525	100%	479	100%
Indah Kiat Tangerang	35	47%	35	47%
Pindo Deli	2	100%	2	100%
Tjiwi Kimia	43	100%	43	100%

Note: no data for HQ as since there are no contractors in HQ
Ekamas did not provide data as this level of detail were not available during the reporting period

Human rights provisions are included in a range of agreements at APP with employees, contractors and suppliers.

Generally all selected companies met APP's human rights requirements in 2008 and 2009 and no prospective companies were refused business by APP under human rights screening procedures carried out in those years. The company received no reports of discrimination or violations of indigenous people's rights in either 2008 or 2009. The company did not record whether it had employed groups from minority groups in 2008 and 2009.

APP does not employ children under the minimum age for employment, does not support forced or compulsory labour, and does not tolerate racial, gender, sexual orientation, disability, age or religious discrimination. No instances of alleged discriminatory behaviour by APP or any of its individual mills were recorded in 2008 or 2009.

In 2009, 76.6 percent of 1,351 security personnel employed in our mills received training in human rights policies, while in 2008 this proportion was 76.7 percent of 1,299 staff.

Towards a Culture of Safety

The risk of injury and loss of life among our workforce is ever present and something we continue to work hard to eradicate, yet for the period of this report it was unacceptably high.

Much of the increase was traffic-related, primarily due to the increased affordability of motorcycles in Indonesia. Local enforcement of licensing, proper training on road safety and proper vehicle control has not kept pace with vehicle ownership. We are addressing this by working with the police on practical safety training sessions for employees who own motorcycles.

Through ongoing training programmes, hazard identification, and risk management we are working steadily towards creating a culture of safety across our operations. Our challenge is to make safety a habit for every employee. Safety is important at home too, and we are encouraging greater safety awareness and health habits for our employee's families as well as for members of the wider communities adjacent to our operations.

Safety Training

Each of our mills has a particular set of standard operating procedures and health-and-safety activities developed for their needs, covering safe work practices, hazard identification and accident response. In 2008 and 2009, we conducted programmes on more than 104 separate health-and-safety topics. Training participants numbered 16,880 and 13,570 in 2008 and 2009, respectively, representing 42.5 percent and 34.4 percent of our total employees each year, respectively.

[EC 3, LA 4, LA 5, LA 11, LA 12, LA 13, HR 1, HR 2, HR 4, HR 5, HR 6, HR 7, HR 8, HR 9]

Training programmes included first aid, job safety analysis, safe chemical handling, fire fighting, emergency response, training and certification for truck drivers, and general vehicle and motorcycle safety.

Prevention is always better than a cure. Overall, risk prevention activities more than doubled over the reporting period, with 9,430 employees participating in 2009, against 4,504 the previous year.

Training for contractors during the reporting period included forklift operations and fire control at Indah Kiat Tangerang; toxic fire fighting at Indah Kiat Serang and Lontar Papyrus; emergency response at Indah Kiat Serang, and liquid petroleum gas handling at Lontar Papyrus. Contractors participating in safety training totalled 2,288 in 2008 and 1,895 in 2009.

Safety, health and risk-prevention awareness is also promoted beyond our gates. Communities around Tjiwi Kimia received training in HIV AIDS prevention, and women's reproductive health. Emergency response and first aid programmes were provided for communities around Indah Kiat Tangerang. Communities in the vicinity of Lontar Papyrus participated in training on the safe handling of liquefied petroleum gas (LPG) and chemical leak evacuation, while community members around Pindo Deli engaged in motorcycle skills training and fire prevention.

Safety Performance

In 2008 and 2009, APP recorded 1,355 and 1,333 accidents across its mills, respectively. Most of the accidents, 96 percent in 2008 and 98 percent in 2009, resulted in non-permanent injuries. However, 46 incidents caused permanent disabilities in 2008, and 13 permanent disabilities were sustained in 2009. Traffic-related incidents were the largest cause of accidents, 416 and 418 incidents, respectively, in the reporting period.

During the reported years, there were three instances of occupational diseases in 2008 and five in 2009. In 2008 all instances were reported in Pindo Deli, whereas 1 instance was reported in Pindo Deli and four instances in Lontar Papyrus in 2009.

During the reporting period, motorcycle use has continued to grow in Indonesia, with sales rising 30 percent from 2007 to 2008 alone, while road availability has stayed relatively unchanged growing at only 0.1 percent between the two years. Unfortunately, health and safety practices have also not caught up, and Indonesia's road accident rate has continued to rise, with an estimated 61 percent involving motorcycles in 2008, according to a University of Indonesia study in 2009.

New Safety Riding Program at Tjiwi Kimia

Launched in August 2009, the Safety Riding campaign aims to reduce vehicle accidents on and off site. Participants receive three days of classroom training and a day of skills practice.

The idea for the Safety Riding campaign originated with Tjiwi Kimia Safety Manager Tjiptono Kunto through the company's I-Suggest initiative. "Traffic is better inside the mill than outside because we have a 30 kph speed limit and safety signage, yet still we were recording traffic incidents," said Tjiptono. "I entered the Safety Riding idea into I-Suggest in February 2009 and the program was launched six months later."

In 2009, 150 employees participated in the training, which saw the vehicle incident rate halve in the second half of the year.

[LA 8]

None were reported for the rest of the mills. Most of the disease was related to hearing. Measures taken were to provide full medical assistance for the affected employees.

We are saddened to report nine fatalities in 2008 and eight in 2009. Again, traffic accidents were the predominant cause of fatalities, making up 10 of the total of 17 deaths during the two years, most occurring outside the mills. The very large land area of several of APP's sites means that employees are allowed to bring motorcycles on-site, to reach their workstations. And the large number of employees means that, at shift change times, substantial motorcycle traffic is inevitable.

A campaign for better road safety awareness and driving skills is being rolled out at several work-sites. Corrective actions taken to prevent traffic accidents in 2008 and 2009 included compulsory wearing of helmets on-site, road safety campaigns and training, monitoring of risk areas inside and outside the mills, issuance of safety reminders to staff, and safety checks for motorcyclists.

Of the five other fatalities at APP mills in 2008 and 2009, three deaths occurred from falls, 1 from electrocution, 1 from exposure to chemicals, 1 from mechanical mishandling and 1 employee died after being crushed in an enclosed space.

Table 66 - Accident Rates 2008 and 2009

Accident Rates	LTI-FR*		LTI-SR*		Fatalities	
Mill	**2008**	**2009**	**2008**	**2009**	**2008**	**2009**
Lontar Papyrus	3.56	4.60	0.30	0.44	2	2
Indah Kiat Perawang	3.08	3.68	252.24	259.79	1	1
Indah Kiat Serang	3.18	3.25	180.07	274.71	1	2
Indah Kiat Tangerang	2.97	4.36	13.98	27.49	0	0
Pindo Deli**	20.77	19.40	9.61	13.01	0	0
Tjiwi Kimia	5.95	4.68	0.90	0.89	5	3
Ekamas Fortuna	22.45	17.87	196.84	44.34	0	0

Source: Individual Mill Safety Committee Accident Reports,
* Lost Time to Injury (LTI) Frequency Rate (FR) Severity Rate (SR). According to Indonesia's Ministry of Work Force regulations No. KEP 84/BW/1998
** Both Pindo Deli 1 and 2 are aggregated

Table 67 - Percentage of workforce represented on safety committees

Mill	2008	2009
Lontar Papyrus	4.7%	4.7%
Pindo Deli	4.1%	4.3%
Indah Kiat Perawang	6.8%	6.8%
Indah Kiat Serang	1.3%	1.3%
Indah Kiat Tangerang	4.5%	5.9%
Tjiwi Kimia	1.2%	1.2%
Ekamas Fortuna	0%	0%

Continuous trainings and awareness raising initiatives are implemented to prevent future accidents throughout the mills.
Risk management forms a part of our standard operating procedures. All our operational areas are monitored for potential risks, with safety signage encouraging caution in high-risk areas. Smoking is banned in all APP working areas, as both a health and a safety hazard.

With the exception of Ekamas Fortuna, all mills met the requirements of the Government of Indonesia's occupational health-and-safety management system standard, SMK3. Pindo Deli and Indah Kiat Tangerang hold OHSAS 18001 certification.

[LA 7]

Health

Each mill has an established occupational health and safety committee overseeing its site. Permanent employees receive health insurance and with the exception of Ekamas Fortuna free annual medical checkups. Health and safety agreements reached with trade unions representing staff at all mills include policies on working hours, maternity leave, accident assurance training, and work equipment safety checks.

Most Improved Mill

Pindo Deli's total accidents dropped by 9.2 percent, from 411 to 373 incidents, among 6,862 and 6,644 staff in 2008 and 2009, respectively.

The Pindo Deli sites recorded zero fatalities and zero instances of occupational disease in the reporting years; one permanent injury in 2008 and two in 2009. The injuries occurred when employees accidentally caught their hands in machines while they were cleaning or adjusting them and accidents occurred at the Unit Paper Cutter 6 in 2008 and at the Unit Paper Cutter 7 and the Unit Flexoweb in 2009. Remedial actions taken involved briefing employees in the work areas about specific safety practices relating to the machines. Warning signs were posted in these areas, alerting employees to potential dangers and proper work safety practices.

Independent of these incidents, a total of 1,350 Pindo Deli employees received safety training, including hazard identification, job safety analysis, emergency response and fire extinguisher use over the two years. Contractors engaged by Pindo Deli also received training in the company's occupational health and safety policy, hazard identification, emergency response, and fire extinguisher use. Reflecting its efforts to involve staff in health and safety, Pindo Deli has a high proportion of employees represented on its health and safety committees. A total of 1,671 employees sat on emergency response teams in both 2008 and 2009, and members of safety committees represented approximately 4 percent of total staff over both years.

The company also took the safety message home: inviting family members to take part in fire prevention programs, safe motorcycle use programs, and safe electricity awareness.

[LA 3, LA 6, LA 9]

Raising the Flag on HIV

The Indonesian Ministry of Health reported a 600 percent increase in reported cases of HIV / AIDS between 2004 and 2009. On Java, the East Java province has the highest reported rate of the virus. Our Tjiwi Kimia mill has been working to combat the spread of the virus since 2002, through awareness raising programmes for employees and local truck drivers. In recognition of this, we received a Millennium Development Goal award in 2009, from the national broadcasting station Metro TV, working in co-operation with the United Nations.

In 2008 and 2009, several awareness raising sessions were held at the main gate for regular truck drivers transporting paper products from Tjiwi Kimia. "I knew a little about HIV / AIDS from magazines," said truck driver Imam Muslik, pictured left. "But now I know a lot." Imam, who has been driving to and from the Tjiwi Kimia paper mill for eight years, has joined two awareness sessions and said he had passed on the information learned to his brothers and friends.

For employees, Tjiwi Kimia People Development Head Lukmanul Hakim has been conducting HIV / AIDS awareness raising sessions four times a week since August 2009. Sessions include 125 participants and last for four hours. Lukmanul trains 500 employees a week and said that the material is informally passed on to families and community members through the employees.

Stakeholder Engagement: the global conversation

Improved technology, wider reach, and greater variety in modern mass media are building greater awareness of the issues that affect our world: people are talking about weather patterns and climate change implications; about finite materials use, carbon offsets, energy efficiency; about poverty and food and water the world over; about species conservation, product standards, fair pay; about consumerism, new rapidly emerging economies, and trade regulations; about waste disposal, energy capture from waste, and innovative recycling practices. People are talking, and as one of the world's largest pulp and paper companies, we participate in this global conversation.

We publish APP Stakeholder Update regularly for stakeholders across the world, and press releases and other communications as topics arise; including updates on certifications and compliance with a range of international standards. These communications and their back issues are available for download from www.asiapulppaper.com. All our stakeholders and members of the wider public are welcome to contact us with their thoughts and ideas at environment@app.co.id.

In 2008 and 2009 APP's Sustainability & Stakeholder Engagement Team travelled to 12 countries to conduct sustainability related events. Headed by Director of Sustainability & Stakeholder Engagement Aida Greenbury, the team did its first live web interviews with ProPrint.com.au in 2009.

[4.14, 4.15, 4.16, 4.17]

During the production of this report, over 25 stakeholders were consulted for their ideas on the company, its pulpwood supply, its conservation work, and other areas they felt were of current interest. Stakeholder input was gained through face-to-face meetings and written correspondence. Points raised by stakeholders included the percentage of natural forest in the pulpwood supply, tiger conservation strategies, management of core reserve areas, community education and health improvements, local infrastructure developments, pulp and sludge odour, high conservation value forest assessments, total production volume which is PEFC certified, use of peat land, corridors through forests, downstream flooding after conversion, human rights, employment and unemployment, communications with local people, waste and composting, and greenhouse gas emissions.

Stakeholder Questions

Q What is APP's role in the management of the Senepis Tiger Conservation Area? The area includes adjacent timber concessions which are not affiliated to APP operations. What proportion of the proposed area is under APP direct or indirect control?

The Senepis-Buluhala Tiger Conservation Area in northern Riau, Sumatra covers 110,142 hectares of land and is bordered by concessions held by 3 companies. Of these, two companies are APP's exclusive pulpwood suppliers.

APP fully supports the active participation of its pulpwood suppliers in the development of the Senepis-Buluhala Tiger Conservation Area. The two neighboring concessions are Suntara Gajapati and Ruas Utama Jaya; which set aside 19,186 hectares of their production forest concession for the sanctuary. The main area community of 106,142 ha is managed by another timber concessionaire, PT. Diamond Raya Timber, not associated to APP operations. As a leading member of the conservation area Working Group, a body made up of state, private and non-governmental organizations, APP's pulpwood suppliers participate in the management of the conservation area.

In May 2008, APP and its pulpwood suppliers took part in an extensive tiger monitoring project which included interviews with local villagers. We found that many residents did not know where the conservation area's borders were. In November 2008, APP's pulpwood suppliers together with the local Forest Service, local government, and other forest concession owners put up five signboards along the border of the conservation area. The following year an additional 200 signs were placed along the perimeter in an effort to increase awareness of the area's status.

Other activities conducted by the Working Group in 2008 and 2009 included:

- Fitting radio collars onto tiger which had been captured by local communities, then releasing the tigers into the sanctuary
- Installing camera traps to learn the tigers' habitat
- Monitoring human activity in areas in and around the conservation area
- Disarming illegal tiger traps found in and around the conservation area
- Initiating discussions with trespassers on the conservation site to raise awareness of the legal consequences of their actions
- Engaging in political and public advocacy for the protection of the tigers, including opposition to the local government's planned construction of roads through the Senepis-Buluhala Conservation Area

Q What are APP's plans for tiger and tiger prey conservation management, particularly within production areas?

In May 2008, APP and SMF took part in an extensive tiger monitoring project, which included interviews with local villagers living near the conservation and the plantation forest area. We found that many residents did not know where the conservation area's borders ended and where production areas began. In November 2008, SMF together with, the local Forest Service, local government, and other forest concession owners put up five signboards along the border of the conservation area.
During 2009, 200 additional signs were put up to clearly mark the boundaries in an effort to increase awareness of the area's status and warn the villagers that tigers are roaming inside. Furthermore, it was identified that one of the major reasons for human-tiger conflict is dependent on the supply of prey within the conservation area. If there is not enough food, the tigers, attracted by the village livestock, may roam close to the villages. Beginning 2009, APP and its pulpwood suppliers, in conjunction with a local tiger conservation organization, is commencing a 'tiger prey' study as an initiative to address human-tiger conflict at the border of the sanctuary.

Q Giam Siak Kecil, in Riau Province, Sumatra, is a beautiful area with high conservation values, but is threatened by illegal logging and other developments. How is APP managing the core areas of the biosphere reserve so it can be effectively protected?

After five years of preparation, APP and its pulpwood suppliers succeeded in having the 178,000 hectare Giam Siak Kecil Bukit Batu (GSKBB) conservation area declared

An APP representative meets with the head of Lubuk Bernai village in Jambi (left), Sumatera, as part of regular community relations work.

a UNESCO Man and Biosphere Reserve Programme in May 2009. Within of this park, almost half of the high value conservation area, or 70,721 hectares, was voluntarily set aside by APP's pulpwood suppliers.

APP and its pulpwood suppliers are now managing the area through a multi-stakeholder approach involving local government, NGOs, industry, scientists, environmental experts and local communities.

Actions to protect the reserve have included:

- Research activities within the biosphere to develop a database of the biodiversity assets of the core area
- Policing of the 222,425-hectare buffer zone to the national park; of which an estimated 88 per cent is managed by APP's pulpwood suppliers.
- Studies on potential land use were conducted in 2009 to develop sustainable economic development for forest communities using local flora and fauna.

Q What percentage of the capacity of APP mills are met by supply from natural forest and from planted forests, and when do APP plan to supply their mills 100 per cent through planted forests?

APP's pulpwood supply is predominantly sourced from sustainable plantations: 83.4 per cent in 2008 and 2009. These plantations grow Eucalyptus and Acacia, for example, expressly for the purpose of pulp production and cover less than two per cent of Indonesia's total land base. Planted species are fast growing with high yielding.

The remaining 16 per cent comes from legally sourced mixed wood residue, which comes from trees harvested in production forests allocated by the government to APP pulpwood suppliers for the establishment and management of pulp plantations.

By 2015 we plan to supply our mills with 100 per cent plantation sourced pulpwood.

Q Does APP use any high conservation value forest in their fiber supply?

No. APP's pulpwood suppliers in Indonesia only develop government-designated degraded forests and denuded wasteland in line with the policies of the Indonesian government. Furthermore, prior to any development, these areas are subjected to several independent ecological and social assessments in order to protect high conservation values which might exist.

These assessments identify areas that are environmentally important, including water catchment areas and river basins, and protect them from development. Results from the assessments are incorporated into the working plan for the concession and are submitted to the Government for approval prior to development.

Q Ciampel village has a lack of access to clean water. We have sent a proposal to the Pindo Deli Community Development team and are waiting for a response.

Ciampel is located not far from from Pindo Deli's facility. In 2008, the Pindo Deli Community Development team received the Ciampel proposal to develop water facilities. The team embedded the proposal in their 2009 CSR activity planning .

Providing communities with vital infrastructure like fresh water supplies is a key part of APP's community development agenda. In 2008 and 2009, Tjiwi Kimia provided a total of 629,890 cubic meters of clean piped water to the 729 villagers of Keramat Temenggung. In August and September 2008 and 2009 Indah Kiat Serang, working with the Serang Water Company, donated 75 tanks of water, supplying 7,000 villagers with clean drinking water during the dry season.

Q The company has had positive impact on local life: it has stimulated the local economy, renovated damaged roads, increased education awareness, and all local students go to school. The three-month old community acacia nursery will be bought by the company through the village institution. Other community programs have increased the economics of the informal sector through waste management, brick making and tissue packing.

APP welcomes such positive feedback, and assures Abdul that such community projects will continue and be expanded in the future. During 2008 and 2009, the company was increasingly involved in community development across its areas of operations, spending a total of US$12 million in Indonesia in both 2008 and 2009. We are committed to empowering and advancing the interests our many stakeholders, helping Indonesia to achieve its Millennium Development Goals, and promoting wealthy, educated communities that live sustainably and in harmony with their environment.

Social Initiatives and Poverty Alleviation

As millions of Indonesians struggle to make ends meet, APP programmes are aimed at tackling the root causes of poverty, through education, disease prevention and community empowerment. We align with best local practice and aspire to meet the Millennium Development Goals.

Social Footprint Assessment (SFA)
Millennium Development Goals

> **Nearly 35 million Indonesians live below the poverty line.**

In March 2008, the Indonesian Central Bureau of Statistics (Badan Pusat Statistik) reported that nearly 35 million Indonesians live below the poverty line, defined as being unable to afford food equivalent to 2,100 calories a day[1]. APP is working towards tackling local poverty through a range of community programmes across all of its operations, targeting different dimensions of poverty.

Our poverty alleviation programmes are targeted to address the root causes of poverty: lack of education, lack of vocational skills, lack of livelihood opportunities. Our programmes also try to tackle the symptoms of poverty: child and maternal health issues, poor disease control, lack of community cohesion and empowerment, the need for safer, stronger infrastructure facilities. For us, community empowerment means "helping people to help themselves," a goal which defines the underlying strategy of all of our social programmes.

In 2008 and 2009, APP invested $3.8 million in community development programmes in Sumatra and Java. We ran more than 55 programmes in the two-year period, spanning many topics, some of which are described below, and reaching more than 60,000 local people.

Strategy Development

APP community development strategies are rapidly evolving. In 2008 we commissioned a social footprint assessment (SFA) of a substantial part of APP's operations from Environmental Resources Management Ltd. (ERM). This is designed to provide us with a baseline from which we can evaluate the social and economic impacts of our operations on local communities and to provide a set of performance indicators against which we can measure the effectiveness of our development work.

The SFA also marks a maturing of APP's strategy, moving away from philanthropy-based community work towards providing support for the development of more sustainable communities. We are guided in the development of our community programmes by the recommendations given in the SFA, by our work towards compliance with the new ISO 26000 (Guidance on Social Responsibility) Standard that is due to be published in November 2010, and by aligning our programmes with Indonesian national priorities for addressing the Millennium Development Goals of the United Nations Development Programme.

The UN's Millennium Development Goals aim to reduce extreme poverty by half by 2015. This chapter of our Sustainability Report presents APP's progress towards sustainable development in local communities in the vicinity of our eight[2] operational sites, in 2008 and 2009, in support of these socio-economic goals.

This chapter also gives some details of the parallel social programmes run by Arara Abadi and Wirakarya Sakti, APP's major pulpwood suppliers in Sumatra.

Livelihood Development

APP's livelihood programmes aim to give local people the skills and opportunities to free themselves from poverty through vocational training. An example of this in Java was the establishment of the Mitra Kreasi Handicraft business under the supervision of Indah Kiat Serang mill, described in "Creative Crafts" (facing page). The Indah Kiat Perawang team launched a skills training programme to develop farming, fishing and animal husbandry techniques. Two batches of 10 farmers participated, with a focus on breeding and raising cows. Participants were loaned cows to breed from and were permitted to keep any calves produced.

APP invested around $60 thousand for economic empowerment programs.

[1] The UN's Food Poverty Line and the poverty measure of the Indonesian Government.
[2] For the Social Initiatives and Poverty Alleviation chapter, Pindo Deli I and Pindo Deli II are not differentiated.

[SO 1]

Creative Crafts

A new recycled paper initiative offers empowerment and vocational opportunities in Pabuaran Indah, Java.

A short walk from the gates of Indah Kiat Serang, six men sit in the shade around a table folding factory scrap paper into neatly handmade calendars, photo frames, and tissue boxes.

Mitra Kreasi Handicraft, established in August 2009, offers new micro business opportunities to local community members, particularly those with limited education but who are keen to work. In addition to handicraft skills, the craftsmen, each of whom was trained from scratch, are taught business skills intended to give them the potential to establish their own future micro businesses.

The craftsmen use rejected paper from the converting process at the Indah Kiat Serang mill and paper off-cuts from Paper Mill 1. Plies from paper rolls that cannot be recycled due to their glue content are reused by Mitra Kreasi Handicraft to make paper string for shopping bag handles. These materials are provided to Mitra Kreasi Handicraft for free. The finished products are bought by APP, which in turn makes presents of them to mill visitors.

The group makes shopping bags which sell for 50 cents each. Photo frames fetch $2.50 and the calendars sell for $1.70 each.
"APP advised me of the kind of products they wanted, and I worked on developing the designs," said founder and owner Farid. "I wanted to give local community members something to work on; to give opportunities to the people whose education level is too low to work at the mill."

APP currently buys all Mitra Kreasi Handicraft products, but Farid also dreams of expanding the business to sell to outside customers as well, in the future.

Education

APP believes everyone should have access to quality education. In 2008 and 2009, APP invested $2 million in promoting and improving community education, and conducted education programmes in the communities around each of its eight operational sites.

APP's education-related programmes included:

- Extracurricular classes.
- Scholarships.
- Tuition fee support.
- Work experience provision.
- On the job training.
- Donations of teaching equipment and study aids, including school buildings and infrastructure provision.
- Classroom support.
- Provision of school transport.

Extracurricular classes

As well as being accessible, education should be fun. Our Tjiwi Kimia team was proud to have First Lady Ibu Ani Bambang Yudhoyono launch its Rumah Pintar, an education house concept championed by the first lady.

Our mills support the work of Solidaritas Istri Kabinet Indonesia Bersatu (SIKIB), the United Indonesia Cabinet Wives' Solidarity Association, to educate children and housewives through the Rumah Pintar concept. The approach serves the educational need of communities around our mills.

Fun While Learning

Local volunteer teacher Endang gives an art lesson, while Fauzi Achmad volunteers 90 minutes of computer lessons every day.

In May 2008 Tjiwi Kimia teamed with the the United Indonesia Cabinet Wives' Solidarity Association (SIKIB), the Eka Tjipta Foundation and Smart Telecom to launch Rumah Pintar – an extracurricular learning facility championing fun.

Located in Banjar Agung, East Java, the facility is free and open six days a week. It offers a library of fiction and non-fiction books, classrooms, a computer room with internet facilities, indoor and outdoor sports areas, a kitchen and a yard with gardening space, biopore holes and a recycling area. Classes include computer science, Mandarin, English, drawing and crafts, and complement the neighbouring schools. Eight local teachers volunteer their time and Rumah Pintar awards certificates for courses successfully completed.

Tjiwi Kimia has leased Rumah Pintar 800 square meters of land in Banjar Agung for the facility and contributes $1,020 a month towards operational costs. Books in the library were donated by Tjiwi Kimia employees.

Rumah Pintar attracts around 400 visitors a week, and most students are five to 12 years old.

In addition to boosting local education opportunities for children, Rumah Pintar is open for adults to use as well. Justuti (pictured top left) is the mother of 10-year-old Haldila who studies English three times a week at Rumah Pintar. "I've made new friends here," said Justita. "But I have also learned how to cook well. Since reading the cook books here I've been a runner up in a local cooking competition! I'm very happy with the facility and it's within walking distance from Haldila's school."

Rumah Pintar Administrator Erma Dwi Afnalia said the children were from both rich and poor families and they play together happily, making Rumah Pintar a meeting place for children of very different backgrounds.

Development is underway on a Rumah Pintar Abdul Wahid facility near Indah Kiat Perawang, which is expected to open in mid 2011. Indah Kiat Perawang also started the construction of a public library in 2009.

In 2009, the Pindo Deli community development team went back to school to present lessons for 58 local children from two junior high schools on subjects including safety and ecology. Meanwhile, Indah Kiat Perawang tried to take the sting out of exams by arranging a 45-day exam preparation course for 30 local high school students prior to the state university entrance exam. Of the participants, 22 were admitted to state universities.

Scholarships and Tuition Support

In 2008 and 2009 APP contributed towards the education of over 50,000 students.

All APP mills have provided tuition fee and other educational support, tailored to meet the needs of students in their communities.

In 2008 and 2009, APP provided $1.7 million scholarships for local children and graduates. Among the scholarship recipients were 18 orphans living close to Ekamas Fortuna mill, eight high school graduates from Serang and 52 postgraduate students. The high school graduates received scholarships to study for three years at the Technical Academy of Pulp and Paper in Bandung, West Java, and the postgraduate scholarships were awarded by APP to employees' children and cover university tuition and book expenses until graduation.

Employees at Indah Kiat Tangerang and Pindo Deli got personally involved in education and made private donations to support the education costs of 3,256 local schoolchildren in total for two years. Tjiwi Kimia contributed towards the tuition expenses of 1,800 schoolchildren, and Indah Kiat Perawang paid university tuition for 57 local students in both 2008 and 2009.

Work experience is a good way for students to be introduced to the business environment and take the step from education to employment. Ekamas Fortuna offered internships to 52 students from local schools, while Indah Kiat Tangerang and Indah Kiat Perawang offered on-the-job training opportunities to 354 local students. Tjiwi Kimia invited 375 students and 1,700 local and national university academics to the mill for the chance to see business and economic theory in practice.

Teaching aids are a part of quality education. In addition to providing local schools with electric fans and sports equipment, APP donated around 150,000 textbooks to more than 33,000 schoolchildren during 2008 and 2009.

Health

In 2008 and 2009, APP invested $100 thousand in aggregate to develop health care infrastructure and services in the neighbourhoods local to our operations, touching the lives of thousands. This investment included health awareness training, disease control activities, and the provision of mobile clinics and free medical consultations.

Ticket to Learn

How does a 7-year-old get to school if it is too far from home to walk and his parents have no transport? Along the Minas-Perawang highway, it is common to see elementary and junior high school students trying to hitchhike to school.

Indah Kiat Perawang Community Development Department Head Edy Suranta identified three reasons for this: a lack of buses and mini buses operating in the area; the long distances between the children's homes and schools, and the fact that education is not the first priority for some parents. "Children who cannot get a lift usually have to skip classes," reported Edy. "It happens frequently."

In 2008 Indah Kiat Perawang began operating a two-way bus service for four elementary schools, one junior school and one high school along the highway, providing free and safe transport for around 500 schoolchildren every school day. The service commences at six in the morning and plies the 90-minute route from Perawang to Minas. The bus runs again at lunchtime and in the afternoon to return the children home.

Tjiwi Kimia mill in particular has received special recognition for its work on health awareness training and disease control. In 2009, it received a Millennium Development Goal award from Indonesian television channel Metro TV, working in cooperation with the United Nations, for the mill's continuous efforts in combating HIV / AIDS, including HIV AIDS awareness training for employees and truck drivers. This story is set out in more detail on page 71.

Tjiwi Kimia also sponsored more than 50 external HIV / AIDS awareness raising events that reached more than 17,900 people in local communities.

APP has provided mosquito fogging, specifically targeting malaria and dengue fever, for villages adjacent to many of our mills that requested the service as a preventative measure, or where instances of the disease have been reported.

To increase the accessibility of village health care, APP has continued to fund mobile clinics and provided free medical consultations for local residents. APP often collaborates with local medical centres to provide health care services. Indah Kiat Perawang, for example, has worked with the Tualang Health Care Centre to provide a monthly mobile clinic serving around 1,700 residents in four villages along the Siak River. Indah Kiat Tangerang provided operational funds for eight health clinics in Pakulonan, which tended to 1,060 babies in 2008 and 2009.

Working through the Indonesian Red Cross, 1,000 APP staff members volunteered to donate blood yearly.

Infrastructure

Part of empowering communities is helping to develop local infrastructure to stimulate economic growth, education and quality-of-life improvements. APP contributed over $500 thousand towards the construction of local mosques, schools, and roads, and participated in renovation work on village cemeteries and schoolyards. Ekamas Fortuna has commenced using waste fly ash and bottom ash from its operations to manufacture paving blocks and cement bricks on-site, for use to improve community roads and for constructing schools, offices, mosques and fences in the vicinity.

Most of our employees live in the communities around our operating facilities, so participating in community events is a natural part of their social lives. APP considers itself part of the community, and celebrates and contributes to special calendar days and community activities.

Contributions made in 2008 and 2009 included donations of cattle to more than 75 local mosques for the Idul Adha celebrations, donating rice for 900 local people living near Ekamas Fortuna mill for Idul Fitri and sponsoring a 10-kilometre race for 350 runners each year near Indah Kiat Serang, in celebration of Indonesian Independence Day.

Environmental Sustainability

APP promotes environmental sustainability in local communities by providing local farmers and community members with training and employment in planting and farming. An example includes the rehabilitation of idle grasslands in Karawang. Working alongside 150 local community members, the Pindo Deli Community Relations and Mill Forestry teams planted 1,040,000 trees over 650 hectares. The farmers gained employment planting and tending the trees and were able to use some areas to plant corn, pineapple and peanuts as cash crops.

In 2008, the World Bank reported that 43 percent of Indonesian villages had no direct access to water. APP has been working with the Serang Water Company and local stakeholders to provide water during the dry season to over 7,000 villagers living near Indah Kiat Serang, and provided some 580,000 m^3 of clean, piped water to more than 700 villagers in Keramat Temenggung near the Tjiwi Kimia mill site.

PP invested around $300 thousands for environmental sustainability in local communities and to support community and religious activities.

Lights On

Thirteen-year old Hendra Kurniawan is doing his Indonesian language homework by the light of a lamp in the family's living room.

This might not seem extraordinary – but until 2005 the village Hendra lives in, Pinang Sabatang Timur, had no electricity. Instead, villagers shared a generator which was used only between 6 p.m. and midnight due to the expensive running costs. Hendra's parents paid $31 month for 3 kg of "solar" (diesel oil) for their generator usage.

In 2006 Indah Kiat Perawang, in conjuction with national power company PLN, and Riau provincial and Kabupaten Tualang (regional) government agencies, arranged for a 20kV electricity supply grid to be extended to the areas surrounding the mill. Indah Kiat Perawang also contributed to the installation of transformers and medium voltage power lines to individual properties, Today, the mill provides its surplus electricity to villagers at a subsidised price, around 20 percent cheaper than the national grid tariff.

For Hendra's parents, this has resulted in a drop in household expenses – they now pay $14 for electricity per month – and have the use of electricity 24 hours a day.

Local farmer Oyon Kusyono is from Kutanegara in Karawang. He recalled that two years earlier, in 2008, there was insufficient water in the land to provide for the local villages; villagers had to draw from the river instead. Now, in 2010, after the increased tree planting locally, he reports that the land holds enough water for village use year round.

Social Footprint

Social Footprint Assessment

In May 2009, APP published its social footprint assessment (SFA) - the result of 17 months of field research and analysis by the Environmental Resources Management (ERM) consultancy group.

[EC 2, SO 1]

Environmental Sustainability Award

The United Nations praises Tjiwi Kimia twice for MDG contributions.

On November 5th 2008 Tjiwi Kimia received two awards for its contributions toward Indonesia achieving its Millennium Development Goals. Ten awards were presented by the United Nations and Bappenas, the Indonesian National Development Planning Agency, to national and local governments, United Nations agencies, and private sector companies commending the work achieved.

Tjiwi Kimia took home the Environmental Sustainability Award, in recognition for its sustainable green products made from used paper, and the Special Award for demonstrating a standout contribution toward tackling climate change. Tjiwi Kimia continues to cut emissions and waste levels through its Reduce, Reuse, and Recycle drive.

The objectives of the SFA were to develop a better understanding of the social and economic impacts of APP's operations on local communities and to design key performance indicators for measuring these impacts. The executive summary of the SFA is available upon request from APP's Sustainability team: environment@app.co.id. An overview of the SFA findings is presented here.

The Social Footprint Assessment has a companion in the Carbon Footprint Assessment, also conducted by ERM. Together, this Socio-Carbon Footprint forms the base for a broader APP sustainability strategy for the years ahead and provides indicators and recommendations to advance our pursuit of continuous sustainability management. This Socio-Carbon Footprint assessment is the first of its kind in the pulp and paper industry world-wide.

The SFA covered eight mills in total – the three Indah Kiat mills and our Tjiwi Kimia, Pindo Deli I and II, Lontar Papyrus, and Ekamas Fortuna mills - as well as the plantations of our pulpwood suppliers Arara Abadi and Wirakarya Sakti. The year 2007 was used as a baseline against which future performance can be measured.

The assessment team comprised five socio-economic experts who assessed the operational facilities at each site, interviewed management, collected data, and visited people from local communities. In total, 90 stakeholder interviews were conducted.

The SFA identified the following areas of impact: employment, training, business opportunities, and contributions to regional and national growth through tax and other economic contributions.

SFA findings showed that, in 2007, the APP mills reviewed provided employment for more than 80,000 people, including contractors and suppliers. Arara Abadi and Wirakarya Sakti employed more than 53,000 people, including suppliers and contractors. In terms of skills development impact, APP provided training for 87,508 people in 2007, with Arara Abadi and Wirakarya Sakti training a combined total of 6,080 people.

The assessment shows that APP secured products and services from approximately 3,400 indigenous suppliers and contractors, amounting to up to US$535.9M in 2007, while Arara Abadi and Wirakarya Sakti obtained products and services from approximately 1,553 local suppliers and contractors, amounting up to US$218.5M.

Many stakeholder interviews were conducted during the assessment fieldwork. Most stakeholders interviewed expressed general support for APP, saying that it had contributed to economic development through the creation of jobs and business opportunities and by sponsoring educational, social, cultural and religious programmes.

Other stakeholders expressed the view that there were not enough local employment opportunities being created.

Specific complaints raised with the SFA team included vehicle volume and noise, and increased dust levels during wood transport, land disputes, uneven distribution of Corporate Social Investment (CSI) programmes, and odour and river water quality issues in the dry season, in the Siak and Citarum rivers. More information on these and other locations involved can be viewed in the May 2009 Executive Summary of the Social Footprint Assessment, available upon enquiry via environment@app.co.id.

Notwithstanding the complaints and comments received, local communities interviewed expressed general satisfaction with the work that APP has been doing on a wide range of issues. These included local job stimulation and community business partnerships, education and public health development, agriculture development, fire prevention training. domestic waste management. public infrastructure development and accessibility power supply, and improvement in public-access forest conditions around Arara Abadi concessions.

Stakeholders expressed a wish for continuing and further support or response in the following areas:

- Health.
- Education services.
- Scholarship provision.
- Vocational skills development.
- Public infrastructure development.
- Public water distribution.
- Direct local involvement in formulating and managing community programmes.
- More frequent communication forums between the company and community members.

[EC 6, EC 9]

Company Impacts

The table below summarises the range of both positive and negative impacts on local communities from APP and pulpwood supplier operations, identified by our analysis and the 2007 SFA analysis:

Creation of new job opportunities	Stronger partnerships with local businesses	Stimulated economic activity	Increased population density	Increased local land value
More vocational skills training opportunities	Improved understanding of how to harness economic value from certain wastes	Improved public infrastructure, for example schools, mosques, and roads	Improved public facilities, for example lighting and clean water	Increased mobility
Increased social interaction	Improved local sanitation to counter the spread of dengue fever	Greater access to health care	Greater access to education through scholarships and tuition expense support	Contribution to regional development through taxes and royalties
Dust raised from roads during transport	Noise from Increased traffic operations	Increased traffic	Congested port during peak loading and unloading activities	Odour from operations during the dry season

Company impacts on local communities were identified through surveys and stakeholder communications coordinated by the Public Affairs teams at each mill. Stakeholders surveyed around Indah Kiat Serang, for example, included local village and religious leaders, locals NGOs, academics and community groups. Feedback indicated that one concern for the local communities was that the company did not offer enough job opportunities, and did not run sufficient local environmental programmes. Indah Kiat Serang responded by offering employment for unskilled locals by improving the company's Go Green environmental management initiative with a "re-greening" site-improvement programme.

Tjiwi Kimia responded to community feedback about dust and safety by installing a fence around its palletising and incineration facilities, and by hosing roads with water during the dry season. The company improved control of particulate emissions through the installation of a third electrostatic precipitator and has reduced the release of low-level, chlorine-related odours. The company also prioritised transportation of raw materials during night-time to minimise the impact of its operations on daytime traffic volumes.

Indah Kiat Serang relocated a village, Desa Bongas Lama (the old Bongas Village), to a new two-hectare area near the main road in response to the villagers' request. The establishment of Lagoon #5 was the main reason for the relocation. This safety investment totalled to $1,735,000 as Indah Kiat Serang also conducted a safety analysis before implementing the relocation.

Safety analysis documented that light seepage of water from the lagoon caused unstable soil, and moistened walls and floors in the homes within old Bongas Village, located within 3km of the lagoon. After several attempts of constructive communication with the community involving Serang government officials and partners, the old village was relocated 10km away from the lagoon to safe ground. Construction of the new Bongas village is on-going and scheduled for completion in May 2011.

APP and the Eka Tjipta Foundation

APP works closely with the Eka Tjipta Foundation on a number of initiatives designed give many less privileged but academically promising students a chance to realize their potential.

The Eka Tjipta Foundation is a non-profit organisation –set up by APP's founder – which aims to improve the quality of life of local communities, primarily through educational and environmental conservation programmes.

APP's headquarters, in collaboration with the foundation, manages four programmes that provided US$1,410,080 in scholarships in 2008 – 2009:

Tjipta Sarjana Bangun Desa is a four-year programme dedicated to helping high school graduates from areas around APP operations benefit from tertiary education by sponsoring their degrees at a number of local universities.

Tjipta Sarana Bangun Karyawan offers similar scholarships for APP employees.

Tjipta Ahli Kertas is a three-year scholarship at the Academy of Pulp and Paper Technology based in Bandung, West Java. Here students can build practical technical knowledge of every aspect of modern pulp and paper making.

Yayasan Pendidikan Mayang Mangurai (YPMM) is an education foundation operating in the area of the Lontar Papyrus Mill, Jambi with APP support, to enhance teaching performance at local schools. The APP Tjipta Guru program is a typical case in point involving 58 teachers from YPMM and fiveother teachers from surrounding schools.

In addition, "Economics for Life" and "Student Company" were parallel business-related programmes managed by APP headquarters, which provided practical and vocational training to some 5,700 students from 25 schools in Serang, Mojokerto, and Siduarjo. Both courses aimed to equip students with the knowledge and skills to establish, run and manage a company. Simulation models engaged students in the processes of planning, incorporation, accounting and raising capital via the stock market. The aim is to encourage entrepreneurial skills and an appreciation of the value of prudent investment in supporting local economic development.

APP also provided primary school scholarships for the children of 38 employees, covering tuition fees, book expenses and living costs at schools near each mill.

The Eka Tjipta Foundation also coordinates volunteer rescue work between APP mills in the events of natural disasters. In 2009 rescue assistance collected from all mills was sent to victims in the September Tasikmalaya earthquake in west Java.

Lunch Times Blues

Better community outreach and solutions has improved local perceptions towards Tjiwi Kimia mill.

In 2008 Tjiwi Kimia gave 16 local vendors new carts from which to sell lunch items. Permitting food vendors – locally called Rombong Biru or blue bike sellers – into the mill on a controlled basis is an example of a win-win solution between mill management and the local community. Prior to 2004, vendors used to enter the mill premises surreptitiously by climbing over perimeter fences – which was both illegal and presented a safety hazard.

Tjiwi Kimia recognised the income opportunities that mill employees offered these local entrepreneurs, but needed a system that meant mill visitors were properly recorded upon entry and exit, and were safe at all times when on site. The solution was to give the vendors a thorough training in hygienic food preparation, and issue personal access cards to those who met the mill's requirements. Bright uniforms, supplied by the company, make the vendors clearly visible both on- and off-site.

For food vendor Parmi, pictured below right, Tjiwi Kimia employees provide a vital market. She sells between 40 and 50 lunches a day for 5 cents to $3 apiece and, as she parks her bicycle cart in the same spot each day, her favourite customers know exactly where to find her.

[4.17, EC 8, SO 1]

Arara Abadi and Wirakarya Sakti

In Riau and Jambi pulp suppliers, Arara Abadi and Wirakarya Sakti continued to work with local communities to stimulate new job opportunities and improve quality of life through improved access to education and health care, and infrastructure development. Arara Abadi invested $808,798 in community developments in 2008 and 2009, with Wirakarya Sakti investing $500,138 in the same period.

Livelihood Development

Community farming initiatives supported by Arara Abadi included rubber tree cultivation, agriculture, fish farming, fruit tree seedling procurement, and acacia planting. To establish a 30-hectare rubber tree plantation, the company worked with 200 community members from Tanjung Leban. The company will take responsibility for the trees during their growth stage and hand them over to Tanjung Leban once the trees are five years old and ready for rubber tapping to begin.

Arara Abadi continued its acacia management programme with the West Pinang Sebatang community in partnership with the local Bunut Abadi Community Cooperative. The Bunut Abadi cooperative comprises around 200 local community members with around 80 members working as administrators, supervisors, and seedling project workers in its acacia programme.

The organisation saw an increase in seedling production in 2008 / 2009, which generated higher revenues for the co-operative. Arara Abadi also provided some of these acacia seedlings, free-of-charge, to other local co-operatives employing around 140 people in the villages of Temiang and Sei Limau, for the establishment of their own acacia plantations. In 2009, the Bunut Abadi cooperative won an award from the Indonesian Ministry of Cooperative and Small and Medium Enterprise for its category.

To stimulate local economic growth, Wirakarya Sakti also made some of its concession land available to grow soybeans for 44 local farmers. The company also helped several villages located within its concession areas to develop rice production plots on undeveloped areas of land. Thirty participants from the villages of Lubuk Pungkur and Lubuk Mandarsah received skills training in the preparation and tending of rice paddies. With family sizes averaging five members the yield from these paddies is expected to support around 150 villagers.

One concern farmers have throughout Indonesia is the rising price of fertilizer. Wirakarya Sakti responded by developing a training project demonstrating how to make organic fertilizer. The training was attended by 120 farmers from five local villages.

Both Arara Abadi and Wirakarya Sakti ran Community Training Center facilities as the centre of agriculture, horticulture, and aquaculture knowledge for the community. The companies dedicate numbers of employees to develop simple and suitable techniques to be introduced to the community. Within the training center compound was an office, training rooms, lodging for trainees, as well as clusters of workshop areas for fish farming, livestock, agriculture and horticulture.

During 2008 and 2009 Wirakarya Sakti invested $5,143 in community development programs. Almost 12 villages received

motivation training in 2008 and five villages received training on how to make organic fertilizer in 2009, totalling 76 and 127 beneficiaries.

Wirakarya Sakti built Rumah Singgah at Rawa Panjang in April 2009. At first the community sheltered in Rumah Singgah Rawa Panjang were illegal loggers. After a long process of communication, this group of people decided to switch livelihoods into fish farming and harvesting wild honey. Now, this community are known as Desa Apung Bayas.

Wirakarya Sakti also developed Hutan Rakyat Pola Pekarangan program on 8,605 hectares enabling the community to produce seeds to be planted at home gardens, schools and other sites, and on company property. Total production in 2008 was 193,000 tons, valued at IDR 3.8M. In 2009, production was 157,000 tons or IDR 3.1M.

Education

During 2008 and 2009 Arara Abadi invested $123,500 in developing access to quality education. The company provided scholarships to 516 students, paid honorariums to 164 teachers, contributed towards the education costs of 1,660 schoolchildren, distributed notebooks to more than 11,500 students, and constructed the state high school in Muara Basung Township, in partnership with the regional education office. This is the only state school in the region.

Wirakarya Sakti launched its One Million Books programme in 2008, through which it donated books on environmental topics to 500,000 local schoolchildren. The programme aimed to improve primary education and local environmental awareness. The company also trained 400 children and community members from four local villages on environmental care, through its Global Warming programme.

Wirakarya Sakti invested around $99,437 for education during 2008 – 2009.

Health

Arara Abadi invested almost $10,000 in improvements to the availability and quality of health care in rural areas within and around its pulpwood plantations.

The company provided free medical services, treatment for 800 patients, and counselling sessions on health and environmental care for 300 local villagers, a service run in partnership with local village officials, local health centres and paramedics from the company's partner – Eka Hospital.

Wirakarya Sakti also provided vector fogging to combat the spread of dengue fever, and general medical services to local villages. The main concentration for the health service is the remote communities deep in the forest, home of the Suku Anak Dalam – an indigenous tribe in Indonesia. Aside to the service, WKS also introduced these tribes to nutrition found in particular food and food chain as basic knowledge of food intake and pattern.

Infrastructure

During 2008 and 2009 Arara Abadi invested around US$160,000 in infrastructure improvements in villages local to its plantations. The funding was used to build roads, village administration offices, a jetty, a high school, mosques, a community well and a soccer field. To provide a sense of ownership, villagers worked with the company to prepare the locations for mosque construction and participated in the construction work and supply of materials.

Wirakarya Sakti invested $172,525 to establish villages' infrastructure needs including road maintenance, community jetty, opening access to clean water, local governmental offices establishment, duct and gutter revitalization, sport fields, mosques, and education house.

On the social side, employees at Arara Abadi and Wirakarya Sakti joined their neighbours in a number of calendar events including Independence Day celebrations, religious celebrations, and an arts and cultural bazaar.

Note: currency exchange rate used in the report is 1 USD = Rp. 9.800

Climate Change

APP takes the global issue of climate change very seriously and is making steady, encouraging progress towards becoming carbon neutral.

- Carbon Footprint Assessment (CFA)
- Environmental Risk Management
- CO_2
- Compliance

APP has commissioned a Carbon Footprint Assessment and a companion Social Footprint Assessment conducted by independent specialists. Together, this Socio-Carbon Footprint Assessment forms the basis for developing a broader APP sustainability strategy for the years ahead and provides indicators and recommendations to advance our pursuit of effective sustainability management. This Socio-Carbon Footprint Assessment is the first of its kind in the pulp and paper industry world-wide.

Climate Change and APP's mills

Climate change is an increasingly pressing global issue, which can only be addressed through a strong commitment to sustainability. Whether at international, national or local levels, sustainability is everybody's business – it also needs to be at the heart of APP's businesses.

APP takes climate change very seriously. As the largest player in Indonesia's pulp and paper sector, we have a significant role to play in tackling the issue. By using carbon accounting systems and protocols for quantifying and qualifying the extent of greenhouse gas (GHG) emissions, APP has now established a benchmark for assessing progress towards the overall objective of producing carbon neutral paper.

Mill Management – Ongoing Programmes

Most of our mills are relatively new and this, coupled with our ongoing improvement programmes, helps to ensure that we meet national and local environmental standards. Indonesian environmental standards are both comprehensive and strict, and are imposed to minimise the operational impacts of the industries to which they apply. Ongoing programmes at our mills are aimed at reducing water consumption, minimising the generation and maximising the recycling of waste into products, both on-site and off-site, or as an alternative fuel to meet our energy needs, and by reducing any unnecessary use and dependence on chemicals and other raw materials, whenever possible.

Operations are routinely monitored to make sure all emissions, and resource and energy usage are strictly controlled, and that reuse and recycling of waste and byproducts is maximised at every opportunity. Investment in new technology has contributed to more efficient emissions management, including reduced dependence on traditional fossil fuels for our energy requirements.

Beyond National Compliance

Under Indonesian government regulations, any company's impact on the environment and the communities surrounding it must be evaluated via an Environmental Impact Analysis (AMDAL), before it can commence operations. And companies already in operation when the regulations came into force in 1992 must implement the AMDAL process retrospectively when they make any significant process alterations. All APP mills now have fully endorsed AMDAL approvals, where these regulations apply.

The AMDAL process involves a detailed examination of the management systems in place to monitor, report and mitigate all potentially significant impacts, and takes account of local communities' concerns through formal consultation procedures.

APP has, with minor local exceptions, fully complied with its monitoring obligations and its air emissions and wastewater discharge limits in 2008 and 2009, and has reported any lapse to the relevant authorities. APP continues to improve waste management programs at several of its sites, in consultation with regulatory authorities.

The AMDAL process pre-dates recent heightened concerns regarding GHG issues and does not monitor or regulate carbon dioxide (CO_2) or other non-CFC GHG emissions. Hence there is no statutory requirement in Indonesia for any systematic measurement or reporting of GHG gas emissions. APP has, however, gone beyond national requirements and implemented a complete assessment of the organisation's overall carbon footprint.

To establish a proper benchmark against which we can measure our efforts to improve, in 2007 we engaged leading independent specialists to conduct the industry's first integrated carbon / social footprint assessment. To achieve our goal of eventually becoming a carbon neutral company we must first identify all the constituent elements of our carbon footprint, using internationally agreed methodologies.

Standards and Scope

The Greenhouse Gas Protocol developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) was selected by our consultants as the most appropriate international standard for establishing a benchmark for initial carbon-accounting systems and for providing a reference point for ongoing evaluation of APP's carbon emissions. We also used tools and methodologies from the International Council of Forest and Paper Associations (ICPFA) and the the UN Intergovernmental Panel on Climate Change (IPCC) and good-practice guidance for land use, land use change and forestry.

The study measured the carbon footprint of APP's eight production facilities in Java and Sumatra. Three components were considered. First, the study assessed emissions and sequestration activities associated with plantation stock management, up to the delivery of fibre to the mills. Second, the measurement of GHG emissions associated with the production of leaf-bleached kraft pulp. Third, the measurement of emissions from the production of base paper up to the paper machine reel-up (jumbo roll) stage.

Results

The assessment showed a weighted average from all eight APP mills of 1.56 tonnes CO_2 per tonne of paper, without taking account of the carbon sequestration in pulpwood plantations supplying fibre to the mills (see below). This weighted average compares favourably with the range of 1.46 – 2.20 tonnes CO_2 per tonne of paper recorded for the North American pulp and paper sector (Worrell, et. al., Opportunities to Improve Energy Efficiency, 2001).

APP's individual mill footprints ranged from 0.79 tonnes CO_2 per tonne of base paper at Pindo Deli II, (a large paper-only operation with high reliance on natural-gas-generated power), to a high of 2.32 tonnes CO_2 per tonne of base paper at Indah Kiat Perawang. This integrated pulp and paper mill is our largest operation and has its own extensive power generation and chemical plants. While 65 percent to 75 percent of its energy is produced through the combustion of wood-waste residues, substantial quantities of coal are needed to supplement the energy production process. Tjiwi Kimia has the second highest footprint at 1.96 tonne CO_2 per tonne, a reflection of fact that it produces a complex mix of fine, coated and recycled paper products that use more energy than our other paper mills.

A Comprehensive Approach

To develop a complete carbon footprint for each mill that includes forest-related activities involved in pulpwood supply, the Carbon Footprint Assessment included APP's pulpwood supplier plantations. This took into account carbon mass-balances, options for operational intervention and identification of carbon offsets available through emission reductions.

Mitigating global climate change requires more than reducing emissions of carbon dioxide and other GHG from APP production facilities. It also requires us to store or sequester significant amounts of carbon in the forest and plantation areas under the control of our suppliers, including conservation areas in which we have invested.

The gross carbon sequestration value calculated for APP's supplier plantations, which cover an area of 647,000 hectares in Sumatra and Kalimantan in 2007, amounted to 22.12 million tonnes CO_2e. When we factor in GHG emissions from biodegradation of logging residue, burnt plantation area, transport fuels, the net carbon sequestration was 12.54 million tonnes CO_2e in 2006.

APP Company Carbon Footprints – With Sequestration

Using a net carbon balance defined as the CO_2 emissions from pulp and paper production subtracted from the net plantation CO_2 sequestration, APP's carbon footprint reduces considerably: Based on the calculations above, the weighted average for all mills was 0.03 tonne CO_2 per tonne of base paper.

Carbon Management Action Plan

Several key projects that were in development during the reporting period stand out in our plans for improving APP's carbon footprint. Collectively, once implemented, they represent an investment that reduces our carbon footprint by almost half a million tonnes of CO_2 a year through fuel substitution, efficiency improvements, energy recovery and waste recycling. The projects include:

No	Projects
1	Increasing energy produced from bio-mass (palm bunch waste) waste by retrofitting existing boiler(s) at Indah Kiat Perawang Mill.
2	Producing energy from methane gas generated from wastewater treatment by substituting aerobic with anaerobic digestion at the Indah Kiat Serang mill, Banten.
3	Producing energy from methane gas generated from wastewater treatment by substituting aerobic with anaerobic digestion at Ekamas Fortuna Mill, Malang.
4	Switching to natural gas from fossil fuels like coal and Marine Fuel Oil at Indah Kiat Perawang Mill.
5	Switching to natural gas from fossil fuels like coal and Marine Fuel Oil at Lontar Papyrus Pulp & Paper Industry, Jambi

[EN 16]

Several of the projects are in the process of being registered and validated to earn Certified Emission Reductions (CERs) emissions units – otherwise known as Carbon Credits – under the UNFCCC Clean Development Mechanism (CDM). These include the world's first CDM project at a pulp and paper mill to be based on anaerobic digestion of wastewater. The project, at Indah Kiat Serang, will reduce the oxygen demand of wastewater and recover methane for use as a fuel. Another CDM first for Indonesia is the Indah Kiat Perawang fuel-switch project that replaces non-renewable energy coal with "tankos" or TKKS (Oil Palm Empty Fruit Bunches), a palm oil mill by-product available in abundance in Sumatra. The TKKS waste available in Indonesia is estimated at more than 20 million tonnes/annum.

Our second wastewater methane recovery project, at Ekamas Fortuna, is also in the process of registration, and is expected to be commissioned in mid-2011.

In 2009, APP started the second stage of its carbon footprint and associated lifecycle assessment to identify and address gaps between the first report findings, the GHG Protocol and the ISO 14064 Standard, which provides guidance on how to quantify and report on GHG emissions and removal.

Forest Conservation and Plantation Management

Poverty Reduction is Key in Addressing the CO_2 Issue.

It has been widely documented that the forests of Indonesia are both a vast carbon sink and the source of most of Indonesia's carbon emissions. This is largely the result of a history of illegal incursions into natural forest areas. Slash-and-burn subsistence farming and illegal logging may serve the short-term needs of people who struggle with poverty, but such activities worsen the CO_2 emissions from the clearance and combustion of vegetation, and peat fires. We believe that reducing poverty also reduced the threats to forest preservation.

A Strict 'No-Burn' Policy

Indonesia's classified permanent areas comprises around 110 million hectares, of which only 3.3 million hectares – some 3 percent – can be legally used to produce sustainable pulpwood. APP itself does not manage forest resources but has mandated that its suppliers provide only fibre from pulpwood plantation concessions that are sustainably managed. The non-negotiable terms APP has imposed strictly prohibit burning during harvest – as required by Indonesian law – and demand the timely replanting of the harvested areas, to minimise soil erosion.

APP and its pulpwood suppliers also contribute to the wider availability of

Graphic 16 - Diagrammatic summary of resources and GHG emissions for APP's eight mills

Primary Resources in 2006	
	000 tonnes
Woodchips	10,582
External pulp	258
Post consumer waste	1.021

Energy Consumption from Fossil Fuels in 2006	
	tera joule
Stationary combustion of fossil fuels	75,843
Imported electricity	2.666
Mobile combustion of fossil fuels	361
Total energy consumption	**78,869**
(2,691,075 tonne of coal equivalent)	

APP's 8 Mills

GHG Emissions in 2006	
	000s tonnes of CO_2e
Total GHG emissions-fossil fuel based	6,416

Plantation Sequestration in 2006	
Net total sequestration (tCO_2e)	-12,537,595
Gross total sequestration (tCO_2e)	-21,226,848
Total plantation area (ha)	646,994
C-Footprint considers Jambi and Riau sequestration of 10,098,215 tCO_2e	

Paper Production in 2006	
	000s tonnes
Jumbo roll	4,102

fire fighting expertise and equipment for plantation concession areas, as well as the surrounding forests, and support the education of local communities to help them understand the implications of using fire for illegal forest clearing. We have also invested in the use of satellite technology to detect any hotspots that may result from illegal fires.

For example, at APP fibre supplier Wirakarya Sakti (WKS), company fire officers survey a plantation from a fire tower high above the tree-line, looking for the tell-tale signs of a forest blaze. During the dry season, the riskiest time of year for fires, members of WKS's fire monitoring unit ascend the towers once every two hours.

Going beyond such preventive measures, we also invest in forest renewal and conservation. In recent years our tree planting activities have expanded considerably with 200 million trees planted annually. Work is ongoing in several conservation projects as described in the final chapter of this report.

Eyes on fires

Every day Priyanto, a key member of APP fibre supplier Arara Abadi's fire prevention team, carefully checks for hotspots in Sumatra using two international weather satellites. Entering the data into his computer produces a map that quickly determines whether a hotspot is on an Arara Abadi plantation or in surrounding areas. When a hotspot is detected, a team is sent to check the cause. Almost 50 percent of the reports are not fires but only heat reflected by the ground or other confused signals. All hotspots are investigated and reported to district authorities within 24 hours of detection. If the team does not report back on a hotspot report within 24 hours, Arara Abadi scrambles a helicopter to learn more.

Low-Lying Peatland and Plantation Development

The Government of Indonesia allocates pulpwood plantation concessions in areas that it defines as low-value degraded forest land, peatland and wasteland. Many of the pulpwood concessions in Riau are in low-lying areas that contain peat and responsible water management is essential to sustainable plantation development and management. The goal of responsible water management is to reduce water levels enough to permit planting while ensuring water levels remain high enough to prevent subsidence and oxidation of the peat, which in turn may cause release of CO_2 into the atmosphere.

Responsible Plantation Management

While not directly owning forest or concessions, APP works closely with its pulpwood suppliers and independent professional assurers to maintain internationally recognized standards for forest stewardship.

- Suppliers
- Forest Management
- Research & Development
- Governance & Compliance (Chain of Custody)

Responsible plantation management is more than good tree farming: it is the combination of continuous advancements in silvicultural research and development, careful rooting and nursery plant growth, pest and disease control, optimum field planting, planning and rotation management, maintenance of soil fertility, water management, low impact harvesting, fire prevention and compliance with Indonesian forestry regulations.

Legally Sourced Pulpwood

APP does not manage any forest land, or hold any forest concession leases. However, we do work very closely with our exclusive pulpwood suppliers – co-ordinated and managed under the umbrella of Sinarmas Forestry (SMF) – to ensure that all timber raw material is legally sourced and fully traceable. We demand that it be grown, felled and delivered in full accordance with Ministry of Forestry regulations, and with internationally recognised forest stewardship guidelines. These things are very important to reassure our pulp and paper customers. Hence, our policies and practices on pulpwood procurement are subject to systematic, independent, internationally recognised third-party audits.

Contrary to common perception, only a small percentage of Indonesia's designated production forest area is allocated to the pulp and paper sector of the economy. Indonesia's total land surface area is some 191 million hectares[3], with 110 million hectares designated as permanent forest land, an area roughly the size of Spain. In the National Spatial Plan, some 51 million hectares of this permanent forest area (about the size of Sweden) is set aside for conservation, with the balance potentially available for production forestry. National policies are specifically designed to use production forests to help alleviate poverty and drive sustainable economic development to benefit of the nation's more than 230 million residents.

Of Indonesia's 191 million-hectare landmass, just over 1.7 percent is allocated for pulpwood plantation development, to support the nation's pulp and paper sector.

Our Partner: Sinarmas Forestry

Sinarmas Forestry (SMF) co-ordinates the supply of pulpwood to our Indah Kiat – Perawang and Lontar Papyrus integrated pulp and paper mills in Sumatra. It does this by managing the activities of four major forestry operating companies and 32 partner plantation forest licence holders. The four major companies are: Arara Abadi and Satria Perkasa Agung in Riau, Sumatra; Wirakarya Sakti in Jambi, Sumatra, and Finnantara Intiga in West Kalimantan.

The operating companies undertake the ground preparation, planting, nurturing, felling and delivery to mill of selected fast-growing timber species on land specifically designated for plantation forestry by the government of Indonesia, which also leases the land. As of December 2009 APP's pulpwood suppliers operating under the SMF umbrella – held valid licenses to develop about 2.5 million hectares of forest concessions in Indonesia. Around 40 percent of these leased areas is set aside, principally for conservation purposes but also for the development of community timber-farming opportunities and related infrastructure projects.

Responsible Plantation Management: Compliance

Indonesian forestry regulations require that all prospective plantation concession areas be subject to several independent ecological, environmental and social assessments prior to the authorisation of any plantation development in order to identify and protect high conservation value areas that exist within the concession boundaries.

The assessments include the statutory AMDAL (Environmental Impact Analysis), a Macro-Micro Delineation assessment and a Long-Term Forest Management Plan with third-party identification of areas to be protected within the licensed pulpwood plantation. The AMDAL and the Macro-Micro delineation process – and its findings – must be endorsed by appropriate local authorities and the Ministry of Forestry before plantation development begins. Once areas to be protected are identified, APP and SMF consult with government agencies, non-governmental organizations (NGOs) and other interested parties to draft advance plans for the rehabilitation and protection of any designated high conservation value areas.

As part of the AMDAL process, forest communities living on or near the identified conservation areas are extensively consulted. APP and SMF communicate their operational plans with the communities and help identify ways in which these communities can participate in, and benefit from, the prospective plantation development. An open and early dialogue can help to promote harmony between the parties, and identify the community's most urgent needs, such as access to clean water, school and health facilities, vocational training, or basic infrastructure.

[3] Figure sourced from Eksekutif Data Strategis Kehutanan 2007, Departmen Kehutanan, Direktorat Jenderal Bina Produksi Kehutanan (BPK) 2008; Statistik Kehutanan Indonesia 2006, 2007, Departemen Kehutanan; Keputusan Menteri Kehutanan tentang Penunjukkan Kawasan Hutan dan Perairan; Tata Guna Hutan Kesepakatan 1984.

Graphic 17 - Multiple stages within the pulpwood plantation approvals and development process

The processes involved in developing pulpwood plantations are detailed and lengthy, and specifically look at the conservation value of the proposed land, biodiversity levels, eco-systems, cultural and social balance and the government's National Spatial Plan.

All SMF plantations supplying APP mills successfully underwent the required AMDAL and other assessments and meet prevailing local land use regulations.

Responsible Plantation Management: Certification

APP invests heavily in third-party verification of our pulpwood supply to place beyond doubt our commitment to legal raw materials sourcing and sustainable plantation management. This independent assurance plays a vital role in the monitoring and certification of our operations, and ensures that illegally felled wood does not enter our mills.

Mandatory Certifications

Sustainable Production Forest Management (PHPL)

The Ministry of Forestry's PHPL certification scheme assesses forest operations against national best practices. By the end of 2009, some 1.37 million hectares (54 percent) of the pulpwood plantations managed by SMF had been certified by the Indonesian Independent Verification Institute (LPI). SMF aims to achieve full mandatory Sustainable Forestry Management certification by 2015.

Timber Legality Verification Systems (SVLK)

In 2009, the Ministry of Forestry released new regulations[4] on the standards and guidelines for assessing and evaluating the implementation of Sustainable Production Forest Management (PHPL) and Timber Legality Verification Systems (SVLK).

In 2009, Lontar Papyrus and Wirakarya Sakti helped the government measure the field compatibility of its new regulations by volunteering to undergo independent evaluation by SGS Indonesia, under the observation of the Indonesian Ministry of Forestry, European Commissions' Forest Law Enforcement Governance and Trade (FLEGT)[5] Action Plan, and the Multi-Stakeholder Forestry Programme organization (MFP)[6].

The SGS Indonesia evaluation found that APP was able to implement the new regulation on SVLK, though some further development was required regarding wood identification and traceability links within the chain-of-custody systems.

Full compliance with SVLK must be evaluated by an independent assessor and verification body and accredited by the National Accreditation Committee.

Voluntary Certifications

The Indonesian Ecolabelling Institute (LEI)

The LEI-PHTL standard is a voluntary plantation forest certification scheme. By the end of December 2009, around 11 percent of the pulpwood plantations that supply APP were certified under LEI's Sustainable Forest Management (SFM) standard. This was scheduled to increase to some 25 percent in 2010, with the aim that the balance of the pulpwood plantations supplying APP's mills will attain certification by 2020.

In 2008 and 2009, pulpwood supplier Wirakarya Sakti achieved LEI SFM certification for 293,800 hectares of plantation forest from the TUV Rheinland Indonesia, an independent certification body. This represents the largest LEI-certified plantation in Indonesia.

[4] P.38/Menhut-II/2009 and P.6/VI-Set/2009.
[5] Forest Law, Enforcement, Governance, and Trade
[6] www.mfp.or.id

What does LEI cover?

LEI is Indonesia's voluntary national certification body. It sets certification standards comparable to those embraced by international groups. LEI provides several types of certification:

Sustainable Forest Management Certification:
To achieve full certification under the LEI Sustainability Plantation Forest Management standard, organizations must meet three hierarchies of requirements:

Level One: Systems. The first level requires a good environmental management and monitoring system to be in place and in use. ISO14001:2004 EMS certification is the most commonly used system for confirming satisfactory performance in monitoring, documenting and correcting activities that may impact the forest environment.

Level Two: Legality and Traceability. The second level requires proof of timber legality and traceability of the pulpwood supply. This level also requires third-party assurance that proper systems are in place.

Level Three: Sustainable Plantation Forest Management Assessment. The final stage in the process, leading to full conformity with the LEI Plantation Forest Management Standard., it covers a range of sustainable environmental and social principles, criteria and indicators that are assessed by an independent auditor through field observations.

Legality & CoC Verification
SGS Timber Legality and Traceability Verification (TLTV) and LEI Legal Origin Verification and Chain-of-Custody (LEI – LOV – COC)
PT SGS Indonesia has annually assessed the operations of our pulpwood suppliers since 2005 against the LEI legality and chain-of-custody standards. These audits check company operations against TLTV and LEI Legal-Origin-Verification (LOV) and Chain-of-Custody (CoC) criteria. During evaluations, shortcomings are identified and recommendations made.

Stricter enforcement of contractor safety and training to meet national health-and-safety standards and an increase in the frequency of training of Chain-of-Custody officers were recommendations made by SGS in its 2008 and 2009 audits.

A third-party timber legality and verification assessment is a first step towards full Sustainable Forest Management certification. APP's pulpwood suppliers are in a phased approach to be assessed under the SGS TLTV scheme. As of 2009, 240,000 hectares of APP's pulpwood supplier concessions have been verified under the SGS TLTV-VLO scheme. APP aims to have all of its pulpwood suppliers to be third party verified for timber legality and traceability by 2015.

Chain of Custody Implementation

All eight APP mills use chain-of-custody tracking systems to ensure the integrity of all inbound pulpwood or wood-derived (i.e. wood pulp) products.

ISO 14001:2004

The four major APP pulpwood suppliers, Arara Abadi, Wirakarya Sakti, Satria Perkasa Agung and Finnantara Intiga, all have Environmental Management Systems that have been certified against the ISO 14001:2004 Standard.

In 2008 and 2009, three suppliers also attained ISO 14001:2004 certification: Sekato Pratama Makmur, Bukit Batu Hutani Alam, and Perawang Sukses Perkasa Industri. APP continues to enforce similar certifications for its other suppliers.

In the Field: Land Management

Good plantation management starts with good area planning. On the macro-scale, our pulpwood suppliers only develop land designated for pulpwood plantation forest development under the National Spatial Plan. On the micro-scale, maps of the pulpwood concessions record various aspects of the terrain: soil type, gradient, water resource and drainage issues, existing trees and land use, and road-age and/or canal requirements and options. Based on an assessment of a given concession, it is then divided into zones for production, conservation, community use, and other purposes. These zones must be reviewed and approved by the Ministry of Forestry every five years for planning purposes and annually for operational work.

Chain of Custody: How it works

Customers want to know where our products, and the pulpwood raw materials used to make them, come from. Chain-of-custody certification provides re-assurance that the pulp customers buy, or which goes into the paper they buy, was produced using pulpwood originating from a certified and well-managed source.

Each pulpwood truck entering the mill is given a code identifying its source. All wood deliveries are accompanied by documentation, endorsed in the forest by Ministry of Forestry agents. The documentation shows the source of the wood, the wood type, and its volume. Only trucks registered with the company and issued a unique identification number are used to transport wood materials to APP mills. These procedures are designed to ensure that pulpwood coming from illegal sources is rejected and never enters the mill.

The system enables a mill's customers to track wood-based products through each link in the supply chain from the end product back to the original pulpwood raw material source. APP mills use their chain-of-custody tracking systems to check the legal origin of the wood and its progress through transit points before it enters our mills.

Annual third-party evaluations of legal origin and chain-of-custody requirements under LEI Standard 2007 were conducted in both 2008 and 2009, and no significant non-compliance was found. There were no reports in either year of illegal pulpwood having entered APP mills.

Planting

Our raw materials are renewable. Our suppliers continuously plant, harvest, and re-plant their concessions to ensure a reliable supply of pulpwood to our two pulp mills.

Harvesting takes place seven years earlier planting.

By 2015 our supply will be completely sustainable: we will source 100 percent of our pulpwood fibre from SFM certified plantation based on Indonesian mandatory certification standard.

Table 68 - Areas planted for plantation pulpwood in five provinces

Province (hectares)	Planted in 2008		Planted in 2009	
Riau	51,095	5.9%	59,979	11.1%
Jambi	44,126	18.7%	38,452	6.3%
South Sumatra	71,147	97.2%	24,492	81.5%
West Kalimantan	11,504	64.3%	3,684	39.6%
East Kalimantan	20,299	29.5%	3,613	9.9%
Total	**198,171**	**47.3%**	**130,220**	**23.7%**

Managing Lowlands

Peat is currently a sensitive issue among many stakeholders. APP's pulpwood suppliers are committed to the responsible management of lowland areas. This includes:

- Developing plantations only on degraded, non-critical peat lands as defined by Indonesian government laws and regulations that designate lands for production forestry, or the reforesting of such areas;
- Developing pulpwood plantations to buffer peat conservation areas and protect them from encroachment, illegal occupation, and slash-and-burn land clearing practices;
- Implementing responsible water management practices in peat lands to enable an environment for tree growth while at the same time limiting peat subsidence and oxidation;
- Implementing fire prevention and suppression management practices, with active participation from local communities;
- Setting aside natural peat swamp forest of unique and special merit for permanent conservation and carbon storage.

Water Management

Responsible water management is the most important part of managing lowland areas. APP's pulpwood suppliers commission studies that closely monitor water levels, rates of peat subsidence, soil fertility, the quality of both riparian and canal water, the occurrence of pests and diseases, and the incidence of forest fires. APP has unrestricted access to the results of these studies.

Run-off is measured weekly at the peat fringes to study fluctuations and monitor whether the peat system is healthy and can retain water. If run-off needs to be reduced, peat canals are closed.

Water levels are kept at least to promote optimum ground level as high as possible to minimize greenhouse gas emissions and peat subsidence from compaction and oxidation that occur when too much water is drained.

Lowlands Research and Development

Research and development highlights in 2008 and 2009 included the successful testing of the tree jelutung (*Dyera lowii*) as a prospect for reforesting peatlands. Jelutung is a relatively fast-growing protected species which produces latex that the local community can use without cutting down the trees. The trees reach a diameter of 37 cm and a height of 34 m within 15 years.

Peatlands are often claimed by communities. Planting jelutung in peat areas is one way to ensure local residents do not clear peatlands to feed their families. An initial trial plot of 5 hectares planted in Rasau Kuning, Sumatra, in 2009 will be expanded to 100 hectares within the next three years.

Also in 2008 and 2009, Arara Abadi launched the Platinum Project, a trial program to improve plant growth and reduce peat subsidence in fire-damaged peat by improving root system development by managing peat density.

Assessments of the trials to date, undertaken by the Ministry of Environment in 2009, conclude that the levels of peat subsidence were not significant, and were well within the 10 cm annual limit set by the government.

Sustainable Fertiliser

We have been using waste boiler ash from the combustion of bark and wood-waste in our pulp mill multi-fuel burners as fertiliser since 2005. This reduces our solid waste disposal and yields a fertiliser which, when used on peat, increases growth rates by 30 percent to 40 percent, compared to chemical fertilisers. It is slightly more expensive to use than chemical fertilisers because it must be treated before application.

Harvesting

APP's pulpwood suppliers are required to practice low-impact harvesting methods throughout their plantations to stabilize topsoil and prevent soil erosion during and after harvesting. Processes involved in soil protection include the use of "mats" of wood debris and branches to protect soils when using heavy equipment, planting cover crops to control weeds and reduce erosion, and selecting either manual, semi-mechanical or mechanical harvesting techniques – or a combination of all three, as appropriate – according to location. In all cases, we prohibit the harvest of trees by pulling or pushing them using heavy equipment.

The cover crop Desmodium ovalifolium is a creeping legume that can reach 1 meter height in dense stands. It is native to the South-East Asian tropics and, besides protecting soils and reducing weed growth, it has potential as so-called green manure, a natural fertilizer, because of its leguminous (nitrogen-fixing) properties.

Research and Development

Our suppliers' research and development scientists work continuously to improve resource use efficiency and pulpwood quality in their operations.

In 2008 and 2009, APP suppliers' forestry research focused on improving the genetic material of plants, seed orchard management and production, the optimal matching of species with soil types, and the reduction of losses in pulpwood handling and transport activities.

Research into superior varieties are conducted extensively. A good pulpwood tree is straight, fast growing, resistant to disease and pests, and has good fibre characteristics. Five new "super varieties" were developed in 2008 and 2009, which demonstrated higher production rates on both dry and wet land. Most of these are varieties of *Eucalyptus pelita* or Eucalyptus hybrids.

APP's pulpwood suppliers have also been researching the use of mixed clay and hydrogels during planting in the dry season, to reduce seed mortality. Specific combinations of an "aquasoft" gel and clay have yielded a 100 percent seed survival rate five days after planting in dry conditions.

The use of bio-fertilisers in plantations are also tested. Bio-fertilisers contain living cells which naturally add nutrients to soils through nitrogen fixation and can stimulate plant growth. Several species were tested in 2008 and 2009, but results so far have not proved cost effective. Testing continues.

Fire Control and Prevention

To comply with Indonesian statutory requirements and protect valuable plantings from fire damage, APP requires that its pulpwood suppliers implement "no-burn" policies.

About 0.2 percent of the total pulpwood concession area of 2.5 million hectares managed by SMF was affected by fire incidents in both 2008 and 2009.

In Indonesia, forest fires are closely related to poverty[7]. Fires are often started by members of local communities who want to clear land for agricultural activities. This traditional "slash-and-burn" method has been practiced by local communities for centuries and ending the practice will require the participation of multiple stakeholders to address – including stricter law enforcement.

Hot Issue

Logged-out and degraded forests are at a greater risk of fire, particularly from illegal land clearance activities, if left unmanaged. Forest fires are often connected to conflicting land-use claims, and are even used to enforce local land claims . Confusion about land claims arises from the fact that multiple government entities – national and local – have the power to issue agricultural licenses. For example, farmers sometimes obtain local licenses to develop agricultural crops such as oil palm in areas that have been otherwise assigned for forestry purposes by the Ministry of Forestry.

It is cheaper for local farmers to clear land by fire than by other methods, but poorly managed fires can escape into neighbouring concessions.

APP suppliers have created extensive fire-fighting programs. For example, Arara Abadi, Bukit Batu Hutani Alam and Sekato Pratama Makmur established the Masyarakat Peduli Api (Village Fire Patrol) in Desa Pakning, Kecamatan Bukit Batu in 2008to counter illegal forest fires through improved education and training. In 2008 and 2009, 160 villagers across 10 villages received fire awareness training from Arara Abadi .

APP's pulpwood suppliers also work extensively with local government and other concerned stakeholders to fight forest fires beyond the boundaries of their managed concessions. To combat fires effectively, they have established 20-man fire-fighting crews in every district or Forest Management Unit. These teams are available to respond to any fire in their vicinity. Crews are trained in fire fighting techniques and are equipped with fire safety clothing.

SMF companies have also set up fire teams in local villages and trained community groups to help fight fires and assist in fire prevention. In Jambi, 12 teams – comprising 233 community fire fighters – were operating by the end of 2009. These teams proved effective at locating and stopping fires in plantation lands, and they have become ambassadors in the community for the importance of preserving forested and peat land areas from fires.

[7] The FAO notes in its 2007 State of the World's Forests Report: the countries that face the most serious challenges in achieving sustainable forest management are, by and large, the countries with the highest rates of poverty and civil conflict.
[8] Source: interviews during field visits in Sumatra.
[9] Source: Arara Abadi Report on MPA Instruction Activities 2008 and 2009.

Hot Spots

Each day, APP's pulpwood suppliers receive fire hotspot data from two satellites: the National Oceanic and Atmospheric Administration (NOAA) and the Centre for Remote Imaging, Sensing and Processing (CRISP) of the National University of Singapore. All hotspots are checked in the field by local district staff, and each detected fire is reported to local police. Nearly 50 percent of detected hotspots are not actually fires but heat reflections from dry land or other misleading signals.

Table 69 - Hectares of SMF managed pulpwood plantations burned in 2008 and 2009

Province (hectare)	Total burnt area (percent of total plantation area)			
	2008		2009	
Riau	3,212	0.39%	1,675	0.20%
Jambi	341	0.09%	174	0.05%
South Sumatra	335	0.04%	3,607	0.47%
West Kalimantan	4	0%	98	0.03%
East Kalimantan	49	0.02%	575	0.26%
Total	**3,942**		**6,129**	

In Jambi, 55 fires were reported to local police in 2008 and 2009, collectively affecting more than 500 hectares of plantation land. Of these, 241 hectares were burned as a result of land-use conflicts and 200 hectares were affected due to community activities.

In Riau, in 2009, more than 1,000 hotspots were detected within the concession boundaries of APP's pulpwood suppliers, or within a surrounding one-kilometre buffer zone. This represents half as many hotspots in the same area as in 2008. In 2009, 226 cases of fire were reported to police, affecting 1,675 hectares of plantation land, including 1,009 hectares that were planted. Of these reported fires, 36.7 percent were related to land claims and land occupation; 19 percent were for slash-and-burn cultivation and 13.7 percent were in conservation areas or green belts.

Areas within plantation concessions affected by fire in 2008 and 2009 were rehabilitated through replanting. Government agencies seek to prosecute those who start illegal fires, but direct evidence (i.e. catching someone in the act) is rare. Community education is therefore seen as being crucial to fire prevention.

Community Involvement

APP believes that poverty alleviation is key to improving environmental protection. Illegal encroachment and the use of fire to clear land for subsistence agriculture, palm oil, and settlements all contribute to deforestation in Sumatra. In its State of the World's Forests Report for 2007, the United Nations Food and Agricultural Organization noted that countries with higher rates of poverty and civil conflict face greater challenges in achieving sustainable forest management.

APP and its pulpwood suppliers believe that one way to discourage illegal encroachment is to provide communities with economic opportunities they would not otherwise have.

Economic Opportunities

APP's pulpwood suppliers encourage local communities to participate in managed plantation development and they provide agriculture skills training to local farmers.

Key to this are community-based tree farming co-operatives established through loans and technical assistance and funded by APP pulpwood suppliers. These cooperatives provide seedlings to APP's pulpwood suppliers, producing more than 10 million seedlings a year.

Each supplier funds at least one community cooperative. In areas of higher conservation value there are more cooperatives. For example at Bukit Batu in the Giam Siak Kecil-Bukit Batu Biosphere Reserve four cooperatives work in separate villages with a total of 2,535 members – or about 90 percent of all the villagers of working age. Co-operative members are employed to handle plantation activities such as cutting, planting, thinning, and weed control.

The Bunut Abadi cooperative grows most of the *Acacia crassicarpa* seedlings for the Arara Abadi plantations. Arara Abadi provided a startup loan for the co-operative in 2002. By 2007, Bunut Abadi had paid off its start-up debts. In 2009, the cooperative had assets of nearly US$150,000 – up from US$60,000 in 2007.

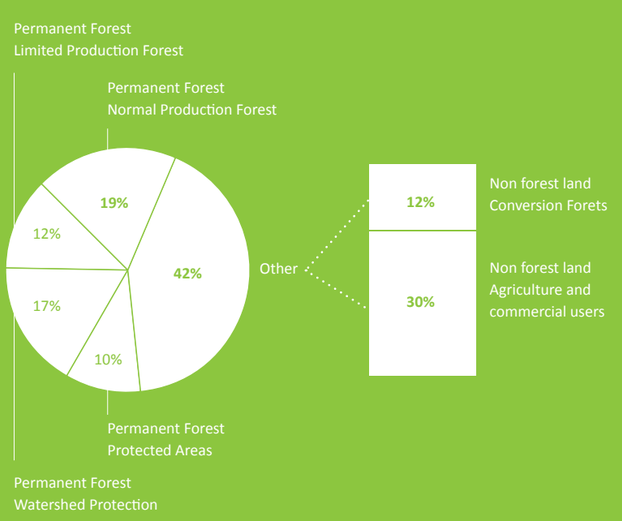
More information about our suppliers' community development activities is provided in chapter 3 of this report.

State of the Nation

Indonesia—a developing nation where 35 million of its 230 million people live in poverty—understands that substantial economic development is needed to improve the welfare and livelihoods of its citizens.

Natural resources are an important contributor to Indonesia's Gross Domestic Product (GDP). Agriculture, forestry and mining contributed 23 percent of Indonesia's GDP in 2009, with the forestry sector alone contributing roughly US$4.7 billion a year to state income. A sustainable pulp and paper industry is supported by the Government of Indonesia and the sector has undergone rapid growth since its early development in the 1970s and 1980s.

Sustainable development requires good planning and effective implementation guided by consistent governance. There is also a need to balance the demand for pulpwood with supply, requiring an expansion of plantation areas. A nationwide spatial plan identifies which areas should be protected for conservation and which areas should be responsibly managed for production.



Of Indonesia's 191 million hectares of land, 110 million hectares (58 percent) have been designated as permanent forest land; 51 million hectares of the permanent forest land has been set aside for conservation, and the remaining 59 million hectares are considered production forest for economic development.

The areas classified as production forests by the Ministry of Forestry are used for both selective timber harvesting of sawmill logs, and for plantation-based pulp and paper production.The total land area allocated for APP's pulpwood supply is 2,518,467 hectares, or 1.3 percent of Indonesia's land surface.

Source: Ministry of Forestry

Ecosystem Protection

APP's vision for environmental sustainability embraces conservation as a strategy to engage multiple stakeholders in order to protect the many exotic flora and fauna of Indonesia. We are conservation pioneers in our industry.

Conservation

Biodiversity

Protecting Sensitive Ecosystems

Conservation Strategies

APP's vision is to be socially, economically, and environmentally sustainable in all its operations. Part of our strategy towards achieving this is to initiate conservation programmes to protect the environment around our operations. And, in particular, to protect high-conservation-value natural forests identified as home to endangered species of wildlife and plants, or identified as being important to local communities.

APP requires its pulpwood suppliers to comply with and, whenever practicable, go beyond compliance with the statutory sustainability and conservation requirements applicable to their operations. As a result they have all set aside substantial areas of their forestry concessions for conservation purposes.

Since 2003, APP has also been particularly active in promoting the protection of endangered wildlife in specially designated and protected zones, both within and adjacent to these conservation areas. The first step in realizing the commitment was with the commissioning of Citizen International to assess APP pulpwood suppliers' production forest concession areas in Riau, which started the creation of the Giam Siak Kecil – Bukit Batu Biosphere Reserve.

Particular projects of note, in which APP and its pulpwood suppliers are collaborating with community organisations and local and national government agencies, are four flagship conservation programmes in Sumatra: the Giam Siak Kecil – Bukit Batu Biosphere Reserve, the Senepis-Buluhala Tiger Sanctuary, the Taman Raja Conservation Area, and the Orangutan Conservation in Surya Hutani Jaya.

To aid the identification and protection of high conservation value forest, APP and its pulpwood suppliers have independently developed the APP Conservation Value Forest (CVF) toolkit for Indonesia.

Conservation Activities

Set-Asides

As of December 2009 our pulpwood suppliers held plantation forest concession licences for some 2.5 million hectares in Sumatra. Of this total, some 1 million hectares or 40 percent is set aside for conservation, indigenious species development, community use and related infrastructure. Around 390,000 hectares – approximately 16 percent of the total area – is maintained purely as conservation areas. This is well beyond the 10 percent minimum conservation area stipulation of the Ministry of Forestry, for plantation forestry developments.

Most of these set-aside areas comprise natural peat swamp forest being protected for a variety of reasons. These include areas important to maintain ecosystem balance (e.g. water catchment area), representative landscapes, involve typical and endangered flora and fauna, permitted for community use, and preserved for community infrastructure. Increasing recognition of the considerable environmental value of undisturbed peat lands as "carbon sinks" has also given them a prospective future economic role in the sequestration of carbon emissions, important to APP as its pulp and paper operations move towards a carbon-neutral future.

Set Aside Rehabilitation

When degraded lands – often those over-extracted by previous logging concessions – are re-allocated for plantation forestry by the Indonesian Ministry of Forestry, prospective set-aside areas within them are often heavily degraded. Following assessments conducted in 2009, Arara Abadi found that 38,000 hectares of nominally high conservation value forests within recently acquired concession areas were in a degraded condition. The company added the rehabilitation of these conservation areas to its 2010 work plans.

Real Issues

Some conservation areas, within areas designated by central government in the National Spatial Plan for pulpwood plantation, are prone to illegal encroachment for the development of oil palm and rubber plantation.

Though plantation forests do not have the same species diversity and population numbers as natural forests, they still play a vital role in long-term biodiversity conservation[10]. To rehabilitate conservation, areas our pulpwood suppliers must choose between three broad strategies: allowing natural rehabilitation, enriching the land with native species, or replanting the land with a hardy nurse or pioneer crop, such as *Acacia Sp.* or *Melaleuca leucodendron* to re-establish ecological activity.

For the third option, once replanted land has become well established, it can be further enriched with native species that are then closely managed until they have firmly taken root. Rehabilitated conservation areas are patrolled, protected against fires, and marked both in the field and on maps, to allow these regenerating areas to progressively regain some of their original species diversity.

Replanting also prevents encroachment by local entrepreneurs, who tend to respect planted land more than conservation areas – which are often seen as no-man's land. Wherever possible, our pulpwood suppliers develop plantations as buffers around conservation areas, to protect high conservation value forests and those being rehabilitated from encroachment.

In 2008 and 2009, 732 hectares of conservation set-asides were rehabilitated in Riau province through replanting and enrichment planting, and 355 km of conservation set-aside boundaries were marking on the ground is in progress in total, in Sumatra, and can now be delineated in the field.

[10] Brockerhoff, E. G., H. Jactel, J. A. Parrotta, C. P. Quine, and J. Sayer. 2008. Plantation forests and biodiversity: oxymoron or opportunity? Biodiversity & Conservation 17:925-951.

[EN 11, EN 12, EN 14]

Endangered tree species such as ramin (Gonystylus Sp.) are selected to further enrich replanted set-asides.

The jungles of Sumatra are home to some of the world's most exotic and rare flora and fauna. APP is proud to have these fascinating neighbours: we have hornbills in the trees within the Lontar Papyrus mill premises, and macaques playing on perimeter fences.

Flagship Conservation Programmes

The conservation performance of protected areas is highest when the areas are large, well protected and well managed within their greater landscapes. Our flagship conservation programmes, therefore, aim to identify and link together areas of significant biodiversity and cultural significance, and manage and protect them with the active participation of the adjacent communities.

Giam Siak Kecil – Bukit Batu Biosphere Reserve

In May 2009 the Giam Siak Kecil – Bukit Batu ecosystem became the seventh designated MAB-UNESCO biosphere reserve in Indonesia, and the first in the world to be initiated and co-managed by the private sector.

The 705,271-hectare Giam Siak Kecil – Bukit Batu Biosphere Reserve (GSK-BB) is located in Riau, Sumatra. Its core conservation zone, which covers 178,722 hectares of land in total, consists of the 84,967-hectare Giam Siak Kecil Wildlife Reserve, the 21,500-hectare Bukit Batu Wildlife Reserve, and the 72,255 hectares of primary peat swamp forest contributed by APP's pulpwood suppliers from their production forest concession areas. Research by the Indonesian Institute of Sciences (LIPI) shows the GSK-BB reserve is home to 162 species of moths, 152 species of birds, 45 species of mammals, 30 species of fish, 11 species of reptiles, and 182 species of flora, of which 29 are listed as endangered.

The unique peat dome formation of the biosphere reserve is also critical in supporting the region's hydrology.

APP and its pulpwood suppliers submitted a proposal to the Government in 2006, to make a single landscape of the existing wildlife reserves. This could be achieved by connecting them with a wide corridor through part of APP pulpwood suppliers' licensed production forest, to form a contiguous core area of protected peat swamp. The combined GSK-BB biosphere reserve is now jointly managed by LIPI, the Ministry of Forestry, the government of Riau, and APP's pulpwood suppliers through a management plan developed and implemented in 2008 and 2009. Local government and community groups were also involved in the development of the management plan, which includes protection for the core forest and activities to reduce illegal logging and fires.

Because the GSK-BB biosphere reserve is the largest privately-managed protected area in Indonesia and the world's first public-private biosphere reserve, it is a living experiment and a pilot project for future integrated conservation and development.

Biodiversity protection: how the buffer zone concept works

The primary threat to natural habitats is human encroachment. Effective management of core areas is essential to thwart illegal logging and encroachment into forests for agricultural expansion. The ongoing success of the GSK-BB biosphere reserve lies in the coordination between the three principal stakeholders: the Government, the local communities, and the private sector in the form of APP and its pulpwood suppliers.

The buffer zone concept entails surrounding the 178,722-hectare core conservation area with a 222,426-hectare ring of intensively managed plantations, thus providing a protective barrier between the conservation areas and community developments. The buffer zones are patrolled to restrict intrusion into the core conservation areas, and they provide local livelihood opportunities. For example, in 2009 2,535 people from four villages in the Bukit Batu area were employed in development projects located in the GSK-BB biosphere reserve plantation buffer zones.

Beyond the buffer zone is a 304,123-hectare transition area. In accordance with UNESCO principles, transition areas are for agricultural use and village development, as well as for the various stakeholders in the area – including local communities, management agencies, scientists, NGOs, cultural groups, and others. All these stakeholders are encouraged to work together to sustainably manage the local resources.

By the end of 2009, the GSK-BB biosphere reserve conservation area was protected by an actively managed plantation buffer zone ringing 88 percent of the core area. An eventual 100 percent closed ring of plantations around the core conservation area will offer the tightest seal against intrusion. APP's pulpwood suppliers, led by Sinarmas Forestry, is currently working with local community groups and the government on land restoration strategies for the remaining 12 percent, to achieve ring closure.

[EN 15]

> "On behalf of the Indonesian MAB National Committee, we would like to express our highest gratitude to Sinarmas Forestry and partners for its noble initiative, to the LIPI research team for its research work, and to the Ministry of Forestry, the Governor of Riau Province, the Regent of Bengkalis, the Regent of Siak and to the local societies for their outstanding support toward the establishment of GSK-BB Biosphere Reserve." – Prof. Dr. Endang Sukara, Deputy of Life Science, Indonesian Institute of Sciences, Chairman of the Indonesian MAB National Committee

Some key achievements in 2008 and 2009:

- The GSK-BB Biosphere reserve was officially recognized by the International Coordinating Council of UNESCO's Man and Biosphere Programme.
- The multi-stakeholder coordinating committee drafted and launched the GSK-BB Biosphere Reserve Management Plan for 2009 – 2013.
- By the end of 2009, the conservation area was protected by an actively managed plantation buffer zone ringing 88 percent of the core area.
- Joint fire patrols with community members were established to improve fire detection and control.
- In 2009, APP commissioned United Resource Services (URS) to do a study to assess the potential for GSK-BB Biosphere Reserve to be part of the carbon market. Various carbon offset frameworks and standards were reviewed and an estimate of the carbon sequestration potential of the area was calculated. The URS study is the first step in the preparations to propose the Giam Siak Kecil – Bukit Batu reserve as a Reduced Emissions from Deforestation and Degradation (REDD) pilot project.
- Sinarmas Forestry invested a further US$123,830 towards the operational costs of the biosphere reserve programme.

Fire detection and prevention

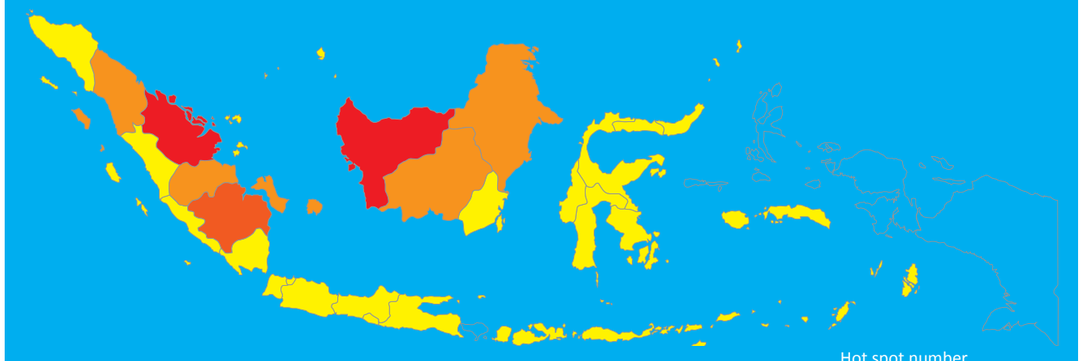
The development of plantation buffer zone around the biosphere reserve also reduces the risk of fire occurrence in the conservation heartland. The buffer zones are patrolled on foot and by helicopter, and fire towers monitor hot spots daily. APP and its pulpwood suppliers also train local communities to recognize hot spots and handle them. In 2008 and 2009, joint fire patrols with village communities were established in Tanjung Leban, Tasik Betung, Sebangat, and Bukit Kerikil.

Taman Raja Conservation Area

Taman Raja, in Jambi, Sumatra, is a forest concession consisting of more than 16,400 hectares located within the concession of one of APP pulpwood suppliers – PT Rimba Hutani Mas. Within that 16,400 hectares, PT Rimba Hutani Mas voluntarily set aside about 9,687 hectares in 2007 as a conservation area. The area comprises community settlements, village oil palm farms, and 6,000 hectares of rich biodiversity value forest. It is also home to endangered species, including the Sumatran tiger, the Malayan sun bear, the Argus pheasant, the agile gibbon, siamang, leaf monkeys, and protected Dipterocarp species.

The set aside conservation area is now managed by a collaborative project group which includes APP, Sinarmas Forestry, the Sumatran Tiger Conservation Foundation, the Community Alliance for Pulp and Paper Advocacy, the Natural Resources Conservation Agency, three local foundations, and the local Village Chief of Lubuk Bernai.

Graphic 17 - Fire hot spot map



In 2008 and 2009, most hot spots in Riau were detected on land with no active forest management.

Conservation Development Plans

In 2009, APP and its suppliers began developing plans to link the Taman Raja Conservation Area with the 144,223-hectare Bukit Tiga Puluh National Park, one of the largest areas of dry lowland forest remaining in Sumatra. The link will be made via a wildlife corridor passing through land allocated for pulpwood plantation development. The plantation land surrounding the wildlife corridor and the national park will also act as a managed buffer zone reducing intrusion into the protected areas. A wildlife corridor linking Taman Raja with the Bukit Tiga Puluh National Park will substantially enlarge the extent of contiguous protected roaming area for wildlife in the region.

The multi-stakeholder project group has also developed a Conservation Area Management Plan to ensure protection of the national park and its wildlife, and the surrounding areas. A Collaborative Agreement was signed, in November 2008 between APP's pulpwood supplier PT Wirakarya Sakti, the head of the Bukit Tiga Puluh National Park, the heads of the provincial forestry and agricultural departments, and the Indonesian government's Directorate of Forest Protection and Nature Conservation, formalising the project.

Activities to support the agreement are outlined in an annual working plan that includes social and wildlife mapping, community education development, a threat and disturbance level study, the construction of security gates and checkpoints, and the establishment of joint patrols with local conservation and forest rangers. The annual working plan has been in effect since 2008.

In 2008 and 2009, APP and Wirakarya Sakti helped five local villages with road infrastructure development, giving the communities better market access. In total, over the two-year period, Sinarmas Forestry has allocated around US$25,500 in conservation investment in the Taman Raja Conservation Area.

Real Issues

"It's easy for people in Jakarta to make decisions about forests and conservation from their offices, but I have a village to feed," said Village Chief Bustam Haris, of Lubuk Bernai.

Villagers in Lubuk Bernai face a dilemma. On one side, companies like Sinarmas Forestry are encouraging them to protect the forest, to develop incomes from non-timber forest products, and to gain employment in pulpwood plantation development. On the other side they can secure superior revenues of US$225 per hectare per month from oil palm and US$550 per hectare per month from rubber crops.

The challenge for APP and Sinarmas Forestry is to convince communities that a protected forest will generate more – in terms of water supply and avoided soil erosion – than agricultural development.

> "Buffer zones provide a physical barrier to human encroachment into the strictly protected core zone. In small isolated reserves they provide extra protection against storm damage and micro-climate variation. They enlarge the effective area of natural habitat of the reserve and reduce species loss through edge effects." – International Union for the Conservation of Nature (IUCN)

Senepis Buluhala Tiger Sanctuary

The Senepis Tiger Sanctuary is a 106,081-hectare wildlife sanctuary set within production forests in Riau, Sumatra, of which 15,025 hectares were contributed by APP pulpwood suppliers and some 91,056 km is locally managed by PT Diamond Raya Timber, a timber company not affiliated to APP. A further 4,325 hectares have also been provisionally set aside for tiger conservation, and this planned expansion awaits Ministry of Forestry approval.

The sanctuary was formally established in 2007, and is being developed to support up to 40 adult tigers, based on an estimated habitat requirement of 25 to 30 km^2 per tiger. Senepis was estimated to be home to around 30 tigers.

The tiger sanctuary is managed by a project working group comprised of the Sumatran Tiger Protection Foundation, the Riau Province Forestry Service, the Natural Resources Conservation Agency, the Rokan Hilir and Dumai Regency Forestry Services, the Wildlife Conservation Society Indonesia, and Sinarmas Forestry.

The working group created a management council in 2008. In 2009, it managed to obtain Special Protection Status for the forest area, and began implementing activities to further protect the habitat and the remaining population of Sumatran tigers in the area. Activities implemented in 2008 – 2009 included on-the-ground tiger monitoring using camera traps and radio collars and the placement of more than 200 signs on the outer line of the conservation area to discourage trespassing. Informal dialogues were also held with local communities and migrants in and around the conservation area to raise awareness of the importance of protecting the sanctuary and the legal consequences of trespassing.

Tigers are threatened worldwide by people: through poaching, development of their habitats, and loss of prey. Plantations which function as actively managed buffer zones around tiger conservation areas protect tiger populations from poachers, intrusion, and potential conflict with local communities.

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ASSURANCE STATEMENT

REPORT BY SGS INDONESIA SYSTEM AND SERVICES CERTIFICATION ON THE SUSTAINABILITY ACTIVITIES DESCRIBED IN THE APP 2008-2009 ENVIRONMENTAL AND SOCIAL SUSTAINABILITY REPORT FOR INDONESIA

NATURE AND SCOPE OF THE ASSURANCE/VERIFICATION

SGS Indonesia System and Services Certification was commissioned by APP to conduct an independent assurance of the APP 2008-2009 Environmental and Social Sustainability Report for Indonesia. The scope of the assurance, carried out in accordance with the SGS Sustainability Report Assurance methodology, included a comprehensive review and verification of the text of the report, and of all data contained in its associated tables.

The information contained in the APP 2008-2009 Environmental and Social Sustainability Report for Indonesia, and its method of presentation, is the responsibility of the directors and management of APP. SGS Indonesia has not been involved in the selection or preparation of any of the material included in the APP 2008-2009 Environmental and Social Sustainability Report for Indonesia.

Our responsibility is to express an opinion on the report's content - including its text and data, the graphical information presented and any statements and claims made within the report by APP personnel – in the context of the scope of verification set out immediately below, with the intention of confirming that it makes reliable information available for APP's stakeholders.

The SGS Group has developed a set of protocols for the Assurance of Sustainability Reports based on current best-practice guidance that is provided in the **Global Reporting Initiative Sustainability Reporting Guidelines (2006)** and **AA 1000 Assurance Principal Standard (2008).** These protocols allow for differing options for, and levels of, Assurance depending on the reporting history and capabilities of the Reporting Organization.

This report has been assured at a high level of scrutiny using the SGS Group's approved protocols for:

- Evaluation of content veracity;
- Evaluation of the report against the Global Reporting Initiative Sustainability Reporting Guidelines (2006).
- Evaluation of the report against the AA1000 Assurance Principal Standard (2008).

The assurance undertaken comprised a combination of pre-assurance research, interviews with relevant employees and examination of documentation at the APP's headquarters in Jakarta, and at each of its eight operating facilities spread throughout Indonesia: PT. Lontar Papyrus Pulp & Paper Industry in Tebing Tinggi, Sumatera; PT. Indah Kiat Pulp & Paper Tbk. with operations in Perawang, Sumatera and at Serang and Tangerang (both in Java); PT. Pindo Deli Pulp And Paper Mills I and II in Karawang, Java; PT. Pabrik Kertas Tjiwi Kimia Tbk. in Sidoarjo, Java; and, PT. Ekamas Fortuna in Malang, Java.

The assurance programme also include a review of the operations of APP's major pulpwood suppliers: PT. Arara Abadi and PT. Wirakarya Sakti, which co-ordinate the supply of timber raw material to the APP pulp mills at Perawang and Jambi respectively.

External liaison on sustainability issues with statutory agencies, local interested parties and commercial and other stakeholders – undertaken by APP headquarters staff, by personnel at the operational units, and by pulpwood suppliers – was also examined as part of the SGS Indonesia assurance programme, in addition to the review and validation of documentation at operational sites.

Financial data drawn directly from independently audited financial accounts has not been checked back to its sources as part of this assurance process.

STATEMENT OF INDEPENDENCE AND COMPETENCE

The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS Indonesia affirm our independence from APP , being free from bias and conflicts-of-interest with the organisation, its subsidiaries and stakeholders.

The SGS Indonesia assurance team was assembled to ensure provision of a comprehensive and appropriate range of their knowledge, experience and technical qualifications relevant for this assignment. The team comprised members with a combination of the following auditors registration: International Register of Certificated Auditors (IRCA), IRCA Corporate Responsibility Training Programme, IRCA Occupational Health and Safety (OHS) Lead Auditor, IRCA Environmental Management System (EMS) Lead Auditor, IRCA Quality Management System (QMS) Lead Auditor and with relevant industrial and auditing experiences in forestry, pulp and paper operations.

VERIFICATION/ ASSURANCE OPINION

On the basis of the methodology described and the verification work performed, we are satisfied that the information and data contained within the APP 2008-2009 Environmental and Social Sustainability Report for Indonesia is substantially accurate and reliable, and provides a fair and balanced representation of APP sustainability activities in 2008-2009 .

However, some statements and data notified to APP as requiring amendment were not able to be re-visited and fully re-assured against original documentation, due to limited time-scale allowed for assurance process.

We believe that the organisation has chosen an appropriate level of assurance for this stage in their reporting.

GLOBAL REPORTING INITIATIVE REPORTING GUIDELINES (2006) and AA 1000 ASSURANCE PRINCIPAL STANDARD (2008) CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

We are satisfied that the Sustainable Disclosure as referenced in the GRI index meets the requirements of level A+ of the GRI (2006), as declared and the AA1000 Assurance Principal Standard (2008).

Materiality
Materiality principles require the information in the report to cover all material topics and indicators that reflect the organisation's significant economic, environmental, and social impacts, or that could substantively influence the assessments and decisions of stakeholders. However, some significant social issues related to pulpwood supplier operations (at PT Arara Abadi, Perawang Riau and PT Wirakarya Sakti, Jambi) warrant improvement, both in relation to operational performance and in the level of detail of information disclosure. That said, SGS Indonesia is aware of initiatives at local and national government level, endorsed and supported by APP, that are now playing the key roles in improving social and environmental performance in pulpwood operations.

Stakeholder Inclusiveness
Stakeholder engagement at the corporate level, via APP's periodic corporate "Stakeholder Sustainability Updates" communications (distributed to several thousand global stakeholders), together with the company's "Social Footprint Assessment" (based on interviews with 90 respondents), have highlighted a range of positive and negative sustainability issues and concerns to the company. These are listed and discussed in the report. However, consultation on local concerns via direct stakeholder engagement with the local communities at the Mill or Site Level is less well developed - other than for the provision of local discretionary, and in-kind support for community social welfare - and warrants further attention.

Completeness
Topics and indicators reported should be sufficient to reflect all significant economic, environmental, and social impacts, and should enable stakeholders to assess the organization's performance. Most "Report Amendment Requests" (RARs), issued by the SGS Indonesia assurance team to indicate perceived omissions and deficiencies in the report, have now been substantially addressed in the final version of the report. But some GRI indicators are still not being fully and completely reported. Subsequent Sustainability Reports could be improved by more systematic alignment, during data preparation, with GRI's prescriptive (and discretionary, for A+ rating) information requirements.

Responsiveness
Responsiveness relates to an organization's reaction to stakeholder issues that can affect its sustainability performance, as realized through its management of communication with, and feedbacks from stakeholders, and the translation of any justifiable concerns raised into decisions, actions and sustainability performance. Processes for delivering, and documenting, more systematic responses to issues raised in feedback from stakeholders should be implemented and/or strengthened.

Good Practice
- APP Group pulp and paper mills were the first organisations in Indonesia to implement ISO 14001 Environmental Management System certifications (beginning in 1996), and have systematically adopted and implemented a wide range of other national and international management system standards. These include OHSAS 18001, SMK3, ISO 9001, verification of pulpwood legality protocols (e.g. Indonesian Ecolabel Institute / LEI, SGS Timber Legality & Traceability Verification / TLTV programmes) and product certification (e.g. Eco-labelling, Programe for the Endorsement of Forest Certification / PEFC and LEI). These management systems continue to be used as key tools throughout APP for improving operational performance and, particularly, internal environmental performance.

- APP's effort since 2005, to apply and extend its use of GRI principles, to provide a more extensive external perspective on the company's environmental and social sustainability performance, is providing an important and complementary corporate approach to the evaluation of its environmental and social responsibility issues.

- APP has commissioned a "Carbon Footprint Assessment" and a companion "Social Footprint Assessment", both conducted by independent specialists, within the 2008-2009 reporting period. This combination of both a Carbon and Social Footprint assessment represents a world-firsts within the pulp and paper, and associated forestry industry. These activities. These initiatives, in conjunction with the discretionary sponsorship of substantial conservation and forest set-aside projects in Sumatra, provide strong evidence that APP is making serious and commendable responses towards global environmental and social responsibility issues related to its activities.

Recommendations
- Although not strictly required by the GRI Principles (since it relates to third-party / supplier activities), there is room for improvement in the level of disclosure of sustainability-related information in the section of the report on the activities of APP's pulpwood suppliers. This in order to enhance transparency, and in acknowledgement of global stakeholder concerns. This should specifically include a more in-depth discussion of land dispute issues and mechanism used for resolution of land-dispute conflicts.

- APP is a large pulp and paper group, with many, widely different mills and, as such, there is a range of approaches to documentation at the individual production units. In preparing data for future Sustainability Reports, APP may wish to promote a more uniform, pre-planned, pro-forma approach to sustainability data collection and management at the respective mills. This will allow both the simplification of future report preparation and ensure that sufficient - but not excessive-data is collected, to meet with the documentation requirements for the A+ level of GRI Assurance.

- A more thorough internal audit of report data, before submission for external verification will enhance the efficiency of the external audit process. It is also recommended that APP should, as part of its pre-planning of the next report, consider greater use of graphical data, both to improve the accessibility of the report contents by stakeholders (and assurance auditors), and permit a more compact report.

Signed:
For and on behalf of PT SGS Indonesia - Systems and Services Certification

Guy Escarfail
Managing Director
October 2011
WWW.SGS.COM

Unit measurement & Terms of Reference

Unit Measurement	
ADMT	Air Dry Metric Tonne ADMT is measured at 10% moisture for pulp, 6% for paper
ADT	Air Dry Tonne
GJ	Giga Joule
GT	Green Tonnes

Terms of Reference	
UNESCO	United Nations Educational, Scientific, and Cultural Organisation
MAB	The Man and the Biosphere (MAB) Programme is an intergovernmental programme aiming to use science as a means to improve relationships between people and their environments
LTI-FR	Lost Time to Injury - Frequency Rate (Total accident / total man hours) x 1,000,000
LTI-SR	Lost Time to Injury - Severity Rate (Total loss day / total man hours) x 1,000,000
Absentee rate	Total absent days / (total work days x total employees)
Sickness rate	Total sick days / (total work days x total employees)
Biosphere reserves	It combine protected conservation forests with zones for local residents to undertake sustainable development enterprises

Notes

Notes