



Our Environment - Sustain and Enjoy

National Environment Agency

ANNUAL REPORT 2009/2010

Our Environment - Sustain and Enjoy

Chairman's Foreword



As a public agency responsible for maintaining a clean and green environment, NEA has continued to strive in the past year to provide a quality living environment for all Singapore residents.

Despite increasing public expectations and challenges that it faces, NEA has strengthened its role as a champion of the environment. Amongst the many initiatives, it has given a stronger push for energy efficiency to tackle climate change and funding support to bolster R&D in clean environmental technologies so as to support sustainable development. The agency has also enhanced its public hygiene and cleanliness system to ensure that the foundation of a clean environment remains to be strong.

Public Hygiene

NEA has taken bold measures in improving its food hygiene regime following the food poisoning incident at the Geylang Serai Temporary Market last year. This includes increasing inspections and enforcement at all food establishments, tightening the penalty regime, and putting in place measures to ensure that grading of food establishments is done in a timely manner. The incident also serves as a reminder to everyone not to take public hygiene for granted and that all of us need to play a role in ensuring a safe and healthy environment.

Mitigating Climate Change

Singapore's commitment to cutting down carbon dioxide emissions by 16 percent below business-as-usual levels by 2020 would require a whole-of-government effort. NEA continues to promote energy efficiency initiatives to help achieve this target and these include the 10% Energy Challenge and various schemes such as the Mandatory Energy Labelling Scheme and the Voluntary Agreement for Energy Efficient Appliances for the household sector. For the industry sector which consumes close to 60% of total energy in Singapore, a new Energy Efficiency National Partnership (EENP) programme has been launched to help companies improve their energy efficiency to reduce energy wastage as well as business cost.

Community Engagement

NEA recognises that 3P (People, Private and Public sectors) engagement is a key pillar in our efforts to promote environmental ownership. We continue to work closely with our partners and encourage them to

spearhead projects promoting environmental awareness and action among the community. The 2010 Clean and Green Singapore (CGS) Launch last year traced our 40-year environmental journey underscoring Singapore's environmental transformation made possible for both the government and community alike. It reminded everyone to safeguard our environment and provided a vision of the quality living environment of the future.

Developing Technology

In February 2010, NEA's Environment Technology Office (ETO), under the Environment Technology Research Programme (ETRP), funded research projects to help us develop sustainable waste management solutions to meet the challenges of increasing solid waste and limited land.

Transforming NEA

2009 was also the year in which NEA took decisive steps towards transforming itself to meet the challenges ahead. The Board and I are fully behind the CEO and his team's efforts to galvanise NEA into a more effective outfit. We are encouraged by an early result and I congratulate all in NEA for attaining the Business Excellence certifications in Singapore Quality Class, People Developer, Innovation Class and Service Class. CEO and his team have made a good start in their journey towards achieving the Singapore Quality Award (SQA) as a measure of organisational excellence.

I would like to thank my fellow board members, senior management, and all staff for their unceasing efforts in building up NEA to the dynamic organization that it is today. I would especially like to express my appreciation to the following members who served on the board till 31 March 2010:

- Mr Heng Chiang Meng
- Mr Warren Fernandez
- Mr Han Kok Juan

I would also like to take this opportunity to welcome the new board members. They are:

- Mr Chia Mia Chiang, Principal of Ngee Ann Polytechnic
- Ms Teo Zsin Woon, Director, Strategic Policy (MND)
- Ms Yew Lun Tian, Correspondent, Lianhe Zaobao, Singapore Press Holdings

I look forward to working together with our stakeholders and partners to strive for a clean and green environment, loved and cared for by one and all.

Ms Chew Gek Khim

Chairman

National Environment Agency

CEO's Message



The Year in Review

2009 was another challenging year for NEA. Amidst growing global concerns over climate change, a more complex operating environment, and greater demands on the agency, the severe food poisoning incident at Geylang Serai Temporary Market was a timely reminder to all that they could not take the clean environment and hygiene standards in Singapore for granted.

Following the incident, NEA introduced several measures such as increased inspections of food establishments, stiffer penalties for food hygiene offences and the appointment of Food Hygiene Officers for all school canteens, food courts and coffee shops. Besides stepping up hygiene standards, NEA has been systematically reviewing its systems and operational processes in safeguarding our clean air, land and water, taking into account emerging areas of risks.

Despite the challenges, NEA has achieved good results in several areas. One such area is dengue prevention. Through its community efforts and pre-emptive efforts, NEA has managed to keep dengue at bay and successfully bucked the trend of increasing dengue cases for the last two consecutive years. However, as with last year's unexpected H1N1 outbreak, we must remain vigilant and be prepared for the unforeseen.

As part of our efforts to maintain a litter-free environment, NEA commissioned an in-depth, one-year sociological study to shed insights on why people still litter. With a deeper understanding of the psyche of a litterbug, we launched a new campaign in June this year to curb littering in Singapore. Known as "Do The Right Thing, Let's Bin It", the campaign underscores an integrated strategy comprising stricter enforcement, enhanced infrastructure and targeted public outreach programmes to get the public to change their behaviour and stop littering.

Besides stricter enforcement, the community plays an important role in being an agent of change. Hence, NEA is nurturing Litter Free Ambassadors (LFAs) to encourage the community to take greater environmental ownership and create a new social norm where they adopt a zero tolerance attitude towards litterbugs.

To educate the public about the possible long-term effects of climate change on Singapore, NEA released a brochure with key findings from Phase 1 of the Climate Change Study which was commissioned in 2007 and possible mitigation measures. Conducted by the Tropical Marine Science Institute of NUS, Phase 1 of the Study covered the impacts of climate change on areas such as sea level, rainfall and temperature. We have now embarked on Phase 2 of the Study to look into the impact of climate change on public health, energy demand and biodiversity. In addition, we have strengthened the multi-agency Energy Efficiency Programme Office (E2PO), now with the Energy Market Authority (EMA) as our co-driver, to push for greater energy efficiency in Singapore.

To promote awareness of Singapore's solid waste management system, a book "Habitats in Harmony" was launched last year to commemorate the crucial role of Semakau Landfill in waste management and how it has attracted international recognition for its rich biodiversity. Everyone should play a part by practicing the 3Rs in our daily lives, to help reduce waste and achieve the goals of zero landfill and zero waste.

To spur research into more sustainable waste management solutions, an initial seed funding of S\$15 million has been set aside for applied research. In doing so, we aim to encourage the development of a vibrant clean environment industry and local environmental technology competencies that can be applied not only locally but also internationally to help other countries address their waste management needs.

Active engagement of the community continues to be an integral part of NEA's efforts to promote environmental ownership. Last year, we organised the inaugural NEA Community Day. Through this platform, we seek to strengthen the partnership between the agency and Singaporeans, where the public is given a better understanding of NEA's efforts and how they can help us sustain Singapore's clean and green environment.

Looking Ahead – Challenges and Opportunities

As we continue to promote resource efficiency and clean environmental technologies, we must not lose sight of the fundamental role that NEA has been entrusted, that is to keep vector-borne diseases at bay, maintain high standards of food and public hygiene and provide clean air and land.

To perform our twin roles of regulator and educator better, we have begun on strengthening three key areas, namely, Environmental, Organisational and Talent Sustainability. These efforts include tapping on the potential of greater synergies across the range of operations, organising NEA better, and developing our most valued resource, the NEA officers, to meet the challenges facing us. Guiding these efforts are the three strategic thrusts, viz. achieve results by working smarter, win hearts and minds, and be the best in what we do, as outlined in NEA's strategic roadmap for 2010 to 2012.

To deal with a more complex environment, NEA will continue to reinvent itself to remain relevant. In the coming year, we look forward to working closely with our partners and the community to create a more sustainable and liveable environment in Singapore.

Andrew Tan

Chief Executive Officer

National Environment Agency

Board of Directors



Ms Chew Gek Khim

Chairman, National Environment Agency
Chief Executive Officer, Tecity Group



Mr Andrew Tan

Chief Executive Officer, National Environment Agency



Mr Heng Chiang Meng

Principal, SPEAR Consultancy Pte Ltd
(Till 31 March 2010)



Prof Kandiah Satkunanantham

Director of Medical Services, Ministry of Health



Mr David Wong Cheong Fook

Chairman, Ascendes Funds Management (S) Ltd



Mr Warren Fernandez

Regional Director, Communication Strategy,
Asia Pacific Pte Ltd, Shell Eastern Petroleum Pte Ltd
(Till 31 March 2010)



Prof Lily Kong Lee Lee

Vice-President (University & Global Relations),
National University of Singapore



Mr Daniel Ee Hock Huat

Chairman, Gas Supply Pte Ltd



Ms Saw Phaik Hwa

President and Chief Executive Officer, SMRT Corporation Ltd



Dr Philip Choi

President, Shell International Eastern Trading Company



Mr Han Kok Juan

Director, Trade Division, Ministry of Trade and Industry
(Till 31 March 2010)



Mr Ang Hin Kee

Chief Executive Officer,
Employment And Employability Institute (e2i)



Mr Chia Mia Chiang

Principal,
Ngee Ann Polytechnic
(With effect from 1 Apr 2010)



Ms Teo Zsin Woon

Director, Strategic Planning
Ministry of National Development
(With effect from 1 Apr 2010)

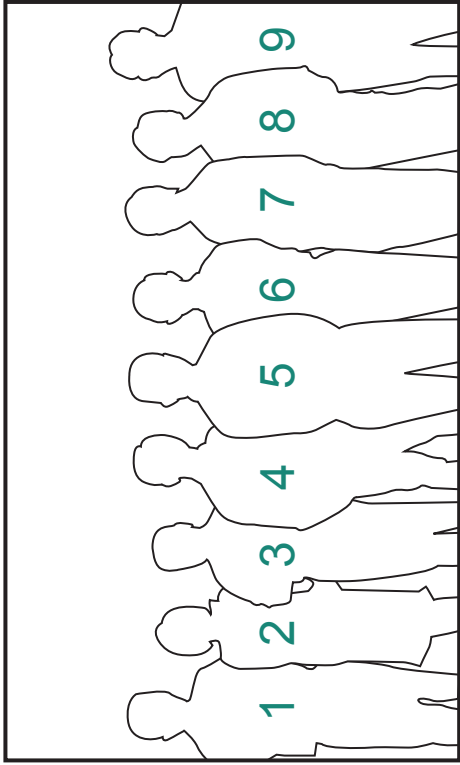


Ms Yew Lun Tian

Correspondent, Lianhe Zaobao
Singapore Press Holdings
(With effect from 1 Apr 2010)



Our Team



1. Chua Yew Peng
Divisional Director
Policy & Planning Division

2. Sophia Koh
Divisional Director
Human Resource Division

3. Joseph Hui
Director - General
Environmental Protection Division

4. Khoo Seow Poh
Director - General
Environmental Public Health Division

5. Andrew Tan
Chief Executive Officer

6. Foong Chee Leong
Director - General
Meteorological Services Division

7. Wang Mong Lin
Divisional Director
Corporate Services Division

8. Ong Eng Kian
Divisional Director
Singapore Environment Institute

9. Tan Wee Hock
Divisional Director
3P Network Division

Corporate Governance

Board of Directors

The Board provides strategic direction and oversight of NEA's functions and goals and steers the organization towards fulfilling its vision and mission. The Board comprises 12 members with diverse and extensive experience from both the private and public sectors and are appointed by the Minister for the Environment and Water Resources. Led by Chairman Ms Chew Gek Khim, the Board has established three Board Committees to assist in the execution of its responsibilities. The roles of these committees are:

Audit Committee

The Audit Committee is tasked to assist the Board to maintain a high standard of corporate governance, particularly in the areas of financial accounting and reporting and internal control systems. Comprising Mr David Wong (Chairman), Mr Daniel Ee and Ms Saw Phaik Hwa, the Audit Committee reviews the annual accounts, audit plans, internal control systems and audit reports with NEA's external and internal auditors.

Human Resource Committee

The HR Committee assists the Board in ensuring an objective and fair performance management process for the direct reports to the CEO, as well as equivalent Director-General/Director-level positions in the NEA. In addition, the Committee endorses changes in salary schemes and the terms and conditions of service for NEA staff. It also ensures that appropriate action is taken with regard to disciplinary matters. Chaired by Ms Chew Gek Khim, the HR committee comprises CEO (NEA) and Prof Kandiah Satkunanantham.

Board Strategy Committee

Formed in 2009, the Board Strategy Committee provides strategic guidance to NEA's management in the areas of environmental protection and public health, organisational effectiveness, public outreach and human resource management, as well as the development and promotion of the clean environment industry. The Committee comprises Chairman Ms Chew Gek Khim, CEO (NEA), Prof Lily Kong, Prof Kandiah Satkunanantham, Dr Phillip Choi, Mr Warren Fernandez and Mr Han Kok Juan. At the Board Strategy Advance (BSA) on 18 Nov 09, the Board agreed that NEA should look into enhancing the effectiveness of its operations and programmes, engaging and empowering the community, and promoting good governance, organisational and people excellence. The recommendations from the BSA were dovetailed into NEA's Workplan for FY2010/2011.

Management

Management Committee

In addition to the three Board Committees, NEA has a Management Committee that comprises CEO (NEA) and senior management of NEA. The Management Committee meets regularly to review and direct management and operational policies and activities. The management committee also plays a pivotal role in leading NEA's transformation efforts. Through strategically themed meetings and projects, NEA's senior management guides the agency to be more effective in its dual roles of regulator and champion for the environment. The key thrusts of these efforts are to organise NEA better to achieve results by working smarter, winning hearts and minds, and being the best in what we do.

Code of Conduct

NEA has an internal code of conduct, the NEA Person Code, which applies to all employees. The code of conduct sets out NEA's Vision, Mission and Values, appropriate conduct, dealing with conflict of interest, confidentiality, and financial stewardship. The Code also sets out principles to guide employees in carrying out their duties and responsibilities to the highest standards of personal and corporate integrity. There is also an NEA Disciplinary Policy which details the appropriate procedures to deal with any breach of discipline.

Audit

Internal Audit

The Internal Audit Unit advises NEA Management and the Audit Committee on the system of internal controls in NEA. The reviews performed by the Internal Audit Unit are aimed at assisting the Board in promoting good corporate governance through assessing the design and operating effectiveness of controls. The reviews also focus on compliance with NEA's policies and procedures.

External Audit

The Board is responsible for the appointment of the external auditors as NEA recognizes that external auditors are a critical component of NEA's overall corporate governance framework. External auditors provide the Board with an independent verification of NEA's financial statements and highlight areas for strengthening NEA's system of internal controls and accounting procedures.

The Audit Committee assesses the external auditors based on factors such as the quality of their audit and the independence of the auditors, and recommends their appointment to the Board. The current auditor for NEA is Ernst & Young, and they were appointed with effect from the financial year that ended 31 March 2010. In order to maintain the independence of the external auditors, NEA reviewed the type of non-audit services that its external auditors can provide. Likewise, the external auditors have also declared their state of independence to the Audit Committee.

Maintaining a Clean and Healthy Environment



Today, half the world's population live in cities.

Cities exercise enormous control over national economies - even the global economy. They provide jobs, access to the best cultural, educational and health facilities and they act as hubs for communication and transport. Of course, they also cluster massive demands for energy, generate large quantities of waste, and concentrate pollution as well as social hardship.

Working in partnership with various government agencies to promote a green lifestyle among Singapore residents, the NEA hopes to ensure that Singapore, as a world-class city, continues to enjoy a good living environment.

This year, a new code of practice was established to ensure that we have good indoor air quality in built environments. Other NEA initiatives such as the use of sociological study to tackle littering and enhanced food hygiene initiatives have also been put into effect with the aim of protecting our environment for the enjoyment of future generations.

Clean Air

Establishment of a New Code of Practice for Indoor Air Quality

To provide and sustain a healthy and comfortable indoor environment and ultimately reduce sick building syndrome, NEA's Environmental Health Institute (EHI) participated in the drafting of the Singapore Standard Code of Practice (SS CP) 554. The code was developed on the basis of air quality data collected from public places such as offices, shopping centres, educational institutions, food courts and transit stations. This Code of Practice was published in Oct 2009.

SS CP 554 states the guidance limits for general indoor air quality and targeted contaminants acceptable for all air-conditioned premises except residential premises, factory production areas, hospitals, polyclinics and laboratories. This allows for flexibility in conducting an Indoor Air Quality (IAQ) audit to help detect irregularities found in air-conditioned premises. Under the guidance limits, the fine particle requirement has been tightened from $150\mu\text{g}/\text{m}^3$ to $50\mu\text{g}/\text{m}^3$. This can be achieved through having better air filtration systems in the buildings.

Launched in partnership with SPRING, this Standard Code signified the importance of good indoor air quality in built environments.



Added Ventilation Measures Required of Food Operators That Offer Individual Stoves

Singapore has always been known for its diverse food and dining offerings. While Do-it-Yourself (DIY) cooking styles such as barbeques and steamboats are not new, a risk assessment conducted on individual stoves used in such cooking methods has revealed the risk of carbon monoxide exposure, especially in air-conditioned restaurants. Of particular concern is the individual stoves that use charcoal as fuel.

The assessment also revealed that the level of respiratory suspended particulates (RSP) and fine particulates matter (PM 2.5) were higher in restaurants with individual stoves as compared to food courts where cooking is done in the kitchen. However, exposure to indoor air pollutants in air-conditioned restaurants using individual stoves can be reduced with adequate ventilation.

Hence, enhancing the need of restaurant operators for additional ventilation has been incorporated into the licensing requirement to increase awareness of the risk of carbon monoxide and the importance of maintaining good indoor air quality.

Clean Land

Sociological Study to Tackle Littering

To better understand the behavioural and sociological factors that cause people to litter or bin their rubbish, NEA commissioned an in-depth sociological study on littering with the help of academics and a communication expert in 2009. The results of the study enabled NEA to review and improve its outreach and communication strategies as well as its physical measures to tackle littering.

The sociological study consisted of four components: the qualitative appraisal of the profile of known offenders as well as the general public's perception of the littering problem; review of current outreach and communication strategies; a nationwide quantitative survey to establish the social, cultural and environmental factors linked to littering behaviour; and pilot tests to assess the effectiveness of anti-littering interventions.



Based on the findings, several key areas (operations, infrastructure and legislation) were identified and reviewed to address the littering problem. NEA introduced stricter enforcement where the visibility of enforcement operations, especially at littering hotspots have been enhanced, and Corrective Work Order (CWO) has been made more onerous, as it was found to be an effective deterrent. The fines for first time littering offenders have also been revised from \$200 to \$300 in April 2009. NEA will also be working with shopping mall managements, Town Councils and other land agencies on the placement and design of litterbins. These include the provision of bins with ashtrays for smokers and larger bins for areas where foreign workers congregate.

These new initiatives launched in 2010 under the theme of “Do The Right Thing, Let’s Bin It” were part of the new anti-littering campaign in 2010. Action-oriented initiatives for the community were developed to promote greater ownership and care for a clean environment. For instance, NGOs and community groups were engaged to organize clean-up activities in their neighbourhood for residents and volunteers to participate in. The more committed groups were encouraged to adopt community spaces to sustain the efforts. Likewise, schools were engaged to implement similar initiatives. With this, NEA hoped to promote a new social norm where the community adopts a zero tolerance attitude towards litterbugs.

3R Fund Set Up to Reduce Waste

The 3R Fund was launched on 22 April 2009 by Dr Yaacob Ibrahim, Minister for the Environment and Water Resources. A sum of \$8 million was allocated over FY09/10 to co-fund projects that would reduce waste. Projects that qualified for funding included those that involved the redesign of production processes, redesign of packaging, provision of recycling infrastructures (for example, separate recycling chute or dedicated containers and storage space for recyclables), provision of innovative waste sorting or recycling systems, and upgrading or installation of new systems. To date, around \$2.4 million has been committed to 11 recycling or waste minimisation projects.

Recycling Day Created Greater 3R Awareness Among Heartlanders



Recycling Day is an annual event jointly organised by the NEA, People's Association, Singapore Environment Council, Public Waste Collectors and grassroots organisations. This community outreach programme aims to educate the public on waste recycling.

Recycling Day 2009 was held on 26 Sept 2009. Activities such as games, exhibitions, contests, quizzes and stage performances were organized to engage and educate the public on the concept of 3R (Reduce, Reuse, Recycle)

At the event, Dr Yaacob Ibrahim, Minister for the Environment & Water Resources launched Phase 2 of the Singapore Packaging Agreement (SPA), which was extended to include all types of consumer product packaging at Recycling Day 2009. Dr Yaacob also presented the 3R Packaging Awards to signatories that made commendable achievements in reducing packaging waste in 2008/2009.

Clean Water

Ensuring High Standard of Piped Drinking Water Quality

The piped drinking water supplied in Singapore remained safe for consumption and complied with Ministry of Health's (MOH) regulatory standards in 2009.

NEA worked with the water suppliers to prepare water safety plans, which are an essential part of the regulatory requirements. These plans were prepared based on NEA's Code of Practice on Piped Drinking Water Sampling and Safety Plans, and the Guidelines for Drinking-water Quality issued by the World Health Organization (WHO). During the development of these plans, special consideration was given to the site-specific hazards and risk management practices adopted by the suppliers. Water sampling plans were also prepared by the suppliers for the monitoring of piped drinking water produced and supplied to the public. NEA also conducted desk-top audits and site inspections to ensure compliance with the regulatory standards and that water sampling and safety plans were implemented effectively by the water suppliers.



To share such valuable experience with other drinking water regulators from around the world, NEA hosted a meeting with WHO's International Network of Drinking-water Regulators (RegNet) in June 2009. NEA is one of the founding members of the RegNet.

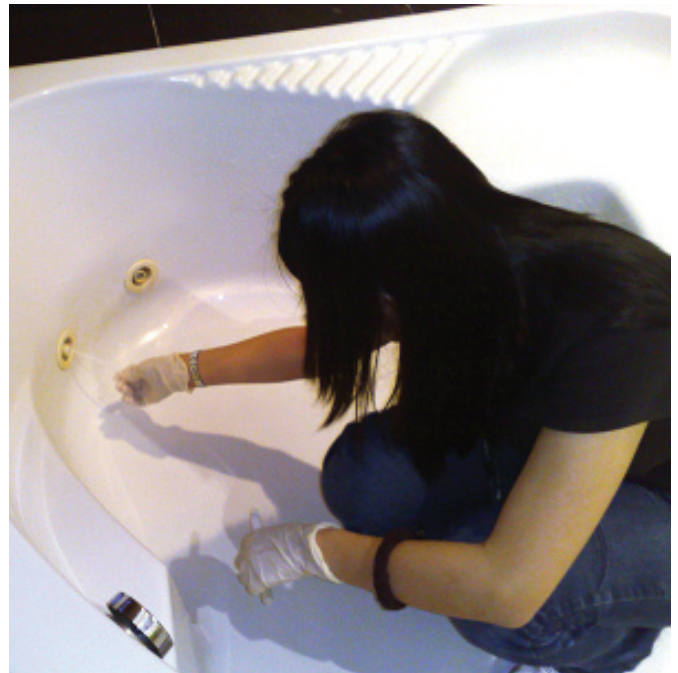
New Code of Practice Raised Water Quality Benchmark for Spa Operators

Over the past decade, there was tremendous growth in the therapeutic and spa industry, from just two spa facilities in 1994 to over 240 establishments today. This increase prompted NEA to conduct a risk assessment on the air and water quality in spa establishments in 2008.

The study revealed that 27.6% of spa pools that were not properly maintained were tested positive for *Legionella pneumophila*, a waterborne disease-causing bacterium that could cause flu-like Pontiac Fever or pneumonia-like Legionnaires' disease.

The National Environment Agency commissioned the development of Water Quality Guidelines for Aquatic Facilities, which aimed to mitigate the risk of legionella cases. Working closely with industry stakeholders such as the Spa Association of Singapore and Spa and Wellness Association of Singapore, the guidelines seek to assist spa operators in improving the hygiene standards of spa pools. The spa guidelines were incorporated

into the new Singapore Standard Code of Practice on the Design and Management of Aquatic Facilities (SS 556: 2010) which was launched in Jun 2010.



Enhancing Food Hygiene

Enhanced Food Hygiene Initiatives

The number of food poisoning cases reported in food retail outlets in Singapore are relatively low, considering there are over 31,000 licensed outlets serving a population of five million. In 2009, there were 5.37 food poisoning outbreaks per 1,000 food retail outlets licensed by NEA, and 25.4 food poisoning cases per 100,000 population. This compares favourably with the cases reported in other developed countries.

The food poisoning outbreak at Geylang Serai temporary market in April 2009, however, showed that food poisoning incidents would still occur if there were lapses in food hygiene practices. NEA thus started to employ more officers to conduct more frequent inspections at stalls and premises where the standards of cleanliness require improvement. NEA also looked at enhancing its risk-based approach towards hygiene inspections in the longer term.

Since Jan 2010, NEA has been progressively increasing the number of food hygiene inspectors. More frequent inspections were conducted at hawker centres to enforce higher standards of cleanliness and hygiene. As an additional deterrent against hygiene lapses, from April 2010, NEA increased the penalties for violations of the Environmental Public Health (Food Hygiene) Regulations, with the minimum composition sum raised from \$100 to \$200 - \$400, depending on the severity of the offence.

In addition, the following initiatives were introduced to further improve food hygiene standards:

Licensing of Trade Fairs from August 2009



Over the years, there has been rising popularity for food stalls at trade fairs. In August 2009, NEA introduced a regime of licensing food stalls at such fairs to regulate such activities. Proper supporting facilities, such as clean piped water supply and waste water discharge were amongst the requirements imposed to ensure that food was prepared in a safe and hygienic manner.

Extension of Food Hygiene Officer (FHO) Scheme to School Canteens from January 2010

On 1 Jan 2010, NEA extended the FHO scheme, which was first introduced in 2000 to selected categories of licensed premises, to school canteens. The objective of the scheme was for licensees to engage trained FHOs to assist them in overseeing food and personal hygiene practices at their premises in between NEA's hygiene inspections. This is to maintain high standards of hygiene and sanitation within their licensed premises at all times. NEA will be extending this scheme progressively to other categories of premises such as food courts.



Keeping Vector-borne Diseases at Bay

Dengue Kept In Check

Through a comprehensive and multi-pronged approach, NEA has kept the number of dengue cases in Singapore under control over the past few years.

Dengue cases in Singapore over the past 20 years have been observed to peak every five to seven years, with each peak being higher than the last. The presence of both the mosquito vectors and virus is conducive for disease transmission amongst a susceptible population with low herd immunity and living in densely populated areas of Singapore. The sharp increase in dengue cases in 2005 and 2007 was closely associated with the switch in the predominant circulating dengue serotypes. Singapore is now in the fourth year of the epidemic cycle that started in 2006 and is expected to peak in 2011 or 2012.

With this prediction, NEA has implemented a series of evidence-based control measures consisting of preventive surveillance and control, public education and community involvement, enforcement and research and managed to buck this historical trend in 2008. The total number of dengue cases in that year was 20% lower than 2007. NEA successfully bucked the dengue trend again in 2009, with the number of dengue cases reported as 4,497, 36% lower than in 2008 (7,031 cases). This achievement was the result of an integrated, evidence-based mosquito control programme, comprising:

- Source reduction
- A laboratory-based pre-emptive virus surveillance system
- A vector surveillance programme which was augmented by the recruitment of some 250 additional vector control officers
- Efforts by the Inter-Agency Dengue Task (IADTF) to ensure that rigorous vector control programmes were implemented at the premises under the respective IADTF member's management
- Community outreach
- Law enforcement and
- Dengue research



Vibrant Hawker Centres

Our Hawker Centres – a Mainstay of Singapore Culture



Over the years, hawker centres have evolved into unique attractions that draw both local and overseas customers in search of good meals. Hawker centres are popular public places where people, young and old, gather socially. Singaporeans enjoy eating out, and hawker centres today are very much an integral part of this uniquely Singaporean lifestyle.

The National Environment Agency (NEA) currently manages 109 hawker centres in Singapore, housing over 15,000 stalls altogether. The Ministry of the Environment and Water Resources (MEWR) owns 25 of these hawker centres and the remaining 84 centres are owned by the Housing & Development Board (HDB).

Hawker Centre Upgrading Programme (HUP)



Singapore's hawker centres were built more than 20 years ago. By 2001, many of them were in poor physical condition and were not keeping up with the rejuvenated housing estates. To preserve these icons of Singapore's colourful social and eating-out culture, there was a need to upgrade the hawker centres while retaining their unique flavour.

Thus, in 2001, the government embarked on the Hawker Centres Upgrading Programme (HUP) with an overall budget of S\$420 million. HUP aims to improve the physical infrastructure of hawker centres, which in turn leads to better cleanliness and higher hygiene standards. Often, upgraded centres have of drier and cleaner floors, new floor and wall tiles, a better layout with wider passageways, improved ventilation, refurbished toilets, better lighting, and new fixed tables and stools.

As of 31 March 2010, 84 hawker centres have either been upgraded or rebuilt under HUP. The upgrading not only benefits the stallholders whose livelihoods depend on the viability of hawker centres, but patrons as well, as they get to enjoy a more pleasant and congenial dining environment.

NEA Launches MyHawkers.sg Website



NEA launched MyHawkers.sg on 5 March 2010. MyHawkers.sg is a brand new interactive web portal that offers the latest happenings and information on hawker centres and food stalls.

The portal allows registered users to recommend their favourite food and review hawker stalls or hawker centres using a rating feature. Users can find their way to their favourite hawker centres easily with the help of a map. Another feature users can enjoy is the photo upload section, where photography enthusiasts can share their “masterpieces” of hawker food and hawker centres online.

Upcoming activities and useful information such as the history of hawker centres, HUP, grading of stalls and procedures for joining the hawking trade are also featured. If users come across any cleanliness or hygiene matters on hawker centres, they can provide feedback to NEA via the website.

With the combined efforts of all stakeholders, Singaporeans will continue to enjoy both good and clean food.

Monitoring the Environment

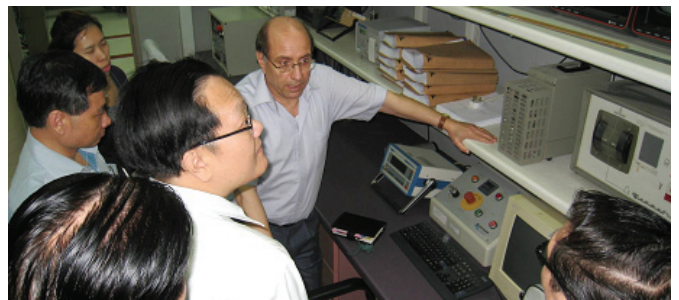
Radiation Protection

Radiation Protection Licensing Management System

The Radiation Protection Licensing Management System (RPLMS) was commissioned in June 2009 at a cost of \$4.3million. The system is designed to streamline end-to-end processing and enhance the service quality and efficiency of Centre for Radiation Protection & Nuclear Science (CRPNS)'s licensing and enforcement operations.

Secondary Standards Dosimetry Laboratory (SSDL) and Radioactive Waste Management

Under the ambit of the International Atomic Energy Agency's (IAEA) Technical Cooperation National Project, CRPNS hosted two expert missions on Secondary Standards Dosimetry Laboratory (SSDL) and Radioactive Waste Management. The objectives of the missions were for the experts to assess and make recommendations to CRPNS on enhancing the operations of the SSDL and conditioning of our disused radioactive sources for long-term storage.



International Physical Protection Advisory Service Mission

CRPNS hosted an International Atomic Energy Agency (IAEA) "International Physical Protection Advisory Service (IPPAS)" mission in December 2009. The aim of this mission was to conduct a national-level review of Singapore's legal and regulatory infrastructure for nuclear security and make recommendations for enhancement, as well as familiarise local agencies with the obligations of the Convention on the Physical Protection of Nuclear Material (CPPNM).

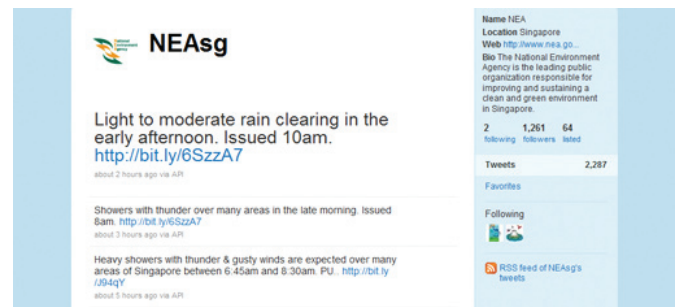


Weather Forecasting

NEAsg Twitter

In reaching out to a wider audience, NEA enhanced our system by automating the tweeting of weather and Pollutant Standards Index (PSI) information. This means that a fresh tweet containing a brief description of the weather situation as well as a shortened URL, will be generated for each update. Tweets can be found at <http://twitter.com/neaosg>

This function will complement the information that is published on our corporate website, as well as the mobile phone application -Weather@SG- that was developed last year to provide users with real time weather update.



Noise Management

Construction Noise

The maximum permissible noise limits for construction sites were last tightened in October 2007 to address the large number of complaints against construction noise occurring at night and on Sundays and public holidays. However, the more stringent standards did not meet the expectations of the public and complaints remained high – totalling about 14,000 in 2008 and 12,000 in 2009.



In 2009, NEA chaired a multi-stakeholder committee that comprised government agencies, the construction industry, professional institutions, and medical and acoustic experts to review the measures to control construction noise. The committee agreed that the current set of noise limits adequately protected the public from adverse health impacts from construction noise. However, the committee was of the view that the noise control measures on Sundays and public holidays needed to be tightened to meet the higher expectations of the public for peace and quiet on rest days. The committee recommended the prohibition of construction work as it was the only effective form of control to reduce noise nuisance generated from construction activities on Sundays and public holidays.

The government accepted the committee's recommendations and made the following announcements:

- (a) Construction sites established from 1 Sep 2010 onwards would not be allowed to carry out construction activities from 10pm on Saturday to 10am on Sunday, as well as from 10pm on eve of a public holiday to 10am on the public holiday.
- (b) Construction sites established from 1 Sep 2011 onwards would not be allowed to carry out construction activities from 10pm on Saturday to 7am on the following Monday, as well as from 10pm on eve of a public holiday to 7am on the day after the public holiday.

[Note: The prohibition of construction activities would apply to construction sites that are within 150m from residential premises and noise-sensitive premises such as hospitals.]

Motor Vehicle Exhaust Noise

With further urbanisation and population growth, the control of noise from motor vehicles needs to be enhanced to keep pace with improving technology and rising public expectations.

With effect from 1 Oct 2010, all new motor vehicles imported for use in Singapore are required to comply with revised noise standards based on the standard adopted by Japan and European Union. With effect from 1 Apr 2011, in-use motor vehicles would also have to comply with more stringent noise standards during their mandatory periodic inspections. This is to ensure that the exhaust systems of motor vehicles are well maintained throughout the vehicles' operational lifespan.



Addressing Climate Change



Growing concerns over climate change and its effects are driving countries to consider alternative sources of energy and implement measures to improve energy efficiency and mitigate carbon emissions.

Singapore has been playing its part through its environmentally friendly policies and actions. However, as an alternative-energy disadvantaged country, Singapore lacks the natural endowments to make significant use of non-fossil alternatives such as hydropower, wind and geothermal energy. With only 700 km² of land, Singapore also lacks the land for widespread deployment of renewable energy sources. These sources of renewable energy are also not yet cost-competitive with conventional fossil fuels. Hence, we are reliant on imported fossil fuels, such as natural gas, to meet our energy needs at present.

The main contribution to Singapore's greenhouse gas (GHG) emissions is carbon dioxide (CO₂) from the use of energy to meet development and human needs. We have already switched much of our electricity generation fuel to natural gas, which is relatively less carbon-intensive. Hence our key strategy in addressing climate change is to improve our energy efficiency. Our economy is expected to expand in the future and our population is expected to grow. Improving our energy efficiency would allow us to meet the growing energy demand with less energy resources.

Achieving greater energy efficiency would require the efforts of all stakeholders, including households and the private sector. NEA is actively working to raise public awareness of the benefits of energy efficiency, such as educating consumers on the benefits of energy-efficient appliances and co-funding energy audits for companies and buildings.

There is also a consensus amongst the scientific community that climate change is a real and serious threat that we cannot ignore. As a low-lying island state, Singapore will need forward-looking policies to prepare for and adapt to the impacts of climate change.

Completion of Climate Change Study Phase 1

In 2007, NEA commissioned a study involving local and foreign experts to understand our vulnerabilities to climate change.

The first phase of the study covering the physical impacts of climate change has concluded. The results have been peer reviewed by international experts who noted that the study adopted well-established methodologies and that the findings are plausible.

The study projects that the average daily temperature in Singapore could increase by between 2.7 to 4.2°C from the current average of 26.8°C by 2100 and the mean sea level around Singapore could rise by 24 to 65 cm by 2100. These findings are within the range of our expectations and consistent with global projections by the Intergovernmental Panel on Climate Change.

These findings are not the last word on this subject as climate science is a complex and evolving subject. We are not certain, for instance, about the impact of ice sheet melting. NEA will continue to keep abreast of developments in this area. We will improve our understanding as more information and data become available and climate change models become more robust.

As a result of our long-term approach to infrastructure planning, we already have some measures in place which will help address the potential impacts of climate change. For example, PUB's current requirements for reclaimed land to be constructed to a platform level of 125cm above the highest tide level should give us an adequate buffer against the projected sea level rise in the short to medium term. In addition, we are enhancing our response to the impact of floods by expanding our network of water level sensors, and we will be studying if our drainage design standards need to be revised to cater for heavier storms.

NEA has embarked on a second phase of the Climate Change Study to investigate in detail the impacts of climate change on public health, urban temperature and biodiversity. This will form future adaptation measures that the government will put in place to address the longer term impacts of climate change. The Ministry of National Development leads an inter-agency Adaptation Taskforce to review the sufficiency of Singapore's existing adaptation measures and identify new measures as necessary.

Enhancing Energy Efficiency

Household Appliance Industry Forms Landmark Partnership

A Voluntary Agreement has been signed between the government and the household appliance industry representing a landmark partnership that promotes the use of energy efficient appliances, such as air-conditioners, refrigerators and clothes dryers with three-and-four-tick energy labels. The Voluntary Agreement will last for a period of one year, with effect from 11 September 2009. Signatories include: Bosch, Toshiba, Casa, Daikin, Fisher & Paykel, LG, Miele, Mitsubishi Electric, Panasonic, Samsung, Sanyo, Mitsubishi Heavy Industries, Best Denki, Courts, Gain City, Harvey Norman and Electrolux.

Retailers and suppliers participating in this Voluntary Agreement have committed to bringing in more energy efficient appliance models and to assisting their customers in choosing the right energy efficient models by providing accurate information on energy and cost savings.

In return, NEA, the Housing and Development Board (HDB) and the Energy Market Authority (EMA) will supply educational materials to retail outlets to enable them to better promote energy efficient appliances, and organise energy efficient appliance roadshows and fairs. Participating retailers and suppliers will carry the "10% Energy Challenge Partner" logo. A product catalogue has also been produced, bearing advertisements of energy efficient appliances from the various signatories and highlighting their efforts in promoting energy efficiency.

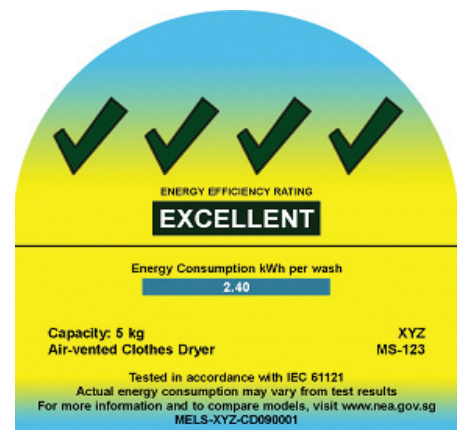
Updates on MELS & FELS



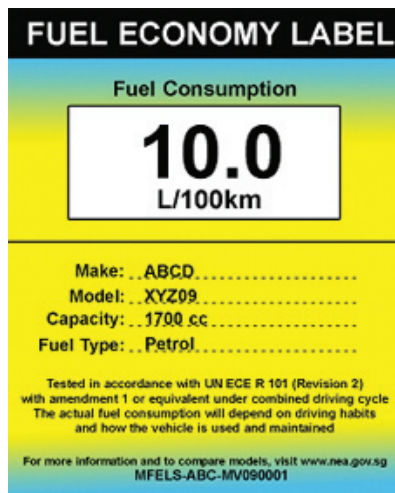
Refrigerator



Air-conditioner (inverter-type*)



Clothes Dryer



Passenger Car

*Inverter type air-conditioners employ electronics that vary the compressor speed to adjust to changes in room temperature. They are usually more energy efficient than conventional air-conditioners.

The Mandatory Energy Labelling Scheme (MELS) was first introduced on 1 Jan 2008. Refrigerators and air-conditioners were the first 2 appliances to be covered under MELS as they account for the bulk of household electricity consumption. Under the scheme, appliances must be affixed with an energy label at points-of-sale, indicating the energy consumption during operation and the energy efficiency rating. MELS was extended to include clothes dryers on 1 April 2009, as it is another energy-intensive appliance.

Energy labelling helps consumers to identify and select energy-efficient appliances and hence save on electricity consumption. A total of about 1,100 air-conditioner, refrigerator and clothes dryer models have been registered with the National Environment Agency (NEA). Of the registered appliances, about one-third of air-conditioner models, half of refrigerator and 80 percent of clothes dryer models have been given energy efficiency ratings of 3 and 4 ticks.

Also, on 1 April 2009, the Fuel Economy Labelling Scheme (FELS) was implemented for passenger cars and light goods vehicles. Under the scheme, new passenger cars and light goods vehicles must carry a label indicating the amount of fuel needed by the vehicle to run 100 kilometres. With this information, car buyers can compare the fuel consumption of vehicles of similar engine capacities. A total of about 1,700 motor vehicles models have been registered with the NEA and each model that is put on sale carries the Fuel Economy Label.

Climate Study Modelling

NEA Adopts PRECIS Measures in Climate Modelling

NEA plans to build up its knowledge and understanding of the impacts of climate change on Singapore and its surrounding region. Within NEA, our Meteorological Services Division (MSD) has made initial efforts in regional climate modelling using the United Kingdom Hadley Centre PRECIS regional climate model. The earliest version of the PRECIS model was designed to run a single processor workstation using global boundary data provided by the Hadley Centre. It took about three months to run a 30-year climate simulation.

The newest PRECIS model released by Hadley Centre in 2009 can run on multi-processor workstations, and the running time for a 30-year simulation has been shortened to about 8-10 days. The IPCC recommends the use of different regional climate models to produce a range of climate projections to quantify the spread or uncertainty of the projections.

NEA also plans to run climate simulations using the latest version of the Weather and Research Forecasting (WRF) model. Besides applied research such as running regional climate models and assessing projections from these models, fundamental research aimed at understanding the impacts of climate change over the region is also key to improving our understanding of climate change impacts on Singapore and the region.

Research institutes in Singapore such as the Earth Observatory of Singapore of Nanyang Technological University and Centre for Environmental Sensing and Monitoring (CENSAM) of National University of Singapore have recently embarked or planned to embark on projects in both fundamental and applied research on climate change over the region. NEA will leverage on the research work that will be conducted by these institutions to gain a better understanding of regional climate change in Singapore and the surrounding region.

Clean Development Mechanism Projects in Singapore

The Clean Development Mechanism or CDM of the Kyoto Protocol allows greenhouse gas emission reductions from projects implemented in non-Annex I countries, such as Singapore, to be used to offset emissions of Annex I countries, such as Japan and the European Union. NEA has been appointed as Singapore's Designated National Authority (DNA) for CDM projects. NEA's role is to ensure that CDM projects to be implemented locally meet national sustainable development criteria.

NEA hosted the 8th DNA Forum at the Raffles City Convention Centre from 26 to 28 October 2009.

The DNA Forum provides a platform for DNA delegates to exchange views, share their experiences relating to CDM and bring forward common views and issues to the attention of the CDM Executive Board to enhance the CDM process. The Forum in Singapore was attended by 94 representatives from 78 countries.

The Forum included an inaugural industry interaction session on the third day to allow knowledge sharing and networking between the DNA delegates and 109 private sector representatives.

CULTIVATING CHAMPIONS IN THE COMMUNITY



NEA's 3P partnership approach is our key strategy to promote environmental ownership. It fosters collaboration between different segments of society; encouraging the People, Private and Public (3P) sectors to work together and take responsibility in caring for the environment. The year-long Clean and Green Singapore (CGS) campaign is a milestone programme to encourage Singapore residents to adopt an environmentally friendly lifestyle. Other key 3P initiatives include CGS Schools' Carnival, CGS Music Video, NEA Community Day and partnerships with corporate organisations. In addition, NEA recognizes the efforts of local "environmentalists" through its EcoFriend Awards.

ENGAGING THE COMMUNITY

Clean and Green Singapore

The launch of Clean and Green Singapore (CGS) 2010 marked 40 years of Singapore's clean and green journey. The launch, held at HortPark on 30 October 2009, was graced by Prime Minister Lee Hsien Loong.



The highlight of the event was the Clean & Green Journey Exhibition which reflected Singapore's progress and development over the past four decades. The exhibition promoted an appreciation of our environmental transformation and provided a vision of the quality living environment of the future. In addition, visitors also thronged the Green Product Fair, which was packed with more than 30 booths selling environmentally friendly products.

The three-day carnival drew a crowd of 22,000 people from all walks of life. Through the exhibition, visitors learnt how far we have come in achieving a clean and green Singapore. With a sense of environmental ownership, we can all make our world the most beautiful home.

CGS Music Video & Album Launch

This year, we launched our first music video with an environment theme. This initiative aims to tap on the appeal of music to inspire a stronger sense of environmental ownership and an environmentally friendly lifestyle amongst Singaporeans, particularly music lovers.

"Let's make our world the most beautiful home" is a catchy, light-hearted environmental song penned by veteran songwriter Clement Chow, in celebration of Clean and Green Singapore. Based on this song, the music video is used to bring viewers on a journey to witness the key milestones that took place in Singapore's transformation into a clean and green city, over the last 40 years. To sustain the beautiful environment, we need to continue to care for and protect the environment by adopting clean and green habits.

After the song was officially launched at the Clean and Green Singapore 2010 on 30 October 2009, the National Environment Agency (NEA) and Warner Music Singapore came together to produce a special compilation featuring *"Let's Make Our World the Most Beautiful Home"* as the title track of the 'Go Green' album.

NEA-Mediacorp Semakau Run 2009



The NEA-MediaCorp Semakau Run 2009 was held on 8 August 2009 at the Semakau Landfill. A total of 210 guests participated in the Run, which garnered donations from 43 corporations amounting to a total of \$359,000. The monies went towards supporting local environmental Non-Governmental Organisations (NGOs) and social service charities. The five beneficiaries were the Singapore Environment Council (SEC), Singapore Institute of International Affairs (SIIA), Rainbow Centre - Yishun Park School, HCA Hospice Care and NTUC U Care Fund.

Concurrently, in celebration of Semakau Landfill's 10th anniversary, Dr Yaacob Ibrahim, Minister for the Environment and Water Resources, unveiled a commemorative book titled "Habitats in Harmony - The Story of Semakau Landfill", which showcased the construction and development of Semakau as well as the amazing biodiversity that can be found on the island.

Community Day 2010

The National Environment Agency (NEA) opened its premises to members of the public for the first time at the inaugural Community Day event held on 9 and 10 January 2010. The two-day event saw nearly 5,000 residents and partners visiting the North East Regional Office at Sin Ming Drive. Through interesting exhibits, displays and interaction with NEA officers, members of the public obtained a better understanding of NEA's work and how they can play a part in sustaining our clean and green environment.



By bringing the community closer to us, we hope to encourage members of the public to play a greater role in NEA's efforts, be it to reduce littering, maintain high standards of public hygiene, recycle their waste or conserve energy.



Inspiring the Young

Launch of Operation M.A.C.E at CGS Schools' Carnival 2009



The CGS Schools' Carnival is an avenue for students to participate in many environmental activities, demonstrate their innovation, creativity and talents through environmental projects and competitions. 2009 marked the first year that the carnival was held at a primary school, Anchor Green Primary School. Over 210 schools, from preschools to pre-tertiary levels, participated in the Carnival.

The highlight of the CGS Schools' Carnival 2009 was the launch of Operation M.A.C.E. (Monster Annihilation Control and Enforcement) by Dr Amy Khor, Senior Parliamentary Secretary, Ministry of the Environment and Water Resources. Utilising a transmedia approach consisting of a website, video games, animation series and comics, Operation M.A.C.E. aims to inspire youths to take ownership of their families' safety against dengue and prevent mosquito breeding. The entire campaign built on a science-fiction storyline embedded with dengue prevention educational elements.

Partnering the Private Sector

NEA and Panasonic Collaborate on Environment Champion Industry Module

NEA partnered with Panasonic Asia Pacific to provide experiential learning for student environment champions in a new Environment Champion Industry Module (ECIM). ECIM includes a field trip to the Panasonic Refrigeration Devices Singapore Pte Ltd to learn about the environmentally friendly applications in a factory setting and to encourage students to also apply 'eco ideas' in their daily lives.



The launch of this environment education module and Panasonic's 'Eco Ideas' factory on 26 January 2010 was graced by Dr Amy Khor, Senior Parliamentary Secretary, Ministry of the Environment and Water Resources. The launch also marked the signing of a Memorandum of Understanding between NEA and Panasonic Asia Pacific on the partnership.

Industries Come Together to Share Green Practices

The 'Environment Champions and Green Office 2009' event was held on 6 November 2009, bringing together about 300 participants from close to 100 corporate organisations. The event combined NEA's annual Clean and Green Singapore Environment Champion Seminar with the Green Office Label Award Presentation Ceremony. The Green Office Label is administered by Singapore Environment Council (SEC). The event provided a platform for the corporate Environment Champions to network and to learn from each other in the area of implementing environmental initiatives.

New Recycling Trail Launched by SEI

SEI launched the Recycling Trail in September 2009, as an extension of the Programme for Environmental Experiential Learning (PEEL), which was inaugurated in September 2007.



Aimed at expanding the participants' knowledge of Singapore's comprehensive environmental strategies and encouraging them to adopt an environmentally-friendly lifestyle, each PEEL Trail is an "out-of-classroom" learning experience that brings participants to environmental management facilities around Singapore. A specially-trained guide facilitates each Trail by providing information on Singapore's environmental strategies.

The PEEL Recycling Trail includes tours of various recycling facilities, such as NEA's Sarimbun Recycling Park, a wood recycling facility, e-waste recycling facility and household waste sorting centre, allowing participants to witness and learn how waste from industries and households can be given a new life if they are not discarded.

By promoting the understanding of the value of recycling, the Trail aims to encourage participants to be more conscious of their responsibility towards the sustainable use of precious resources, and to adopt 3R (Reduce, Reuse, Recycle) habits that can minimise the amount of waste going to Singapore's waste-to-energy plants and Semakau Landfill.

The PEEL Recycling Trail is the latest offering in the development of PEEL, following a series of five existing trails – the Clean Land Trail, Clean Water Trail, Clean Air Trail, Climate Change Trail and Public Health Trail. It is open to local and foreign professionals working in the environmental field and organisations interested in enhancing their knowledge of environmental management. Interested members of the public can sign up at www.nea.gov.sg/sei

NEA has seen strong interest in the tours since the initial launch in September 2007. To date, a total of six trails has attracted over 2000 local and foreign participants.

Extension of Singapore Packaging Agreement (SPA)



The Singapore Packaging Agreement was first signed on 5 June 2007 with five industry associations representing more than 500 companies, 19 individual companies, 2 non-governmental organisations, the Waste Management & Recycling Association of Singapore and 4 public waste collectors.

It provides a platform and structure for industries to collaborate with the government to reduce packaging waste over a 5-year period. The Agreement is voluntary, so as to provide flexibility for the industries to adopt cost-effective solutions to reduce waste. In the first two years of the Agreement, signatories had successfully implemented design changes that directly reduced material use in their product packaging, cutting down about 2,500 tonnes of packaging waste. The changes implemented include reduction in product thickness, using light-weight packaging materials, reusing and recycling of packaging, as well as educating customers on waste minimization.

The Agreement initially covered only food & beverage (F&B) packaging, as this was the most common type of packaging waste generated by households. On 1 Oct 09, the Agreement was extended to cover all types of product packaging including detergents, toiletries, personal care products, and electronic products. Apart from manufacturers and users of packaging, new signatories also include building owners/managers of hotels, shopping malls and supermarkets. These signatories are part of the supply chain of consumer goods and each of them plays an important role in the overall waste reduction plan.

Recognising Environmental Champions

EcoFriend Awards 2009



NEA's EcoFriend Awards were launched in 2007 to recognise the growing number of individuals who have made significant and sustainable contributions to our clean and green environment. A total of 282 nominations was received for 2009, of which 10 individuals from private and public sectors, non-governmental and grassroots organizations, youth and students, as well as educational institutions were given the awards.

The winners received their awards from the Minister for the Environment and Water Resources, Dr Yaacob Ibrahim at a ceremony held at HortPark on the evening of 10 July 2009. Together with previous EcoFriend Award recipients, they form a growing pool of environmentally proactive individuals that NEA can work with to make Singapore a liveable and sustainable city.

Building Up Capacity & Working with Industries



Enhancing Environmental Competencies

Award of 4.8 million Grant Under Environment Technology Research Programme

NEA launched the \$15mil Environment Technology Research Programme (ETRP) in Jun 09 to focus on developing waste management solutions for Singapore which also have export potential. The ETRP aims to develop technological competencies in waste management and to support a growing ecosystem of companies and researchers undertaking Clean Environment Research and Development (R&D). The ETRP awards grants on a competitive basis and its focus areas are in waste-to-energy, waste-to-material recovery and special waste treatment. The first request-for-proposal, or RFP, saw good response with 67 proposals received. Many interesting ideas were raised. For instance, one proposal aims to reduce the time needed for landfill stabilisation from the existing norm of around 30 to 40 years, to between 10 to 15 years. This proposal and 4 others received total ETRP funding of about \$4.8mil.

Nurturing Local Enterprise

Privatisation and Divestment of Waste-to-Energy Plants

As part of NEA's strategic plans to improve efficiency in the waste management industry through greater private sector involvement, the Senoko Incineration Plant was divested via a trade sale on 1 Sep 2009. The plant was renamed Senoko Waste-to-Energy Pte Ltd (SWTE). NEA will procure incineration services from the divested plant for 15 years under an Incineration Services Agreement from 1 Sep 2009 to Aug 2024.



The Keppel Seghers Tuas Waste-to-Energy Plant (KSTP) was the first Waste-to-Energy plant built under the Public-Private Partnership (PPP) initiative. It achieved Project Commercial Operation Date on 30 Oct 2009. KSTP will provide incineration services for 800 tonnes of refuse per day to NEA for 25 years from 2009 to 2034 under the Design-Build-Own-Operate (DBOO) scheme.

Fostering International Partnerships



Enhancing bilateral, regional and international co-operations

NEA Hosts Typhoon Committee for the First Time

The National Environment Agency hosted the 42nd Session of Typhoon Committee in Singapore on 25 - 29 January 2010.

The Typhoon Committee was set up in 1968 to promote and co-ordinate the planning and implementation of measures required to minimise the loss of life and material damage caused by typhoons in Asia and the Pacific. Singapore joined the Committee in 1997. In order to develop integrated strategies, the Typhoon Committee brings together annually specialists in three fields: Meteorology, Hydrology, and Disaster Prevention and Preparedness.



In his opening speech, the Guest-of-Honour, Minister Dr Yaacob Ibrahim, highlighted that “Typhoons are powerful and large weather systems, and their influence can extend to hundreds and thousands of kilometres beyond, bringing in dry weather in one part and wet weather in another. Our rainfall can be affected by typhoons in the region. Our climate scientists in MSD will, therefore, collaborate with experts in the region to better understand the impacts of climate change on typhoons.”

The meeting analysed and developed regional solutions to lessen the impact of typhoons in the Asia and Pacific Region. The Committee also identified ways to adapt or mitigate the forces of typhoon to ensure the sustainability and resilience of its 14 Members’ communities.

Joint Emergency Response Plan at Tuas Second Link



The Department of Environment (DOE), Johor, organised the 7th joint Emergency Response Plan (ERP) field exercise at the Tuas Second Crossing on 2 December 2009. This exercise was part of a series of joint exercises conducted annually to test the effectiveness and preparedness of the various emergency response agencies from Malaysia and Singapore to deal with a chemical spill incident. To date, six field exercises have been conducted. The exercise went smoothly, with agencies from both sides responding promptly and effectively to the “accident”. This exercise also saw the highest level of participation to date with a total of 370 personnel from 26 agencies in both countries taking part.

MSC Forum

The Sub-regional Ministerial Steering Committee on Transboundary Haze Forum (MSC forum) on Prevention and Mitigation of Land and Forest Fires was held in Singapore on 28 Oct 2009. CEO (NEA) chaired the MSC forum which was attended by the Governors of Jambi Province, Central Kalimantan and West Kalimantan, Vice Governor of Riau Province, officials of MSC countries and the local government from Sarawak. The forum was also attended by representatives from selected International Organisations (IOs), Non-Governmental Organisations (NGOs) and the private sector.

The highlights of the forum were the presentations by the Governors who gave a summary of their efforts and challenges in addressing the forest and peatland fires, the update on haze control efforts in the Mekong sub-region and Sarawak, as well as the efforts by NGOs such as Conservation International and Global Environment Centre in mobilising local communities to help in the early warning and fire prevention efforts. The Governors also expressed appreciation for the assistance given by its ASEAN neighbours and international partners.



The participants also highlighted the need for more integrated and multi-stakeholder approaches to peatland management, in particular, the need to address the basic needs of local communities and promote alternative livelihoods in order for the efforts to be sustainable in the long run.

Working in Partnership to Tackle Land and Forest Fires

Following the severe haze episode in 2006, Indonesia developed a National Plan of Action (PoA) with a view to tackling land and forest fires and invited the ASEAN countries, and international and regional organisations to collaborate with fire-prone provinces/regencies to prevent and mitigate land and forest fires. Singapore responded by collaborating with the Jambi Provincial Government and Indonesia's State Ministry of Environment (Kementarian Negara Lingkungan Hidup or KLH) to develop a Master Plan to deal with land and forest fires in Muaro Jambi Regency.

The Master Plan was jointly developed with KLH and the Jambi Provincial Government in March 2007. Several action programmes were identified under the Master Plan with the main focus on fire prevention.

In November 2007, a Letter of Intent was signed between KLH and the Ministry of the Environment and Water Resources (MEWR) to formalise the development of the Master Plan and the implementation of agreed activities to deal with land and forest fires in Jambi. Since then, Singapore has offered technical assistance to implement several Action Programmes, and conducted capacity-building workshops and training programmes to enhance the expertise of local officials, communities and plantation companies.

Handover of Air Quality and Weather Monitoring Stations

A significant milestone of the Singapore-Jambi collaboration was the handover of the air and weather monitoring stations which took place on 24 July 2009 in Muaro Jambi Regency in Jambi province, Indonesia.



The occasion was graced by the Indonesian State Minister of Environment, HE Ir Rachmat Witoelar, and Singapore's Minister for the Environment and Water Resources, Dr Yaacob Ibrahim. Three plaques signed by both Ministers to commemorate the occasion were subsequently installed at the following monitoring stations in Muaro Jambi regency:

- Sengeti (Muaro Jambi Regency Office) –Air Quality cum Weather Station
- Kota Jambi – Air Quality Station
- Desa Arang-Arang – Weather Station



2009 Asian Environmental Compliance and Enforcement Network (AECEN) Regional Forum

Environmental agency leaders from 14 Asian nations gathered in Singapore from 12 to 14 October 2009 to work towards strengthening enforcement and compliance of environmental laws, at the meeting jointly organized by the Asian Environmental Compliance and Enforcement Network (AECEN) and National Environment Agency (NEA), Singapore. The meeting was supported by the United Nations Environment Programme (UNEP), the United States Agency for International Development (USAID) and United States Environmental Protection Agency.



The leaders agreed on the statement calling for Asian governments to promote improved environmental compliance and enforcement with national legal and regulatory requirements and international commitments.

The meeting also agreed to focus on collaborative “twinning” partnerships between countries to facilitate the transfer of innovative practices and solutions via peer-to-peer exchange, leading to enhanced capacity to assure environmental compliance and improve environmental performance in participating countries.

In 2009, the National Environment Agency of Singapore and Indonesia Ministry of Environment shared their experiences on inspection and monitoring, which led to the adoption of new inspection procedures in Indonesia. Japan and Thailand also partnered to established soil contamination guidelines in Thailand.

Moving forward, AECEN and the member countries, in partnership with UNEP, will further cooperate on a number of key priority areas in environmental compliance and enforcement, mainly: improving enforcement response of agencies, developing and strengthening environmental compliance programs and promoting public participation in regulatory compliance, to enhance capacity of members through “twinning” partnerships.

International Visitors

Date	Country	Details of Visits/Exchanges/ Initiatives/Activities	Head of Delegation
1 Apr 09	Jordan	Visit to TSIP by HE Dr Taha Ahmad, Commissioner for Finance and Admin and Acting Commissioner for Land and Infrastructure	Dr Taha Ahmad, Commissioner for Finance and Admin and Acting Commissioner for Land and Infrastructure
14 Apr 09	Maldives	Visit by Maldives Minister of State (Foreign Affairs)	Mr Ahmad Naseem, Minister of State (Foreign Affairs)
26 May 09	WHO	Visit by Dr. Everold Hosein, Senior Communication Advisor-Consultant for the World Health Organization (WHO) and WHO Mediterranean Center for Vulnerability Reduction	Dr. Everold Hosein, Senior Communication Advisor-Consultant for the World Health Organization (WHO) and WHO Mediterranean Center for Vulnerability Reduction
17 Jun 09	India	Study Programme on NEA for Asian Institute of Management, Philippines (for Senior Government Officials of India)	Dr K.M. Shahid, Director-General, Institute of Secretariat Training & Management
01 Jul 09	Mauritius	Study Visit on NEA's Dengue Surveillance and Control Programme including discussion on Chikungunya control	AP Satish Ramchurn, Faculty of Science, University of Mauritius
10 Jul 09	Tatarstan	Visit to Singapore Environment Institute by the Minister of Ecology and Natural Resources, Tatarstan	His Excellency, Aglyam Satredinov, Minister of Ecology and Natural Resources, Tatarstan
30 Jul 09	Sri Lanka	Visit to NEA and Tiong Bahru Market by Sri Lanka Tourism	Mr Bernard Goonetilleke Chairman, Sri Lanka Tourism
14 Aug 09	Malaysia	Visit to Semakau Landfill and Tuas South Incinerator Plant by Malaysia's Ministry of Housing and Local Government	Dato' Ahmad Kabit Secretary General (Housing and Local Government)
27 Aug 09	China	Visit to Hawkers Department by the delegation from Guangzhou Food and Drug Administration, China	Secretary-general, Guangzhou Municipality Government, Mr. Chen Shaokang, Vice and Director General, Guangzhou Food and Drug Administration, Mr. Yao Jianming.

Date	Country	Details of Visits/Exchanges/ Initiatives/Activities	Head of Delegation
27 Aug 09	Vietnam	Visit to TSIP by Vietnamese Minister for Construction, Nguyen Hong Quan and his delegation	Vietnamese Minister for Construction, Nguyen Hong Quan
16 and 18 Sep 09	United States	Study Visit on Singapore Dengue Surveillance & Control by Dr R.Jory Brinkerhoff, Department of Epidemiology and Public Health, Yale School of Medicine	Dr. R. Jory Brinkerhoff
28 Sep - 2 Oct 09	Makkah City, Saudi Arabia	Study Visit on Singapore Dengue Surveillance & Control and Waste water Management by a team from Makkah City	Mr Ezzat Sendi, Director, Emergency & Crisis Administration, Makkah Municipality
15 Oct 09	WWF	Visit to Semakau Landfill by Mr James Leape, Director-General of WWF International	Mr James Leape, Director-General of WWF International
27 Oct 09	Cuba	Visit to Environmental Health Institute by Cuban delegation	Dr Fidel Castro Diaz-Balart, Chief Scientific Adviser of the State Council of Cuba
07 Dec 09	USA	Visit by Prof Scott B. Halstead Department of Preventive Medicine and Biometrics, Uniformed Services University of the Health Sciences, Bethesda, Maryland, USA	Prof Scott B. Halstead
09 Dec 09	Brazil	Visit by Dr Alvaro E. Eiras, Head of Chemical Ecology of Vector-borne Disease Laboratory, Department of Parasitology, Federal University of Minas Gerais, Belo Horizonte, Brazil	Dr Alvaro E. Eiras
18 Dec 09	Timor-Leste	Visit to Tuas South Incinerator Plant by Timor-Leste President HE Ramos Horta	Timor-Leste President HE Ramos Horta
11 Jan 10	Australia	Visit by Mr Neil McCarthy, GM(Parks Divisions) of Parks Victoria	Mr Neil McCarthy
31 Mar 10	Hong Kong	Visit by Hong Kong Food and Health Bureau	Dr York Chow, Secretary for Food and Health, Hong Kong

Towards An Excellent Organisation



At the NEA, our aim is to ensure that all Singaporeans continue to enjoy clean air, land and water. This simple statement involves a multiplicity of roles, responsibilities and services, some of which may seem more obvious than others. But be they big or small, well known or imperceptible, they are all vital components that together, create a cleaner, healthier, and more liveable home for us all in Singapore. To achieve this goal, we continuously strive to put in structures, systems and processes that will enhance organizational excellence and build a culture that is open, caring, enterprising and environmentally conscious.

Accolades

4-in-1 Accreditation

NEA has achieved Singapore Quality Class (SQC), People Developer (PD) and ISO 9001:2000. In FY2009, we geared up to attain the next level of organisational excellence through a 4-in-1 Business Excellence Integrated Assessment. NEA has successfully retained our SQC and PD certifications and achieved certifications for two new niche standards, the Innovation Class and Service Class. This accomplishment is a major milestone in our journey to becoming an excellent organisation and demonstrates our commitment to be the best in what we do to achieve our mandate.



Corporate Social Responsibility

Corporate Social Responsibility (CSR) in NEA is about giving back to the community as a socially responsible organisation while encouraging the community to join us in caring for the environment. Our CSR programmes are organised at all levels of the agency, making them pervasive and an integral part of our staff engagement.

In 2009, we also organized a wide range of agency-wide and departmental CSR initiatives which range from spring-cleaning at homes for old folks or underprivileged children, bringing joy to the beneficiaries on visits to the zoo and the movie and raising funds through walkathons and sale of tickets.

Our flagship CSR programmes integrate both care for the environment with care for the community.

The Semakau Run

This annual event, started in 2007, engages the top management of our corporate partners and showcased the potential of Semakau as an eco-park for research and test-bedding of environmental technologies. In 2009, the Semakau Run engaged 43 corporate partners and Mediacorp, and raised \$359,000 for charities and environmental non-governmental organizations.

The 10% CSR Energy Challenge

This programme is an extension of the national 10% Energy Challenge. Its aim is to help charities save energy, save the earth and save costs; the cost savings can be channelled to the charities' other humanitarian programmes. NEA staff volunteers are trained as Home Energy Auditors and they in turn train staff and beneficiaries of the charities. Since its launch in Sep 2009, NEA has trained 579 staff and beneficiaries of 3 charitable organisations, the Red Cross, Salvation Army and Singapore International Foundation.



NEA Achieves Green Office Label for All Offices

The Green Office Label is an award by the Singapore Environment Council (SEC) to recognise offices that demonstrate commitment towards environmental protection through the education of their workforce on green issues, and the cultivation of eco-friendly habits in their business practices.

Over the past three years, NEA HQ and the off-site offices have continued to seek re-certification for the Green Office Label award. In 2007, NEA HQ and 13 off-site office locations achieved the award, which was valid for the maximum period of two years. Last year, we improved on our position and became the first Agency to achieve the award for all of our offices spread across 16 locations in Singapore.



To achieve this certification, measures successfully implemented included the use of natural lighting, energy-efficient lighting and sensor lighting to conserve electricity; thimbles, automatic faucets and flush valves to conserve water; electronic information and records management to conserve paper; and regular broadcasts of eco tips and news. All NEA eco offices have installed conveniently located paper-recycling boxes and recycling bins to collect paper and non-paper recyclable waste to encourage wide-spread recycling. Some offices have dedicated equipment rooms, with exhaust facilities to maintain good indoor air quality for the staff.

People Excellence

The NEA is committed to attracting, developing and retaining the best professionals at all levels of the organization. In positioning NEA as an Employer of Choice, we are focusing our efforts on building a capable, innovative and forward-looking workforce.



Talent Attraction

Over the years, NEA has brought in a larger cohort of officers with Degree or higher tertiary qualifications, including officers who have PhD qualifications. Last year, NEA, together with PUB, offered the National Environment and Water (NEW) Scholarship awards to 17 top Junior College students. This joint scholarship is aimed at attracting young talents who are passionate about working in the environment and water sector. An attractive feature of the scholarship scheme is that it offers internships to promising students to gain exposure on both NEA's and PUB's operations.

Raising the Level of Staff Professionalism

Our philosophy on staff development stems from the belief that every officer has talent and ability that should be developed to the fullest. With rising public expectations, our jobs are becoming more challenging. Every officer must achieve higher proficiency in his or her skills and knowledge.

The training roadmaps for all NEA staff have been enhanced to cover key areas of training for different job functions. This will help to equip our officers with relevant skills and knowledge that are required to perform their work more competently. Some of our core training programmes will also be extended to our outsourced partners, who are seen as part of NEA by the public. Besides job skills, we are also developing structured milestone programmes to better prepare our staff at different career stages. With the enhanced training roadmap, we aim to provide a more structured training to develop our officers to their full potential.

To strengthen staff's leadership competencies, a total of 24 high potential officers and key position holders were sent for management and leadership programmes last year. In addition, as part of leadership development, our Heads of Installations as well as some new Heads of Department underwent a 360 Degree Feedback Exercise. This was followed by individual coaching sessions.

Creating Opportunities for Growth and Development

To further enhance our staff capabilities, we have over the last one year given our officers, particularly the younger staff, the opportunities to handle cross functional projects and challenging assignments, in order to broaden their horizon and create a platform for them to learn and contribute more.

Staff Deployment

The closure of the Ulu Pandan Incineration Plant and the divestment of the Senoko Incineration Plant last year saw a major redeployment of more than 200 staff to other departments in NEA. This was successfully carried out with the support of the Unions.

Engaging Our People

Keeping people connected is also one of the areas we focus on. This is done through various communication platforms such as staff dialogue sessions, staff conferences and visits to the offsite installations. Moving ahead, we will be organising more tea sessions with the senior management to meet up with the different groups of staff to better understand their career development needs.

NEA Call Centre



The NEA Call Centre operates 24/7, handling about 600 calls a day. Most calls are requests for enforcement actions or feedback on construction noise, mosquito nuisance, illegal hawking, potential mosquito breeding areas, littering, public cleansing lapses, and discarded bulky items in public places.

Calls to the Call Centre are answered promptly within 10 seconds or 3 rings by our Customer Service Officers (CSOs), and all calls are recorded in a voice logger to ensure the information taken down by CSOs is correct. Cases are also tracked via a Feedback Tracking System (FTS).

Calls asking for actions are sent directly to ground officers for prompt actions. The action officer will take the necessary actions and update the customer on the actions taken to close the case in the FTS.

The service standard is to close 90 percent of cases within 3 working days and the remaining 10 percent within 5 working days.

Customer Service Centre



NEA Customer Service Centre (CSC) provides a channel for the public to obtain NEA related information, as well as range of services including payment of rental, ex-arrears and fines, submission of bids for tenders or quotations, application and termination of tenancies and more.

At the CSC, we adopt a Q-matic queuing system, where the queue number and the estimated waiting time are prominently displayed on the various TV screens, which broadcast programmes from the Channel News Asia. The service standard for counter services is to serve 85 percent of the customers within 15 minutes.

As part of our initiatives to improve customer service and relations, we made it a SOP to seek customer's feedback through the Feedback Tracking System, after serving each customer. The counter staff will request the customer's contact for the purpose of follow-up, in the event that a clarification is needed. This will further help us improve our service.

All counter staff, including those from the regional offices are given a NEA jacket which they don with pride. The standard jacket portrays a sense of professionalism and friendliness.

Information Technology



In FY09, numerous new services and enhancements were introduced to improve the effectiveness of our processes and services that we offer to our customers and stakeholders. Radiation Protection and Laboratory Management System (RPLMS) was one key system launched in Jun 09 to provide end to end support for CRPNS. A revamped Inventory Control System (ICS) was launched to replace the obsolete systems at the waste-to-energy plants to better facilitate management of operational equipment. NEA's intranet - Life@NEA, corporate website and e-Services were also revamped to serve our internal and external customers better. The development of a new Environment Enforcement Management System (EEMS) was pursued to serve as an Enforcement Hub for NEA. The successful migration to the public sector-wide Standard Operating Environment (SOEasy) was also largely completed in FY09.

Besides the implementation of the above systems, NEA also embarked on the conceptualisation of several new key IT projects, namely Hawkers Management System (HMS), Customer Relationship Management System (CRMS), Common Administrative System (CAS), Electronic Registry System (e-Registry) and Integrated Operations Command System (IOCS) which aim to enhance our operational capability and efficiency.

