



TOGETHER

ECOTECH'S MAGAZINE ABOUT ENVIRONMENTAL MONITORING

2017 Issue 1

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- Increased Air Monitoring & Research a Vital Step in Preventing Deaths from Future Airborne Health Risks
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- World's Greatest Shave for the Greater Good.



Ecotech

ACOEM Group



Pic above: Fabien Condemine, Chief Executive Officer, ACOEM Group.

Main pic: Lyon, France. Home of ACOEM. Saint Georges footbridge and Vieux Lyon in Lyon illuminated at dusk.

Cover pic: To celebrate 40 years of growth and achievements, ECOTECH published a limited-edition 70 page commemorative book championing its people titled - TOGETHER: Future Forward Stories Past.



ECOTECH Mergers with Growing French Giant

Melbourne, Australia, 23 Feb 2017. ECOTECH (AUD 33 million revenue, 220 employees) announces its merger with French group ACOEM (AUD 86 million revenue, 450 employees).

The merger brings together proven innovators in science and engineering who share a vision to improve environmental, productivity and regulatory outcomes for government agencies, industries and communities around the world.

Robert and Judy Dal Sasso, who founded ECOTECH more than 40 years ago, recognise the possibilities this merger brings to all ECOTECH stakeholders and are delighted to sell their shareholding to ACOEM (pronounced ak-co-em). Nicholas Dal Sasso, ECOTECH Managing Director, will continue in his leadership role and retain his shareholding in the ECOTECH Group.



t ACOEM to Accelerate Global Impact



Pic above: Nicholas Dal Sasso, Managing Director, ECOTECH Group.

For Nicholas, problem solving in environmental monitoring is in the DNA. He took over the position of Managing Director from his father to head the business in 2012. By this time, he had invested five years preparing the organisation for global expansion focusing on operational excellence, innovation, information technology and international accreditations.

The deal will see both ECOTECH and their customers benefit from a diversified product portfolio and accelerated distribution and access into new markets and industries.

Environmental Impact Reduction World Leader in the Making

ECOTECH is a privately-owned Australian company who are global leaders in the design, manufacture, operation and maintenance of air, water, gas, meteorology, blast and dust monitoring systems. Today, the ECOTECH Group has a global footprint across 80 countries; world-class manufacturing facilities in India and Australia certified to ISO 9001 Quality Management standard; operates and manages over 440 real-time environmental monitoring sites worldwide, every day; employing some 220 people across Oceania and Southeast Asia.

(Continued on page 4)

About ACOEM:

ACOEM helping reduce your environmental impact.

In today's fast-moving world, the environment is increasingly impacted. The ACOEM Group is committed to sustainable development and help companies and public authorities limit their environmental impact by offering products and services that:

- Prevent air, noise and vibration pollution
- Increase the productivity and reliability of industrial machinery
- Contribute to the development of effective, robust & noiseless products
- Protect soldiers, sites and vehicles in military theatres of operation.

Across the world, ACOEM's 670 employees innovate in the measurement, analysis and control of all environmental parameters through the o1dB, ECOTECH, ONEPROD, FIXTURLASER, MEAX and METRAVIB brands.

For more information, please visit our website at acoemgroup.com

(Continued from page 3)

The ACOEM Group is headquartered in Lyon, France and offer products and services that prevent noise and vibration pollution, improve air quality, and increase the productivity and reliability of industrial machines to help companies and public authorities reduce their environmental impact. A privately-owned global leader with a development strategy that seeks to make ACOEM Group the worldwide leader in environmental impact reduction, since 2011 ACOEM has brought together ECOTECH and five like-minded synergistic companies with a combined annual revenue of now more than \$119 m AUD (€86 m) and 670 employees worldwide.

Measurement, Analysis, and Control of All Types of Environmental Parameters

"The extensive expertise ECOTECH possesses in air quality complements our well-established know-how in acoustics and vibration, making the ACOEM Group the world's first company to position itself in the measurement, analysis, and control of all types of environmental parameters," says Fabien Condemine, ACOEM Group CEO. "Our merger with ECOTECH also enables us to speed up our international growth, notably by opening markets in Australia, India, and Southeast Asia."

Nicholas Dal Sasso, ECOTECH Managing Director said, "With an increasingly volatile global environment, we are seeing a growing sense of urgency and need for high quality environmental monitoring solutions, particularly in China and India. The merger fast-tracks ECOTECH's ability to provide a broader range of monitoring solutions in existing markets and meet growing customer needs in new ones. For example noise monitoring, which is an established part the ACOEM suite of monitoring technologies, will complement and enhance ECOTECH's capacity to find innovative system solutions to environmental monitoring problems."

More Than Just Environmental Monitoring

Offering more than just environmental monitoring, ECOTECH is also NATA accredited for compliance with ISO/IEC 17025 for a range of testing services including continuous monitoring of ambient air, meteorological monitoring, blast monitoring, as well as industrial emissions (CEMS) monitoring and water quality. ECOTECH is also one of only a few companies in the southern hemisphere to also hold NATA accreditation for the calibration of wind, solar radiation, ambient temperature and humidity sensors and ozone analysers.

“The successful merger of ECOTECH and ACOEM provides all stakeholders (staff, customers and distributors alike) new opportunities for accelerated growth, in turn, providing a promising future for us all,” concluded Nicholas. 🎯



Pic above^[1]: One of the five air monitoring systems designed and manufactured by ECOTECH that now live-streams air quality data from the Surat Basin (Queensland, Australia) to the web for QGC, Origin Energy and CSIRO.



About ECOTECH:

At ECOTECH, problem solving is in our DNA. We have pioneered innovative solutions in environmental monitoring for over 40 years and are global leaders in the design, manufacture, operation and maintenance of air, water, gas, meteorology, blast, particulate and dust monitoring systems. We work with a broad range of industries including mining, government and processing.

Founded and headquartered in Australia, ECOTECH has a global footprint across 80 countries, world-class manufacturing facilities certified to ISO 9001 Quality Management standard in India and Australia, and NATA accredited for compliance with ISO/IEC 17025 for a range testing and calibration services. Every day we operate and manage over 440 real-time environmental monitoring sites worldwide and employ over 220 people across Oceania and Southeast Asia. ECOTECH is part of the ACOEM Group.

[1] Image reproduced from QGC 2016, "Basin air quality data now live online", Operations Bulletin, Issue 18, Oct, p. 1.

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And that
growth would
not have been
possible
without our
staff and
global
distribution
partners.
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Environmental Pioneers Celebrate 40 Years T

From humble beginnings in a Melbourne basement in the 1970s, global leader in environmental monitoring, ECOTECH Pty Ltd, has come a long way in 40 years.

To celebrate four decades of growth and achievements, the company has published a limited-edition commemorative book championing its people titled – **TOGETHER: Future Forward Stories Past.**

The glossy, 70 page coffee table book is a collection of anecdotes and memories from staff, partners and suppliers across the world. The memories are a vibrant reminder of the leadership qualities, staff knowledge and workplace culture that has made ECOTECH a special place to work for hundreds of people in Australia and abroad.



Together

Robert and Judy Dal Sasso founded the company in the late 1970s, and ECOTECH remains a family business today, with their son Nicholas now at the helm.

“ECOTECH grew from mum and dad working in their basement, to a multicultural family of more than 200 staff plus offices and customers working together across the world. And that growth would not have been possible without our staff and global distribution partners,” Managing Director Nicholas Dal Sasso said.

“But with growth, it becomes harder to connect with people on a daily basis. As a global company with more expansion on the agenda, from time-to-time it’s still very important to stop, turn around and look back, celebrate our achievements and hero those who have helped make all this possible.”

(Continued on page 9)



Main pic: Three generations of Dal Sasso’s surrounded by their extended ECOTECH family at the 40 year celebration event.

Pic above (L to R): Bernard van Zyl and Nuno Rodrigues sharing TOGETHER.

“
Vision 2025:
We Are
Growing; We
are Open for
Business; We
Are Striving
for A Greater
Good; and We
have a Passion
for Solving
Problems.
”



(Continued from page 7)

Reconnect and Reflect

“This book gives everyone the chance to reconnect, share their stories, and reflect on their successes. It’s also my opportunity, my family’s opportunity, to thank everyone that has travelled on this path with us.

Like an individual’s past shapes his or her future, ECOTECH’s past has shaped who we are today, and who we will be in the future.”

To illustrate this, the anecdotes and memories inside the book are broken into chapters that reflect ECOTECH’s vision for the future – “Vision 2025: We Are Growing; We are Open for Business; We Are Striving for A Greater Good; and We have a Passion for Solving Problems.”

“Our hope is that this book is kept and cherished by all ECOTECH staff and partners, and gives them pride in their work as they share it with friends, family and future generations,” Nicholas said.

ECOTECH is a proud Victorian family business, that now employs more than 200 people across Oceania and South East Asia. It has more than 50 distributors, two manufacturing facilities and eight branch offices across 80 countries.

Winner of the 51st Australian Export Awards in 2013 and the 2011 Governor of Victoria Innovation Excellence Award, ECOTECH operates one of the largest networks of environmental monitoring systems in the world – more than 440 sites, in real-time, every day. 🌱



Main pic (L to R): Nicholas Dal Sasso, Raymond Lee, Mark Brooks, Jenny Osthmuller, Bernard van Zyl, Kathleen Corbett, Maree Dalzotto, James Agius.

Pic top: ECOTECH founders, Judy and Robert Dal Sasso.

Pic above: Limited edition hardcopy print version of TOGETHER - ECOTECH's 40 year celebration book. Read it online now at www.ecotech.com/together



An Unseen Horror: Air Pollution is More Dangerous Than Terrorism

“Environment [sic] pollution is more dangerous than terrorism.”

Mustafa Zahir
Chief, Afghanistan
National Environmental
Protection Agency (NEPA)

Addressing a press conference in January 2015, Mustafa Zahir, Afghanistan’s chief of the National Environmental Protection Agency (NEPA) declared that, “Environment [sic] pollution is more dangerous than terrorism”. In a nation where terrorism may seem to be a very real and present threat, Mr Zahir’s comment is a confronting statement. But this doesn’t make it any less true.

A recent World Health Organisation (WHO) report outlined that 90 % of the world’s population is exposed to polluted air, with 6.5 million people estimated to have died in 2012 as a result. This number is over 200 times higher than the global number of deaths resulting from terrorist attacks in 2015.^[1] Air pollution is a global disaster that can cause a range of diseases including asthma, heart disease, stroke, and lung cancer. And yet we do not live in constant fear of the air around us.

World Leaders Declare a ‘War on Terror’, But Not a ‘War on Pollution’

Terrorism is successful because it causes irrational and disproportionate fear. Fear of pollution is at its current levels because our fear is not proportionate enough. Toxic particulates and biological molecules in the Earth’s atmosphere not only cause death, chronic illnesses and allergies, but also harm animals, food crops and the natural and built environment. We are blind to the polluted air in cities around the world because we’re used to seeing the smog and soot that characterises every urban environment.

Inefficient vehicles, household fuel and waste burning, coal-fired power plants and industrial activities are key man-made sources of air pollution. In addition to being unsustainable practices, they also combine with dust, methane emitted by cattle, and certain types of vegetation to produce a growing crisis that needs to be addressed.

Residents of mega cities around the world, particularly in India and China, are most at risk from this global threat. In October 2015, the Times of India identified the key hotspots to be Delhi, Cairo, Dhaka, Kolkata, Mumbai, Beijing and Shanghai. With these cities, and others like them around the world, continuing to expand, it is clear that this problem isn’t going away.

Air Pollution Crisis: You Can’t Manage What You Can’t Measure

As with all environmental issues, the collaborative efforts of government, industry and citizen groups alike is essential. Unfortunately, collaboration alone isn’t enough. Gathering data, building knowledge and understanding the environmental science behind air pollution is critical. Frequent monitoring of more air quality parameters in more locations empowers citizens, industry and governments to “see” the problem at hand with irrefutable air pollution data.

(Continued on page 12)

“
Air pollution is a global disaster that can cause a range of diseases including asthma, heart disease, stroke, and lung cancer. And yet we do not live in constant fear of the air around us.
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About the author:^[4]

Manoj Kumar has worked with scientific, analytical, laboratory and environmental monitoring instruments for close to 20 years.

Manoj currently heads International Business Development for ECOTECH Group across the subcontinent, Middle East, North Africa and Central Asia.

Manoj was appointed a member of the Federal Ministerial Consultative Committee of Australia for the Subcontinent from Sep 2012 to Aug 2013. He was President of Cleantech Business sector at the Australia India Business Council (Victoria) from Aug 2011 to Aug 2013.

Manoj holds a Bachelor of Electronic Engineering and an MBA.

[1] National Consortium for the Study of Terrorism and Responses to Terrorism 2016, "Annex of Statistical Information – Country Reports on Terrorism 2015", Jun.

[2] National Consortium for the Study of Terrorism and Responses to Terrorism 2016, "Annex of Statistical Information – Country Reports on Terrorism 2015", Jun.

[3] World Health Organisation 2016, "WHO Releases Country Estimates on Air Pollution Exposure and Health Impact", 27 Sep.

[4] The views and opinions in this article are those of the author and do not necessarily reflect the views of ECOTECH Group.

(Continued from page 11)

As the old truism states: "You can't manage what you can't measure". By measuring the problem at hand we make tangible the intangible by measuring the quality of the very air we breathe. Doing so makes countries and industries more accountable and more continuously aware of the crisis facing us all. This information needs to be shared with the people affected, to help ensure their safety and involve them in developing strategies to identify and execute solutions.

While knowledge is being accumulated, more immediate action needs to be taken. As a society, we need to reduce our energy consumption while our governments work to reduce their reliance on fossil fuels. Even turning off lights and electrical appliances, cycling or using public transport, using energy efficient devices, and sealing any volatile chemicals in the house or garden can, if done collaboratively, make an enormous difference.



28,328 deaths^[2] at the hands of terrorists is gruesome and upsetting. Nearly 7 million deaths^[3] as a result of global inaction and wilful ignorance is deplorable. And the numbers will only continue to rise if we don't acknowledge and address it. 🍷



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The ECOTECH Group has significant on-the-ground presence in India including a large air monitoring equipment manufacturing plant in Indore, as well as maintenance, service and environmental monitoring teams across the country.”



ECOTECH Invited to Tender for New Network

ECOTECH has been formally invited by the Central Pollution Control Board (CPCB) in Delhi, India to tender for “Data Display & Data Supply from Continuous Ambient Air Quality Monitoring Stations” (CAAQMS) under the innovative “Build, Own, Operate and Transfer (BOOT)” business model championed by the CPCB.

ECOTECH’s Head of Finance, Hemal Bavishi, and International Sales and Operations Manager, James Agius, travelled to India from Australia to support the local ECOTECH Indian team and manage the tender response.

“It’s a significant opportunity for the ECOTECH Group and we’re very proud to have made the short-list of companies with the right technical and non-technical credentials invited by the CPCB to bid,” Hemal said. “We are doing everything we can to position ourselves to win



Work of CAAQMS in Delhi



Main pic: ECOTECH's Indian manufacturing facility in Indore is certified to ISO 9001 Quality Management standard.

Pic above: ECOTECH field service technicians in Hyderabad, India.

and demonstrate that the CPCB has found the right partner they've been looking for."

Boots on the Ground in India

Hemal is confident in ECOTECH's credentials, including the fact that the company – founded in Australia 40 years ago – has a significant on-the-ground presence today in India including a large air monitoring equipment manufacturing plant and maintenance, service and environmental monitoring teams across the country.

"It's a very competitive landscape in India and I have no doubt several respected companies will contest for this prestigious contract," he said. "I commend the CPCB in championing their innovative Build, Own, Operate and Transfer (BOOT) business model as a way to achieve the long and short-term outcomes they're looking for."

(Continued on page 21)



Australian Experts Provide Environmental Monitoring Technology to Help Control China's Township Pollution

ECOTECH's Serinus® Trace gas analysers will help China combat rising air pollution in 32 sites across the country. The sensitivity of the technology provides targeted data and more precise monitoring as compared to standard air quality monitoring systems.

Australian environmental monitoring experts, ECOTECH Pty Ltd, are working with a Chinese government department to provide technology that will test and analyse air pollution in more than 30 townships across the country.

ECOTECH has supplied Serinus® Trace gas analysers to China's Ministry of Environmental Protection (MEP) to combat China's ongoing issues with excessive levels of air pollution. According to the World Health Organisation, air pollution causes more than three million premature deaths worldwide every year, with the highest number of deaths occurring in China and India.

Establishing a Reliable System for Environmental Protection

While air pollution in major cities across China has been a longstanding issue, the MEP is increasingly concerned with the levels of air pollution in its smaller-scale cities


outside its thriving hubs. ECOTECH's Trace gas analysers will give officials the ability to monitor at low concentration levels, helping to combat and control rising pollution before it exceeds acceptable levels.

Michael Zeng, ECOTECH International Business Development Manager for Asia, said Serinus® Trace equipment was uniquely positioned to help reduce environmental pollution in its early stages: "Because the pollution levels in these areas are lower than standard monitoring levels, ECOTECH Serinus® Trace equipment is ideal; its sensitivity is able to handle these 'trace' or very low gas concentration levels and provide more accurate data."

ECOTECH, in conjunction with its Chinese partner Hebei Sailhero Environmental Protection, supplied the MEP with more than 100 ECOTECH Serinus® Trace gas analysers in August 2016 for township pollution monitoring. The trace stations will be installed in 32 different locations across China and the project is estimated to be complete by end of year.

Sensitive Trace Gas Analysers Will Detect Low-level Concentration - Helping Monitor Pollution

Michael Zeng said Serinus® Trace gas analysers are engineered to detect gas pollutants at very low levels - much lower than the standard equipment available - and will detect "small-scale" pollution in "smaller-cities" that are outside the major hubs like Shanghai or Guangzhou.

It is the sensitivity and precision of the Serinus® Trace monitoring equipment that provides more targeted data the MEP can compare against large-scale sites in China to assist in the evaluation of pollution control programs. 

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**ECOTECH
has supplied
[more than
100] Serinus®
Trace gas
analysers to
China's
Ministry of
Environmental
Protection
(MEP) to
combat
China's
ongoing issues
with excessive
levels of air
pollution.**
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Portable Groundwater Profiling Vehicle Enables Advanced Data Gathering in Complex Environments

The Portable Groundwater Profiling System (PGPS) Vehicle is custom designed by ECOTECH and represents a better way to test groundwater in extreme environments. The PGPS also opens new monitoring possibilities beyond basic water profiling.

ECOTECH works closely with clients to solve complex problems. In 2016 ECOTECH worked with a customer in Western Australia (WA) to develop a Portable Groundwater Profiling system “fit for purpose” in the mining industry. On this occasion, “fit for purpose” took shape in the form of a utility vehicle.

Tracking groundwater quality is important in environmental monitoring, but there are barriers to obtaining accurate readings. High quality, accurate instrumentation which can operate on hard environments is often not portable which creates challenges when ground water bores are in difficult and remote locations.

Limitations of Current Water Profiling Technology

The WA target site was near the coast, creating an environment where the groundwater has multiple

layers: fresh water, sea water and potential contamination. The customer needed to measure groundwater quality at regular depth intervals. Doing so meant they could locate areas of contaminations and mixing.

Standard ground water sampling methods mix up the water column, making it impossible to measure in intervals. However, more accurate systems are not robust enough for reliable operation in harsh environments. These more accurate systems are by necessity less portable and also require generators, which can't be used in refineries for safety reasons and they're often fixed to a vehicle, making them immovable in cramped conditions.

Fit for Purpose: Portable Groundwater Profiling Vehicle (PGPV)

According to ECOTECH National Water Services Manager Paul How, the custom designed vehicle mounted PGPS “acts as a robust one-stop-shop for NATA (National Association of Testing Authorities) accredited data gathering in situ onsite”. The winching system (pictured next page) is fitted with a sonde instrument probe to reach depths of 100 m and measures water quality at 1 cm intervals. It can also be adapted to descend up to 500 m and be fitted with a variety of other monitoring and sampling technologies.

A waste water storage tank, along with calibration and decontamination equipment, minimises cross-contamination and leaching. The advanced profiling equipment in the PGPS is solar powered, electric, and mounted on turntables. Turntables help make it safe and movable enough for use in cramped refinery conditions.

Innovation Saves Time, Effort & Expense

Wireless connectivity allows for immediate onsite water sampling, analysis and uploading of data. Captured data is then verified remotely at ECOTECH's own NATA accredited water quality laboratory in Perth to provide

(Continued on page 20)

“
[The vehicle mounted Groundwater Profiling System (PGPS)] acts as a robust one-stop-shop for NATA accredited data gathering in situ onsite.
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further validation. With the need to physically send water samples back to base for testing totally eliminated, the PGPS saves considerable time, effort and expense compared to antiquated groundwater sampling techniques it replaces.

More Than Just Water Profiling

ECOTECH predicts the innovative application of PGPS will have possibilities beyond water profiling. Paul suggests the PGPS could remove the need for hefty exploratory equipment in the gas and oil industry, and have a broad application within regulation and research.

Designing, developing and delivering the Portable Groundwater Profiling System is yet another example of ECOTECH using innovation, flexibility and commercial insight to solve complex customer problems and deliver another world-class environmental monitoring system. 📞

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With the need to physically send water samples back to base for testing totally eliminated, the PGPS saves considerable time, effort and expense.”



Pic above: The Portable Groundwater Profiling System (PGPS) designed by ECOTECH includes a winching system fitted with a sonde instrument probe to reach depths of 100 m and measures water quality at 1 cm intervals.

(Continued from page 15)

Real and present danger

Awareness on the subcontinent of the challenging air pollution problem they face is real and present – with media reporting on the problem almost every day.

While ECOTECH is not in the business of addressing pollution itself, Hemal firmly believes that “knowledge is power”, and gathering the air quality monitoring data is a first – and essential – step to obtaining the knowledge we all need to make better, more informed decisions.

Consolidating

ECOTECH Industries Private Limited, under the ECOTECH Group, was established in India in 2014 with a custom built, state-of-the-art manufacturing facility in Pithampur, Madhya Pradesh. ECOTECH has since consolidated its credentials and position in the subcontinent by establishing ECOTECH Monitoring Solutions Private Limited, a service entity with highly skilled technical staff providing air monitoring equipment service and maintenance. The ECOTECH Group now employs close to 100 staff throughout India across manufacturing, servicing and maintenance of air quality equipment.

“Accordingly to the World Health Organisation, globally, air pollution causes one in eight deaths. It is the single biggest environmental health crisis we face,[1]” reflected Hemal. “‘Striving for a greater good’ is one of four key lenses through which ECOTECH sees our vision for the future. By giving the Indian Government access to best practice air monitoring technology and standards ECOTECH has implemented elsewhere in the world, we bring our future vision to life; just as we’ve done helping different government environmental bodies for decades around the world including Australia, Cyprus and Taiwan.”

By having a substantial local presence in India, ECOTECH is extremely well-positioned and has the right Indian team to better help and best support State and Central Pollution Control Boards across the country. 🌀

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The ECOTECH Group now employs close to 100 staff throughout India across manufacturing, servicing and maintenance of air quality equipment.
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Increased Air Monitoring & Research a Vital Step in Preventing Deaths from Future Airborne Health Risks

Pic: Flinders Street Station is Australia's oldest train station, and with its distinctive yellow facade and green copper dome it's a Melbourne city icon. Flinders Street is the busiest suburban railway station in the southern hemisphere, with over 1500 trains and 110,000 commuters passing through each day.

November's tragic thunderstorm asthma event in 2016 was, according to Health Minister Jill Hennessy, "like having 150 bombs go off right across a particular part of Metropolitan Melbourne".

What is of most significance is that this was, globally, the most catastrophic event of its kind and there was no way to predict its scale.

The Importance of Air Monitoring

Experts in health, weather and botany, as well as the Victorian state government have all declared an intention to research the ways in which they can better predict, and respond to, future events. It is clear that this requires greater knowledge in a range of areas.

Medical professionals need to know how best to respond and emergency services need to have optimal ways of communicating essential information, however

ECOTECH Research & Development Manager Grant Kassell realised that “most people have been talking about health, but not about monitoring”.

Air monitoring is essential, as forecasters need to have enough data to fingerprint thunderstorms and predict asthma events.

And it is not just potential thunderstorm events that need to be monitored. A recent review by the Department of Environment, quoted in Fairfax Media, outlined that in 2012 1483 premature deaths in Australia alone could be attributed to air pollution. And according to environmental scientists, this number could be as high as 3000 deaths. These numbers have continued to rise; the number of deaths in 2005 was a far lower 882. It is clear that air pollution poses a significant risk to people in Australia, and in particular to residents of large cities. In a country where the majority of the population lives in urban areas, the need for air quality monitoring has never been more apparent.

The Role of Aerosol Research in Australia

The reason why people’s lungs responded the way they did to the storm was because the high levels of ryegrass pollen in the air reacted to increased humidity levels by expanding and then exploding into much smaller particles. These particles were as little as 2.5 microns across. That’s one four-hundredth of a millimetre, which is small enough to enter the lungs and cause an allergic reaction. It was nearly impossible to predict this event because the combination of factors were so unlikely – a hot northerly wind, spring grasses and the rapid change in humidity that accompanies a thunderstorm. Combine this with a lack of foundational knowledge about the behaviour of thunderstorm asthma and it becomes clear why the event was ultimately so tragic.

Research into particles in the air is called aerosol research and it is a vital part of developing preventative responses to severe asthma events. Currently, CSIRO and the University of Queensland are the only institutions

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“
And it is not just potential thunderstorm [asthma] events that need to be monitored... the Department of Environment [reported] in 2012 1483 premature deaths in Australia alone could be attributed to air pollution.”

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conducting in-depth aerosol research in Australia. However in order to better understand, and therefore respond, to airborne health risks it is necessary to gather more data than is currently available.

This lack of focus on research into particulates is not limited to pollen, however. Pollution from vehicles, industry and construction continues to contribute to premature deaths. It is in this area of air pollution that ECOTECH develops and distributes global-standard equipment designed to accurately monitor air quality and better support the health of residents in Australia and around the world.

Governments in China and Europe are already using nephelometers – designed and manufactured by ECOTECH in Australia – to track dust from the Gobi and Sahara deserts in order to monitor air quality and better protect their citizens. Similar technology could, and should, be used in Australia alongside further research in order to better protect our citizens from increasingly frequent airborne health risks.

What is a Nephelometer?

A nephelometer is a machine that is able to detect specific wavelengths of light. Particles in the air scatter light differently according to their properties, as well as how many there are. A nephelometer can therefore be used to detect whether and how many specific particles are in a particular area. Being able to detect the scattering of red, green and blue light could be used to provide extra information about the types of particles in the air, which could be used to fingerprint and then detect airborne health risks.

Understand more about ECOTECH's Aurora™ integrating nephelometer series:

Aurora™ 1000 – Clear choice for visibility monitoring

Uncompromised in its reliability and designed to run in extreme conditions; the Aurora™ 1000 is a highly cost-effective entry level instrument for any air quality monitoring system.


Aurora™ 2000 – Real-time mass concentration

Using a single wavelength nephelometer to measure aerosol light scattering in conjunction with a Spirant BAM, the Aurora™ 2000 uses the reading from the Spirant BAM's hourly average to calculate a correlation factor to drive real-time PM_{2.5} concentrations.

Aurora™ 3000 – Proven results for long-term monitoring

The favoured choice of researcher; the Aurora™ 3000 facilitates simultaneous measurement across three wavelengths, enabling wide and in-depth analysis of the interaction between light and aerosols.

Aurora™ 4000 Polar – Measuring the aerosol phase function

The Aurora™ 4000 Polar provides measurements of light scattering within up to 18 user selectable angular sectors using varied backscatter shutter positioning. This can be used to determine the phase function of aerosols crucial to climate research and modelling. 

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**Governments
in China and
Europe are
already using
nephelometers
– designed
and
manufactured
by ECOTECH
in Australia –
to track dust
from the Gobi
and Sahara
deserts in
order to
monitor air
quality and
better protect
their citizens.**
”



Pic right & above: Some of the ECOTECH Industries team in Indore celebrating Uttarayan by flying kites with James Merry.

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Festival of Kites

Uttarayan is a Hindu festival that takes place in various locations around India on 14 January every year.

Uttarayan celebrates the fact that winter is coming to an end and harvest season is approaching. Traditionally, the festival marks the gods waking from a deep sleep, and to celebrate people engage in competitive and recreational kite flying in cities around India.

This year, a month long visit to ECOTECH Industries by Australian-based ECOTECH Production Engineer James Merry coincided with the happy event. 🍷



Shaving for the Greater Good

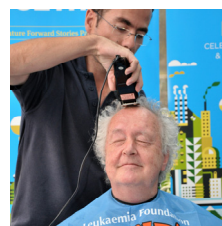
With the recent news of ECOTECH founder, Robert Dal Sasso being diagnosed with lymphoma, this year's "World's Greatest Shave" took on special significance at ECOTECH.

And while Robert's prognosis is good, it's a timely reminder that blood cancer (which includes lymphoma, leukaemia and myeloma) is the third most common cause of cancer death in Australia.

World's Greatest Shave began in 1998 and has raised \$200 million for research and support since then, not to mention raising awareness.

ECOTECH staff were treated to a special morning tea as Nicholas, Tim Sallai, Robert Maxwell, Nilupa Dediwalage and Jun Cao were subjected to a close head shave to encourage donations.

Together, ECOTECH and staff raised \$6000 in funds for the worthy cause. 🌀



Main pic: Joe Darwent helps raise \$6000 by shaving Nilupa Dediwalage's head.

Pic above: Robert Maxwell relaxes as Nuno Rodrigues makes the first cut.

Did you know 35 Australians are diagnosed with blood cancer everyday. The Leukaemia Foundation raises money for supporting families and investing in research to find treatments and cures for blood cancers and related disorders.

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ECOTECH'S MAGAZINE ABOUT ENVIRONMENTAL MONITORING

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