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Crisis Management Center**



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Foreword

In this issue of the APEC SME Monitor, we continue to deliver a wide variety of topics discussed by the experts of APEC SME Crisis Management Center. In the "SME Development" section, experts demonstrated that China, Viet Nam, and Indonesia currently hold the dominant position in the global OEM market rather than Chinese Taipei. Therefore, firms in Chinese Taipei should attempt to transform and upgrade its structure in order to maintain its competitiveness. In this context, it means to create value that "exceeds customer expectation", as well as deliver desirable products and service.

As for the "SME Challenges" section, expert took a look into "The Canterbury Earthquakes: System Dynamics of Sectoral Recovery". Experts find that staff wellbeing is a significant issue for organizations to the process of after disaster recovery. In addition, the experts also find that if the interactions between the sectors in a system are highly interdependent, sectors that highly dependent on each other can speed up the process of the recovery. Another article to be noted is about SME' s and the impending US infrastructure disaster. Exacerbated by age and a lack of maintenance, the US infrastructure will continue to see a major increase infrastructure related disasters. Therefore, for the US SMEs, it is more important to develop Business Continuity Plans (BCPs) to decrease the impacts of disasters.

In the "SME Policy" section, experts discussed the new Carbon Price Arrangements in Australia and the role of Australian Competition and Consumer Commission (ACCC) under this new policy. Other than the Carbon Price Arrangements, experts from the Philippines introduce the project NOAH, where the mission of NOAH is to undertake disaster science research and development, to advance the use of cutting-edge technologies, and to recommend innovative information services in government' s disaster prevention and mitigation efforts. NOAH is designed to be a user-friendly and efficient real-time weather monitoring website, and its usage is presumed to be convenient and beneficial to users.

Taking the case of floating (amphibious) houses in the Netherlands for example, experts suggest SMEs use some locally unique or distinctive demanding to stimulate industrial innovation and, further, to seek potentials for exportation in the "Expert Perspective" section. In addition, under the "SME News" section, a total of 15 members of the 2012 APEC international press corps visited the Small and Medium Enterprise Administration (SMEA), Ministry of Economic Affairs on 23 August morning. A complete report on the event is included in the monitor.



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A New Moment for Industrial Innovation

Recently local manufacturers of the mobile and 3C industry have frequently made the newspapers headlines. It is much indeed that, irrespective of patriotism or consuming preference to products made on our own, the industry as a whole is facing issues, or rather bottlenecks, with which the industry ought to deal when it comes to development. The industry used to manage research and innovation of hardware and techniques by leveraging the strong capability that Chinese Taipei manufacturers learned or developed while running OEM (Original Equipment Manufacturing) businesses in the past, which is no doubts the cornerstone of the prevailing industry development. However, industries that virtually move on with the existing business models and fail to make transformation and manage changes would end up with crisis. What we have observed in the past few years is that enterprises intending to inspire customer demands by rolling out new technology deliver poor performance. For instance, Sharp, one of the leading global LCD manufacturers, declared a loss of nearly NTD 140 billion last year. On the other hand, Hitachi, which has invested in consumer research and realized customer needs in their product value and brand building, has continuously hit the record high of its profitability for the recent years.

Peter Drucker, one of the management masters, stated that what customers are willing to buy is never merely about a tangible and solid product but the value embedded in it. The value is the surplus of consumer satisfaction net of costs. The well-known Two Factor Theory of psychology depicts that customers with no exception take "what they expected", if any, for granted and are deeply touched with what beyond their expectation, even though just a little bit, which may make customers loyal to the brand of the company. As a result, delivering "what beyond expectation of customers" becomes the goal that the majority of enterprises pursue at present and, of course, a major challenge while they compete with rivals such as Samsung, Apple, and Google.

We used to follow the low-cost OEM model and the philosophy of manufacturing revolving around efficiency and capability, which, in the opinion of customers who purchase products or service, delivers a usable or useful product. In essence, this is just fall within the level of "what customers originally expect". However, China, Viet Nam, and Indonesia have gradually won the dominant position in the global OEM market. The continuity of our businesses therefore lies on



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transformation and upgrading, which means to create value that "exceeds customer expectation", as well as deliver desirable products and service. The following are a few points on strategic thinking and innovation:

First, the business model of OEM focuses much on a single piece of element of a product or service forming the overall customer experience, which, as far as manufacturers are concerned, translates into value-added innovation and production as per the spec that the ordering firms require. Heavily relying upon such "back-end production or value-adding process" lays obstacles in the way to innovation. Under the tendency of service economy, "Service Design Thinking", incorporating service innovation and design thinking, enables manufacturers to visualize "Holistic Experience Journey" hidden in the consuming behavior of customers, including both ordering firms and ultimate consumers, by employing systematical thinking, and in turns to review the design and innovation relating to each specific product or service. Accordingly, enterprises would be able to expand the current value curve and create value beyond what customer originally expect. Furthermore, it is even possible to build up the brand effectiveness that really touches customers.

Secondly, the capability relating to technology and manufacturing that Chinese Taipei has accumulated for decades not only serves as solid foundation but drives the industry to move upwards. However, past development experience is merely a silent contribution to the success of globally well-known brands but stops us from exposing ourselves to end customers due to shortage of experience in developing our own brands. Nowadays, the Chinese markets and cultures are internationally prevailing, and Asia becomes the hub of trends and tendency of the globe. With the unique capability of technology and flexibility of manufacturing that we have, by leveraging philosophy of brand and design of arts and exploiting both local and international talents and capital, as well as under the distribution of the Chinese-related markets in the globe, Chinese Taipei is able to serve as "the dream factory of international brands". And, it is only possible for us to overwhelmingly transform the structure of our industry when we consistently roll it out and make influence throughout various levels of our supply chain to substantially develop successful localized cases.

Finally, the critical element for the industry to move towards service innovation and brand transformation is talents from various domains to carry out integration and make changes. The Chinese Taipei society accustoms itself to a spectrum of diverse cultures with remarkable tolerance, which is a rare advantage in the globe. However, the public, academic, and private sectors should aggressively make use of such unique strength to develop and grow under the open-minded and innovative environment, where put theories and ideas are put into actual actions. In addition to the competition of global competitive resources, the "power of talents" is the most critical resource that one economy can compete with other economies. As a matter of fact, everyone can argue and plan a glorious vision for the future, but the most important key to success in the future lies upon the ability of execution hidden behind the plan. 

The Canterbury Earthquakes: System Dynamics of Sectoral Recovery

Key Findings

- Levels of planning and preparedness for disasters vary significantly across sectors of the economy.
- Staff wellbeing is a significant issue for organisations as they seek to recover.
- An Earthquake Support Subsidy to help pay wages and salaries for SMEs proved an invaluable lifeline - helping them avoid making staff redundant and taking on excess debt.
- Sectors can be highly dependent on each other for their recovery, with supply and demand fluctuations frustrating recovery.

1. Introduction

The Canterbury region in New Zealand has experienced over 10,000 earthquakes over the last eighteen months. Large parts of the Central Business District (CBD) of Christchurch (New Zealand's second largest city) still remain cordoned off to public access at the time of writing.

This report investigates how different industry sectors are affected by disaster, and what effect the interactions between sectors had on their recovery. The sectors considered are:

- Construction for its role in the rebuild,
- Information and Communication Technology (ICT) which is a regional high-growth industry,
- Trucking for logistics,
- Critical Infrastructure, as an enabler for all other sectors
- Fast Moving Consumer Goods (FMCG e.g. supermarkets and petrol stations) for non-discretionary spend, and
- Hospitality to track recovery through discretionary spend.

Also in the study are three urban centres: Christchurch Central Business District (CBD), Kaiapoi Town Centre and



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Research Focus

- Ways to evaluating an organisation's resilience
- Recovery of organisations following disaster
- Post-disaster reconstruction



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- information security



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- Natural Hazard Risk Assessment
- Assessing the impact of Natural Hazards to Critical Infrastructure and Primary Industries

Lyttelton Town Centre. Data were collected for this study by surveying organisations from each industry sector and through expert interviews.

2. Impacts to Organisations

I. Organisational pre-disaster preparedness

Organisations were asked if they had crisis or emergency plans at the time of the earthquakes. Results varied considerably; organisations in the critical infrastructure (94%) and FMCG (71%) sectors were more likely to have such plans, while in the hospitality sector, none reported having these plans.

II. Degree of impact

Recovery from disaster has myriad definitions depending on what lens is used for analysis. When asked, organisations in the study typically characterised recovery as when they returned to their pre-earthquake revenue and performance levels or better. Using this metric, Table 1 shows how organisations in different sectors were recovering after

Table 1: Sectoral Recovery Rate Coefficient measured using changes in revenue

	Recovery Rate Coefficient				
	-2	-1	0	1	2
Building Suppliers	82%	0%	0%	9%	9%
Critical Infrastructure	13%	20%	33%	13%	20%
FMCG	21%	14%	14%	21%	29%
Hospitality	57%	0%	14%	0%	29%
ICT	13%	4%	50%	21%	13%
Trucking	33%	8%	33%	0%	25%
Christchurch CBD	80%	7%	0%	0%	13%
Kaiapoi Town Centre	23%	23%	31%	15%	8%
Lyttelton Town Centre	38%	19%	38%	3%	3%

the earthquakes. Their rate of recovery is measured using revenue changes in two consecutive time periods: (1) between 4 September 2010 and 22 February 2011 and (2) after February 2011. The scale ranges from -2, a decrease in revenue in both time periods, to +2 which corresponds to an increase in revenue in both time periods. The recovery rates illustrate the variable impact of the earthquakes on different sectors. The Building Suppliers sector had the largest percentage of organisations reporting revenue losses in both time periods. Although Building Suppliers are expected to benefit from the coming reconstruction, in the short term, their revenues have been affected by the long delays in settlement of insurance claims after the Canterbury earthquakes.

III. Staff wellbeing and customer issues

After both the September and February earthquakes, organisations found the most disruptive factor to be the wellbeing of their staff. Organisations recognised that the recovery of their staff is needed to achieve organisational recovery. Organisations also worked hard to ensure staff redundancy was a last resort in already turbulent times and that work should be one source of certainty. However 57% of Hospitality organisations and 47% of organisations from the Christchurch CBD reported staff redundancies.

Importantly, it became apparent in the early response phase that the wellbeing of staff was very

closely linked to that of their family, friends and community. For example, some ICT and Critical Infrastructure organisations report that some employees voluntarily left their employment due to family considerations. Measures taken to mitigate this included giving staff the choice to relocate and still retain their jobs. They reported that, in the main, this was a better option than losing staff altogether and helped with team spirit in the organisation. These efforts made staff feel more valued which often translated into increased productivity.

Other major factors of disruption included customer issues and non-structural damage. Hospitality organisations experienced a drop in the number of customers and customers were not spending as much as they normally would. Organisations on the periphery of the Christchurch CBD cordon say they experienced a drop in customer numbers because of the perception caused by the official cordon that they were also not trading. Other organisations reported damage to roads and bridges as an impediment to customers reaching their premises.

IV. Mitigation measures

Other than staff rising to the challenge, organisations reported other measures that helped lessen the effects of the earthquakes included well-designed and well-built buildings, quick restoration of critical services and an Earthquake Support Subsidy (ESS) made available by Central Government to help pay wages and salaries for organisations with 65 employees or less. For many organisations, the ESS proved an invaluable lifeline that helped them avoid making decisions such as staff redundancy or taking on debt which may have been detrimental in the long run.

V. Effects between sectors

Figure 1 captures how the sectors in the study affected each other after the earthquakes. The interactions between the sectors in a system are the feedback loops that contribute to the overall behaviour of the system. Some sectors were highly interdependent on each other, for instance between Trucking and FMCG and also between Critical Infrastructure and the Christchurch CBD.

In Figure 1, loop R1 required the re-establishment of demand and supply equilibrium between Trucking and FMCG. FMCG organisations required trucking services to take away excess waste caused by disruption to electricity and water; they were not able to receive goods before cleaning up. On the other hand, the Trucking organisations found themselves with the problem of not enough warehousing due to earthquake damage, excess pre-earthquake stock they could not deliver and, interestingly, an increase in demand for goods, much of which they could not order or receive because of space constraints.

Loop R2 illustrates the consequences when infrastructure providers have major assets in built-up areas with a lot of unreinforced masonry buildings that were badly damaged by the earthquakes and subsequently condemned for demolition. Seismically reinforcing critical infrastructure situated in areas where other buildings are vulnerable to earthquakes leaves significant residual risk.

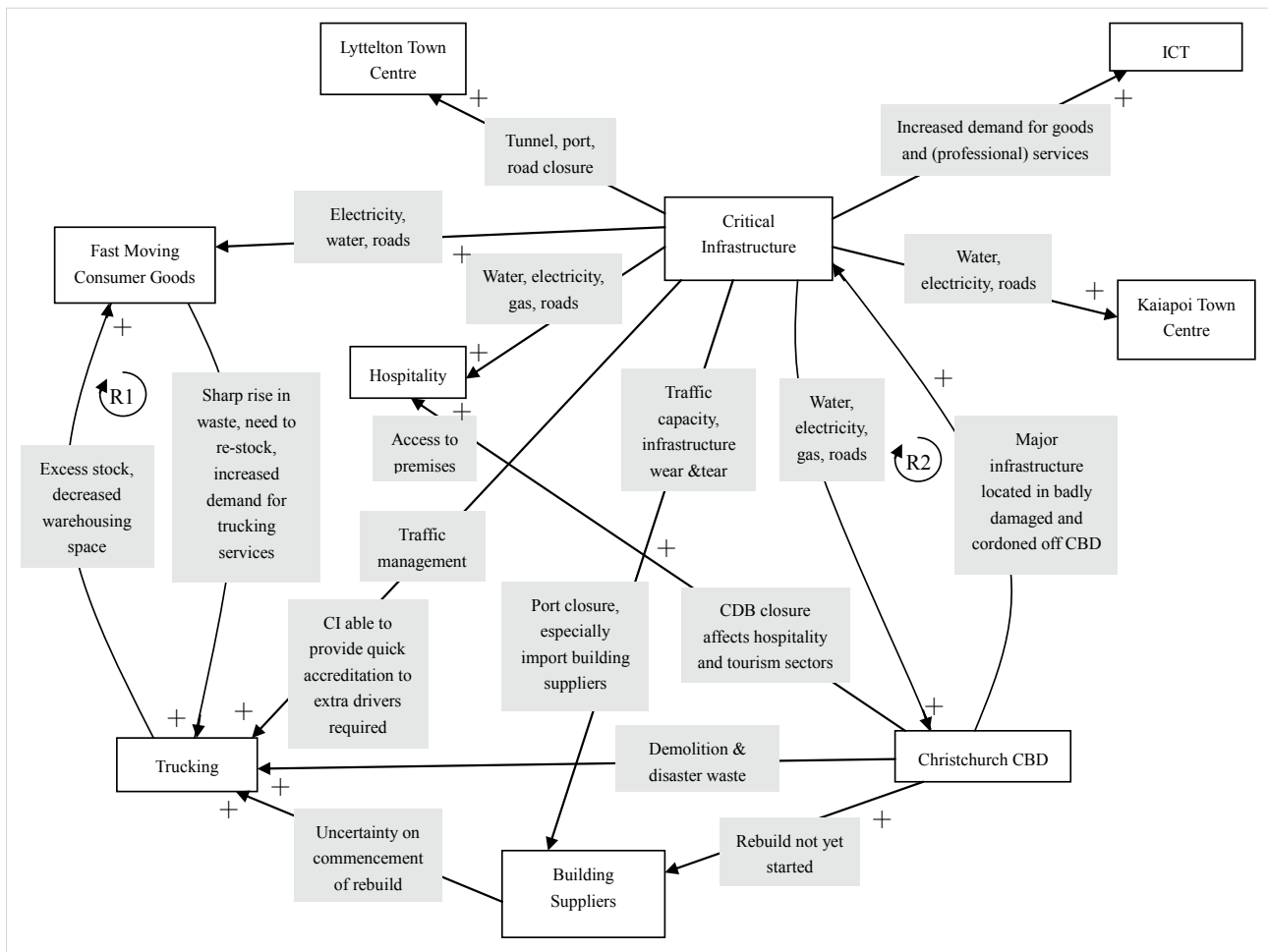


Figure 1: System dynamics interpretation of intersectoral effects after the Canterbury earthquakes of 2010 and 2011

3. Conclusion

For large scale regional events such as the Canterbury series of earthquakes (2010-2011), a sector's disaster resilience is eroded and needs to be rebuilt based on the changing conditions. Some level of pre-event preparedness measures can assist the organisation's recovery. Also important in determining recovery outcomes are some of the actions organisations take to adapt themselves post-disaster. Some of these actions include: looking after the welfare of staff as well as developing and implementing effective, timely organisational recovery plans. Lastly, organisations require new ways of working that make use of system attributes such as feedback with customers as well as the consideration of a broader range of interacting risks. [SCMC](#)

SME's and the "Impending" US Infrastructure Disaster

Regardless of the size, focus or structure of businesses in the United States, they all have one thing in common – they are almost totally dependent on the physical infrastructure for their livelihood. Historically, one of the United States' greatest advantages has been its superior infrastructure: more than 500 primary airports; some 3.9 million miles of public roads, including more than 47,000 miles of interstate highway; 120,000 miles of major rail; 2 million miles of oil and natural gas pipeline; and more than 300 ports. Most of the assets categorized as infrastructure move people, goods, and information from here to there: roads, bridges, ports, waterways, rail, transit systems, airports, air traffic control, and the national information (broadband) infrastructure. Other assets include the electric power grid, dams, drinking water systems, and wastewater and hazardous waste facilities.

However, numerous recent studies have concluded that the state of the infrastructure of the United States, from the national to the local level is (a) old, (b) increasingly unreliable, (c) increasingly "non-competitive" with other economy' s capabilities, and (d) in need of massive expenditures to ensure the continuity and competitiveness of the economy' s large, medium and small businesses. This accuracy of domestic assessments is further substantiated in the FY 2011-12 World Economic Forum' s Global Competitiveness Report in which the "United States ranks 24th for infrastructure quality among 142 economies", down from No. 8 in the FY 2005-2006 and "in terms of overall competitiveness the United States continues a decline that began three years ago, falling one position to 5th place."

The US Infrastructure Problem- The magnitude of this problem is only partly exemplified by the following:

Electrical and energy infrastructure- Virtually all of the economic and societal progress of the US, and as a result virtually every SME, depends on a reliable and efficient electrical and energy infrastructure, e.g., banking and finance depend on the robustness of electric power, cable and wireless telecommunications; transportation systems, including aircraft, and land and sea vessels depend on communication and energy networks. The linkages between electric power grid, telecommunications, and couplings of electric generation with oil, water and gas pipelines are ever increasing and continue to be a lynchpin of energy supply networks. On 2 July 2012 the fragility of the US electrical and energy infrastructure was demonstrated when a major storm system known as a "derecho" struck the east coast of the United States, claimed at least 22 lives and left over 4 million people and businesses without power for up to a week. The ultimate "cause" being a single tree falling into a transmission line resulting in subsequent "cascading shut downs" of generating stations throughout the region. Most experts concur that the US electrical grid is "a system that has been aging for decades without adequate expansion and modernization of the bulk of its



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Research Focus

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- Disaster economics
- Management of national and international resource programs
- Social-cultural-environmental impact assessment

transmission and distribution networks". It is estimated that should these conditions continue to worsen, the present USD 17 billion cost to businesses and households will grow to USD 24 billion by 2020 and reach USD 44 billion by 2040.

Bridges and roads- In the United States 69,223 bridges (11.5% of a total of 599,996 total highway bridges in the US) are classified as "structurally deficient," requiring significant maintenance, rehabilitation or replacement. In 2007, the I-35W Bridge in Minneapolis, Minnesota collapsed, killing 13 people and injuring 145. The bridge, that had been declared as "structurally deficient" in 1990, collapsed as a result of age, poor maintenance, overloading and design flaws. The tragic accident also cost the Minnesota economy USD 60 million in lost economic activity before the replacement bridge opened in 2008.



Dams and levees- Four thousand US dams and a majority of existing levees are in need of repair. Nearly half are near communities, putting tens of thousands of citizens at risk of a dam breach. After Hurricane Katrina it was shown that weak dams and levees were a major danger to citizens and their failure were major contributors to the more than 1,400 deaths that occurred. The total cost of the Katrina to the US was estimated by Swiss Re to be as high as USD 250 billion and US Small Business Administration (SBA) approved approximately USD 1.4 billion in disaster loans to assist with the repair or replacement of damaged property and to address economic losses suffered by small businesses as a result of the storm and levee break.

Freight and Rail- Inadequate freight and rail infrastructure forces passenger vehicles to share congested roads with 39,000 trucks from the Los Angeles port on a daily basis and account for 14% of the areas highway traffic and increased pollution. Throughout the US inadequate freight and rail infrastructure results in enormous costs to shippers, carriers, and the economy. For example, Nike has reported that it must spend an additional USD 4 million per week to carry an extra 7-to-14 days of inventory to compensate for shipping delays; and the Congressional Budget Office has estimated that a week-long disruption to container movements through the Ports of Los Angeles and Long Beach would cost the national economy between USD 65 and USD 150 million per day.

The Infrastructure Funding Dilemma

During fiscal 2010 and 2011, the US federal budget authority for federal infrastructure projects was approximately USD 100 billion. This minimal level of funding comes at a time when the estimated annual budget required for upgrading the US' s existing infrastructure, to meet international standards for safety and efficiency, ranged from approximately USD 260 billion/

year (by the Center of American Progress) to USD 400 billion/year (American Society of Civil Engineers). Without immediate and large scale increases in funding, US infrastructure will continue to decline in terms of its overall resilience to ever increasing natural disasters (exacerbated by climate change and climate variability) and to see a major increase infrastructure related disasters (exacerbated by age and a lack of maintenance/upgrading). The result will be an ever increasing economic impact on the more than 2 million SMEs that rely on US infrastructure for their livelihood.

Table 1. US infrastructure funding gap


Sector	Annual New Government Investment in billion USD
Highways	47.0
Mass Transit	15.7
Rail	9.3
Ports	1.0
Airports	7.0
Inland Waterways	0.2
Freight	1.4
Water	2.7
Energy generation	44.0
Dams and levees	1.0
<i>Total</i>	<i>129.2</i>

(Center for American Progress, 2012)

SME Planning for the "Impending Infrastructure Disaster"

At present there is little that SMEs individually or collectively can do to forestall the impending US infrastructure disaster, however, there is a great deal that SMEs can do to mitigate the impact of, and ensure enhanced resilience of the SME to the impending disaster. Central to achieving these objectives is the development of both a comprehensive Disaster Recovery Plan (DRP) and a more inclusive Business Continuity Plan (BCP) for an enterprise. However, developing such plans in the context of the US infrastructure dilemma poses a unique challenge for SMEs.

Unlike most natural and technological disasters whose impacts are primarily well known, of short duration, local in impact, and amenable to known and conventional responses, the threats posed by the US deteriorating infrastructure often result in unexpected and cascading impacts, are often of long duration, have a wide geographic impact and require complex responses. This requires that the strategic framework for both DRP and BCP be expanded to account for the potential impacts and response required for broader impacting infrastructure disasters. In general the most important things to do are both the most obvious, and most overlooked by the majority of SMEs, of (a) recognizing and defining the problem/s; (b) assessing the impacts on, and vulnerabilities of, the enterprise to the problem/s and (c) developing a "detailed" short-to-long term strategy for "coping" with the impending impacts.

The resilience of the interconnected infrastructure support structure of US industry is arguably both one of its greatest strengths and potentially one of its greatest weaknesses. When functioning well the infrastructure support base supports all components of the US "Just in Time" supply chain, domestically and internationally, that virtually all companies rely on to conduct their business. The question is "Can the US infrastructure continue to function well?" 

►► Compliance with the Carbon Price Arrangements in Australia

The implementation of the carbon price commenced in Australia on 1 July 2012. The carbon price applies to certain greenhouse emissions, with some large businesses being required to purchase carbon credits against their emissions.

According to the Government (see <http://www.cleanenergyfuture.gov.au/wp-content/uploads/2011/11/FactSheet-13-SmallBusiness-PDF.pdf>) small businesses will not be required to pay a carbon price. The impact of a carbon price on small business will vary and most small businesses will not be significantly affected.

Australia's competition regulator, the Australian Competition and Consumer Commission (ACCC) has been asked by the Government to ensure effective implementation of the carbon price, particularly from the perspectives of competition and consumer related compliance issues. The ACCC's carbon price role includes:

- Informing and educating businesses, including through issuing guidance, about their responsibilities under the Competition and Consumer Act 2010 when making a carbon price claim.
- Raising awareness amongst consumers about their rights under the Australian Consumer Law (ACL).
- Investigating and, where appropriate, taking action against businesses who engage in practices that contravene the ACL.

The ACCC's focus is to ensure businesses do not make misleading claims about price increases as a result of the carbon price. The ACCC can act against businesses who contravene the ACL. The ACCC's role does not include formally monitoring, setting or restricting price increases linked to the carbon price. The ACCC cannot prevent a business from putting up its prices as a result of the carbon price.

The ACCC can investigate and take action against businesses that make false or misleading claims. Some of the ACCC's powers include:

- Requiring a business to provide documents and information that respond to a substantiation notice.
- Issuing infringement notices of AUD 6,600 for a corporation (or AUD 66,000 for a listed



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Research Focus

- Food security and distribution gaps
- Economic impacts of pandemics and spread of infectious diseases
- Socio-economic and health impacts of air pollution, prospects for renewable energy use, climate change mitigation adaptation analysis
- Economic value of climate and weather information

corporation) where it considers a claim is false or misleading.

- Taking legal action against a business for breaches of the ACL.
- Seeking court-imposed penalties of up to AUD 1.1 million for serious breaches of the ACL or injunctions to stop a business from making certain carbon price claims.

Businesses will need to consider information from a range of sources when determining the impact of the carbon price on their costs, and ultimately their prices.

If businesses intend to rely on information from third party sources when making claims about the carbon price to their customers, they need to assess whether they have a "reasonable basis" for relying on the information.

When relying on third party information to make a claim, businesses should consider:

- Any explanation the third party has provided about the price impact of the carbon price.
- Whether the third party's calculations reflect the cost of inputs into their own business - if they are being used to calculate a carbon price.
- Whether any price increases are consistent with the carbon price impact as predicted by other sources such as government, their industry association or other professional advisers.
- If there are other factors (unrelated to the impacts of the carbon price) that have contributed to the price increase. [SCMC](#)

Source: www.accc.gov.au/carbon.

Project NOAH, Philippines: Resilience to Natural Disasters Using Science and Technology

After typhoon "Sendong" spawned floods and destroyed properties of significant economic value in Northern Mindanao on 17 December 2011, President Aquino ordered the development of flood prevention and mitigation project to give communities a fighting chance to escape the onslaught of perennial floods within six hours of their arrival. Floods have become an annual nuisance across the economy – claiming lives, destroying capital assets and infrastructures, destabilizing private investment initiatives and disrupting growth and flow of goods and services such as in production, trading and distribution by many micro, small, and medium enterprises (MSMEs).

Losses can be minimized through timely and appropriate actions. In the case of MSMEs, business continuity plans are as much as effective as the information they have been based from. As many would say, information is power. It drives our decision-making and our reaction to situations such as in times of natural calamities. Information is vital to communications and a critical resource to business operational realignments.

In response to the call for information that can promote better community preparedness and avert sequels to the numerous tragedies involving typhoons such as Ketsana and Parma in Luzon in September 2009 and damaging flashfloods caused by typhoon Washi in Cagayan de Oro in December 2011, project NOAH was launched in July 2012. An acronym that stands for "Nationwide Operational Assessment of Hazards", NOAH is the government's nationwide response to the economy's natural disasters through science and technology (S&T). It is a fully-digitized, online, and interactive map of the Philippines designed to provide rainfall and flood statistics and information. In many respects, it allows the public to see weather developments, the amount of rainfall, and potential flooding in a particular area, hence, functions as a flood early warning system (Figure 1). With data from doppler radars and rain gauges, color-coded maps indicate the vulnerability to flooding of particular areas. Through close coordination with the National Disaster Risk Reduction and Management Council (NDRRMC), the Department of Science and Technology (DOST) hopes to issue the early warnings six hours before the rise of floods to critical water levels or when there is still time to evacuate.



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- Global food systems and safety

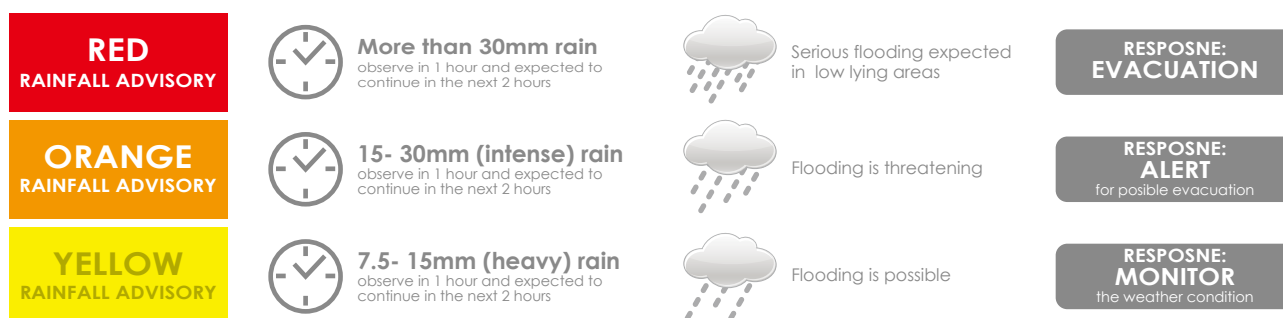


Figure 1. Flood early warning system codes, Philippines, 2012
(Source: <http://www.pagasa.dost.gov.ph>)

Project NOAH aims to harness the technologies and management services for disaster risk reduction activities that are offered by the DOST through the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), Philippine Institute of Volcanology and Seismology (PHIVOLCS), and the DOST-Advanced Science and Technology Institute (ASTI), in partnership with the University of the Philippines (UP) National Institute of Geological Sciences and the UP College of Engineering. Its mission is to undertake disaster science research and development, advance the use of cutting-edge technologies, and recommend innovative information services in government's disaster prevention and mitigation efforts (<http://www.gov.ph/about-project-noah/>).

According to DOST, the project has the following features:

1. Distribution of hydro-meteorological devices in hard-hit areas in the Philippines - installation within two years of 600 automated rain gauges and 400 water level monitoring stations along the economy's 18 major river basins for high-resolution flood hazard maps and better picture of the economy's surface water in relation to flooding;
2. Disaster Risk Exposure Assessment for Mitigation – Light Detection and Ranging (DREAM-LIDAR) project - aims to produce more accurate flood inundation and hazard maps in 3D for the economy's flood-prone and major river systems and watersheds;
3. Enhancing Geo-hazards Mapping through LIDAR - shall use LIDAR technology and computer-assisted analyses to identify exact areas prone to landslides;
4. Coastal Hazards and Storm Surge Assessment and Mitigation (CHASSAM) - will generate wave surge, wave refraction, and coastal circulation models to understand and recommend solutions for coastal erosion;
5. Flood Information Network (FloodNET) project - will come up with computer models for the critical RBs, automate the process of data gathering, modeling and information output, and release flood forecasts;
6. Local Development of Doppler Radar Systems (LaDDeRS) - seeks to develop local capacity to design, fabricate, and operate sub-systems of Doppler radars for remotely sensing the dynamic parameters of sea surface such as wave, wind field, and surface current velocity;
7. Landslide Sensors Development project - a low-cost, locally developed, sensor-based early monitoring and warning system for landslides, slope failures, and debris flow; and,
8. Weather Hazard Information Project (WHIP) - involves the utilization of platforms such as television (DOSTv) and a web portal, which display real-time satellite, Doppler radar, ARG, and WLMS data to empower LGUs and communities to prepare against extreme natural hazards.

These days, Filipinos have become on-line savvy. This is especially true for the immediate past and present generations that have turned into heavy users of information and communication technologies. Designed to be a user-friendly and efficient real-time weather monitoring website,

NOAH's usage is presumed to be convenient and beneficial to users. For instance, if one hovers over the "OVERVIEW" option of the website and clicks "Rainfall Contour", a color scaled map can be viewed for an idea of the rainfall in a particular area (Figure 2). Similarly, the "FLOOD MAP" option displays the recorded flood coverage over a period of time at selected areas of the economy. On the other hand, the "WEATHER STATIONS" drop-down menu allows one to view the different data-gathering systems of the NOAH program in various parts of the economy.

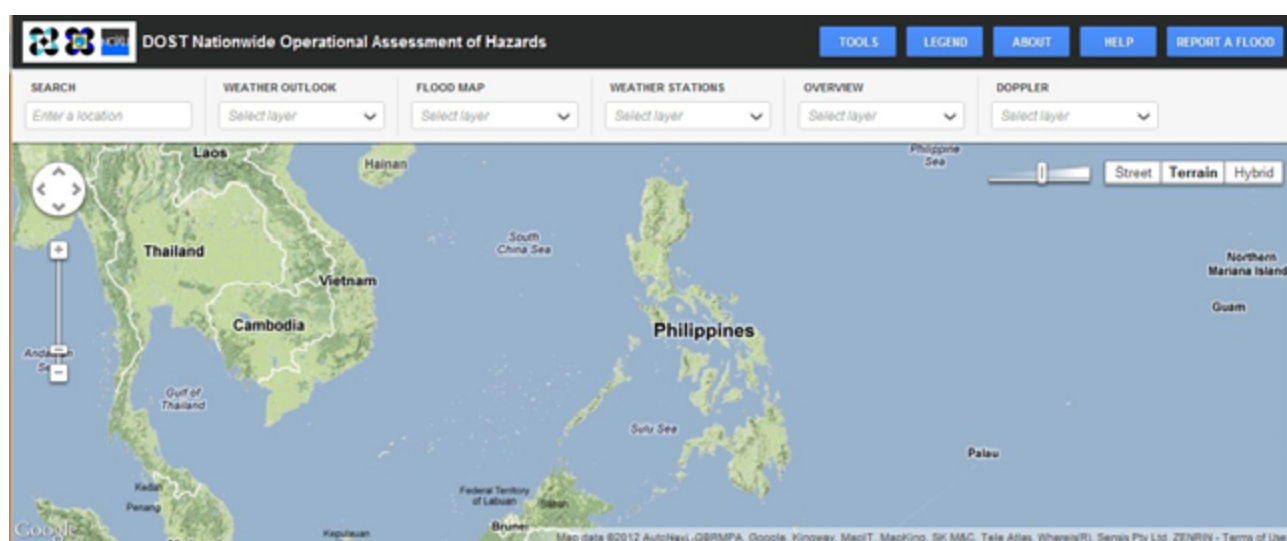


Figure 2. Website for project NOAH, Philippines.

(Source: <http://noah.dost.gov.ph>)

With project NOAH, it is hoped that the public, including the MSMEs and other business establishments, can take advantage of up-to-date local weather forecasts and make wise decisions in their living and preoccupations. Why not visit <http://noah.dost.gov.ph> and give it a try? **SCMC**

▶▶ Floating (Amphibious) Houses in the Netherlands: A Case of How Demands, Problems, and Challenges Can Lead to Innovation

The industrial innovation of our economy has long taken the technology gap on supply chains and manufacturing and the components module as a R&D focus. As a result, Chinese Taipei's manufacturing industries are easily trapped in the problems of modular production and lack of system integration capabilities. During the recent years, the major economies have been stressing that the R&D innovation should be started with solving societal challenges, whereby an overall solution can be formed, and the industrialization of some manufacturers would naturally head towards the direction of servitizing manufacturing and become system integrators. In this way, Singapore has even organized an autonomous taxi dispatch system, which in turn, by exporting to our economy, became the original technological source of Taiwan Taxi's dispatch system.

In the policies with demands, problems, and challenges leading towards innovation as described above, a quite representative case should be found as the Amphibious Houses that the Netherlands developed and have been dedicated promoting at home and abroad.

In order to respond to the possible threats of sea-level rise caused by the global climate change, the Netherlands developed the Amphibious Houses (Also known as Floating Houses) that can float up and down a few meters with the water surface, an invention that is funded through R&D Innovation Grant Programs, based on existing houseboats concept and building technology, and combined with new patented technology. Waterstudio, a Dutch architects studio, took a step further to adopt the concept of Lego bricks and design each amphibious house as interconnectable with other ones, which together can form an amphibious community or a "floating city." Moreover, in addition to the large-scale domestic demonstration and encouragement, the Dutch government has also begun to promote the idea of "floating city" to Maldives and the Middle East, thus becoming a mode of service export developed through problems and challenges leading to innovations.

What this case reflects is that, even though economies such as the Netherlands and Finland have their demographic conditions similar to Chinese Taipei's, they have already gone beyond the concept of home market which views the role that domestic demands (and government purchases) play in technological innovation from a quantitative perspective; instead, they emphasize the importance of innovation trigger, which is focused on quality. Also, these economies use some locally unique or distinctive demanding to stimulate industrial innovation and, further, to seek potentials for exportation. The change in strategy of architecting means that the government's and companies' innovative strategies must place more emphasis on the sides of demand, of market, and of operation mode. Furthermore, the objectives of innovation need to be closely related to satisfying people's real needs and bringing new visions. [SCMC](#)



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►► The 2012 APEC International Press Corps Visits the Small and Medium Enterprise Administration, Ministry of Economic Affairs

A total of 15 members of the 2012 APEC international press corps visited the Small and Medium Enterprise Administration (SMEA), Ministry of Economic Affairs on 23 August morning. Deputy Director General of the SMEA, Mei-Hsueh Lin, welcomed and received the corps in person, giving them an introduction of the SMEA's work. Dr. Wayne Chen from the Taiwan Institute of Economic Research (TIER) also outlined the results achieved by Chinese Taipei in the APEC activities this year. At the end of the visit, the head of the corps, Dr. Harry Harris, gave an appreciation speech, putting a perfect ending to the visit.

The 2012 APEC international press corps was led by Dr. Harry Harris, a San Francisco journalist, and composed of influential editors-in-chief of major media and senior journalists from 13 member economies, including the U.S., Russia Federation, Korea, Japan, the Philippines, Vietnam, Thailand, Malaysia, Indonesia, Australia, New Zealand, Mexico and Chile. The corps visited relevant APEC agencies in Chinese Taipei and saw the progress Chinese Taipei has made on APEC's work.

At the beginning of the visit, Deputy Director General of the SMEA, Mei-Hsueh Lin, made welcoming remarks to thank the 2012 APEC international press corps for their visit, and gave



Figure 1. The group photo of the 2012 APEC international press corps, SMEA and TIER

a brief introduction of the SMEA's responsibilities. Lin stated that over 97% of businesses in Chinese Taipei are SMEs, and they are a key pillar for economic growth and a stable job market. Apart from facilitating SMEs to upgrade and transform, the SMEA focuses on the development of business start-ups. For instance, the SMEA launched the "Start-Up Taiwan" program this year and in February completed the Startup Labs, a first-of-its-kind program both in Chinese Taipei and in the world, through its collaborative efforts with the Yushan Ventures, Microsoft, and Google. In November, the SMEA will join the Global Entrepreneurship Week (GEW), founded by the Kauffman Foundation, and organize a series of activities to continue to support the development of start-ups.

In order for the corps to know more about the participation of Chinese Taipei in the APEC affairs, Dr. Wayne Chen from the Taiwan Institute of Economic Research outlined the efforts made and results achieved by Chinese Taipei in the APEC SME Working Group. Chinese Taipei has completed the task of chairing the APEC SME Working Group 2011-2012, established a new four-year strategic plan during its tenure and proposed the APEC Start-up Accelerator Initiative, which was endorsed by all APEC member economies. In addition, Chinese Taipei has successfully implemented the first phase of the multi-year project of "Improving Natural Disaster Resilience of APEC SMEs to Facilitate Trade and Investment", which was widely acknowledged by APEC member economies and was announced in the joint statement of the 19th SME Ministerial Meeting. All of these achievements illustrate the significant contribution that Chinese Taipei has made to APEC.

At the end of the visit, the head of the 2012 APEC international press corps, Dr. Harry Harris, gave an appreciation speech to thank the SMEA for the detailed introduction and the rewarding opportunity for them to see the efforts made by Chinese Taipei to facilitate SMEs. Dr. Harry Harris also offered his comments and shared his own startup experience. He was impressed by the entrepreneurship programs carried out by Chinese Taipei and looking forward to further exchanges and cooperation on this topic with Chinese Taipei. [SCMC](#)

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