

SPEECH AT THE GREEN WAVE PRIZE GIVING CEREMONY

Marina Mandarin Hotel, Ballrooms Taurus, Leo & Capricorn

Monday 19 January 2009, 9.00 am

Guest-of-Honour: RAdm (NS) Lui Tuck Yew
 Senior Minister of State
 Ministry of Education and
 Ministry of Information,
 Communications and the Arts

1. Mr Wong Weng Sun - President & Chief Operating Officer of SembCorp Marine
2. Mr P K Ong - Managing Director, Sembawang Shipyard
3. Ms Wong Lee Lin - Executive Director, Sembawang Shipyard and Chairman of Sembawang Shipyard's Green Wave Environment Care Group

Distinguished Guests,

Ladies and Gentlemen.

and fellow students

On behalf of the Green Wave Committee of Sembawang Shipyard Private Limited, it gives me great pleasure to welcome all of you to this 2009 prize-giving ceremony. It is very heartening to see so many of you here this morning. As a judge in one of the several competitive categories, I can assure our participants that all of us judges are encouraged by your youthful spirit, enthusiasm, passion and interests in Green issues. Your creativity in

Green innovations speaks volumes for the future of Green solutions. It augurs well for all of us in Singapore and the global community given the many environmental challenges our world faces today.

Let me share some reflections this morning about climate change. In 2008, two major issues dominated the mass media; the first half of the year began with the almost daily mantras of the challenges of climate change and by July 2008, the global financial crisis exploded with a vengeance not seen since the end of World War II. While we can be optimistic that the financial crisis and that our economic woes will come back to normalcy in a couple of years time, I remain worried and pessimistic however about the impact of climate change and global warming nationally, regionally and globally. The reason why I am optimistic about the global financial crisis is because governments and the international community have responded immediately and positively in trying to solve the problem. Unfortunately the climate change crisis has not met with the same positive and immediate national or international response. And what is more troubling is that the global financial crisis has hijacked the international community's attention and resolve to deal with pressing climate change issues and are likely to delay cultural adaptation and mitigation programmes even more.

There are two public dimensions to climate change that the scientific community was actively engaged in over the last two decades. The first was trying to establish in the public eye that climate change was not an

ephemeral, short term, accidental environmental phenomenon. As late as 2000, the mass media coverage was still portraying climate change as mere scientific hype and scare mongering. Since the time when Professor David Keeling from The Scripps Research Institute began measuring carbon increases in Mauna Loa in Hawaii in 1958, there seemed little attention in the global arena about the steady increases of carbon dioxide in the world. Over the decades no one paid much attention to the graph that showed a steady annual increase in carbon dioxide in the world's atmosphere. With Keeling's persevering scientific data collection, we now know that CO₂ emissions have increased at an alarming rate over the last century. This increase is no mere scientific accident. Neither can the 2,500 scientists in the 2007 Intergovernmental Panel on Climate Change (IPCC) Report be wrong when they conclude that warming of the climate system is "unequivocal" and that data shows a "very high confidence" (9 out of 10 chance of being correct) level. The IPCC Report concludes that over the next 100 years the biggest agent on climate, probably 90 percent will be carbon dioxide.

Fortunately there was a student in San Diego State University in the 1960s who was listening in lectures of Roger Revelle, a geochemist from The Scripps Research Institute CO₂ data collection research team: his name is Al Gore, the former Vice-President of the USA. His exposure to the climate change data as a student made an indelible imprint on him and led him to be

one of the most vocal proponents and advocates of the challenges of climate change. While he did not become the President of the USA, he won a more prestigious accolade: the co-winner of the 2007 Nobel Peace Prize for his relentless efforts to publicize the dangers of climate change. His message was simple though very disturbing: climate change is an inconvenient truth, which translated, means we all know the dangers of climate change, but, the global community is not doing anything because it will cause too much political, economic and social inconvenience to all of us. Hence, when the Kyoto Protocol was initiated in 1987 to bring down the levels of CO₂ emissions, the USA chose not to sign it: clearly the US government felt the economic inconvenience for the American public was too great a burden to bear for the global good.

The scientific facts about climate change today speak for itself. Prior to the 19th century's Industrial Revolution, CO₂ constituted 280 parts per million (ppm) in the atmosphere. But this has increased to 315 ppm in 1958, 353 ppm by 1990, 370 ppm in 2006 and 385 ppm in 2008. This means that 0.038 percent of our atmosphere comprises carbon dioxide. Despite being an odorless and colourless gas, carbon dioxide is a lethal gas. This increase in CO₂ is due to the fact that since 1750, human beings have dumped 600,000 million tons (or gigatons) of carbon dioxide into the atmosphere. Between 1966 and 2005, the atmosphere's CO₂ grew by 130 billion tons of carbon in the form of CO₂. In 2006, the global per capita emission of CO₂ was 1.2 tons

but each US citizen was responsible for 5.3 tons. By 2050, the global per capita emission of carbon is estimated to be between 1.7 to 1.9 tons annually for an estimated population of 9 billion people. Hence we can expect the scientific projection that CO₂ will reach 760 ppm by 2080 if nothing is done to control its current emissions.

The second arena of public convincing by scientists over the last decade has been to show that human beings because of their technology, culture, economic and social systems, materialistic consumption habits and, greed and wasteful behavior are the cause of climate change. Despite all the scientific evidence that has been amassed on climate change, there are still many skeptics amongst politicians, government officials, corporate and industry executives and the public that still believe climate change is a natural phenomenon; a product of climatic cycles. Over 2,500 scientists cannot be wrong when they conclude in the 2007 Climate Change report that human beings are very much contributors to our current climate change processes. Tim Flannery in his superb book, *The Weather Makers* put it more starkly. He predicted that by 2050, human beings would effectively become the “weather makers” because “human influences on the climate will have surpassed all natural influences” and there will be no more “climatic ‘acts of God’, only humanmade climate disasters”. Even the conservative World Bank in its 2008 Global Monitoring Report has accepted the human influence on

climate change. It notes that climate change is a “human-induced (anthropocentric) change to the global climate system”.

The result of this human induced increase in CO₂ emissions has had major ramifications on other global environments. With CO₂ increases has come global warming due to the Greenhouse Effect. Over the last 100 years (1901–2000), global temperatures have increased by 0.74°C. Global warming is now no more a figment of the imagination it is now being felt around the world. Between 1956 and 2005, global temperatures have increased by 0.65°C. But what is alarming is that records now show that 11 of the last 12 years (1995–2007) have been the hottest years on record since records were kept in 1850. And the hottest year on record was 1996. Global warming is likely to melt of the ice caps and lead to sea level changes which will have ramifications for islands like Singapore. Sea levels have risen at an annual rate of 2mm since 1960 and 3mm annually from 1993 to 2003. The growing acidity of sea waters and rising sea levels is destroying coral reefs around the world. Globally, climate change will create prolonged durations of drought and intense rainfall and floods. The annual massive floods in Vietnam, Thailand and Malaysia are samples of what the future holds. The impact of El Nino has created violent storms and severe flooding in South America and crushing droughts in Australia.

Climate change has become one of the three major challenges (water and food security) confronting humankind in the 21st century. All three problems

are interrelated and have dire consequences for not only the global community but Singaporeans as well. The question now is not to doubt climate change but what we should do about it. The British economist, Sir Nicholas Stern in his book, *The Economics of Climate Change* argued that 2050 will become a "tipping point" for the future survival of human society; if we don't maintain CO₂ levels at 550 parts per million, the second half of the 21st century will see a downward irreversible slide of environmental problems of global proportions.

The lessons and ramifications of climate change are thus hotly (no pun intended) debated topics in academic circles, governments and the mass media. It is a challenge which the global community has prior experience but a history of weak and ineffective response. Over the last three years, several books have reflected on climate change impacts on human communities in history. These studies demonstrate dismal conclusions. The most common impact of climate change and global warming in history is prolonged drought. This environmental catastrophe has been the cause of the fall of many communities and civilizations in the past: no water for people to drink and no irrigation for agriculture resulting in no food. Yet, the spectre of drought is not only a historical footnote it is a current reality. We see on television and read newspapers about this tragedy of drought for several decades in the Sahelian countries and Ethiopia-Sudan in Africa. Millions have died of starvation, thirst, and diseases due to drought. Hence, if we do not

heed the lessons in history and the present day realities, we do so at our own peril. The moral of the story is that climate change problems kill us and spares no continent or community. In 2003, the heat wave in Europe resulting from climate change killed 35,000 people. The clock is ticking for us to do something.

In Singapore we might have technologically become self sufficient in water (through Newater; desalination; water conservation), but we import 'virtual water' everyday because we are dependent on imported food around the world. To grow cereals like rice takes up to 70 percent of total water consumption in any country: hence when we import rice, cereals and fruits we are also importing the large amounts of water used to grow rice or fruits. If global warming results in droughts or floods in our rice exporting countries like Thailand and Vietnam, we suffer either economically when rice prices increase like in August 2008 or biologically when food imports dry up because rice production has fallen drastically. Hence we must realize we live in an interrelated world and cannot be oblivious to other ecosystems and communities.

All these pronouncements about the human related impacts on climate change require a common-pool response. We are all stakeholders within the global community and hence every individual effort counts in mitigating climate change. We must respond not in rhetoric but with actions. In this light, the Green Wave competition is a step in the right direction. The entries

demonstrate that students are concerned and engaged with finding alternative sustainable energy sources like solar and water power, reducing wastage, minimizing energy usage and recycling products. But despite the creative technological green innovations, we must realize that green technology alone cannot ameliorate the problems of rising CO₂ levels and global warming. We need also a major change in our values, our consumption patterns and our inefficient economic systems. As judges we were thus gratified to see that the Junior College students dealt with non-technological issues but equally important green policy and planning projects. Their contributions in Green software in promoting green public awareness and eliciting societal eco-friendly behavior is equally pertinent. Indeed, for those of you who have visited Tokyo will realize that this massive city of 20 million is kept clean and green not by technological innovations per se but by the civic conscious behavior of all its citizens in maintaining eco-friendly behavior and recycling their waste products. In Singapore we have a long way to go. Many Singaporeans behave environmentally friendly not by their own volition and civic consciousness but by the government's carrot and *rotan* programme. This behavioural response must change before it is too late.

I like to close with some words of thanks. Firstly, the huge number of entries for this competition has grown and it demonstrates that the Green Wave competition has environmental traction amongst all educational institutions

at various levels: schools, Junior Colleges, Technical Institutes, Polytechnics and Universities. We must thank all the efforts of principals, teachers, lecturers, mentors, technicians and students for their unstinting commitment in making this competition a success. Secondly, on behalf of all the judges, let me say how grateful we are to Sembawang Shipyard for believing and sustaining their commitment to the Green cause in Singapore. We need to applaud their enlightened company executives especially Ms Wong Lee Lin for demonstrating her sustained enthusiasm in this environmental competition. I like to also pay tribute to all the unsung heroes, the administrative staff of Sembawang Shipyard especially Ms Wang Huiping for their diligent and attentive efforts in maintaining the smooth running of this competition. Let me also express my gratitude to all the other company sponsors in this competition for demonstrating that corporate responsibility in Green issues is a worthy and long-term commitment to community and the quality of life. Finally, we are indeed grateful to all of you for your attendance and especially Admiral Lui for gracing this occasion. Thank you Minister.

I Thank you for your attention and May God Bless you all.

A/P Victor R Savage,
Chairman,
Green Wave Advisory Committee