Anthony Pratt – "Creating a Sustainable Green Revolution" – Dean's Lecture – Melbourne School of Land and Environment, University of Melbourne – April 15, 2014

"Thank you for the invitation to deliver the Dean's Lecture.

My subject this evening is food, for a hungry and poor world, as well as an increasingly rich world, and what Australia can and should do about both.

As someone who believes that revolutions often started in universities, I've called my presentation 'creating a sustainable green revolution'."

Shakespeare has reminded us 'what's past is prologue' and before we can consider the next green revolution, we have to go back to the first one.

In the 1950's a little known American agronomist born in Iowa, Dr. Norman Borlaug transformed the world's production in food commodities.

His work which began with his graduate studies in plant pathology and genetics at the University of Minnesota dramatically increased rice and wheat crop yields in South Asia and Latin America.

To quote just one statistic between 1950 and 1990, grain production productivity tripled in those regions.

Borlaug is credited with saving a billion lives from starvation. And as the Father of the first Green Revolution, helped lift further billions out of poverty, and was awarded the Nobel Peace Prize.

Just a few weeks ago, the very day Visy sponsored the Global Food Forum in Sydney, the world's food security community celebrated the centenary of Borlaug's birth.

And food security is critical to eliminating poverty.

In 2000, the number one United Nations Millennium Development Goal was to eradicate extreme poverty and hunger.

The first Green Revolution means this is not an impossible dream.

To quote Bill Gates 'the global picture of poverty has been completely redrawn in my lifetime. Per person incomes in Turkey and Chile are where America was in 1960, and since then China's real income per person has increased 8 times and India's has quadrupled, Brazil's quintupled and Botswana a thirty-fold increase. There is a class of nations in the middle that barely existed 50 years ago that includes more than half of the world's population'.

But the first Green Revolution may have hit the ceiling. The increase in cereal yields per hectare by 2050 is expected to be 20% lower than the 50 year trend line to 2010.

On top of that, the Green Revolution has brought some concerns about its environmental sustainability.

Including the wider impacts of pesticides, herbicides, fertilizers, genetically modified pollution and land degradation due to intensive farming.

Secondly the reliance on irrigation over dry land farming exacerbated by climate change has put pressure on water

supplies and things like the decline in agricultural research development.

In short, while the first Green Revolution was truly transforming, it hasn't been truly sustainable. And while it significantly improved extreme poverty, there are now challenges of growing affluence.

For example in going from vegetarian to animal diets, a third of the world's cereal production is fed to animals. So to produce one kilo of animal protein, one needs eight kilos of grain. And uses five times more land than plant based food.

So feeding human food to animals to produce human food, is environmentally costly which will increase as China and India demands more animal protein.

Also population pressures have re-emerged in critical regions. By 2050, the global population of 9.6 billion will see growth in the developing countries where food supply is already stretched. In just 14 years time, India's population will overtake China's, and Nigeria's will equal United States.

And whilst there are a billion people living in extreme poverty today, arable land areas are shrinking.

Today, land degradation affects 38% of agricultural soils and every year 5 million hectares of crops are abandoned due to unsustainable use.

Einstein once remarked 'we can't solve our problems with the same thinking we used when we created them'. So we need a new and different Green Revolution - a sustainable Green Revolution.

Helping feed a hungry world is Australia's greatest humanitarian responsibility and its greatest business opportunity. And I don't see a conflict between them. But we will need sustainable intensification.

Sustainable intensification means growing more food on a smaller land footprint while ensuring environmental care.

For example, it will mean restoring the large areas of degraded farm land through better soil retention and incentives for protecting water resources.

It will also mean things like using mobile phones, to link farmers to sales opportunities, to avoid crop wastage and wrongly timed production.

On highly mechanized farms, sustainable intensification will mean more advanced water delivery technology to target root zone and avoid evaporation losses, robotic ways to tackle plant pests and diseases, and genetic modification to boost water use efficiency and create drought resistant cereals.

Obviously in some areas of high environmental risk, we may need to temper our own ambitions because the environment is more sensitive. Whereas areas of low environmental risk, much higher food yields will be possible.

As I've always found what's good for the environment is very often best for cost control and energy usage reduction.

So where does Australia fit into the global food future?

I'm convinced that our innovation and holistic land management can deliver a significant boost in food and fibre production and our

close proximity to Indo-Asia's burgeoning populations and markets, where many hundreds of millions still live in poverty, presents obligations and opportunities.

Indeed, five-eighths of all extreme poverty in the world is no longer in Africa but Asia.

Australia already exports food directly to 50 million people, and by providing R&D and extension services, we indirectly help feed 400 million more.

But Australia could produce enough to feed 200 million and export our expertise to indirectly help feed 1 billion.

Many Australians find it hard to accept that we are potentially a food super power.

But we are.

Because we start with the most valuable resource in increasing food production – arable land.

Australia has 20 times more arable land per head than China, India, Indonesia and 60 times more than Japan.

But it just not about volume – we also have to add value.

Unfortunately over the last 20 years, exports of added value food products have declined, and it's been depressing to watch the passing parade of household names closing their food manufacturing factories in Australia and going off-shore.

We must configure, realign and re-invigorate our domestic food processing and manufacturing sector.

I simply don't buy the argument that having a small population means we can't excel at high value food manufacturing.

Especially when those opportunities are in our neighbourhood.

The Australian Farm Institute estimates that within 6 years Asia will be importing an additional 5.2 million tons of dairy, 1.9 million tons of beef, and 1.1 million tons of chicken, which would represent 50% of Australia's current dairy production, 86% of our beef production and 140% of our chicken production.

And the value of our agricultural exports could rise to almost 2 trillion dollars by 2050.

But to seize this opportunity we have to create that sustainable revolution.

How?

Well if you recall the movie The Graduate, which was made in 1967, the young man played by Dustin Hoffman at his graduation party was confronted by an uncle who says 'Benjamin, I just want to say one word to you, plastics'. As mentioned that was in 1967.

Well the one word I want to say to today's graduates is "innovation".

Australia's future depends on how we think about innovation, and how we encourage it.

We need innovation in genetics, barrier layer packaging, that protects and preserves fresh food for transport, and advanced food processing technologies such as cold pasturisation, to name just a few.

Ultimately though innovation doesn't depend on governments or universities but from the people who have the ideas and the business risk takers willing to back them.

We need to make more places available in agricultural science courses to create those people with advanced skills.

This is where the Melbourne School and Land and Environment and its counterparts at other universities have a vital role to play in helping work with business and government to make collaborative innovation a reality.

And to explain how collaborative innovation might work I offer six headline ideas.

First, seeking new partnerships across diverse disciplines.

For example, Israel based food company Strauss Foods, has developed Alpha Strauss which deeply scans the myriad of research activities and maps intersections that can deliver new products and solutions ranging from ways to tackle childhood obesity, to improving shelf life.

Secondly, we must link public R&D effort with business entrepreneurship.

For example, the New Zealand government recently reviewed its industry R&D to refocus on commercial development so that innovation serves the nation's business objectives. And New Zealand ranks just behind Singapore in the global Ease of Doing Business report.

And Australia trails way behind at number 11.

Thirdly, we must leverage university intellectual property for new business growth.

For example, in Israel, Kaiima has developed a type of gene technology that multiplies selected productive traits in plants without interfering the genetic code which drives very high yields.

Fourthly, we must enhance the bilateral trade relationship in agricultural innovation.

For example, again in Israel, experts are working on helping 20,000 Indian farms multiply their crop yield. And as a result India is now Israel's sixth largest trade partner.

Fifth, we must commit more resources to making the case for the food sector.

For example, through the Pratt Foundation, we have helped under-write Soils for Life, which is a grass-roots land reclamation program, and we have done a lot of work through our organization Pratt Water.

And our sponsorship of the Global Food Forum this year is aimed at encouraging our national decision-makers to seize on the sustainable Green Revolution.

And finally, we need a new corporate focus on innovation.

For example, at Visy, our Thermotrac track process cools fresh produce especially during the crucial first hours after harvesting.

Ladies and Gentlemen,

the new sustainable Green Revolution is within our reach and I'm confident that half a century after Norman Borlaug's Green Revolution we have the natural resources and the people to follow

in his footsteps. As Borlaug reminded his generation, the first essential component of social justice is adequate food for all mankind.

Not a bad slogan for a revolution – thank you for listening.