

Doorstop The Garnaut Climate Change
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Compere: John Quiggin

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Speakers: Professor Ross Garnaut, head
of the Garnaut Climate Change
Review.

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JOHN QUIGGIN: It's been quite a logistical struggle to manage to get this event on, but, I think, it something which I certainly was very keen that we should have at this conference, to have Ross Garnaut talk to us on the vital topic of climate change. I, of course, have been enjoying the conference a great deal, so didn't get around to looking up Ross's CV, but I'm confident that with somebody with the contributions that Ross has made, that merely a selection will exhaust the time I have here. And Ross, of course, has long been one of Australia's most preeminent trade economists and advisor to governments across a wide range of issues. A few years back, Ross, as we all know, was commissioned, originally by the State Governments, to do a review of climate change, and, I think, broadly speaking, this was the first time that Ross had really worked in this area. So he was somebody coming to it without some of the preconceptions that affect people who have been engaged in the discussion over this issue for a very long time. Unsurprisingly, he reached the only conclusions, I think, that are available on the scientific evidence and the general conclusions that all of the economic evidence on the issue supports and most of that was in the Garnaut review. We're now seeing a revision of the Garnaut review as well as, of course, that proceeding in parallel with some policy exercises undertaken within the political process to try and actually get something through that would implement at least part of the recommendations of the Garnaut review in terms of putting a price on carbon. So we've got a pretty tight schedule. Ross is going to talk for about 30 minutes. After that there will be time for questions and discussion and I'll emphasise in advance that our questions will be just that; short questions at Ross that he can respond to. I'll be chairing that question time when the time comes. So over to you Ross.

PROFESSOR ROSS
GARNAUT: Thanks John. Thanks for getting up so early in the morning. I said to a couple of my colleagues that I'm not sure I would have got up this early to hear me, but I appreciate it. It's nearly true, John, that I hadn't had real

contact with the climate change issue before I was commissioned to do the review. The contact I'd had was in my role as Trustee, then Chairman of IFPRI, International Food Policy Research Institute, which has been recognising that climate change is an issue for global food security for some years and did some of the basic modelling demonstrating how important an issue it was. And very nice to have a couple of my – well my colleague, Michelle, from many years on the board here, and my successor as a director from this part of the world, Kim Anderson, here. Today's paper is presenting some of the nitty gritty background work that you have to do to provide the context for climate change mitigation analysis. And the starting point is a view of what would happen to emissions if – greenhouse gas emissions if there were no effect of mitigation effort, no policy to seek to reduce it. And that's the building block in the overall work that this paper concentrates on. The paper, we don't have hard copies available but it's available on the reviews website, which garnautreview.org.au and it should be up there now. It's always good to be part of the areas conference. I've been attending them since it was the old Ag Society. Always been a straight economist myself, but a bit of a fellow traveller in agriculture and resource economics and I've shared lots of interests with the association over a long period of time. This paper is the third of eight papers that I'll be presenting over a two month period, through February and March, and I'm looking forward to feedback on that before spending April and May pulling together the final review of the update of the review with hard policy, recommendations. That final piece of work will go to the Prime Minister at the end of May, May the 31st. And in presenting this material, I'd just like to acknowledge very good support I've had from a very strong secretariat, Stephen Kennedy, who some of you would know from his treasury background, is heading secretariat on this paper, Frank Jotzo, he gave me a lot of help as he did on the original review. In 2008 we put – in the review that was published in 2008, the original review, put quite a lot of emphasis on working the basic business as usual scenarios. So what's a realistic view of economic growth, the energy intensity of growth, the emissions intensity of energy on the basis that the world doesn't succeed in coming to grips with mitigation policy because that's the starting point, that's the curve that has to be bent by policy. And it happened that that work, a few years ago, led to substantial revision of international expectations of business as usual emissions growth. In the IPPC work, of course there had to be a view on underlying emissions growth to feed into the scientific assessments. The IPPC used a range of economic scenarios with varying degrees of mitigations, various degrees of underlying economic growth,

various degrees of energy intensity of growth and composition of energy, and of all those scenarios there was one, A1FI that was thought to be extreme. That was meant to show what things would look like if growth was crazily high, the energy intensity of growth was crazily high, the emissions intensity of energy was crazily high. Well in carefully reworking the IPPC revisions, and especially for three – the three big developing countries, China, Indonesia, and India, the review came to the view that the extreme scenario, which hadn't been taken seriously was actually the closest to what was likely to happen. In fact, the analysis showed that business as usual emissions were likely to track a bit ahead – a bit above the A1 FI scenario. There's been a fair bit of revision of the respective of the international agency since then, including the international energy agency and Nick Stern in his [inaudible] lecture to the American Economic Association in 09 recognised the changes that needed to be made in the basic perspectives as a result of the work that we did. That upward revision came mainly from taking more realistic view of a momentum of growth in the developing countries. China was a very big story but India and Indonesia not small stories in the global emissions picture. But we worked through that again, and in working through things again, of course, some things changed in the last few years. We've had a global financial crisis which set back – which sent economic output into negative territory for their – for most of the developed world. Not for Australia but for all other developed countries. But it only briefly and slightly dented growth in the large developing countries, and didn't much dent growth in the developing world as a whole, or it dented growth for only a short period. And in the revision of the scenarios, the – working through the implications of this is particularly important. So this – this slide simply shows how through the – what I call, the great crash of 2008, is the title of my book on the financial crisis, through the great crash, actual economic growth, in the developed countries, ended up, of course, collapsing compared with earlier expectations over those years, but it's continued to – but it's led to a downward revision in expectations of developed country growth. And in the international agencies the – and here we've got data from the intonation monetary fund and the international energy agency, there's been a tendency to revise downward a little bit longer term expectations for developing countries as well. I don't think that that is justified. This is the story of how the international agencies have gradually caught up with a more realistic view with growth in China. We've indicated there successive forward projections of the growth expectations for China, from – or here from the international energy agency in particular, and what we see is a gradual catching up with reality, but one that has lagged well

behind the reality, never properly caught up, and we still have a curious feature of the main international agency expectations of growth in China that has it coming right back down to a low level, in fact lower than it had been before; around 4% per annum from later in the current decade. If growth is a good thing, if you're optimistic to favour high growth, as I do, despite all the challenges that high growth brings us, then one has to recognise the wisdom of [inaudible] the American expert on Japan, who at Harvard, in the early post war years, used to come back every year to Harvard and revise his book called the United States in Japan today. Every post war year he'd come back and do a new edition of the book, and every year he would be thoroughly criticised for having been too optimistic about Japan. And after four or five years when he'd come back, got that criticism, but the next year he had to upgrade his forecast even more, and again he'd be criticised for being too optimistic. And after this had happened through five revisions of the book, he says in his autobiography, "The penny finally dropped. It's more scholarly to be pessimistic and wrong than optimistic and right." And I feel a bit like that about China. I've always had a – well, not always. Since I started following China closely, 30 years ago, I always had, what I thought of as realistic, but others at the time have always thought was an optimistic view of Chinese growth. Kim, fortunately, trusted my perspectives and in a paper he wrote in 1988, so got a little bit more right than most of the perspectives at that time. But I found that I've consistently underestimated growth and that I've had to update – had to raise expectations of forward growth momentum progressively over a long period. It's just that I haven't been as badly wrong as anyone else. Well, in these update projections and Frank's work with me has been particularly important here, we've gone carefully through China's growth perspectives in an internally consistent growth accounting framework. There were some elements of the story that are pretty firmly in place. The underlying demographics aren't going to change very much between now and 2030. The main labour force demographics by 2030 have already been born and quite a lot about investment and education, the upgrading of the labour force. We know that the total labour force in China is going to, because of that sharp demographic transition, are going to be falling a couple of years from now. We know that the supply of relatively unskilled and relatively uneducated labour, the old cannon fodder of the labour intensive industrial activities is going to suffer a very sharp decline and at the same time we've got very strong growth momentum for a demand for labour. So there is going to be a smaller contribution from expansion of the labour force to Chinese growth from now on. That becomes quite a lot smaller through the 20s. So

that's a source of long term downward pressure. At the same time, the investment per young person in education is rising dramatically because total investment in education rising a lot, but the number of kids is falling, and so you've got rapid upgrading of the economic quality of the labour force. So the quantity of labour falling but the economic quality of the labour force rising very rapidly. Second big component of growth, augmentation of the capital stock per person. Well that's been a big source of growth in China. China has had higher savings rates for quite a long time, than any other big country has ever had, and there's always been a view that that's a temporary thing and would fall away. Well it hasn't fallen away much yet. Savings rate is well over 50% of national income. That's been associated with investment rates exceed those in any country ever, except very briefly Singapore, which was up around those levels for a while in the 1980s. But although you've had the highest investment rates we've ever had in a large economy, those rates have been well below the savings rates and that, of course, generates the very large current account surplus of China. My expectation is that China's savings rates will fall, but when you have such a gap between savings and investment such as surplus of savings, you can have savings fall without the investment rate coming down. The investment rate will be driven by the opportunity for profitable investment. At the margin, investment rates are – investment profitability is held up incentive for investment are very strong. So I don't see the falling of savings rate necessarily bringing back the investment rate. So there's going to be continued strong augmentation of the capital stock. Probably no diminution of contribution from that area. Third area in the growth accounting framework, where you get growth is growth in total fact of productivity. China – China's productivity growth has been high. It's not like the Soviet Union, and it's not like some of the other Asian countries that were talked about at the end of the 1980s, what will happen to that through the demographic transition. Looking at the future in China, the big story is how the economy are just through the radical change in labour market conditions and labour is becoming – the Louisiana surplus labour economy went out of existence a few years ago. You only get more labour into your factory if you offer higher wages and nominal wages have been rising about 20% per annum over the last few years, briefly interrupted by the great crash. That's going to continue. You're going to get very strong growth in real wages. That's likely to be actually an upward spurt to increase in total fact of productivity, and given the openness of the economy, the pervasive role of direct foreign investment inwards and increasingly outwards. There's no reason to expect that there will be an early diminution of total fact of

productivity growth, but as China gets closer to the global frontiers of productivity there's less opportunity for easy gains in productivity through catching up and that becomes alongside the demographic factors. The reason we forecast a gradually easing back in Chinese growth through the 20s, still well above what the other agencies have. The end point of that is Chinese average incomes in 2030, on these projections, are about half of the United States in real terms, which means that the Chinese economy is about twice as big as the United States economy because there's nearly four times as many people. A brief story of what's happened to Australia, in an international context, through the great crash. The rest of the developed world saw quite a big diminution of emissions, largely through, as a result of a decline in economic activity, but a continued decline in the energy intensity of growth in the emissions intensity of emissions. Australia stands out, not only in growth performance within what's happened to energy demand and emissions growth. The analysis of the emissions growth has to come back to factors driving GDP growth, energy intensity, carbon intensity and emissions. Here, I've compared the perspective under business as usual from our work with the latest work of the international energy agency. They're projections are not business as usual. They are current policy which has had some effect in changing, especially the emissions intensity, the carbon intensity of energy use. But you can see there that our business as usual projections are significantly higher than the IEA's current policy perspectives. Detail on all of this is in the paper that's on the website. Looking forward to 2030, for developed countries, here we're comparing the revision of the perspectives in this update with the work that went into the review in 2008 and we're seeing a significantly diminished growth outlook in the developed countries, but a higher growth outlook in the developing countries and this is a change in perspective over the last two and half years. It's a change of perspective driven partly by what we learnt from the great crash. We learnt more about the vulnerability of the developed countries and one has to recognise that the problems that gave rise to the great crash haven't been dealt with. There's continued vulnerability there. The overhang of a public sector indebtedness will take a long time to work through in the developed countries and I think it's reasonable to have a lower expectation of long term growth in the developed countries now than two or three years ago. On the other hand, developing countries had a good crash. Their growth wasn't much affected and the big ones have come back to very strong growth momentum very quickly and, I think, a reasonable assessment would be for stronger growth in the developing countries now, amongst other things, they've shown that a major

recession – a deep recession in the developed countries was not necessarily not growth in the developing countries, of course. For the world as a whole we see growth just slightly higher between now and 2030, but quite a big change in the geographic composition of that growth. That difference in perspective follows through into projected energy use, whereas we saw output for the world as a whole being slightly higher than it looked three years ago with the outlook for growth and energy is a bit less, and similarly for emissions growth. Here you see the under business as usual, and no effect of mitigation. The rather dramatic effect that growth in China will have on the composition of global emissions. India also, quite an important story, becoming a much bigger factor in the global story with the developed countries becoming much less important. Just one caution about this. We haven't reworked in a rigorous framework, analytic framework the other developing countries. And so that was only a small growth in share in emissions there. But that is almost certainly underdone because there has been, on any reasonable perspective, an upgrading of expectations of growth in other developing countries through this period. So just to bring up, to conclude, by bringing out what I think are some of the implications of this reworking of the business as usual scenarios. The decline in emissions and expectations of emissions growth in developed country, in the aftermath of the great crash makes it easier for them to achieve announced mitigation targets, but this easing of demands on emission in developed countries is fully matched by increased demands from developing countries. The arithmetic of greater concentration of anticipated global emissions growth in the developing countries points to the need for earlier and stronger constraints on emissions in developed and developed countries and developing countries alike. There are two small points of light in the underlying emissions reductions challenge which are discussed in the main paper. One important driver of emissions, global population growth, has been gradually easing over the past several decades in response to rising living standards in the developing world, augmented in China by strong antenatal policies. The acceleration of economic growth in developing countries, in the early 21st Century, holds out prospects for further reductions in fertility and population growth. One variable we know works with population is rising living standards and the improved education through nutrition and the better health services that go along with that. However, the main effects of lower population growth and emissions is realised only in the long distant future and the global mitigation task is an urgent one. A second small piece of light that's not worked into the emissions scenarios is that there's been a surprising expansion of global gas

reserves, in the United States and in many countries. This creates an opportunity for greater reductions in emissions intensity of energy use than anticipated in the business as usual projections through gas replacing more emissions intensive coal. Of course it can't be the long term solution to the mitigation challenge, but it can be very helpful in the transition and Stephen Kennedy and I were in Washington a couple of weeks ago and this seems to be a very large factor influencing decisions on future energy use in the United States. Something similar is happening in Australia. Ours will be exported so paradoxically huge discoveries of coal, gas, methane in eastern Australia will probably raise the cost of gas to ordinary Australians because it becomes an export product and the price becomes export parity instead of the domestic price. But for the rest of the world it will make gas cheaper than it had been. And this is partly driven by new technology. So in the United States, in Australia, in the Middle East and in other countries. The emissions growth outlook is especially challenging for Australia. The world in which our business as usual emissions growth is strongly upward, but other developed countries are flattened right out, is a hard world for us to explain ourselves in. We've got not only a mitigation challenge but a diplomatic challenge. You've probably saw the projections of Australian emissions out to 2020 that the Department of Climate Change put out a couple of days ago. These aren't business as usual. These are embodying the current policies with the renewable energy target and other policies, having quite a large effect and still the projections show 2020 emissions being 24% higher than 2000 emissions. The big driver is the expansion of the resources sector which is hugely energy intensive. And so that's the baseline for Australia. Very different from the revised baseline for the developed world as a whole, which show a pretty flat expectation of emissions, even under business as usual. The Australian projections were lower than business as usual because of the effects of different – of existing policies. So we stand out as the developed country who's anticipated business as usual emissions growth bucks the general tendency of developed countries, largely as a result of the expansion of the relative role of the resources sector. This will not be easily understood by other countries, like you bring Australian mitigation policy into close scrutiny. Thanks John, and I'm happy to answer questions about this or wider aspects of the review.

JOHN QUIGGIN: So people, we haven't got much time so if people would keep questions short and invite themselves when they get up to ask a question.

AUDIENCE MEMBER: Is this the doorstep for media or is the media after?

JOHN QUIGGIN: No, outside later. Yeah.

AUDIENCE MEMBER: Is there a microphone or...

JOHN QUIGGIN: No, we don't have a microphone.

AUDIENCE MEMBER: Okay. Hi Ross, I'm Doug Mitchell, I represent the Citizens Electoral Council.

JOHN QUIGGIN: Just clarify, are you a delegate of the conference?

AUDIENCE MEMBER: Pardon?

JOHN QUIGGIN: Are you a delegate of the conference?

AUDIENCE MEMBER: I'm a visitor.

JOHN QUIGGIN: Okay, well keep it short please.

AUDIENCE MEMBER: Sure.

JOHN QUIGGIN: Very short.

AUDIENCE MEMBER: I'm just surprised that-

JOHN QUIGGIN: Is the question.

AUDIENCE MEMBER: Sorry?

JOHN QUIGGIN: No statement, questions. A question not a statement.

AUDIENCE Question.
MEMBER:

JOHN QUIGGIN: Yeah, if you have a question please ask it.

AUDIENCE Well why are you holding this conference on a Friday morning to a bunch of
MEMBER: white collar academics. It's totally unscientific.

JOHN QUIGGIN: Okay. We'll stop there please. Now we've had the question.

AUDIENCE Can I finish the question?
MEMBER:

JOHN QUIGGIN: No, you can't. You've asked the question.

AUDIENCE What was the question?
MEMBER:

JOHN QUIGGIN: The question is why are we holding the conference on a Friday morning, and
the answer is because that's what we said...

AUDIENCE To a bunch of white collar academics.
MEMBER:

JOHN QUIGGIN: All right, please. If you could please leave we will – sit down please. No.

AUDIENCE No. Sit down.
MEMBER:

JOHN QUIGGIN: Sit down. Thank you. Okay, and the question is?

AUDIENCE You hadn't answered the question.
MEMBER:

AUDIENCE Settle down.
MEMBER:

AUDIENCE John, from the University of Tasmania. I wonder if you could comment on the
MEMBER: declining population growth, particularly in China when there's going to be an

increase in affluence, and how that trade-off is going to happen in terms of emissions?

PROFESSOR ROSS
GARNAUT:

Yeah. I've got a little box in the paper talking about relationship between population and emissions. It's a bit complex. There's no doubt that lower fertility and lower population, in the long term, is very helpful to reducing emissions. The short term effect is a bit more complex because families and countries take efforts to reduce fertility from traditional levels end up investing more in the education of those kids who are born. That leads to higher productivity and an acceleration of growth in income has an upward effect on emissions. So through a transition that's a more nuance picture, although on balance are favourable one, but in the long term no doubt that the effect on emissions are favourable. The Chinese demographic transition will be very challenging for China and the big question is whether they can manage all the dimensions of that in a way that doesn't upset the general continuity of economic growth. China, as I mentioned in the presentation, has past Lewis's turning point in economic development. Real wide rate – labour's becoming absolutely scarce. Real wage is rising rapidly. That's the only way to equilibrate labour supply and demand. That means that you can only keep growing strongly if you accept rapid structural transformation of the economy, letting the labour intensive industries quickly die so that labour is released into technologically more sophisticated and more capital intensive industries. Now, we know economically that that can all happen, and can even happen smoothly, and it's a wonderful time if it does happen smoothly, but there are some challenges. There are always, in any policy, resistances from the established labour intensive export industries with structural transformation, and if that's resisted too strongly then it can get in the way of continued productivity growth. And a very particular challenge in China, through this period, the big increases in scarcity of labour and increases in wages require a big and continuing increase in the real exchange rate. There's no way of maintaining strong growth without big appreciation of the real exchange rate. Well that's actually been going on since 2005, with inflation a bit higher in the developed countries and from 2005 to 2008 annual appreciation averaging nominal appreciation five or 6% per annum. But then they stopped that with the financial crisis. Stopped it for two years. Stopped the nominal appreciation. There's still a bit of real appreciation because price increases continue in China at a bit above the rate in the rest of the world. They recommenced nominal appreciation from July this year, it's been 3.5%

appreciation against the US dollar, but almost certainly this rate of appreciation has been far too low. And if we've got a very rapid real appreciation being driven by economic forces, you either accept quite rapid increase in the nominal exchange rate, or you accept relatively high inflation. The Chinese community is neuralgic about high inflation, so as inflation has risen, as it must in these circumstances, authorities have been trying to clamp down on demand growth, as an anti-inflationary device. We've had successive increases in interest rates. Now, that's not going to work unless it's accompanied by an appropriately rapid appreciation of the nominal exchange rate. If you do one without the other you just encourage more capital inflow the associated monetary expansion, expanded demand and swamps the original demand tightening. I'm afraid that there are bits of that happening. Now, very important to make, going on within the Chinese authorities, plenty of people in China who understand these issues as well as you and I do, but it's a big polity. There are other forces pressing in other directions and so the outcome of that is not all that clear. The need for this, sort of adjustment is greatly intensified by the sharpness of demographic transition in China. China will go through this period more rapidly than to a high wage economy. More rapidly than Japan did or Korea did or Taiwan did. And so it requires even more discipline macroeconomic management than what is necessary in those other countries. So there are risks but there's a way through if they manage it well.

QUESTION: Ross, do you see the response on the part of rich countries to the growth of China and other countries in particularly manufacturing exports and won't that slow down the developing country growth, or do you see the south trade compensating?

PROFESSOR ROSS
GARNAUT: Well, Kim, the really interesting thing to me about global trade response to the great crash and the deceleration of growth in the developed countries or climb in economic activity in developed countries for a couple of years was how export growth from China wasn't much affected by that. It bounced back. It was sharply affected immediately but then a big adjustment was made. Other markets became more important and the growth and trade amongst developing countries expanded very rapidly. So, I think, the story there is a reassuring one for growth. You can go through a very big episode, recessionary episode in the developed countries without knocking a developing country growth off course. And now, of course, the real

appreciation in China is creating great opportunities for more labour abundant developing countries. This is a great time for countries a rung or two below Chinese developing levels to get into the manufactured export business and many are doing it. When I was in Beijing a couple of weeks ago and bought a jumper and a shirt, the jumper carried a label, made in Cambodia, and the shirt, made in Bangladesh.

QUESTION: Ross, so I gather that India is yet to go through its nation building phase of the huge demand for infrastructure and resources. As it goes into that phase, what might be the implications for Australia and its emissions program?

PROFESSOR ROSS
GARNAUT: Yeah. We say in this update paper that the long term growth prospects of India are greater than those of China. Partly because it's demographic profile is different. It won't go through the decline in absolute decline in the labour force for many decades. And also China is quite a way further along the road to rapid incomes growth. My view is that the growth momentum in India is very well established. It took a long time to establish a basis for sustained strong growth in a demographic polity but India has done it now. It has gone through a couple of changes of government, through elections, since the reforms began in 1991, and despite a lot of anti-reform rhetoric during election campaigns, that hasn't knocked the trajectory of policy off course, and as Montek Singh, the brilliant Indian economist who's deputy chairman of the planning commission said in a lecture in Canberra a month or so ago, the fly wheel for growth that's kept it growing and accelerating in a steady lift in the savings rate, when some of us used to compare India with the rapidly growing East Asian countries in the 1970s and 1980s and explain why India wasn't doing as well and probably couldn't do as well, we used to focus on the very low savings rate in India. Well, it turned out that there, as else, where the savings rate is highly endogenous to incomes and as incomes have risen a high proportion have been saved, so you've now got savings rate 36% and rising and total factor productivity growth being driven by increasing openness in the economy. So very strong growth momentum in India. I think it's on a course, for long term growth, it's a course that will last longer than China because you won't have the decline in population earlier. Structurally, the economy is a bit different. Right from the beginning, a bigger services component, smaller manufacturing component. China's institutional arrangements have provided quite a bias towards capital investment and capital intensive infrastructure. In India it's difficult to get government intensive infrastructure programs going. That might reflect some deeper

issues in social and political institutions. So maybe Indian growth will not be as capital intensive, both in the infrastructure sense and the manufacturing sense, and therefore not quite as intensive in demand for resources. But rising incomes at the rate you're going to have them, in a country as big as India, and it's going to have more people than China within a couple of decades. Already, for 15 years, there's been more kids born in India than in China. So this very big economy, growing at high rates, and we have them going at eight or 9% for a long time into the future, is going to have a big impact on Australian resource demand.

QUESTION: Mr Garnaut, I'm probably a blue collar academic, but I guess I'm equally interested in agriculture and economics, and also being a farmer I appreciate the early start. My question is, in your work have you been exposed to any sort of thinking about when it might be practical to bring agriculture into the – in some sort of carbon pricing scheme because the measurement problems are extremely daunting, as I see it at the moment.

PROFESSOR ROSS
GARNAUT: Yeah, the measurement problems require a lot of research and that's probably going to be done best in Australia because we've got a lot of relevant research resources. It's a role we can play in the international system. We've got a very big interest in it because of the opportunities for bio-sequestration in Australia are immense, and it's very important to all of our developing country neighbours, Indonesia, Papua New Guinea, and the South Pacific. So an area we should be doing a lot of work into, and a lot work needs to be done, you're quite right. In the review, I simply said that this research on measurement, on efficient ways of measurement and reducing transactions costs associated with bringing agriculture and scheme needs to be done and once you have a satisfactory information basis, as the time the transition should be made. And I suggested transitional arrangements that could be built around opting in of some agricultural activity as well. But that's reflected in the Carbon Farming Initiative that the government announced earlier this year. We'll have a paper coming out on bio-sequestration in the land sector early next month. We'll be releasing that in Queensland. It will dig much deeper into those issues and talk about what we've learnt in the last few years. And the way I see it working, you have partial inclusion in agriculture through an opting in process for a while. Owners of land could opt to come in. Now obviously that's got a bias in the incentive structure and it's not the economically efficient way of doing that but it will get things started and we'll learn a lot more through that process and establish a basis for at

some known later date having wider coverage. My own assessment is that once we have that opting in potential in agriculture things will move pretty fast. Australian farmers adjust pretty quickly to new opportunity and I think there'll be enough opportunity to drive a fair bit of interesting change.

QUESTION: Ross, you've recommended a carbon price [inaudible] that's a pretty good idea. We do have a fairly unstable political environment presently, do you have a view on the role on what the commonwealth and state government are going for here in the good and bad scenario [inaudible].

PROFESSOR ROSS
GARNAUT: Yeah. Well, I think, the uncertainty in the political environment would make it rather difficult to bring in an emissions trading scheme with a floating price initially. The price would fluctuate with every change in the opinion polls if the opposition had promised to get rid of it, and that's one reason for favouring legislating a set of institutional arrangements for the emissions trading scheme but having the regulatory authority sell permits at a fixed price in the early years. It could be a rising price but in any one year a fixed price while things get under way and some degree of expectation of continuity would be a precondition for going to a floating price. I think there are some other preconditions but that obviously will be one. I should add that consensus; political consensus before a big reform can't be made a pre-condition for change. Although, after the event there tends to be bipartisan support for major change. There rarely is before the event, and even when you – whoever is in opposition, even when you get broad and general support for a reform an opposition will always find particular things to differentiate its position and in an election environment all of the focus comes on those points of differentiation. So we can be – I think we need to be realistic. Reform in this country hasn't happened through everyone agreeing in advance that there's going to be change. You get stability and assessed by putting something into place, and it being so well structured and well designed, but once it's in place most people say, "Yeah, that's pretty sensible."

QUESTION: [Inaudible] Ross. Our neighbour, Indonesia, has emissions that are dominated by deforestation. It accounts for 80% of the total emissions. Do you have any thoughts about what traditional steps Indonesia might take to deal with that and is there a way that Australia might help?

PROFESSOR ROSS
GARNAUT: Yeah. Well globally, the forestry story – the deforestation story is very important, and Indonesia is the second biggest part of that story after Brazil. Correct me, Frank, if I'm wrong, there are about 17% of global emissions are still from the forest sector, including Peet. Anyway, it's a big story and

Indonesia a very big part of that story. We...

QUESTION: [Inaudible]

PROFESSOR ROSS
GARNAUT:

Globally, is it? Yeah. Sorry. The recent Copenhagen and Cancun, well mainly at Cancun, agreements put in place some incentive arrangements that will be quite helpful for conservation of forests. In my discussions for the review, back in 2007, in consultations with members of the Indonesian cabinet, there was a very strong commitment to Indonesia playing a big role in global emissions, but a recognition that politically that was really hard in forestry. And a president or minister for finance who wants to get something done can't wave a magic wand and remove all of the political economy constraints on getting things done. And they emphasised to me, the Indonesian leaders emphasised to me the importance of having international incentive, amongst other things, for helping to break through the domestic politics. If they can point to very clear economic development gains, reduction of emissions brings in international income that would be important for the domestic political process. Well now you've got some of that opportunities, an institutional opportunity. Norway and Australia have each made some contribution to that, Norway quite a big one, and so through that scheme, the red scheme approved at Cancun, there can be some progress. But, I think, the really big progress is best done within countries accepting a national emissions target and being able to sell permits if it's able to reduce emissions below that target. There are problems of the fundability of emissions if you've got schemes that are basically project based schemes. You might get rewarded for conserving one bit of forestry in West New Guinea and cut down the bit next door instead. So you only avoid those problems with a national target. I think it's worth our exploring with our Indonesian friends some regional arrangement in which we all accept targets and then trade reductions and emissions below those targets. Need to be a very big investment in administration and compliance and verification, but I think that's the way to provide the incentives for Indonesia to do all that can be done. While 80% of Indonesians emissions are in the forestry sector, and that includes the burning of Peet as Frank's PhD thesis brought out, there's still a lot of momentum in growth and emissions in other sectors and the discussion of incentives to replace, at the margin, new coal based energy investment by geothermal, is potentially quite important and Indonesian

Governments having a close look at that.

JOHN QUIGGIN: Time for one more question.

QUESTION: Ross, would you like to comment on the chances that Australia is going to be an international target for [inaudible] reduction by 2020, given the – especially the comments you made this morning about the increased expanding resources sector in our economy and extended the intensity. Those comments are also [inaudible].

PROFESSOR ROSS
GARNAUT: That's what we're working on, and I'm not going to, before we've got very far into the exercise, suggest that it's impossible. It's quite a challenge, and it's certainly Australia meeting strong targets will be closely linked to opportunities for international trading entitlements. So that the targets are to do with entitlements, not with actual emissions within the established territory and that question then starts to touch issues that Peter [inaudible] raised. On a global basis it will be cheaper to achieve reductions in emissions; big reductions in emissions. We're going to need very big ones, in some countries rather than others, and some opportunity for trading entitlements will reduce the cost.

JOHN QUIGGIN: Thanks Ross. If everybody could join with me in thanking Ross for [inaudible].

[Applause]

- ENDS -

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