# Garnaut Climate Change Review

# General Submission

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Supreme Master Ching Hai International Association: Australia

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## Table of Contents

# Introduction

This submission to the Garnaut Climate Change Review has been written to provide input from our organisation on our views of what can be done to reduce emissions and counter climate change. Our association has meditation centres around the world, and the Australian centres are located in Sydney, Melbourne, Canberra, Brisbane, Perth, Adelaide, Hobart and Byron Bay. As part of our practice we are encouraged to take an active part in improving the society of the countries that we are located in.

We feel that as Australians it is our duty to provide our input to this review and contribute in a positive way to saving our planet.

# Background

## *A Greater Sense of Urgency*

The "New Global Growth" path contained in the Garnaut review document "Issue Paper Three" shows that none of the IPCC emissions scenarios accurately approximate the expected growth path, and that the IPCC assumptions for the acceleration and possible safe level of greenhouse gases may have been underestimated[1]. This shows that an increase in the sense of urgency to combat climate change is needed in order to avert major changes to our world.

Improvements are needed in the information provided to the Australian Public as to the full potential that each and every one of us has to contribute to reducing climate change, The situation is now so urgent that we must not rule out any action to reduce climate change for the sake of our children, as well as ourselves.

So far the message from the media, the scientific community and the government has focused on only some of the primary sources of $CO_2$-e emissions, namely stationary power generation and in the transportation sector, fuel consumption, which are known to affect almost everyone in the community. The message has also been that the Australian consumer must expect increased costs in the future.

The improvement that we recommend and support is an extension of the information about strategies and capabilities that are available to each of us that can produce reductions in global warming by *reducing* consumption of products that are also relatively expensive to alternatives. This is to say, that the Australian consumer needs to be aware that their consumption of products that have a relatively high impact on the environment can be reduced as a way of combating climate change.

### *Revised Emission Targets*

The current IPCC defined targets of 450ppm-550ppm is too high, as the more recent assessment of previous gas concentrations on Earth for the last 65 million years shows that the upper limit for gas concentration must be 350ppm to avoid the worst effects of climate change. To quote from Professor James Hansen's report of March 2008, "If humanity wishes to preserve a planet similar to that on which civilization developed and to which life on Earth is adapted, paleoclimate evidence and ongoing climate change suggest that $CO_2$ will need to be reduced from its current 385 ppm to at most 350 ppm. The largest uncertainty in the target arises from possible changes of non-$CO_2$ forcings. An initial 350 ppm $CO_2$ target may be achievable by phasing out coal use except where $CO_2$ is captured and adopting agricultural and forestry practices that sequester carbon. If the present overshoot of this target $CO_2$ is not brief, there is a possibility of seeding irreversible catastrophic effects." [2]

### *Methane is a Major Cause of Global Warming*

Taking into account various gases' global warming potential (defined as the amount of actual warming a gas will produce over the next one hundred years), it turns out that non-$CO_2$ make up most of the global warming problem. The sources of non-$CO_2$ greenhouse gases are responsible for virtually all the global warming we are seeing and all the global warming we are going to see for the next fifty years.

By far the most important non-$CO_2$ greenhouse gas is methane. Methane is responsible for nearly as much global warming as all other non-$CO_2$ greenhouse gases put together. Methane emission causes nearly half of the planet's human-induced warming.

The number one source of methane worldwide is animal agriculture. 85% of this methane is produced in the digestive processes of livestock. An additional 15% of animal agricultural methane emissions are released from the massive "lagoons" used to store untreated farm animal waste. In addition the practice of land clearing in the livestock industry produces an equivalent quantity of emissions as the direct emissions from livestock.

## Mitigation Strategies

In order to stabilise and reduce greenhouse gas emissions within the recommended shortest timeframe of years 2000 to 2015 [1] it is vital that the government, industries and the wider community take into consideration changes in their activities that would have the most impact in the shortest amount of time.

Current proposals by the government and industries to instigate carbon trading are welcome and not too soon in coming.

The true environmental cost of industries and activities must be measured and paid for immediately. It has been said, "If you live in a fun world, you have to pay for the ride." There should be no sense of a "free ride" from any industry or sector. The sense of urgency that should now exist to mitigate the disastrous effect of climate change means that the accounting and reduction of greenhouse gases by all industries must take precedence over sectional or political considerations for special or separate treatment.

No industry or activity should be exempt or delay their incorporation into carbon trading. Delay may have been appropriate or desirable 10-20 years ago, but that luxury of time has passed.

## Emissions Trading Scheme

"As an ETS exists entirely at the behest of government, market participants will be constantly alert for any early signs of shifts in policy, management protocols or operating procedures that potentially undermine the integrity of the market. There will also be incentives to press for change if there appears a chance that the rules of the scheme can be influenced. Arbitrary changes to rules that benefit one party will often come at the expense of other market participants, the community or the environment."

As stated above, rules that benefit one party will often come at the expense of other market participants. This also applies to the exclusion or non-involvement of sectors of the economy that produce emissions but are exempted or delayed in their inclusion in the ETS. The agricultural sector directly and through land management practices produces or is responsible for 30% of Australia's greenhouse gas emissions[4]. It is therefore disturbing that in observed discussions agriculture will be excluded from the ETS from the outset, and will only be included when practicable. This will distort the balanced approach to greenhouse gas reduction, as the goal of reducing the net emissions will place excessive demands on reduction from other sectors that will be included from the start. Effectively the market participants will be subsidising the non-market participants. This will have following effects:

1) The full potential of substantial reductions will not be achieved by the exclusion of 30% of the emitters;
2) The cost to consumers for the included industries will bear a 30% greater cost for their products than they would otherwise have to pay
3) The expenses of the non-included industries will be observed by the wider investment market to be less than the included industries, which will make those non-included industries become more attractive sectors for investment;
4) The flow of free market investment to the non-included sectors will encourage expansion of their activities, giving rise to an increase in greenhouse gases, which is precisely the opposite of what should be happening.

This circumstance applies if the objective is to reduce the overall emissions by a certain amount, rather than on a sector basis. As the sector based targeting will constrain the ETS, it is not recommended. The whole of the economy should be seen as the market coverage, and the free flow of permits between sectors is to be encouraged to produce the most efficient effect.

The perception of the quantity of emissions from the agriculture sector has been effectively halved by the separation of the land use change (land clearing) sector from the primary production sector in the government greenhouse document - National Inventory Report 2005 (Revised)[3]. As 90% of land clearing in Australia is for the operation of the livestock grazing sector, the point of obligation for the land clearing emissions which may be considered as indirect to the grazier should actually be passed as either direct emissions to the grazier or as a cost to the grazier without TEEII assistance. The provision of TEEII assistance would act as a subsidy and remove the ability to provide incentives for changing land use practices to be more efficient in the short term. This is different to, say, the coal mining sector, which would either sell the coal to a local electricity generator, or export overseas where the emissions local cost is not accounted. Land clearing cannot be exported (ie: it serves only one purpose) and therefore has a direct accounting to the "consuming" industry.

## Carbon Offsets

The carbon offset component of the ETS market will have to have its proper accounting of the carbon sink's effectiveness and permanency. It will be of no benefit if a carbon-sink is the beneficiary of the offset and the carbon leaks back to the atmosphere. Any leakage that may occur in a carbon sink would require appropriate penalties that may be above the obvious one; namely that the carbon sink operation has become a carbon emitter, and would therefore be required to have carbon permits. Care must therefore be taken that such scenarios do not occur where an emitter may set up a separate corporate entity that would operate the sink, and therefore gain the benefit of the offset, and then within a few years abandon the sink which would allow the stored carbon to be emitted. Any sanction placed on the sink entity would not impact the prime emitter as it could conceivably be avoided by the sink entity declaring bankruptcy. In this scenario the ETS objective of reducing emissions will lack credibility, as the cost has been avoided.

This is not to say that a sink cannot have some emissions, as for example the most effective existing, known carbon sink is the planting of trees, and perhaps the production of BioChar. As the trees die or BioChar is produced and buried not all of the carbon will be captured - some will be released due to biological or environmental processes. The acceptance of the quantity of captured carbon will have to be the net carbon captured over a long timeframe, with accounting of losses (re-emission) taken into consideration. Further research into this area will provide more knowledge of the long-term storage and

the quantity of permits able to be offset will change as the fidelity of measurement and modelling improves.

## Permit scope

On the question of permanent or time constrained permits, certainly a portion of the permits should be permanent. It would be preferable for the general population and non-emitting corporations or organisations, NGOs etc to purchase permanent carbon permits so that they, by their own funds, "retire" carbon from the atmosphere by "hoarding" permanently. This will promote public engagement in the ETS to provide a tangible, lifetime effect in the permanent removal of the purchased quantity of $CO_2$-e from the atmosphere. It is not anticipated that there will be substantial uptake of this option, but there will be sectors of the community that would be willing to place their own funds into direct reduction in this manner. This is more for the morale and social benefit to the community, rather than an economic. They would also make a good gift idea. This has been the experience in the United States with the sale of sulphur dioxide ($SO_2$) permits, where community groups and individuals have purchased licenses as a tangible expression of their desire to reduce acid rain.

## Household permits

With the full accounting of emissions based on receipts that contain full $CO_2$-e accounting, households can be issued permits. These will have novelty value, but will increase awareness of $CO_2$-e in the wider community. Households that reduce their consumption and therefore emissions will be able to cash in their permits, while households that do not will have to purchase more. Once again this will not have a major impact on emissions, but will raise awareness and give a sense of progress to individuals. An individual may feel no incentive to change their activities due to the enormity of the overall emissions that need to be reduced, but the application of a personal permit would reduce the size of the task to a personal level, and give a sense of achievement.

## Funds from sale of carbon permits

It is desirable that the government will utilise the funds derived from the sale of carbon permits to further reduce emissions by providing assistance to households and businesses to reduce their own emissions. The current incentives for the installation of domestic/local photovoltaic power are to be applauded, but the price point for effective installation is still too high for most households. It is recommended that the funds be used to provide new or increased rebates for the household installation of solar hot water systems (hot water being a major power consumer in most households) as well as increasing the photovoltaic assistance to enable a general uptake of 2kW collectors from the current 1kW systems. Households which are unable to install their own systems should also benefit by the equivalent amount in the use of "green energy" electricity that is generated from renewable resources. It may be beneficial for allowing households in

this situation to "pool" their benefits for the construction of a shared or community generating facility that is not necessarily located at the residence.

## *Changing Agriculture in Australia – The Low Hanging Fruit*

### Economic Costs of Livestock

The economic cost of reducing greenhouse gases is known to be significant and will be a barrier to implementation of reduction strategies in the best of times. Now with reduction being time-critical, it is vital that the "low hanging fruit" of greenhouse gas reductions be targeted to bring about immediate benefits.

We propose that the "lowest" of the "low hanging fruit" in this case is livestock and the consumption of meat. The amount of $CO_2$-e produced directly from the livestock in Australia in 2005 was 63.7Mt of $CO_2$-e, primarily from methane[3]. This represents some 16% of all of Australia's direct greenhouse gas emissions in 2005.

However, the detailed study by the CSIRO and University of Sydney on the "Triple Bottom Line" of all industrial activities in Australia shows that the wider cost of livestock, with the incorporation of the indirect or secondary activities such as transport and storage, the total $CO_2$-e emitted was far greater at 159.03Mt during the 1990's, as shown in Table 1[4] 5.

| **Industry Sector** | **Mt CO2-e** | **Percent of Total Australian Emissions.** |
| --- | --- | --- |
| Beef Cattle | 122.5 | 23.6 |
| Sheep and Shorn Wool | 23.9 | 4.61 |
| Dairy Cattle and Milk | 8.8 | 1.7 |
| Pigs | 1.3 | 0.25 |
| Commercial Fishing | 0.68 | 0.13 |
| Meat Products | 0.68 | 0.13 |
| Dairy Products | 0.59 | 0.11 |
| Poultry and Eggs | 0.58 | 0.11 |
| Leather Products | 0.016 | 0.003 |
| **Total emissions** | **159.03** | **30.64** |

**Table 1 Carbon emissions by industry sector, animal industries in Australia as a percentage of total emissions, including land use change and transport[5]**

### The Current Carbon Price of Livestock

A relatively simple calculation of the cost of the current (21 March 2008) price of carbon in Europe to the amount of $CO_2$-e produced from livestock can be made. Europe has the

widest functioning carbon market to date, which makes it suitable for use in calculating the value of the $CO_2$-e produced in the livestock sector, showing the "true" cost of the industry. Taking the current price of a tonne of $CO_2$ as about €22 from (http://www.co2prices.eu/) this would make the current market value of the 159.03Mt $CO_2$-e from livestock valued at about $5,985,523,200 AUD ( $1.7111 AUD = €1 on 21 March 2008) or about $6 billion AUD. The CSIRO Triple Bottom Line report on livestock states that the net value to the Australian economy is $2 billion. Factoring the cost of $CO_2$-e, it actually has negative value. In other words, taking into account greenhouse gas emissions from livestock, the industry has no net economic value to the Australian economy.

## *Strategies for Agriculture*

There are three potential scenarios for the agricultural sector with respect to changing practices and their impacts on the wider economy will vary:

1) Business as usual;
2) Elimination of land clearing
3) Complete removal of livestock as a major sector.

### Business as usual

The "business as usual" approach is the most expensive with respect to the disproportionate quantity of greenhouse gases emitted in relation to other emitters for a given quantity of product. This will result in the burden of emission reduction being placed on the fixed energy sector and the transport sector, which will result in a disproportionate cost to consumers for the products.

### Elimination of land clearing

The elimination of land clearing would have the effect of reducing greenhouse gas emissions as well as providing the facility of carbon sinks. This would give considerable benefit to the reductions of greenhouse gases. Already the reduction of land clearing in Queensland from 2006 has had a significant impact on Australia's emissions, and was mainly responsible for the reduction in greenhouse gases to the extent that Australia could meet its Kyoto protocol obligations. Full removal of broad scale clearing would reduce Australia's greenhouse gases by approximately 16%.

The downside to the elimination of land clearing without removal of the livestock sector would result in a greatly increased demand for grains in order to operate feed lots instead of grazing pasture. This would be particularly unattractive as an outcome as the world grain prices have increased considerably already with the introduction of biofuel incentives that has both increased demand and driven produce away from the food sector.

## Removal of livestock as a major sector

The option "removal of livestock as a major sector" may be seen as a controversial one, but it must not be discounted out of hand, as it may be necessary in order to meet the increasing need to reduce emissions. It should be pointed out that the consumption of meat is not compulsory. There are many Australians who enjoy a perfectly normal lifestyle and health without the consumption of meat. Therefore with protein becoming a scarce commodity, it would be inefficient to feed vegetable protein to animals to then convert to animal protein. It takes approximately six times the amount of vegetable protein to make one unit of animal protein (ie: A 500g steak requires 3kg of vegetable protein to produce). In order to provide for the shortfall in protein supply to the population, a portion of grazing lands can be converted to crop land which has a far smaller carbon footprint. Also the removal would remove the need for feed lots grain, which can also be redirected to the vegetable protein production market. The remainder of the grazing lands would ideally be converted into carbon sinks, and with international agreements provide the ability to "export" the sink in international carbon trade. This ideal would be left to the market to decide under the ETS as to the best land use to convert to.

The removal of the livestock sector and the accompanying land clearing will reduce Australia's greenhouse gas emissions by 30%, which is half way to meeting the current projected target of 60% by 2050. This 30% reduction can be made in a considerably shorter amount of time.

Note that the first option is not practical given the quantity of greenhouse gas emissions from the sector. The second and third options are viable with the introduction of the ETS and acceptance from the government and the public that in order to safeguard our future some industries will have to change radically. In fact, the introduction of the ETS, with its accompanying costs and benefits, will result in some of these options without any external intervention.

## *Practicality of Pricing Agricultural $CO_2$-e Emissions*

As an alternative to delaying the introduction of $CO_2$-e pricing and licensing due to the current difficulty in accurately accounting for individual enterprises, it would be better to introduce a lower emissions factor based on current understanding, and correct it later than to have no price at all. For example, the average cow emits 400 litres of methane per day. As this may vary due to specifics of the diet, location, water supply etc, the lower $80^{th}$ or $90^{th}$ percentile of the emission spectrum should be used, say price emissions based on an assumed standard of 340 litres. This would enable the introduction of the ETS to the agriculture sector even though it is at a reduced rate, and phase in or ramp up the number of emission certificates needed as knowledge improves.

## *Additional Strategies for Reducing Climate Change*

Government advertising and information awareness campaigns must include more options for people to choose from to reduce their carbon footprint. Strategies that have been suggested by the Chief of UN's IPCC, Mr. Rajendra Pachauri are an excellent starting point, and should be included in government supplied information. The strategies are listed below.

### Go vegetarian

UN states in a report that, "The livestock sector is a major player, responsible for 18% of greenhouse gas emissions measured in $CO_2$ equivalent. This is a higher share than transport." [6] [7]. So, if we say driving a 'petrol-car' is environmentally unfriendly, meat eating is even more environmentally unfriendly. This report also states that, "The livestock sector emerges as one of the top two or three most significant contributors to the most serious environmental problems… it should be a major policy focus when dealing with problems of land degradation, climate change and air pollution, water shortage and water pollution and loss of biodiversity." 6 7.

In a press conference in Paris held in January 2008, the Chief of UN's IPCC, Mr. Rajendra Pachauri said "Don't eat meat; ride a bike, and be a frugal shopper - that's how you can help brake global warming." He said, "This is something that IPCC was afraid to say earlier, but now we have said it." This vegetarian economist made a plea for people around the world to tame their carnivorous impulses. He said, "Please eat less meat – meat is a very carbon intensive commodity." He added that consuming large quantities of meat was also bad for one's health[8] [9].

Research by University of Chicago geophysics professors Gidon Eshel and Pamela Martin concludes that going vegan relative to the standard American diet saves greenhouse gas emission 50% more than switching from an SUV to a Toyota Prius.
Going vegetarian is the most effective way to reduce greenhouse gas emission, more effective than reduced use of electricity and other form of energy5 [10].

### Reduce Use of Energy and Change to Renewable Energy

We should reduce use of energy by switching off the stand-by electrical appliances, using energy-efficient light bulbs, etc. We can also use solar energy water heating systems and use solar energy to generate electricity for domestic needs. Reintroduction of rebates for the installation of solar hot water systems is to be encouraged.

### Using a Bike or Walking Instead of Jumping in a Car

In listing ways that individuals can contribute to the fight against global warming, Dr

Pachauri praised the system of communal, subscriber-access bikes in Paris and other French cities as a "wonderful development." He said that, "Instead of jumping in a car to go 500 meters, if we use a bike or walk it will make an enormous difference." 8 [9]

## Plant More Trees

The conversion of current pasture land to forest will provide the benefits of carbon offsets and also the improvement of biodiversity. Proposed sequestration technologies that are as yet unproven or will not be feasible for many years to come cannot be depended upon to remove greenhouse gases in the quantities required in order to reduce the gas concentration to safe levels.

The promotion and support of the conversion of land use to carbon storage will be of fundamental importance to the reduction of greenhouse gases from the atmosphere.

## Be a Frugal Shopper

Dr Pachauri says another lifestyle change that can help is not buying things "simply because they are available"8 [9]. In typically western economies, and in the increasingly affluent eastern economies, the increase in the standard of living is to be expected. However it is important that the impact of consumption is at least known to the public through the inclusion of carbon pricing and the inclusion of the quantity of $CO_2$-e emissions that were generated in the production of the product should be provided.

In order for consumers to make an informed choice as to their purchases with respect to the impact on the environment, product labelling must include the $CO_2$-e that was emitted in the production of that product, from the commencement of primary production to packaging, delivery and sale. The $CO_2$-e should be built into the price of any product with an effective and comprehensive ETS that includes all sectors of the economy, and will be "known" to the consumer in so far as the price will have it included. However the printing of the actual $CO_2$-e component on the packaging would allow the informed consumer to actively seek out products that have a lower emissions cost compared to other products that have some other discounting applied, which masks their emissions cost. As part of the credibility of the ETS involves the collection and reporting of emissions, the information will already be known by the producer, and can therefore be incorporated into the package information; in a similar manner to the nutrition information is currently presented.

## Drive Biofuel / Hybrid Vehicles

A study by University of Chicago shows that driving Toyota Prius saves 1 ton of carbon per year.

Biofuel has been nominated recently as a good source of alternative, renewable fuel. Questions on the viability of Biofuel as an alternative source of fuel are being raised, as it

is a poor utilization of resources to use food sources as vehicle fuel while parts of the world have food shortages. However, with a reduction of livestock production, the grain that would normally feed livestock can be redirected to the biofuel industry, but not at the expense of increasing the world prices of food (grains etc) which would disadvantage people in poorer countries.

### Buy Less Imported Commodities

Purchasing locally produced commodities saves greenhouse emission from transportation of imported goods. The emissions generated as a function of transporting goods across international boundaries via ship or air transport will need to be accounted for. International transportation companies will probably purchase fuel in countries that do not have an ETS and an emissions cost built into the fuel price. This would have the effect of reducing their costs and possibly not fully accounting for their true emissions cost, which would result in unfair competition with local products that do account for their emissions.

### Encourage the Leaders to Adopt Appropriate Policy to Curb Global Warming

Leaders should set an example by reducing or eliminating their own consumption of meat and use their position to set the vegetarian diet for the planet. They should also devise policy to adopt immediate use of renewable energy. Being a responsible citizen on earth, we have the right and duty to encourage the leaders, our representatives to use the power we give them to save the earth with us.

## A Plant Based Diet – Side Benefits

Through the simple expedient of changing the regular diet, there is no net cost to the consumer to become vegetarian or vegan. This compares favourably for creating the desired short term or immediate effects, whereas substantial capital costs are required for changing generation plant or even end-use efficiencies such as energy saving bulbs or hybrid cars.

Non-animal food products require vastly less resources to produce. They require less land, less water, less fuel and importantly produce substantially less greenhouse gases.

Subsequent to a move to a lower or nil meat consumption, animal farming will reduce in value, while vegetable planting will increase in value. On the whole there would be not only no net loss, but also we would have huge positive benefits to the economy:

- Substantially lower health costs;
- Reduction in government expenditure and subsidies to prop up animal industries;

- Improved availability of fresh water;
- Improved land use, reducing land degradation;
- Improved tourism potential;
- Additional forestry potential;
- Less imports of fuel;
- Carbon credits alone could produce substantially more revenue than that obtained from the animal industries;
- Reduction in the incidence of obesity; and
- Reduce the incidence of inhumane treatment of animals.

The majority of Australians would be substantially better off financially with this change. Of course, some of these savings should be diverted to assist those affected by the necessary structural reform.

## Recommended Actions

We note that the government information campaigns and the activities of government, companies and individuals already incorporate the well-known strategies of:

- Reducing energy use;
- Utilising renewable sources of energy;
- Reducing fuel use;
- Introducing a broad-based carbon trading and emission scheme to help price and regulate the unwanted production of greenhouse gases.

The key recommendations that we submit are for the performing of the following additional actions:

- The government must inform the public of the fact that the Australian consumer can take immediate action on climate change by reducing or eliminating livestock based products from their purchases;
- The government must include this fact in any information briefings on what strategies, actions or activities the general public can perform to reduce climate change, as well as being frugal, using public transport, and using renewable energy;
- There must not be a delay the inclusion of the agriculture sector from any carbon trading scheme that is introduced, for to do so would remove the quickest, simplest and most effective short-term action to reduce climate change;
- The government must assist the livestock components of the agricultural sector in their transition to either vegetable-based production farming, or in the conversion of pasture to forestry and carbon sinks, which will provide an economic benefit as a source of carbon offsets;

- Assistance currently given to the livestock industry can either be transferred as assistance to change their land use, or to increase assistance to the vegetable protein based industries for manufacture and sale to domestic and international markets.

## Conclusion

The recognized signs of global warming are showing an acceleration of climate change which may be greater than that anticipated in the IPCC reports. So much so, that short-term and low-cost solutions as well as long term solutions cannot be disregarded due to political or business influences. As part of an overall, comprehensive strategy to combat climate change and reduce greenhouse gases, the option of a vegetarian diet must be included. We have shown that by the simple expedient of changing diet the Australian consumer can make a significant impact of a reduction of 30% of greenhouse gas emissions at no or even reduced costs compared to doing nothing.

# Endnotes

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