



**CONSERVATION COUNCIL**  
OF WESTERN AUSTRALIA INC.

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Rod Anderson  
Chair  
LWBC Task Group on the Management  
of Climate Change Impacts on Biodiversity

Dear Rod

***Development of a National Biodiversity and Climate Change Action Plan***

Thank you for the opportunity to contribute to the development of a National Biodiversity and Climate Change Action Plan (NBCCAP).

The Conservation Council strongly supports the move to develop a NBCCAP and makes the following specific comments.

*The Council strongly supports the following statements and conclusions from the consultation paper in particular:*

“a number of international obligations and national State / Territory frameworks have outlined the need to undertake action on addressing the impacts of climate change on biodiversity. In particular the *National Objectives and Targets for Biodiversity Conservation 2001 – 2005* specified developing a National Biodiversity and Climate Change Action Plan.” (page ii)

“Biodiversity is arguably the single most important resource on Earth.” (page 1)

“For the next century at the very least, we are locked into an inescapable rise in global temperature...” (page 1)

“The *United Nations Framework Convention on Climate Change* (UNFCCC) and the *Convention on Biological Diversity* (CBD) have identified climate change impacts on biodiversity as a significant issue.” (page 2)

“In addition to the direct impacts of climate change resulting from altered rainfall and temperature patterns, climate change can influence the intensity and magnitude of existing stresses on biodiversity and ecosystem structure, function and processes.” (page 2)

“The many and varied affects of climate change on species and ecosystems may include... increased frequency of extreme events: this may lead to sudden extinctions as species’ physiological threshold are exceeded. These events may occur within short time frames.” (page 2)

“Key policies for progressing national action on addressing the impacts of climate change on biodiversity are the:

- *National Strategy for the Conservation of Australia’s Biological Diversity* (1996): this strategy includes the objective of planning “to minimise the potential impacts of human-induced climate change on biological diversity”; and
- *National Greenhouse Strategy* (1998): this strategy has been developed and endorsed by Commonwealth, State and Territory governments.” (page 3)

“The impacts of climate change on biodiversity are identified as a high priority for action in a number of key recent biodiversity publications including:

- *Sustaining Our Natural Ecosystems and Biodiversity* (2002), Prime Minister’s Science, Engineering and Innovation Council (PMSEIC); and
- *State of the Environment* (2002), State of the Environment Committee.” (page 3)

AND ALL SUGGESTED SPECIFIC ACTIONS FOR ALL OF THE SUGGESTED THEMES (although note the additional suggestion below)

*Comments on statements and conclusions from the consultation paper:*

“initiatives addressing climate change impacts on biodiversity should be integrated with existing natural resource management and planning processes where practicable;” (page ii)

and

“Consider climate change impacts on biodiversity as part of regional and local integrated NRM planning and implementation processes.” (page 7)

We very much support the above two statements. It is unfortunate that the NBCCAP will not be ready in time for the regional NRM strategies currently being developed around the country as part of the NHT 2 process. We submit that after the finalization of the NBCCAP, further NHT funding should be contingent upon regional NRM groups revising their regional strategies to incorporate the NBCCAP’s recommendations.

“Increasing the level of adoption of adaptation principles and initiatives within [existing biodiversity conservation policies and programs] will significantly improve the capacity of many species and ecosystems for survival. For some species and ecosystems however, more direct action may be required, and for others, there may be little opportunity for maintaining viable wild populations.” (page 4)

One of our only criticisms of the consultation paper is the over-reliance on adaptation rather than mitigation / abatement. Obviously there is a need to take action, including the ‘direct action’ referred to above, to minimize the damage that has and will be caused by human-induced climate change even if global emissions were immediately and significantly reduced. But the greater need has got to be avoiding the potential for future catastrophic biodiversity outcomes that will inevitably come from maintaining or increasing the world’s CO2 output into the foreseeable future.

We have made similar criticisms of the Indian Ocean Climate Initiative – see CC Attachment 1.

The Council has been disappointed by the State Government’s apparent unwillingness to reduce emissions, and we look for strong Federal leadership in the direction of making those cuts – see CC Attachment 2.

**“Strategy 1. Incorporate adaptation to climate change as a key component of core business for all natural resource planning and management.”** (page 7)

As above, it is a major concern for the Council that the first strategy proffered by the consultation paper relates to adaptation rather than mitigation / abatement.

**“Question 4.** What current natural resource planning and management processes could consideration of climate change impact on biodiversity easily fit into?” (page 8)

See the comments about NRM strategies above. It is essential that NRM regional strategies and biodiversity strategies around Australia address climate change.

**“Question 10.** Is it practical to establish reserves in anticipation of future climates (i.e. in areas that do not currently meet biodiversity conservation objectives)?” (page 10)

We would ask, rhetorically, the logical corollary to the above question – is it practical not to establish reserves on the basis of anticipated future climates? Predicted future climates should guide CAR reserve policy and strategic corridor decisions – see further below.

In addition revegetation strategies must address climate change, both in terms of species and location.

**“Question 11.** Will market based mechanisms such as taxation incentives be a useful tool for establishing future habitat? (page 10)

We contend that the answer is a resounding ‘yes’. The Council’s position is that market-based mechanisms should be an important part of the biodiversity conservation ‘toolbox’. Unfortunately, few Australian jurisdictions have properly availed themselves of such tools.

It is important to note at this point that central to governments’ effective use of financial incentives for biodiversity conservation is the removal of financial disincentives from the same or other levels of government. In WA, the rate relief offered by a particular local government for remnant bush is more than offset by increased State taxes for the same land, on the basis that it is not being ‘productively’ used.

“Identify and protect a national system of corridors linking refugia and reserves to assist migration and dispersal.” (page 11)

We strongly agree, and want in particular to applaud the work done on this issue as part of the Wilderness Society’s WildCountry programme, and by Keith Bradby and others on the Gondwana Link project.

**“Question 19.** Are the actions presented above the right measures to address climate change impacts on biodiversity? If not, what additional actions would you suggest?

One area not addressed by the consultation paper is the need for all States to have best practice biodiversity law. WA, for example, relies on the extremely out-of-date *Wildlife Conservation Act 1950* as the first line of defence for threatened species.

Fortunately, there is a move to replace and expand that Act into a Biodiversity Conservation Act. The proposed new Act will enhance the ability of the State Government to address climate change by creating the capacity to recognize it as a key threatening process.

*The Council strongly supports the following statements and conclusions from Climate change impacts on biodiversity in Australia, June 2003, in particular:*

“Climate change is happening – the extensive and critically accepted reports of the Intergovernmental Panel on Climate Change (IPCC) have removed any remaining doubt.” (page iii)

“[Human modification, introduced species and diseases] are likely to be even more damaging to native biodiversity under the influence of changing climates.” (page iii)

“The Biological Diversity Advisory Committee (BDAC) is concerned that investment in ameliorating known threats and repairing current damage will be inadequate if climate change is not taken into consideration in future policies and management actions.” (page iii)

“The eight warmest years measured globally have occurred in the 1990s and 2000s. Last year (2002) was the second warmest on record.” (page 1)

“Current projections predict an increase in global average temperatures of between 1.5C and 6C by the end of the present century...” (page 1)

“Evidence suggests that with even mild warming (+2C), tropical near-shore communities will change from coral-dominance to algal-dominance... It is possible that plankton productivity could become significantly more variable in near coastal marine systems, and that change could have flow-on effects to system ecology and productivity.” (page 2)

“There is likely to be a decrease in rangeland productivity, an increasing risk of degradation, increasing sensitivity to disturbance, a change in ecosystem function, and alteration to plant and animal community composition.” (page 2)

“As well as changes in vegetation composition in temperate forests, it is likely that changes in structure, productivity and foliage quality will have flow-on effects to other components of biodiversity.” (page 2)

“The more we incorporate climate information into management tools now, the better we are likely to manage future climate change.” (page 3)

“Two key components [of facilitating long-term adaptation] will be:

- appropriate management of both on- and off-reserve areas with high conservation value;
- a system of comprehensive, adequate and representative (CAR) reserves that takes effects of climate change into consideration.” (page 3)

“A large number of information gaps were identified...

- analyses of present and future social and economic costs of climate change impacts on biodiversity with or without adaptations;” (pages 4-5)”

*Comments on statements and conclusions from Climate change impacts on biodiversity in Australia, June 2003:*

“[Where existing programs are unable to enhance species’ resilience to climate change,] we should assess the possibilities for translocating species, or identify the characteristics of sites that can act as ‘refugia’ (refuges) from climate change: perhaps specific sites, linked sites across regions, or more intensively managed areas.” (page 3)

Translocations are often unsuccessful for a variety of reasons. Of the options listed above, therefore, the Council strongly supports linking sites across regions – see further our comments about corridors above.

Yours sincerely



Rachel Siewert  
Co-ordinator

17 October 2003

The Indian Ocean Climate Initiative – is it right in making adaptation our priority?  
By Chris Tallentire,

Since the IPCC's (Intergovernmental Panel on Climate Change) Third Assessment Report, which was published in 2001, the reality of climate change has gained broad scientific acceptance. Even the most vociferous of climate change sceptics, like The Lavoisier Group have gone quiet. Now the debate has moved on to the question of how we should respond to climate change. Many, particularly the scientific community, say that we should focus our efforts on adaptation. This was the tenor of discussion at the recent Indian Ocean Climate Initiative (IOCI) symposium *Towards Informed Adaptation* held on the 28<sup>th</sup> and 29<sup>th</sup> of November 2002.

### **The need to adapt**

In publishing its report 'Climate variability and change in south west Western Australia' IOCI has presented evidence that shows the south west of WA has suffered a significant decline in rainfall over the last hundred years. IOCI has come to the view that we must begin to adapt to a new climate regime. This is a matter that deserves very careful analysis. Without question the impacts of climate change will require enormous adaptive effort. Even if there were to be no further anthropogenic activity causing rises in atmospheric carbon dioxide levels we would still be required to take adaptive measures to manage the impacts of climate change on our natural ecosystems, agriculture, human health and settlement patterns.

### **Adaptation vs prevention**

While acknowledging that some adaptation is already necessary, IOCI's first responsibility should be towards highlighting the consequences of inaction and indicating preventative actions that could be taken today. This way serious momentum could be developed so that Government could make properly informed decisions, and decide against further industries that cause high levels of greenhouse gas emissions. Instead we are being lulled into believing that we can adapt.

For biodiversity conservation, agriculture, and human health our climate change priority response should be prevention and mitigation. Climate protection should be the priority for research funding, policy formulation and for guiding decision-making.

In the case of biodiversity conservation some adaptation management is already necessary. However, the chances of its success are far from good. There appears to be neither adequate funding nor sufficient knowledge to ensure the management and long-term survival of complex ecosystems that are threatened by climate change.

### **What are we adapting to?**

A serious problem with the adaptation approach is the 'moving target nature' of the problem. What climatic conditions are we endeavouring to adapt to? What level of atmospheric carbon dioxide concentration are we seeking to adapt to? What rainfall levels? What temperatures? What humidity levels? What climatic thresholds will we cross? What climatic changes will be unleashed when thresholds are passed?

IOCI research has found a number of climatic relationships that change when thresholds are reached. Creating a climate model that takes account of threshold factors is extremely complex. This complexity further decreases the scope for developing an adequate adaptive management strategy.

A threshold response has occurred with the decline in rainfall in the south west of WA, where change has not been gradual, but more a switching to an alternative rainfall regime. Another area where a threshold response occurs is in the relationship between rainfall and sea surface temperatures. Research has found that the relationship becomes non-linear, with enhanced convection occurring at temperatures above 29 degrees Celsius.

### **Cost of adaptation**

The climatological modelling capacity that IOCI has already developed is extremely impressive. The scientists involved clearly enjoy using their data to respond to “crackable problems”. They derive satisfaction when real life change matches their modelled predictions. In developing its future modelling IOCI should broaden its capacity and give serious effort to determining the economic cost of adaptation.

This will require ensuring the IOCI group has the necessary economic expertise and access to epidemiological researchers. It may be that the cost of developing a vaccine for a vector borne disease could be more than the cost of simple enforcement of the deep cuts to greenhouse gas emissions that the environment movement has been calling for.

An adaptation strategy for the agricultural sector will involve significant financial risk. Through the Department of Agriculture the WA community could invest millions of dollars developing a new agricultural cropping system that can cope with decreased rainfall or summer rainfall, only to find that further degradation in climatic circumstances will surpass the tolerance limits of the newly developed system.

### **Conclusion**

It is important to note that since its formation in the 1990s IOCI has brought together expertise from several state and federal agencies, in a forum that encourages information exchange. While the group does not include a representative from the non-government conservation sector, members of the team are to be commended for their accessibility, and preparedness to discuss issues with members of the Conservation Council. However, the dream of adaptation must not be allowed to distract from the need to urgently act against our greenhouse intense lifestyles and our dependency on a greenhouse emitting economy. IOCI should use its capability to demonstrate the need for climate protection, not climate adaptation.



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**SUBMISSION**

**On**

**WESTERN AUSTRALIA AND GREENHOUSE**  
– Issues Paper

**Tuesday, 25 February 2003**

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## General comment on Western Australia and Greenhouse – Issues paper (WAAG)

### 1. The true level of WA's projected greenhouse gas emissions

The Conservation Council has learnt of Government estimates that show WA's greenhouse gas emissions are projected to grow from 49.3million tonnes of CO<sub>2</sub> –e in 1996 to 86million tonnes CO<sub>2</sub> –e by 2010. To respect the terms of the Kyoto Protocol Western Australia should limit its greenhouse gas emissions to 45 million tonnes of CO<sub>2</sub>-e by 2012.

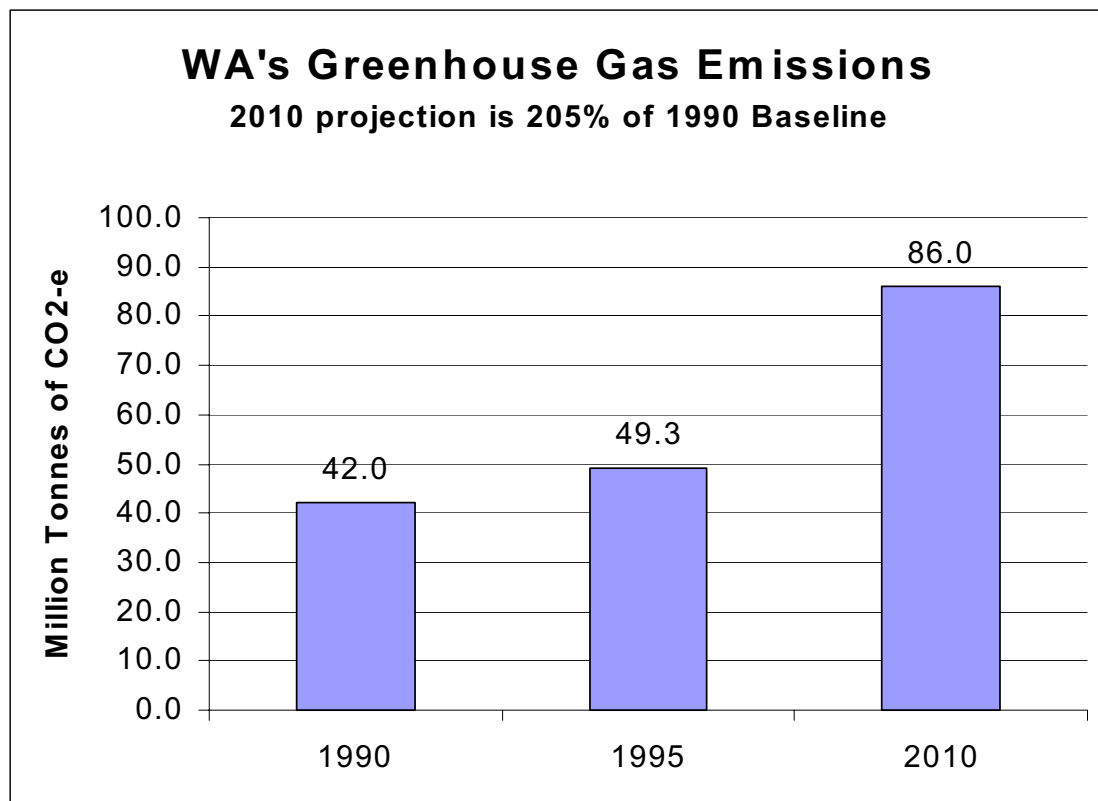


Figure 1. Showing WA Government projected greenhouse gas emissions for WA (Source: DEWCP August 2001)

By 2010 each Western Australian will be responsible for the emission of a shocking 40.39 tonnes of CO<sub>2</sub> –e per year. No other region in the world is anticipated to have this level of *per capita* greenhouse gas emission. It is extremely disappointing that *Western*

*Australia and Greenhouse – Issues Paper 2002* (WAAG) has failed to present these projections.

Why has the Western Australian Greenhouse Task Force failed to present a projection of WA's Greenhouse gas emissions?

It is correctly stated that WA's most recent greenhouse gas inventory was prepared in 1995 (Reference: WAAG page 8). Since that date there numerous development proposals have been through environmental impact assessment. In each of these assessments greenhouse gas emissions have been listed as an environmental factor.

Why has the Western Australian Greenhouse Task Force failed to us the greenhouse figures published in EPA bulletins as a basis for updating its 1995 greenhouse inventory?

## **2. Geopolitical consequences of being world's worst greenhouse gas emitter**

At a time when the global political situation is particularly volatile, the WA Government should be seeking to ensure that Western Australians are not seen as a people who behave in an inequitable manner. Being the world's highest greenhouse gas emitters, on a *per capita* basis, (Reference: WAAG page 20) could be perceived as a sign of a nation that considers it has a right to pollute at a rate higher than other nations. In Samuel Huntington's *The Clash of Civilizations and the Remaking of World Order* (1996) the need to move towards global equity is a recurrent theme. If Western Australians are found to be responsible for 40.39 tonnes of CO<sub>2</sub> –e per year it seems likely that we will be accused of behaving inequitably. Notions of economic development should not be used to compromise our responsibility to behave as responsible global citizens.

## **3. Need to consider historic responsibility and *per capita* emissions**

The WA Government is failing to grasp the likelihood of future phases of the Kyoto Protocol accounting for greenhouse gas emissions in a more equitable manner. One such model, known as the Brazil proposal, is based on the assumption that emissions in a particular year do not reflect the true contribution of a country to global climate change,

which is related to cumulative emissions of greenhouse gases. It is proposed that the historic responsibility of all countries is calculated through the use of a simple equation that relates temperature increase to the accumulation of greenhouse gases in the atmosphere. A global climate change mitigation goal could then be established in terms of temperature increase, and this could then be translated into emission targets for individual countries (see <http://www.mct.gov.br/clima>). More equitable formulations of international greenhouse gas mitigation strategies are likely to focus on *per capita* emissions.

Australian analysis of the Brazil proposal has been considered by CSIRO in *CSIRO Atmospheric Research Technical Paper no. 41*. *Why has no reference been made in WAAG of this issue?*

#### **4. Australia's greenhouse emissions**

Page 7 of WAAG mentions that "other proposed industrial developments in WA" have not been included in Australia's Kyoto estimate targets. Clearly the WA Government is aware of these developments, and has been informed of the associated greenhouse gas impacts. Why have these figures not been presented in WAAG?

#### **5. Western Australia's greenhouse emissions**

The document (page 8) claims that land use change has dropped by 57% in WA. What information has been used to justify this claim? The Conservation Council is aware of statistics gathered by the Commissioner of Soil and Land Conservation regarding Notices of Intent to Clear, administered under the Soil and Land Conservation Act 1945. It would be highly inappropriate to use these figures as a means of gauging changes in emissions from land use change. Please confirm that the Commissioner's figures have not been used and provide evidence of the information used.

The Conservation Council is also aware of Land Monitor statistics that indicate an ongoing decline in the quantity and quality of native vegetation. Land Monitor work has found that the carbon sequestration value of native vegetation has, through poor management, continued to diminish. The WA Greenhouse Task Force must provide

accurate statistics on land use change before it can make claims of a 75% reduction in land use change emissions.

#### **6. Plantations and carbon sequestration capacity**

The Forest Products Commission predicts that by the year 2020, there will be 800,000 hectares of tree crops established on Western Australian farms [http://www.fpc.wa.gov.au/plantations\\_in\\_wa.html](http://www.fpc.wa.gov.au/plantations_in_wa.html) - history

In WA carbon sequestration capability varies depending on rainfall zone. On average it could be said that in WA carbon can be sequestered at the rate of 4 tonnes per hectare per annum "Forests as CO2 Sinks - an opportunity for Forest Growers" Borough, C, Bourke, M and Bennett, D; Australian Forest Grower, Autumn 1998, Vol 21,(1))

This means that 3.2 million tonnes of carbon could be sequestered each year on WA farms.

In view of this low level of carbon sequestration capacity the Task Force should explain its claim that 'tree plantations have already sequestered substantial amounts of carbon' (WAAG page 8).

#### **7. Impacts on Western Australia's Climate**

The document has failed to discuss the likelihood of climate change induced increased fire frequency.

#### **8. Responses of the WA Government**

The WA Government's response has been extremely disappointing. To highlight its incomprehension of the seriousness of WA's greenhouse plight the Government actually presented, with much fanfare, an announcement to purchase Renewable Energy Certificates (RECs) that will only reduce emissions by 80,000 tonnes a year. This is only 0.02% of the projected increase from the Government's development policies over the period 1996 to 2010 period (WA Government Media release – Minister for Energy, 15 December 2002).

Furthermore, the announcement made on 15 December to purchase renewable energy certificates was inaccurate and certainly not news. The facts are that under the Federal Government's 2% Mandated Renewable Energy legislation:

- ❖ by the year 2010, WA tax payers will have purchased some 4 million RECs with a value of around \$140 million; and
- ❖ in the 10 year period from 2010 to 2020 WA tax payers will be required to purchase some 9 million RECs at a cost of around \$315 million.

### **9. International and national responses to climate change**

Page 12 of WAAG mentions the erroneous idea that Kyoto is flawed because it does not allow for the emissions of developing countries. The fact is that 80% of the increased concentrations of greenhouse gas emissions have been put there by developed countries. It will be 50 years or more before developing countries are responsible for half of the increased concentrations (Source: The Australia Institute 2002).

Furthermore, the principles of polluter pays and ability to pay are accepted as fair by the international community, including in other contexts the Australian Government. The principles mean that a wealthy country like Australia with high emissions should do much more.

Every international agreement on climate change – the 1992 Framework Convention, the 1995 Berlin Mandate and the 1997 Kyoto protocol – explicitly recognizes that developing countries will be required to cut their emissions, but only after rich countries have led the way (Source: The Australia Institute 2002). Why has this issue not been acknowledged by the WA Greenhouse Task Force?

### **10. Reducing emissions**

The view expressed on page 21 that 'to do nothing could be even more costly because international customers could refuse to buy our exports' is strongly supported.

The view that WA's industries would benefit from taking part in international market options for emissions trading is supported.

The view that the renewable energy and energy efficiency industries represent an emerging technology-based sector with the potential to create valuable jobs while contributing to the State's sustainable energy future is strongly supported.

### **Conclusion**

The State Government should make Western Australia meet its proportional target contribution to Australia meeting its Kyoto Protocol targets for greenhouse gas emissions. This should include completing, funding and implementing a State Greenhouse Strategy. The State Government should also urge the Australian Commonwealth Government to ratify the Kyoto Protocol. It is understood that the WA Government may have recently received advice recommending that it is now in WA's economic interest to see the Kyoto Protocol ratified by the Commonwealth Government.

It is our moral obligation to take responsibility for contributing to reducing greenhouse gas emissions, it is also in our self interest to do so. This will be easier to achieve if Western Australia can trade carbon rights within Australia, and if Australia can trade carbon rights with countries, the latter will not be possible unless Australia ratifies the Kyoto Protocol, which will provide the essential legally binding framework for the trading mechanisms that will be essential to reducing global greenhouse gas emissions.

Development of the WA economy should not be skewed to energy intense industries. Equal policy priority should be given to less greenhouse intense sectors of the WA economy, such as the Services sector.

## **Response to Questions**

*Question one:*

*Key issue: The State Government is committed to reducing greenhouse gas emissions from its own operations. What options would you favour for State Government action to reduce emissions from its own operations?*

### **Reduce emissions through decision-making process**

The State Government must accept responsibility for emissions resulting from its own operations. Its own operations must include the consequences of its decision-making. State Government decision-making processes must stop approving greenhouse polluting industries. Page 19 of WAAG has the heading ‘Integrating greenhouse considerations into Government decision-making’. However the paragraph fails to discuss State Government decision-making processes that have the authority to reject further greenhouse intense industry in WA. Why has this key function of State Government operations been ignored?

### **Positive initiative**

State Government can show leadership in greenhouse gas emissions reductions through its own actions. Indeed such programs as the Sustainable Energy Development Office (SEDO) administered initiative that seeks to make Western Australian Government agencies implement targets to reduce their energy consumption, and reduce greenhouse gas emissions by up to 54,000 tonnes a year within five years, are commendable. It is essential that Government Agencies lead the way in this area.

It is noted that the WA Government has committed \$16 million through SEDO to offer interest-free loans to agencies wanting to fund energy conservation initiatives. It is pleasing that the Deputy Premier and Minister for Energy is of the view that this initiative will stimulate jobs and support local sustainable energy industries. There is ample evidence that renewable energy technology, energy management and energy conservation

are sectors that are growing as exciting providers of sustainable employment opportunities.

*To further assist us we would appreciate any other views you have on the following:*

How would you suggest the State Government include greenhouse gas emission considerations in:

- **Decision making (such as planning)?**

#### **Environmental Impact Assessment (EIA) and decision-making**

The Environmental Impact Assessment (EIA) process for proposals that involve greenhouse gas emissions must be dramatically overhauled. The EIA process should systematically reject greenhouse gas emitting industries. The only exceptions to an EIA process rejection of a proposal would be for proposals that provide legally binding mechanisms for an auditable greenhouse gas emission reduction at the WA State level, at the national level and at the international level.

The Environmental Protection Authority's Guidance Statement on Greenhouse Gas Emissions is dreadfully weak. As this guidance statement impacts on the decision-making process it must be reviewed as a matter of urgency.

#### **Integrated resource planning**

Integrated resource planning is a further initiative that needs to be implemented to bring about true electricity reform. Integrated resource planning will lead to WA having energy intensive activities located near to sources of energy. It would also ensure the strategic and diffuse location of electric generation capability – to ensure consistency of energy supply.

- **Housing?**

The R-codes for housing need to be dramatically overhauled to ensure the rigorous application of sustainable building principles, especially with regard to energy efficiency.

The building development approval process needs to be strengthened to prevent the construction of buildings that are not compliant with best practice energy efficiency and solar passive design. Decision-making authorities, such as local governments and the WA Planning Commission must be legally bound to refuse the development of buildings that are in any way energy inefficient.

All housing in Western Australia must be given a greenhouse rating. This rating must be presented whenever a building is to be sold. This would give property buyers necessary information upon which they could base their property purchase decision. The greenhouse rating system of housing would have a strong community awareness value.

- **Health care?**

The connection between poor human health and reliance on greenhouse polluting forms of transport need to be fully explained to the people of WA.

- **Education?**

State Government action needs to improve community awareness of climate change and greenhouse gas emissions. The education system provides an excellent opportunity for this education to take place. However, there is a growing concern that energy efficiency lessons learnt at school may be forgotten in later years. Energy efficiency educational opportunities need to be on going. Facilities such as Environment House in Maylands provide an excellent means of providing the ongoing education.

The Department of Education should institutionalise a system of energy saving incentive schemes, where money saved through energy conservation goes directly to the school that has achieved the saving.

- **sports infrastructure?**

Patrons of greenhouse intense sports infrastructure need to be made aware of the environmental (greenhouse) cost of their sporting interest. Tickets at sports events should mention the likely greenhouse cost of a particular event.

- Transport options such as roads and public transport?

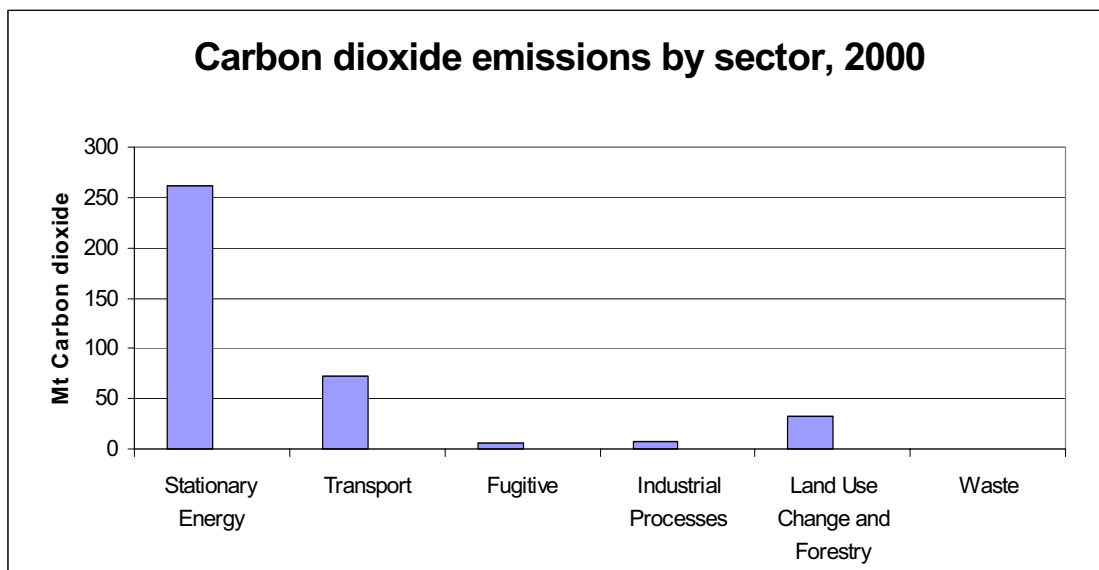
The Conservation Council offers its general support for the positions presented by members of the Sustainable transport Coalition.

- Goods and services purchasing?

WAAG has dealt with this matter.

- Power generation?

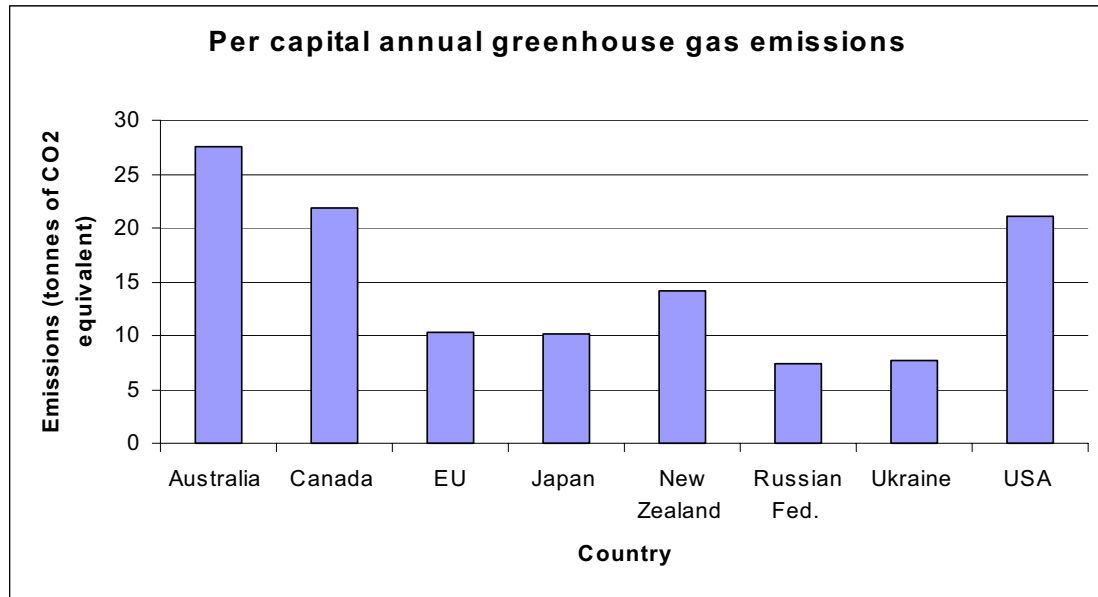
In its report ‘National Greenhouse Gas Inventory – Analysis of Trends and Greenhouse Indicators 1990 – 2000 ’ the Australian Greenhouse Office has shown that stationary electricity generation accounts for 68.7% of our carbon dioxide emissions and 49.3% of our carbon dioxide equivalent emissions. This situation is demonstrated in Figure 2. below.



**Figure 2. Showing that stationary electricity production accounts for 68.7% of carbon dioxide emissions (Source: Australian Greenhouse Office, 2002)**

Australians, on a *per capita* basis, are already the world’s highest greenhouse gas emitters. We have a responsibility to proceed very carefully when determining how we will structure our electricity generation, distribution and marketing networks – as these

will have a direct bearing on the speed with which we move away from fossil fuel based electricity generation.



**Figure 3. Showing that Australians are the world’s highest greenhouse gas emitters on a *per capita* basis (Source: The Australia Institute, 2002)**

At a time when the global political situation is particularly volatile, the Australian Government should be seeking to ensure that Australians cannot be seen as a people who behave in an inequitable manner. Being the world’s highest greenhouse gas emitters, on a *per capita* basis, could be perceived as a sign of nation that considers it has a right to pollute at a rate higher than other nations.

As discussed in the introduction to these responses to questions the situation in relation to Western Australian *per capita* Greenhouse emissions is even more serious than the national situation.

### **Potential for renewable energy**

It is outrageous that at the moment renewables account for less than 1% of our energy supply. It must never be forgotten that Australia has an abundance of natural and renewable energy resources.

### **Economic Viability of renewable energy sources**

In relation to economic viability renewable energy sources, such as wind technology, are quickly gaining ground on fossil fuels, positioning themselves to be economically and environmentally superior. Furthermore, renewable industries are now being seen as effective means of meeting social criteria, because they have substantial job development capability. A recent Western Power document clearly indicated that wind is at 7-9 cents per kilowatt compared to 4-7 cents per kilowatt for gas and coal. It is disappointing to note that the report, in Figure 8.3, does not mention the range of electricity generation prices. This is an extremely important issues, as it highlights the potential for creating an energy mix that is both environmentally sound and economically viable. There is no single energy solution that applies across the whole nation.

<b>Technology</b>	<b>Capital cost (\$/kw)</b>	<b>Total Cost (c/kw)</b>
Wind	1,800	7 - 9
Solar PV	6,500	30 - 50
Biomass	2,500	8 - 12
Coal-fired Steam Turbine	1,500	4 - 7
Combined Cycle Gas Turbine	1,000	4 - 7
Open Cycle Gas Turbine	500	7 - 12

**Figure 4. Showing relative costs of electricity production (Source: Wester Power Corporation, Strategic Environmental Review, 2002)**

The Conservation Council is not motivated by lower prices or larger profits for industry. Rather, the Council can see the potential for genuine environmental benefits in a more competitive market where renewables and demand management have the opportunity to compete fairly with other options for power supply.

The transitional phase of the journey towards a renewable energy future should see Western Australia leading the way with a policy of having 30% of our electricity coming

from renewables, 30% coming from gas and 30% coming from coal and the remaining 10% removed through demand management measures.

- **The provision of water and sewage?**

The provision of water and sewage provides many opportunities for renewable energy technology to be used. An overarching WA State Energy Policy and State Greenhouse Strategy should ensure that renewable energy options will be used for water and sewage. Any additional cost can be legitimately passed on to consumers providing additional incentive for demand management to be applied to the use of scarce resources.

**Question Two:**

**Key issue:** The State Government is committed to a long term strategy to reduce greenhouse gas emissions from industry, commerce and the community. How should the State Government facilitate the ‘least cost’ options for abatement of greenhouse gases and what mechanism do you believe the Government should use limit greenhouse gases from industry?

The ‘least cost’ option must be least cost in terms of true triple bottom line accounting. Any least cost decision must be assessed for the

*To further assist us we would appreciate any other views you have on the following:*

1. **What is your position on targets to reduce greenhouse gas emissions? Do you think they should be voluntary or mandatory?**

Targets must be mandatory. The present State Government system could be described as a voluntary one. It has been a failure. At a Commonwealth Government level the Greenhouse Challenge, a voluntary program, has also been an expensive failure.

2. **What strategies do you (as an individual or company) have in place to implement a low carbon future (for example in your home or business equipment, vehicle, home location, home design, new business development, research and development into new technologies and sequestration)?**

Many members of the Conservation Council and its affiliate groups have renewable energy systems and solar passive designed homes. Many members and supporters are also involved in ecological restoration that also both biodiversity and carbon sequestration benefits.

3. In what way do you believe that you (as an individual or company) could assist Government to develop and implement its greenhouse strategies?

The Conservation Council will continue to lobby for global greenhouse equity, stimulating community awareness and understanding on why WA should not pursue economic growth that is dependant on the burning of fossil fuels.

4. How do you think the State Government could best promote low greenhouse intensity lifestyle options?

Before promoting low greenhouse lifestyle options the State Government must demonstrate that it is prepared to require industry to act within the target of 108% of 1990 greenhouse gas emissions. If the Government fails to require industry meet the 1990 target then promotion of low greenhouse intensity lifestyle options will lack credibility with the broader Western Australian community.

An effective means of demonstrating that the Government is serious about climate change and greenhouse would be the introduction of a carbon tax. Good economic forecasting suggests that a carbon tax is highly likely. Does it not then make good economic sense to start factoring this in? It has previously been mentioned that the cost gap between renewables and fossil fuels is closing – and this is without factoring in the externalities! One of the Conservation Council’s main concerns with WAAG is that it fails to discuss the use of economic mechanisms to factor in externalities.

We note that in the recently released State Water Conservation Strategy it was recommended that prices for water and waste water treatment be adjusted to include

externalities associated with water supply and wastewater treatment. Why should the same principles not apply to electricity generation?

**Question Three:**

**Key issue:** The State Government is committed to promoting genuine carbon sequestration activities which satisfy certain minimum criteria relating to property rights, accounting and collateral benefits. How can the State Government best promote sequestration activities which yield these multiple benefits?

*To further assist us we would appreciate any other views you have on the following:*

1. Should the Government take a direct role in carbon sequestration activities beyond the legitimate role of the Forest Products Commission in establishing plantations?

The Forest Products Commission predicts that by the year 2020, there will be 800,000 hectares of tree crops established on Western Australian farms [http://www.fpc.wa.gov.au/plantations\\_in\\_wa.html](http://www.fpc.wa.gov.au/plantations_in_wa.html) - history

In WA carbon sequestration capability varies depending on rainfall zone. On average it could be said that in WA carbon can be sequestered at the rate of 4 tonnes per hectare per annum "Forests as CO<sub>2</sub> Sinks - an opportunity for Forest Growers" Borough, C., Bourke, M. and Bennett, D.; Australian Forest Grower, Autumn 1998, Vol 21,(1))

This means that 3.2 million tonnes of carbon could be sequestered each year on WA farms. This is not a significant sequestration contribution when considered in the context of a selection of greenhouse polluting development proposals, presented in Figure 5., below.

Development proposal	Millions of tonnes CO2-e	Status
Methanex	2.50	Government approved
Burrup Fertilisers	1.40	Government approved
Syntroleum Sweetwater	1.71	Government approved
Plenty River Ammonia	1.00	Pending EPA assessment
Japan DME	1.00	Pending EPA assessment
GTL Resources	0.30	Pending EPA assessment
Woodside LNG Trains 4 and 5	5.80	Government approved
Austeel/Mineralogy	5.40	Conditional approval
Rio Tinto's HiSmelt	3.00	Government approved
Boddington Gold Mines	3.73	Government approved
Hope Downs	0.65	EPA approved
Proposed coal power generation	4.50	Pending EPA assessment
	<b>30.99</b>	

2. What kind of barriers do you (as an individual or company) perceive which would stop you from engaging in carbon sequestration or trading activities?

There is a serious need to ensure that biodiversity conservation is not compromised by carbon sequestration. Carbon sequestration plantations must not lead to the destruction of existing native vegetation, nor must plantation sequestration be allowed to become ecologically monocultural.

Should carbon sequestration be developed as a biodiverse, environmentally sound practice, then it is possible that the growing number of conservation minded landholders could seek to provide a carbon sequestration service.

For many landholders the low value of a sequestered tonne of carbon could be dissuasive.

3. Should the Government play a role in facilitating emissions trading activities, such as establishing and selling carbon credits from its own sources?

Yes, the Government must play a role in emissions trading and selling carbon credits. This would show private interests how the system works and provide a momentum to the practice.

#### Question Four:

**Key issue:** The State Government is committed to preparing and implementing adaptation strategies for each portfolio. How can the State Government best engage local government, the community and industry in forming long term plans for climate change adaptation?

*To further assist us we would appreciate any other views you have on the following:*

1. How should the Government promote the development and implementation of adaptation strategies by local government and the private sector?

Since the IPCC's (Intergovernmental Panel on Climate Change) Third Assessment Report, which was published in 2001, the reality of climate change has gained broad scientific acceptance. Even the most vociferous of climate change sceptics, like The Lavoisier Group have gone quiet. Now the debate has moved on to the question of how we should respond to climate change. Many, particularly the scientific community, say that we should focus our efforts on adaptation. This was the tenor of discussion at the recent Indian Ocean Climate Initiative (IOCI) symposium *Towards Informed Adaptation* held on the 28<sup>th</sup> and 29<sup>th</sup> of November 2002.

#### **The need to adapt**

In publishing its report 'Climate variability and change in south west Western Australia' IOCI has presented evidence that shows the south west of WA has suffered a significant decline in rainfall over the last hundred years. IOCI has come to the view that we must begin to adapt to a new climate regime. This is a matter that deserves very careful analysis. Without question the impacts of climate change will require enormous adaptive effort. Even if there were to be no further anthropogenic activity causing rises in atmospheric carbon dioxide levels we would still be required to take adaptive measures to manage the impacts of climate change on our natural ecosystems, agriculture, human health and settlement patterns.

### **Adaptation vs prevention**

While acknowledging that some adaptation is already necessary, the State Government's first responsibility should be towards highlighting the consequences of inaction and indicating preventative actions that can be taken today. This way serious momentum can be developed so that Government can make properly informed decisions, and decide against further industries that cause high levels of greenhouse gas emissions. Instead we are being lulled into believing that we can adapt.

For biodiversity conservation, agriculture, and human health our climate change priority response should be prevention and mitigation. Climate protection should also be the priority for research funding, policy formulation and for guiding decision-making.

In the case of biodiversity conservation some adaptation management is already necessary. However, the chances of its success are far from good. There appears to be neither adequate funding nor sufficient knowledge to ensure the management and long-term survival of complex ecosystems that are threatened by climate change.

### **What are we adapting to?**

A serious problem with the adaptation approach is the 'moving target nature' of the problem that we are endeavouring to adapt to. A most striking example of this problem is that no body knows what the atmospheric carbon dioxide concentration level is that we are endeavouring to adapt to.

Research, such as that undertaken by IOCI, has found a number of climatic relationships that change when thresholds are reached. Creating a climate model that takes account of threshold factors is extremely complex. This complexity further decreases the scope for developing an adequate adaptive management strategy.

A threshold response has occurred with the decline in rainfall in the south west of WA, where change has not been gradual, but more a switching to an alternative rainfall

regime. Another area where a threshold response occurs is in the relationship between rainfall and sea surface temperatures. Research has found that the relationship becomes non-linear, with enhanced convection occurring at temperatures above 29 degrees Celsius.

### **Cost of adaptation**

The climatological modelling capacity that is being developed within the scientific climatological community is extremely impressive. The scientists involved clearly enjoy using their data to respond to “crackable problems”. They derive satisfaction when real life change matches their modelled predictions. In developing future careful attention should be given to determining the economic cost of adaptation.

This will require ensuring that groups like IOCI have the necessary economic expertise and access to epidemiological researchers. It may be that the cost of developing a vaccine for a vector borne disease could be more than the cost of simple enforcement of the deep cuts to greenhouse gas emissions that the environment movement has been calling for.

An adaptation strategy for the agricultural sector will involve significant financial risk. Through the Department of Agriculture the WA community could invest millions of dollars developing a new agricultural cropping system that can cope with decreased rainfall or summer rainfall, only to find that further degradation in climatic circumstances will surpass the tolerance limits of the newly developed system.

### **2. What mechanisms should the Government develop to monitor the effectiveness of adaptation strategies?**

The IOCI panel should be expanded to include strong representation from those able to determine the effectiveness of adaptation strategies. Attention to adaptation strategies should not be allowed to distract from urgently needed climate protection approach.

### **Question five:**

**Key issue:** The State Government believes that Western Australia's economy needs to be able to take advantage of opportunities which arise as a result of climate change. How can the State Government best promote the economic expansion of low emission, high value and high employment industries?

*To further assist us we would appreciate any other views you have on the following:*

1. Should the Government take a direct role in picking industry sectors for assistance and development?

Picking industry sectors for assistance and development will require long-term vision. The required time frame is likely to be beyond the horizons of the commercial sector and the Government sector. Consideration needs to be given to enabling a government backed trust or commission with powers to chose industry sectors for development. SEDO grants Committee may well provided the basis for such a statutory authority.

2. What mechanisms should Government develop to promote industry awareness and response to innovations, opportunities that arise as a result of climate change?

**Question six:**

**Key issue:** The State Government believes that community awareness is critical to a successful Western Australian response to climate change. How should the State Government improve community awareness of climate change, the potential impacts of climate change on individuals and communities and the opportunities for individuals and communities to reduce their contribution to climate change and take advantage of opportunities that arise because of it?

*To further assist us we would appreciate any other views you have on the following:*

1. How effective are internet-based information sources for changing community or individual behaviour? Would you use internet information sources?

Many greenhouse sites already exist. A WA internet site should build on WA's most recent greenhouse gas inventory, which was prepared in 1995. Since that date there have

been numerous development proposals have been through environmental impact assessment. In each of these assessments greenhouse gas emissions have been listed as an environmental factor. The web site should provide a cumulative total of all greenhouse gas emissions.

How could local government better deliver information about climate change to the general community, commerce or industry?

2. How should Government facilitate individual action to reduce household or transport emissions?

Government should fund demonstration homes and greenhouse advice services that show householders how energy saving can be achieved.

3. Should Government seek to change energy intensive lifestyle options through energy-related taxes or supporting energy efficient activities?

Yes, Government should implement energy-related taxes, and it should support energy efficiency activities.

4. How can the Government tailor its greenhouse initiatives to meet the special needs of rural residents and communities?

Rural residents and communities should be further encouraged to convert to remote area power supply systems.

Question seven:

Key issue: The State Government is committed to advocating international and national climate change policies that recognise Western Australia's particular circumstances. What special Western Australian characteristics, requirements or opportunities do you believe require advocacy, and how do you suggest the State should advocate for them?

It is totally unacceptable to suggest that WA's particular circumstances may require some form of special advocacy. It is simply wrong to claim that Australia is in a special position. Canada, Norway, the United Kingdom and Russia are also net exporters of

energy, and all have either ratified the Kyoto Protocol or have indicated their intention to do so.

This 'Key issue' demonstrates a poor understanding of the fact that greenhouse gas emissions from our energy exports have no bearing on Australia's greenhouse obligations. The emissions from our exports of coal, gas and oil are counted in the country where they burned.

To further assist us we would appreciate any other views you have on the following:

1. Do you think that Western Australia should establish a single body responsible for greenhouse matters, along the lines of the Australian Greenhouse Office, or would Government resources be better used within existing institutions?

Yes, WA should establish its own WA Greenhouse Office.

2. Are there issues in which Western Australia could take a lead nationally or internationally?

WA should take a lead in substituting renewable energy for fossil fuel derived energy.

**Question eight:**

**Key issue:** The State Government is committed to gathering the best information about climate change. How do you suggest this information be made available? *To further assist us we would appreciate any other views you have on the following:*

1. What do you think is the most critical information gap about climate change?

A determination of the true cost of adaptation to a new climate regime needs to be made.

2. How do you suggest the State Government should address the challenge of maintaining a research program concerned with impacts that could take many years to understand?

We already know that the impacts of climate change are going to be significant. Money should be invested in commercialising already available renewable energy technology.

3. Are there areas of research in which Western Australia could take a lead nationally or internationally?

Yes, commercialisation of renewable energy technology.