

Report of the investigation
into ABARE's External
Funding of Climate Change
Economic Modelling

Report under section 35A of the
Ombudsman Act 1976

February 1998

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EXECUTIVE SUMMARY

THE COMPLAINT

1 . This is the report of an investigation by the Commonwealth Ombudsman into a complaint by the Australian Conservation Foundation (ACF) about the funding arrangements and operation of Steering Committees established by the Australian Bureau of Agriculture and Resource Economics (ABARE) for its climate change economic models MEGABARE and GIGABARE. In May 1997 the ACF applied to ABARE for membership of its GIGABARE Steering Committee, for which ABARE has established a membership fee of \$50,000 pa (or \$100,000 for 2 years). The ACF sought a waiver of this fee.

2. When ABARE rejected the ACF's application on the basis that it could not waive the membership fee, the ACF made a complaint to the Ombudsman on 2 June 1997. The complaint by the ACF was in 3 parts being that:

- ABARE had not disclosed the source of research funding in key documents, public statements and where it was clearly appropriate to do so.
- ABARE has no appropriate guidelines and protocols for the use of private sector funds, and in particular where privately funded projects are used in providing advice to Government.
- The MEGABARE and GIGABARE Steering Committees have not been accessible to organisation without significant financial resources. As a result ABARE's role in assisting and advising the development of Government policy could be reasonably perceived to be weighted in favour of business interests.

3. Having made preliminary enquiries of ABARE in relation to these matters, the Ombudsman commenced a formal investigation under section 8(1) of the *Ombudsman Act 1976*, of the ACF's complaint on 28 July 1997.

4 . In the course of the investigation, the Ombudsman examined the ABARE files relevant to the MEGABARE and GIGABARE research projects. The Ombudsman also interviewed the Executive officers from ABARE with responsibility for the research projects, as well as other individuals either involved directly or indirectly with the projects.

Ombudsman's Conclusions

5. Information obtained by the Ombudsman indicated that ABARE had adopted a funding structure and administrative practices for its climate change research projects which failed to adequately protect ABARE as a public sector research agency from allegations of undue influence by vested interests.

6. The Ombudsman's investigation concluded that:

- The MEGABARE and GIGABARE committees were constituted by ABARE primarily as a means of raising additional revenue for these projects.
- This appears to largely explain ABARE's limited efforts to involve environmental non-government organisations in its committees.

- The composition of the MEGABARE and GIGABARE committees did not adequately conform to the characteristics of a government steering committee dealing with an important - and controversial - public policy matter. In particular that the development of the steering committee did not ensure a balance of views and technical skills.
- The membership fees were exclusionary in their effect.
- It was not appropriate for ABARE to have used the term 'steering committee' for the MEGABARE and GIGABARE committees.
- ABARE's intentions for the MEGABARE and GIGABARE committees would have been more appropriately characterised at the outset as 'sponsors committees for funding representatives'.
- However, the use of the term 'Steering Committee', and the associated explanation as to its role, allowed an ambiguity and the possible creation of an expectation of membership influence on issues affecting public policy.
- The greenhouse gas emission reduction strategies are an important matter of public policy and any steering committee or consultative process should include a balance of community interests.

7. ABARE now agrees that it would not have used this mechanism to raise funds if it had known the 'misunderstandings' and 'political use' that would be made of the funding arrangements. ABARE has informed the Ombudsman that the GIGABARE Steering Committee will be renamed as a 'Sponsors Advisory Committee' and acknowledges that such an approach to its research projects needs to be carefully considered in the future.

8. I accept ABARE's response as being one of a range of steps necessary to ensure greater transparency of process and also understand that their actions were taken within the context that the government had given ABARE a target that it must raise 40 percent of its funds from external sources. Nor do I question its integrity as a body.

9. I note however, that ABARE had been warned by both a consultant and DEST as to the need to ensure a balance of views and guard against perception of being a captive of industry. The establishment of the 'Steering Committee' as a funding mechanism represented in my opinion, poor planning for the development of government policy.

10. In my opinion ABARE's climate change modelling is best characterised as a public good and relates to important public policy. Any Steering Committee or consultative process in this context should strive for a balance of interests and technical skills rather than be a mechanism for fund raising.

11. The experiences of ABARE also highlight the importance of better planning and protocols relating to the development of important public policy issues and the receipt, acknowledgment and use of any external funding or sponsorship.

12. The Ombudsman has found that although recent Commonwealth governments have set external funding targets for public sector agencies, limited guidance has been developed for such agencies to ensure transparency of process and obviate conflicts of interest, apparent or real, in the management of external funds and/or sponsorship of projects. The

Ombudsman's investigation into this matter highlights that better across government and agency specific guidelines need to be developed.

13. Given the nature of the 'steering committees' the Ombudsman believes that the distinction made by ABARE between model building and policy research does not reasonably remove ABARE's obligation to acknowledge in its research publications contributions by industry and other government agencies to the development of the MEGABARE model.

SUMMARY OF CONCLUSIONS

As a result of the investigation, the Ombudsman arrived at the following conclusions in relation to the matters raised in the complaint by the ACF .

They are as follows:

- The Ombudsman considers that ABARE's files and public documents show, and ABARE has confirmed that;
 - the financial targets and the need to raise money for its climate change modelling was its primary consideration in its contacts with industry and other Commonwealth government agencies; and
 - the early development of the Steering Committee included an early and close involvement with representatives of industry. (para 2.17).
- The Ombudsman does not consider ABARE acted improperly by seeking industry involvement in the project, and it is clear from the file material that ABARE was also concerned to obtain sponsorship from other Commonwealth government agencies. Similarly, the Ombudsman did not seek to question the professional integrity of ABARE's economic modelling. However, in the Ombudsman's opinion, ABARE did not fulfil the conditions which should be expected for a public sector steering committee when establishing its committees for MEGABARE and GIGABARE (para 2.18).
- The Ombudsman considers that because it is unable to differentiate between the sources of external funds in its appropriations ABARE could not demonstrate through its accounting procedures how those funds raised through the MEGABARE Steering Committee were used in the project. That is, the funds were part of a consolidated amount that ABARE used for funding its climate change research publications, as well as its climate change modelling (para 2.24).
- The role of the Steering Committee was ambiguously stated in the research proposals for MEGABARE and GIGABARE. For example, the GIGABARE Research project proposal sought sponsorship on the basis that membership would "*provide a sounding board on policy, research and strategic issues*". The Ombudsman considers it could be inferred that this description could create an expectation of membership influence in ABARE's climate change modelling (para 3.18).
- The Ombudsman considers that;
 - the MEGABARE and GIGABARE committees were constituted by ABARE primarily as a means of raising additional revenue for these projects;

- this appears to largely explain ABARE's limited efforts to involve environmental nongovernment organisations in its committees; and
 - the Ombudsman disagrees with ABARE that DEST can be said to adequately represent the views of the environmental groups in the community. While the Ombudsman accepts that DEST has portfolio responsibilities and conducts research in relation to the environment, in the Ombudsman's view DEST could no more be considered a satisfactory representative for environmental groups than, say, the Department of Industry Science and Tourism could be considered to represent industry (para 3.31).
- In the Ombudsman's opinion the MEGABARE and GIGABARE committees do not adequately conform to the characteristics of an appropriate APS Steering Committee, and it is misleading for ABARE to use this description. The Ombudsman considers it was not appropriate for ABARE to have used the term 'Steering Committee' to describe its MEGABARE and GIGABARE committees (para 3.35).
 - The Ombudsman believes that;
 - ABARE's intentions for the MEGABARE and GIGABARE committees would have been more appropriately characterised at the outset as 'sponsors committees for funding representatives'.
 - However, the use of the term 'Steering Committee', and the associated explanation as to its role, allowed an ambiguity and a creation of an expectation of membership influence on issues affecting public policy.
 - The greenhouse gas emission reduction strategies are an important matter of public policy and any steering committee or consultative process should include a balance of community interests (para 3.36).
 - From the Ombudsman's examination of ABARE's files, there is limited evidence prior to the correspondence with the ACF that ABARE attempted to invite environmental nongovernment organisations to participate in the MEGABARE or GIGABARE Steering Committees, financially or otherwise. The correspondence between ABARE and the ACF shows that ABARE made its invitation to the ACF to join the GIGABARE Steering Committee in response to an enquiry by the ACF into the funding and structure of the Steering Committee (para 3.49).
 - Because ABARE not only used Steering Committee membership fees to raise external funding (where the fees are very substantial) but also as a basis for rejecting participation in the GIGABARE project by the ACF, the Ombudsman considers the Steering Committee membership fees charged by ABARE are exclusionary in their effect on organisations with limited resources, such as the ACF (para 3.50).
 - Further, in the Ombudsman opinion, because the membership of the Steering Committees has been limited in practice to those government and industry organisations who were able to pay the membership fee, it could create a reasonable public perception that the research projects were weighted in favour of the interests of Australian industry. It is the Ombudsman's view that ABARE should have taken more care in the establishment of its Steering Committees and the management of its

climate change modelling projects to avoid the risk of such a perception (para 3.51).

- The Ombudsman considers that ABARE's climate change modelling is best characterised as a public good and relates to important public policy. In the circumstances it is generally desirable that such activities be funded from consolidated revenue in the public interest. If external funding is sought, a range of protections are required including clear mechanisms for transparency of process and ensuring a balance of community views. Any Steering Committee or consultative process in this context should strive for a balance of interests and technical skills, rather than be a mechanism for fund raising. The Ombudsman concluded that nature of the public policy issues in the greenhouse gas emissions controls area means that it was inappropriate for ABARE to adopt this practice in relation to its climate change economic modelling (para 3.65).
- In the Ombudsman's view, as ABARE has now obtained significant private sector funding for the MEGABARE and GIGABARE projects, it is even more important for ABARE to ensure transparency of process in the administration and the structure of the projects (para 3.66).
- The Ombudsman believes that the distinction made by ABARE between model building and policy research does not reasonably remove ABARE's obligation to acknowledge in its research publications contributions by industry and other Commonwealth government agencies to the development of the MEGABARE model (para 4.23).
- In particular, given the significant role Australian industry and other Commonwealth government agencies played in supporting and funding the development of the MEGABARE model, the Ombudsman considers it is misleading for ABARE to have acknowledged only the joint authorship and financial contribution by DFAT in its major MEGABARE publication "*Global climate change*" (para 4.24).
- The evidence available to the Ombudsman is more supportive of Professor Dixon's statements about the nature of the review than ABARE's contention that it commissioned Professor Dixon to referee the publication (para 4.35).
- The Ombudsman has found that although recent Commonwealth Governments have set external funding targets for public sector agencies, limited guidance has been developed for such agencies to ensure transparency of process and obviate conflicts of interest in the management of external funds and/or sponsorship of projects (para 5.6).
- On the information provided to the Ombudsman by ABARE, the Ombudsman considers it does not have specific guidelines relating to transparency in the administration of external funds raising activities aimed at preventing conflicts of interest and/or a public perception of conflict of interest or undue influence by sponsors (para 5.17).
- The Ombudsman does not consider the guidelines referred to by ABARE deal effectively with the issues and principles stated in the policy documents of the agencies that have developed specific guidelines (para 5.18).

SUMMARY OF RECOMMENDATIONS

- 1. ABARE should publicly declare the Steering Committees for the MEGABARE and GIGABARE projects were primarily external fund raising mechanisms, and not intended to be representational/advisory committees for relevant interest groups in climate change economic research.**

ABARE responded that it has already stated this to be the case and has informed the Ombudsman that it is willing to do so again whenever appropriate.

The Ombudsman notes the steps ABARE has taken but believes ABARE needs to clarify these matters further in the public arena.

- 2 . ABARE should restructure any Steering Committee and/or consultative arrangements in relation to its climate change modelling to ensure that there is an appropriate balance of views and that all relevant stakeholders, such as the ACF, can participate in any new consultative mechanisms ABARE establishes.**

ABARE responded that it has decided to rename the current Steering Committee as the 'GIGABARE Sponsors Advisory Committee' to make the status and membership of the committee explicit.

The Ombudsman notes this step ABARE has taken but believes that while the new name is a more accurate reflection of the nature of the committee, it is only one of a number of steps ABARE needs to take to meet concerns in relation to ensuring a balance of interests in its climate change modelling work and protections against the reality, or perceptions, of undue influence in its policy research projects.

- 3. ABARE should ensure that all sources of external funding are disclosed in research publications based on its climate change models.**

ABARE responded that although it rejects the Ombudsman's views in relation to the distinction between 'model development' and 'policy research' it is prepared to examine ways acknowledge sponsors of model development in research reports in a way that does not suggest their sponsorship has any implications for the content of the reports, or that they have any responsibility for the results.

The Ombudsman considers this to be an appropriate approach by ABARE.

- 4. ABARE should acknowledge publicly it erroneously cited Professor Dixon and his staff from COPS as external referees of the "Global climate change" publication.**

ABARE has rejected this recommendation.

The Ombudsman remains of the view that ABARE should retract their citation of Professor Dixon and his staff as external reviewers and seek to clarify the position in future publications.

- 5. ABARE should develop a specific policy relating to the management of external funds it receives.**

ABARE has agreed to explore the possibility of implementing this recommendation but notes that it is a whole of government issue and not just related to ABARE.

The Ombudsman agrees with this response.

1. THE COMPLAINT

COMPLAINT

1.1. On 2 June 1997 the Ombudsman received a complaint from the Australian Conservation Foundation (ACF) regarding the external funding arrangements of the Australian Bureau of Agricultural and Resource Economics (ABARE) for their climate change research economic models. ABARE's economic models are MEGABARE, which was the initial model, and its successor is GIGABARE.

1.2. The ACF raised three main issues in their complaint. They were as follows:

1. That ABARE had not disclosed the source of research funding in key documents, public statements and where it was clearly appropriate to do so.
2. That ABARE has no appropriate guidelines and protocols for the use of private sector funds, and in particular where privately funded projects are used in providing advice to Government.
3. The MEGABARE and GIGABARE Steering Committees have not been accessible to organisations without significant financial resources. As a result ABARE's role in assisting and advising the development of Government policy could be reasonably perceived to be weighted in favour of business interests.

1.3. Prior to making the complaint to the Ombudsman the ACF wrote to ABARE during May 1997 seeking details of funding, sponsors, and membership requirements, and the role of the respective Steering Committees for the MEGABARE and GIGABARE projects. Having received information from ABARE on these matters the ACF expressed interest in joining the GIGABARE Steering Committee but sought a waiver of the \$50,000 membership fee.

1.4. In reply to the ACF's application for membership ABARE wrote to the ACF on 9 May 1997 stating it considered the ACF to be a suitable organisation for participation on the Steering Committee but rejected the ACF's request to waive the fee. No reasons were given by ABARE in the letter to the ACF for not waiving the fee.

1.5. On 5 June 1997 the Ombudsman informed the ACF that the Office would conduct preliminary enquiries into the complaint.

1.6. Having conducted preliminary enquiries, on 28 July 1997 the Ombudsman commenced a formal investigation under section 8(1) the *Ombudsman Act 1976*, of the ACF's complaint.

ACTUAL V PERCEIVED BIAS

1.7. Following a media release by the ACF in June 1997 concerning the Ombudsman's acceptance of their complaint, the Ombudsman received letters in support of the ACF's complaint from a range of experts concerned about ABARE's climate change modelling. Where correspondents raised issues relating to ABARE's administrative arrangements for its climate change

models relevant to the complaint by the ACF, the Ombudsman included these issues in the investigation.

1.8. However, much of the additional correspondence received by the Ombudsman canvassed limitations of the models which could not be taken up in the investigation. The Ombudsman did not seek to investigate the efficacy of the model. The construction of economic models by ABARE is largely technical rather than administrative in nature. As ABARE's modelling is based on econometric theory and practice, questions about the quality of its modelling work is logically the province of peer examination and criticism.

1.9. The Ombudsman's primary focus in her investigation was ABARE's administrative arrangements for funding the MEGABARE and GIGABARE models and whether they were satisfactory. The Ombudsman examined the transparency of these arrangements, the nature and role of the Steering Committee, and whether ABARE had taken reasonable steps to guard against the reality and/or perception that its climate change modelling may be weighted in favour of industry interests.

2. BACKGROUND

ABARE

2.1. ABARE is a public sector economic research agency located within the Department of Primary Industry and Energy. Formerly known as the Bureau of Agricultural Economics, the agency has a more than 50 year history of operation as an economics research agency conducting research on the economic performance of the agricultural, minerals, energy, forestry and fishing industries. Through its research ABARE provides advice and information to decision makers in both the public and private sectors¹.

2.2. External funding has been a part of ABARE's funding over a long period of time and contributed almost 20% to ABARE's budget by 1992-93². However, in 1993 the Government formalised arrangements for external funding targets for a number of public sector research agencies such as the CSIRO, the Australian Geological Survey Organisation (AGSO), and the Australian Institute of Marine Science (AIMS). At this time ABARE was set a target of raising 30% of its funding by the 1995-96 budget. The target for ABARE has now risen to 40% for its current budget.

2.3. In association with other government agencies, ABARE had already undertaken research into climate change policies prior to Australia becoming a signatory to the United Nations Framework Convention on Climate Change at the Rio de Janeiro Conference of Parties in 1992. Subsequent to the Rio Conference, and because Australia is relatively dependent on fossil fuel production for energy and exports, ABARE decided to construct a general equilibrium economic model to enable it to analyse and quantify the economic effects of greenhouse emission reduction policies.

2.4. ABARE has informed the Ombudsman that the Executive Director of ABARE, Dr Brian Fisher, independently made the decision to undertake the climate change economic modelling. The work was not undertaken as the result of a Ministerial commission (ABARE's decisionmaking process is outlined in greater detail in paras 2.19 -2.21).

HISTORY OF MEGABARE/GIGABARE MODELS

2.5. In March 1993 ABARE commenced work on what became known as the MEGABARE model. ABARE's files show that there was consultation with the then Industry Commission (IC), the Department of Foreign Affairs and Trade (DFAT) and Australian industry, amongst others, in the development of the project.

2.6. It is clear from the ABARE's files and research proposals that it gave a high priority to attracting industry participation and funding to the project.

¹ ABARE Research Report 94.2: Government Research Agencies, A case study of the role for government in undertaking economic research, March 1994, p. 45.

² Ibid: p. 52.

The file material indicates that Australian industry was involved in the development of MEGABARE from a very early stage. In the early research proposals ABARE stated its aim to obtain 50% of the funding for the project from Australian industry.

2.7. The Ombudsman notes that ABARE's files during 1993 contain correspondence with a private consultant from ACIL Economics. The consultant appears to have provided technical advice on the research proposal and coordinated involvement with the Business Council of Australia (BCA) in raising funds from Australian industry.

2.8. The consultant also appears to have had some input into the structure of the Steering Committee. For example, in a facsimile to ABARE on 4 November 1993 he discusses the need for an independent expert modeller to be included on the Steering Committee and raises issues such as the extent to which "membership/influence" will be connected to the size of sponsorship, ownership rights and promotion of the model.

2.9. Between March 1993 and November 1993 ABARE examined a range of economic models and developed a series of research proposals before basing their model construction on the GTAP model. The research proposals show ABARE's intentions to raise external funding and to offer sponsors a place on a steering committee for the project. ABARE then constructed the model and, on its completion, ran simulations on the economic effects of greenhouse gas emission reduction policies. The results from the MEGABARE model were published in November 1995 in the "*Global Climate Change*" report.

2.10. The GIGABARE model is the successor to MEGABARE. ABARE has added a range of additional features to MEGABARE designed to enhance the analytical power of the new model. GIGABARE was first mentioned in the 3rd MEGABARE Steering Committee meeting in September 1994. The project was again mooted in ABARE's 1996 submission for the 1997 Prime Minister's Awards for Innovations in the Public Sector but it was not until November 1996 that ABARE produced its first research proposal for the model.

2.11. As with the MEGABARE model, ABARE sought external funding for GIGABARE on the basis that sponsors would form a Steering Committee, on terms described in the November 1996 research proposal. The first major publication of GIGABARE's results occurred in June 1997 in a report titled "*The Economic Impact of International Climate Change Policies*".

EXTERNAL FUNDING

2.12. With both the MEGABARE and GIGABARE projects ABARE sought external funding to supplement its resources for the projects. As ABARE stated in its conference paper for the Government Policy Conference in August 1997;

"because of the very tight policy time frame, ABARE decided to seek top-up external funding for the project to increase its resourcing beyond the constraints of its own budget and, thereby, to reduce the time taken to construct the model".

2.13. For the MEGABARE model ABARE initially sought to obtain 50% of the cost of the project from other government agencies and industry. This

target was later amended to a third share of costs each between ABARE, other government agencies, and industry.

2.14. Details of the external funding raised by ABARE for both models are provided at Attachment A. In summary, ABARE estimated the MEGABARE model would cost nearly \$650,000 and raised \$287,000 from other government agencies and industry for the project. This represents around 44% of the project costs and fell short of the contributions ABARE hoped to raise. Industry sponsorship amounted to \$160,000 or about 25% of the project funding.

2.15. In relation to the GIGABARE model, ABARE estimated the budget for the project at \$2 million. In a more formalised process than with the MEGABARE project, ABARE set a fee of \$50,000 p.a. (effectively \$100,000 for the 2 years of the project) for sponsors to secure membership of the Steering Committee, and instituted formal agreements with sponsors. As with MEGABARE, ABARE proposed to fund the GIGABARE model on a third share each of costs between ABARE, other government agencies, and industry.

2.16. On the figures provided by ABARE for 1996-97, contributions by other government and industry (both national and international) totalled \$500,000, or half the costs of the GIGABARE project. Industry contributions have amounted to \$450,000 or 45% of the 1996-97 budget. The GIGABARE research proposal makes it clear that the full consortium membership fee is \$100,000 for the 2 years of the project. Unless ABARE attracts additional sponsors for GIGABARE, the funding should be similar for 1997-98.

CONCLUSIONS

2.17. **The Ombudsman considers that ABARE's files and public documents show, and ABARE has confirmed that;**

- **the financial targets and the need to raise money for its climate change modelling was its primary consideration in its contacts with industry and other Commonwealth government agencies; and**
- **the early development of the Steering Committee included an early and close involvement with representatives of industry.**

2.18. **The Ombudsman does not consider ABARE acted improperly by seeking industry involvement in the project and, it is clear from the file material that ABARE was also concerned to obtain sponsorship from other Commonwealth government agencies. Similarly, the Ombudsman does not seek to question the professional integrity of ABARE's economic modelling. However, in the Ombudsman's opinion, ABARE did not fulfil the conditions which should be expected for a public sector steering committee (see paras 3.32 - 3.34).**

DECISION MAKING PROCESS

2.19. In a meeting with the Ombudsman on 27 November 1997 ABARE's Executive Director, Dr Fisher provided general information about the way ABARE selects its research projects. Dr Fisher indicated that as Executive Director it is his role to authorise all research proposals. Dr Fisher informed the Ombudsman that although ABARE has no formal set of rules for selecting projects, the general principles applied are; the research must in

general be capable of being published; it must be related to the commodities sectors; and it must be in keeping with the overall strategic plan for the Department of Primary Industry and Energy (DPIE).

2.20. ABARE identifies areas for research from its participation in informal meetings with clients and stakeholders, and through significant forums such as the annual "Outlook" Conference. ABARE also uses questionnaires to stakeholders to develop priorities for research. Additionally, ABARE may be commissioned by the Minister to undertake research.

2.21. Dr Fisher informed the Ombudsman that ABARE has an established history of raising revenue for research projects. By way of example, Dr Fisher stated that ABARE has obtained research grants through Rural Research Councils for a range of primary industry areas.

ACCOUNTING ARRANGEMENTS

2.22. ABARE has told the Ombudsman it has an agreement under s35 of the Audit Act 1901 with the Department of Finance and Administration (DOFA) for receipt of external funds. This agreement was initially signed in 1989-90. The effect of the agreement is that external funds received by ABARE are paid into consolidated revenue and reappropriated by DOFA to ABARE.

2.23. ABARE's Executive Director, Dr Fisher, told the Ombudsman that this reappropriation is a consolidated total which includes all the external funds received for projects where such funds are sought. As such, it is not possible for ABARE to match the reappropriated funds with the source of the funds at the project level or certainly the level of the individual sponsor. Therefore, ABARE cannot demonstrate how discreet funds obtained from external sources have been expended. This means that although ABARE might state only funds from a particular sponsor were used for a research publication, it could not be demonstrated from an examination of ABARE's accounts.

CONCLUSION

2.24. **The Ombudsman considers that because it is unable to differentiate between the sources of external funds in its appropriations ABARE could not demonstrate through its accounting procedures how those funds raised through the MEGABARE Steering Committee were used in the project. That is, the funds were part of a consolidated amount that ABARE used for funding its climate change research publications, as well as its climate change modelling.**

3. THE STEERING COMMITTEE

BACKGROUND

3.1. In correspondence with ABARE on 7 May 1997 the ACF applied for membership of the GIGABARE Steering Committee. The Executive Director of ABARE, Dr Fisher, replied to the ACF on 9 May 1997, expressing the view that their *“experience and expertise on this issue would make a valuable contribution to the model development program.”* Despite confirming the ACF’s suitability for membership Dr Fisher further stated *“Unfortunately, I am unable to waive the full membership fee”*.

3.2. However, Dr Fisher provided no reasons in his letter to the ACF for his inability to waive the fee. This issue is explored further in the **Access to the Steering Committee** section of this report (paras 3.38 - 3.48). In the absence of an explanation from ABARE, the ACF has claimed in its complaint that membership of the MEGABARE and GIGABARE Steering Committees was only open to those organisations with the financial capacity to afford the membership fee. By implication, the substantial nature of the fees represents an effective barrier to participation on the Steering Committees by environmental groups like the ACF, with only industry and other government agencies being able to afford to participate.

3.3. The ACF claims that ABARE's fees for Steering Committee membership have had the effect of narrowing the base for representation on the Steering Committees, thereby creating the perception that ABARE's research work can reasonably be perceived to be *“bias[ed] in favour of those participating.”*

3.4. The Ombudsman has examined the issues raised by the ACF in this section in relation to the structure and role of the Steering Committees, and the purpose served by the Committees for ABARE.

THE ROLE OF THE STEERING COMMITTEE

3.5. The research proposals for MEGABARE and GIGABARE prescribed membership and the role of the Steering Committees. In the case of MEGABARE, ABARE’s November 1993 research proposal states that:

“Project sponsors would be invited to participate in a Steering Committee to oversight the model’s development, to advise ABARE on project management matters as appropriate and to make certain decisions relating to the project which affect the interests of the sponsors (eg as to policy on fees for access etc)”

3.6. The research proposals for MEGABARE and GIGABARE, and letters of agreement sent by ABARE to prospective members of the steering committees do not reflect a distinction, drawn by ABARE, between ‘model development’ and ‘policy research’ (the distinction between model development and policy research is examined below in paras 4.5 - 4.10). This is evident in the MEGABARE November 1993 research proposal, which states in its **Steering Committee** section that Steering Committee members would *“oversight the model’s development”* and *“advise on project management matters”*.

3.7. The MEGABARE research proposal does not refer to policy research in relation to the role of the Steering Committee. In the absence of such a

reference the Ombudsman considers members of the Steering Committee would be entitled to assume their financial and technical support also contributed to the MEGABARE research policy projects.

3.8. The November 1996 GIGABARE research project proposal specifically lists ABARE's research applications and states that the Steering Committee "will provide a sounding board on policy, research and strategic issues". Although there is no mention in the research proposal of policy research as a specific activity, the list of the output from Stage I and II of the project appears to show the policy research ABARE intended to undertake. The GIGABARE policy research projects were therefore known to Steering Committee members, with the implication they had an advisory role in relation to the projects. As ABARE stated in its letter of 22 August 1997 to the Ombudsman:

"The separation of the model development and policy research functions does not mean that ABARE has not sought Committee views on the policy content of, and simulation results from the model development or on the research publications that ABARE has produced with the model."

3.9. In its letter of 20 November 1997 and the subsequent 27 November 1997 meeting with the Ombudsman, ABARE acknowledged that the wording of the research proposals defining the role of the Steering Committees for both projects may have conveyed an incorrect impression about the role of Steering Committee members in relation to policy research projects.

3.10. No specific membership fee is listed in the research proposal, although a general statement on cost sharing details ABARE's aim to obtain approximately \$215,000 from other government agencies and industry as a third share of project funding.

3.11. The first MEGABARE Steering Committee meeting was held on 2 March 1994, with 4 further Steering Committee meetings being held until 15 September 1995. ABARE has provided the Ombudsman with copies of the Minutes of the meetings, which although brief, deal largely with technical matters in model development.

3.12. With the establishment of the GIGABARE project, ABARE initiated more formal processes for membership of the Steering Committee and a new structure for the Committee. Sponsors signed formal letters of agreement for membership of the Committee, with the terms and conditions of the agreement being based on the November 1996 GIGABARE research proposal.

3.13. In December 1996 ABARE introduced changes to the previous MEGABARE Steering Committee by including an independent Chair of the Committee, Professor Stuart Harris (Australian National University), and an independent adviser, Professor Alan Powell (Monash University) to the GIGABARE Steering Committee (see also para 3.53 - 3.55).

3.14. In the November 1996 GIGABARE research proposal ABARE states that the project management structure will be guided by the Steering Committee who will provide:

- *"a sounding board on policy, research and strategic issues; and*
- *an information source on key industry issues."*

In its response to the Ombudsman's draft report, ABARE stated that the use of the word "guided" in the research proposal implies an advisory role in relation to the project. However the Ombudsman notes the research proposal

in fact states that the Steering Committee will guide ABARE management structure rather than the project itself. This appears to imply an influential role for the Steering Committee in relation to the management structure and in the Ombudsman's opinion, underlines the ambiguity in the wording of the research proposal.

3.15. The research proposal states that ABARE also refers to the Steering Committee membership in the research proposal, stating that membership *“will be available to all relevant organisations (eg government departments and NGOs, national and international industry associations and companies) that have contributed the membership fee.”*

3.16. Sponsors who have already chosen to contribute to ABARE's climate change modelling have an established interest in the project. The Ombudsman considers sponsors from industry would have made their financial contributions to the models because they identified the need for a detailed analysis of the costs to industry of greenhouse emission reduction policies. Further, sponsors have contributed funds to ensure that ABARE's climate change models could developed more rapidly, and the results could inform Government policy leading up to the December 1997 Conference of Parties in Kyoto to establish a binding treaty on greenhouse gas emission reductions.

3.17. The Ombudsman notes that ABARE has taken steps in relation to the GIGABARE project to ensure both the reality and the appearance of independence in its climate change modelling work. These steps are described in detail in the section **Recent Changes to Structure**, paras 3.53 - 3.55 .

CONCLUSION

3.18. **The role of the Steering Committee was ambiguously stated in the research proposals for MEGABARE and GIGABARE. For example, the GIGABARE Research project proposal encouraged funding on the basis that membership would “provide a sounding board on policy, research and strategic issues”. The Ombudsman considers it could be inferred that this description could create an expectation of membership influence in ABARE's climate change modelling (see paras 3.5 - 3.17).**

3.19. In its response to the Ombudsman's draft report ABARE disagreed with this conclusion. ABARE stated in part that the Ombudsman had failed *“to demonstrate how the wording of the quoted phrase could be expected to lead to **undue** influence (which appears to be the intended meaning - given that **all** information constitutes an influence) on ABARE's modelling”.*

This is the particular point the Ombudsman has made, that is, that members would choose to join the Steering Committee on the basis that they would have influence. The Ombudsman considers this is a primary reason for ensuring that steering committees have a balanced representation of interests in their membership.

INVITATIONS TO THE STEERING COMMITTEE

3.20. Both the MEGABARE and GIGABARE Steering Committees have been comprised of ABARE, other government agencies, and industry representatives. No environmental nongovernment organisations have

participated on the Steering Committees. A full list of the Steering Committee membership for both projects is provided at Attachment A.

3.21. In its letter of 20 November 1997 to the Ombudsman, ABARE drew attention to the November 1996 GIGABARE research proposal which listed “NGOS” as relevant organisations for membership of the Steering Committee. ABARE indicated this included environmental nongovernment organisations and stated that such organisations were informally approached about membership, without success.

3.22. At the meeting on 27 November 1997 with the Ombudsman, Dr Fisher indicated that ABARE had generally approached environmental nongovernment organisations who were likely to be able to afford the membership fees. The Ombudsman asked for details of these informal contacts with environmental nongovernment organisations.

3.23. ABARE replied by letter on 16 December 1997 that its officers had conducted informal discussions with Greenpeace International, the US based Environment Defence Fund, the WWF and the ACF. With the likely exception of the ACF, ABARE appears to have considered these organisations to have the financial resources for the Steering Committee membership fees.

3.24. Other than the correspondence between ABARE and the ACF in May 1997, the Ombudsman has sighted only two specific documents on ABARE's files that provide evidence of contact between ABARE and individuals from the environmental perspective or representatives from environmental nongovernment organisations. They are;

- A facsimile from Dr Clive Hamilton from the Australia Institute to ABARE dated 4 July 1994 enclosing his draft report on MEGABARE.
- A file note dated 12 August 1994 by an officer of ABARE describing an informal briefing on MEGABARE to a representative from Greenpeace;

3.25. ABARE told the Ombudsman during the meeting on 27 November 1997 that the informal discussions between ABARE officers and environmental nongovernment organisation representatives were generally not documented.

3.26. As mentioned previously, in its letter of 20 November 1997 ABARE told the Ombudsman it unsuccessfully made informal approaches to environmental nongovernment organisations to “test their interest” in participating directly in the MEGABARE/GIGABARE projects. ABARE stated that

“In general these groups have not demonstrated sufficient interest in the modelling issues in our view to justify proceeding to invitations to participate in the funding of the model (emphasis given).”

3.27. Other than the file material noted above, the Ombudsman found no evidence on ABARE's files of these approaches to environmental nongovernment organisations. Certainly, while ABARE proceeded to issue written invitations in early November 1996 to industry and other government agencies to take up membership of the GIGABARE Steering Committee, no such invitation was made to environmental nongovernment organisations.

3.28. The only formal invitation by ABARE to an environmental nongovernment organisation was that made to the ACF on 9 May 1997.

Further, it should be noted that the invitation arose after the ACF initiated

contact with ABARE to seek information about funding and structure of the MEGABARE and GIGABARE projects.

3.29. The Ombudsman notes also that the Department of Environment Sports and Territories (DEST) wrote to ABARE on 19 November 1996 raising a concern that organisations such as the ACF “would be prevented by the funding requirements from joining the consortium” yet it appears that the ACF’s inability to meet the Steering Committee membership fee was the only reason ABARE refused the ACF a place on the Steering Committee (see also paras 3.42 - 3.45).

3.30. The Ombudsman notes that DEST is the only member of the Steering Committees that could be said to represent an environmental perspective on the Committees. In its letter of 22 August 1997 to the Ombudsman, ABARE stated that because environmental nongovernment organisations had not taken up its informal invitations to join the Steering Committees ABARE had taken the membership of DEST, and in its more recent portfolio organisation Environment Australia, as representing the environmental group of interests. Subsequently, in its letter of 28 January 1998 to the Ombudsman, ABARE stated that DEST’s membership was “*taken as a second best representation of the environmental group of interests*”.

CONCLUSIONS

3.31. The Ombudsman considers that;

- the MEGABARE and GIGABARE committees were constituted by ABARE primarily as a means of raising additional revenue for these projects (see also para 2.17);
- this appears to largely explain ABARE's limited efforts to involve environmental nongovernment organisations in its committees; and
- the Ombudsman disagrees with ABARE that DEST can be said to adequately represent the views of the environmental groups in the community. While the Ombudsman accepts that DEST has portfolio responsibilities and conducts research in relation to the environment, in the Ombudsman's view DEST could no more be considered a satisfactory representative for environmental groups than say the Department of Industry Science and Tourism could be considered to represent industry.

NATURE OF THE STEERING COMMITTEE

3.32. From the information on ABARE's files and discussions held between the Ombudsman and ABARE, the Ombudsman questions whether the committees convened by ABARE for the MEGABARE and GIGABARE models should be termed ‘Steering Committees’. There are certain attributes normally associated with Steering Committees within the Australian Public Service with which the ABARE committees could be expected to conform. These include;

- the establishment of terms of reference for the Steering Committee;
- ensuring that all relevant stakeholders views and/or expertise are represented through the membership of the committee, to provide a balance of views;

- information is regularly disseminated from the committee to the relevant stakeholders; and
- the committee having significant control over all aspects of its project area.

Additionally, in the context of public policy projects, it would be highly unusual for fees to be charged as a pre-condition for membership on a Steering Committee.

3.33. In a meeting with the Ombudsman on 27 November 1997 ABARE agreed that the main purpose of the committees was to raise revenue rather than to serve the usual functions of Steering Committees. ABARE conceded that as fund raising was the primary objective of the committees it was less concerned with membership of the committees on the basis of technical expertise or to obtain a balance of views. It accepted that a more accurate terminology would have been something like "Sponsor Committee".

3.34. ABARE stated that given the funding prerequisite for the MEGABARE and GIGABARE projects, ABARE sought sponsorship from those organisations most able and willing to contribute substantial funds to the projects. ABARE also informed the Ombudsman it had not anticipated the problems that could arise with the funding structure it established. Dr Fisher stated that ABARE would not have used this mechanism if it had known "the misunderstandings" and the "political use" that would be made of the funding arrangements. ABARE informed the Ombudsman that the GIGABARE Steering Committee will cease after July 1998 and acknowledged that such an approach to its research projects needs to be more carefully considered in the future.

CONCLUSIONS

3.35. **In the Ombudsman's opinion the MEGABARE and GIGABARE committees do not adequately conform to the characteristics of an appropriate APS Steering Committee and it is misleading for ABARE to use this description. The Ombudsman considers it was not appropriate for ABARE to have used the term 'Steering Committee' to describe its MEGABARE and GIGABARE committees.**

3.36. **The Ombudsman believes that;**

- **ABARE's intentions for the MEGABARE and GIGABARE committees would have been more appropriately characterised at the outset as 'sponsors committees for funding representatives'.**
- **However, the use of the term 'Steering Committee', and the associated explanation as to its role, allowed an ambiguity and a possible creation of an expectation of membership influence on issues affecting public policy.**
- **The greenhouse gas emission reduction strategies are an important matter of public policy and any steering committee or consultative process should include a balance of community interests.**

RECOMMENDATION

3.37. **The Ombudsman considers that ABARE should publicly declare the Steering Committees for the MEGABARE and GIGABARE projects were primarily external fund raising mechanisms, and not intended to be**

representational/advisory committees for relevant interest groups in climate change economic research (see also chapter on Guidelines and Protocols for the Use of Private Sector Funds regarding principles for avoiding conflicts of interest or perceptions of undue influence).

ACCESS TO THE STEERING COMMITTEE

3.38. The ACF has argued that ABARE's fees of \$50,000 p.a. for its Steering Committees have an exclusionary effect on potential participants with limited financial resources. The Ombudsman agrees that these fees are substantial and not within the reach of all relevant interest groups, such as environmental nongovernment organisations. An important issue is whether ABARE gave consideration to the effect of the fees on such groups or was concerned to make provision for their inclusion.

3.39. From the files provided to the Ombudsman, it is clear that ABARE was informed of both the likely interest of environmental nongovernment organisations in its climate change modelling, and of their inability to afford the membership fees. As noted, correspondence on ABARE's files indicates that DEST advocated the need to involve environmental nongovernment organisations in the MEGABARE project as early as January 1994. In a letter to ABARE on 6 January 1994, DEST specifically highlighted the need for ABARE to brief "conservation nongovernment organisations" on the proposed MEGABARE model.

3.40. In a later letter to ABARE on 19 November 1996, DEST drew ABARE's attention to public criticisms of the MEGABARE model that MEGABARE was a "captive of industry". DEST also strongly recommended that environmental nongovernment organisations should be contributors to the GIGABARE project and clearly stated that such organisations would not have the funds to pay the Steering Committee membership fees.

3.41. The ABARE files show that ABARE presented information about MEGABARE in workshops arranged by DEST. However, they contain no evidence that ABARE acted on DEST's recommendations to directly involve environmental nongovernment organisations in the GIGABARE project.

3.42. As mentioned previously, ABARE gave no reason to the ACF for rejecting their application for fees to be waived. The Ombudsman considers this to be poor administrative practice and believes that ABARE should have informed the ACF at that time of the reasons for refusing the ACF's application. ABARE has subsequently provided the Ombudsman with its reasons for not allowing ABARE to participate on the GIGABARE Steering Committee on a nonfinancial basis.

3.43. In its letter of 22 August 1997 to the Ombudsman, ABARE stated that the ACF's inclusion on the Steering Committee without payment of the membership fee could have encouraged "free rider behaviour" and would have "prejudiced the effective and efficient operation of the Committee. ABARE expanded on these reasons in a subsequent letter on 20 November 1997 to the Ombudsman stating it was concerned that if it allowed free entry to one organisation

“it would have been extremely difficult to resist the same arrangement for other new non-fee paying applicants.”

3.44. ABARE also stated their concern that some existing members would use the precedent to avoid paying the annual fee for the second year of the project.

3.45. The Ombudsman is not convinced that ABARE would be inundated with requests from organisations for nonfinancial membership of the Steering Committee, if the committee had a more usual purpose. In developing a Steering Committee, the size of membership, the balance of stakeholders, and the criteria for membership should have been considered and documented up front (see also paras 3.35 - 3.36 above). This is, in the Ombudsman's experience, a fairly common practice with other government agencies.

3.46. As noted earlier, in response to the Ombudsman's questions about ABARE's efforts to involve environmental nongovernment organisations in its climate change modelling, ABARE stated that although it had made informal contact with a number of these organisations the level of their interest was such that ABARE decided there was no reason to proceed with formal invitations. Further, on the evidence available to the Ombudsman, the ACF appears to be the only environmental nongovernment organisation to have independently approached ABARE for Steering Committee membership.

3.47. ABARE has explained that this was because the objective of the project was primarily to raise funding and that informal contact with environmental nongovernment organisations had revealed that it was unlikely that any such organisations would attach sufficient priority to the enterprise to justify paying the membership fee. ABARE also states it conducted frequent exchanges of information and opinion with representatives of environmental nongovernment organisations in other forums and was always ready to have detailed discussions when directly approached by them. This may be so but as noted previously in paras 3.22 - 3.27, these discussions were not documented by ABARE officers.

3.48. The Ombudsman also believes ABARE was not restricted to simply applying the same membership structure to the ACF's application and could have developed other options for involving the ACF on a nonfinancial basis in the Steering Committee. For example, ABARE could have created a special 'consultative' position for the ACF on the Committee to ensure a wider and balanced range of the views were represented.

CONCLUSIONS

3.49. As noted earlier, from the Ombudsman's examination of ABARE's files, there is limited evidence prior to the correspondence with the ACF that ABARE attempted to invite environmental nongovernment organisations to participate in the MEGABARE or GIGABARE Steering Committees, financially or otherwise. The correspondence between ABARE and the ACF shows that ABARE made its invitation to the ACF to join the GIGABARE Steering Committee in response to an enquiry by the ACF into the funding and structure of the Steering Committee.

3.50. Because ABARE not only used Steering Committee membership fees to raise external funding (where the fees are very substantial) but also as a basis for rejecting participation in the GIGABARE project by the ACF, the Ombudsman considers the Steering Committee membership fees

charged by ABARE are exclusionary in their effect on organisations with limited resources, such as the ACF.

3.51. Further, in the Ombudsman's opinion, because the membership of the Steering Committees has been limited in practice to those government and industry organisations who were able to pay the membership fee, it could create a reasonable public perception that the research projects were weighted in favour of the interests of Australian industry. It is the Ombudsman's view that ABARE should have taken more care in the establishment of its Steering Committees and the management of its climate change modelling projects to avoid the risk of such a perception.

RECOMMENDATION

3.52. The Ombudsman considers that ABARE should restructure any Steering Committee and/or other consultative arrangements in relation to its climate change modelling to ensure that there is an appropriate balance of views and that all relevant stakeholders, such as the ACF, can participate in any new consultative mechanisms ABARE establishes.

RECENT CHANGES TO STRUCTURE

3.53. In November 1996 ABARE introduced a number of changes to the new GIGABARE Steering Committee structure, to reinforce its rigour and transparency. As mentioned earlier in para 3.13 ABARE appointed an independent chair and technical expert to the Steering Committee. The Ombudsman agrees this is an important step in improving the transparency of the process.

3.54. Additionally, ABARE has instituted other strategies to increase public knowledge of its climate change modelling work. These include placing relevant publications and the minutes of the GIGABARE Steering Committee on ABARE's internet web site. A list of ABARE publications on MEGABARE is provided at Attachment C. ABARE also informed the Ombudsman in its letter of 22 August 1997 that it intended to convene workshops to brief interested stakeholders, including environmental nongovernment organisations, on its climate change economic models. As yet ABARE has not conducted such a workshop and in recent discussions with the Ombudsman ABARE has indicated it intends rather to brief individual organisations who are stakeholders in the area.

3.55. The Ombudsman notes ABARE's increased emphasis on the public reporting of its climate change economic modelling and believes ABARE should continue its efforts to increase public awareness and knowledge of the MEGABARE and GIGABARE models.

TECHNICAL DOCUMENTATION

3.56. From the Ombudsman's examination of ABARE's files and discussions with ABARE it is clear that one of the important tasks yet to be completed by ABARE is the technical documentation of its climate change models. ABARE needs to develop this form of documentation so that its

models are effectively in the public domain and can be subject to comprehensive peer review and verification.

3.57. The independent technical adviser to the GIGABARE Steering Committee, Professor Alan Powell raised the issue of technical documentation directly with ABARE and was critical of its progress in the area. Professor Powell resigned from the GIGABARE Steering Committee on 16 July 1997.

3.58. In his letter of resignation, Professor Powell raised concerns directly relevant to the ACF complaint. He gave two reasons of principle for his resignation. They were;

- he was concerned at lack of progress on the technical documentation of the GIGABARE model; and
- there was a “growing perception that the model is to be treated as a proprietary product (rather than as a public good).”

The Ombudsman notes the view expressed by Professor Powell in his letter that private sector sponsorship poses major risks for the “integrity and efficacy” of the modelling work, and that the problem is more severe where “a government seeks to use results from a semi-secret, proprietary model, as the basis for justifying its policy position”.

3.59. ABARE provided copies of correspondence to the Ombudsman which show it has subsequently commenced negotiations with Professor Powell to engage him on a full time basis in developing the documentation for GIGABARE. ABARE also proposed Professor Powell would assume a more substantial role as independent adviser to the GIGABARE Steering Committee.

3.60. The Ombudsman raised the issue of technical documentation with ABARE in our letter of 8 October 1997. ABARE responded in its letter of 20 November 1997, stating that;

“Professor Powell sets research standards that are extremely difficult to meet in today’s public funding environment - including by his own institution. ABARE believes that it comes much closer to meeting these standards than most if not all of the other organisations contributing to climate change policy research in Australia.”

3.61. The Ombudsman is aware that Professor Powell was a principal in the development of the ORANI economic model and was instrumental in making it a fully documented public domain model. According to econometricians the Ombudsman has contacted, the ORANI model continues to represent ‘best practice’ in economic modelling but the standard is difficult to attain, particularly because public sector economic modellers are under pressure to produce results from their models for policy advice before technical documentation can be completed.

3.62. The Ombudsman notes that in his subsequent letter to ABARE on 18 August 1997, Professor Powell discounts the likelihood that there has been unreasonable influence by sponsors on the published outcome of the research but he highlights the issue as being “one of public perceptions” of influence which needs to be addressed.

RESEARCH AS A PUBLIC GOOD

3.63. A major issue also raised by Professor Powell in his letter of resignation to ABARE is the question of ABARE's climate change economic models as a public good. Because ABARE's climate change economic modelling has such significant national (and international) ramifications, affects the interests of a diverse range of groups within the community, and is intended to inform government policy on greenhouse gas emission controls, ABARE's climate change modelling should be treated as a public good.

3.64. It is also arguable that funding for ABARE's modelling should have come exclusively from government to avoid any suggestion that policy development was subject to influence from private vested interests.

CONCLUSIONS

3.65. The Ombudsman considers that ABARE's climate change modelling is best characterised as a public good and relates to important public policy. In the circumstances it is generally desirable that such activities be funded from consolidated revenue in the public interest. If external funding is sought, a range of protections are required including clear mechanisms for transparency of process and ensuring a balance of community views.

Any Steering Committee or consultative process in this context should strive for a balance of interests and technical skills, rather than be a mechanism for fund raising. ABARE's practice in using Steering Committees as fund raising mechanisms was discussed previously in paragraphs 3.32 - 3.34. The Ombudsman concluded that nature of the public policy issues in the greenhouse gas emissions controls area means that it was inappropriate for ABARE to adopt this practice in relation to its climate change economic modelling.

3.66. In the Ombudsman's view, as ABARE has now obtained significant private sector funding for the MEGABARE and GIGABARE projects it is even more important for ABARE to ensure transparency of process in the administration and the structure of the projects.

4. OTHER DISCLOSURE AND TRANSPARENCY ISSUES

Background

4.1. In its complaint to the Ombudsman the ACF claimed that ABARE had not acknowledged external funding from industry for the MEGABARE and GIGABARE projects. In particular the ACF referred to ABARE's major research publication "*Global Climate Change*" whose results are derived from the MEGABARE model.

4.2. The publication is described by ABARE as the report of a joint study between DFAT and ABARE to "examine the economic implications of measures to limit energy related carbon dioxide emissions." In the "Acknowledgments" to the report ABARE refers to "Feedback from industry and conservation non-government organisations". ABARE makes no mention of external funding for the MEGABARE model from either industry or other government agencies.

4.3. The ACF argued that by failing to disclose external funding for MEGABARE in this publication, particularly from industry, a misleading impression that the MEGABARE project was wholly government funded is created. The ACF also referred to a media statement by DFAT on 8 August 1995 as having compounded this impression by stating:

"The study has been assisted by this consultative process but there has been no financial contributions made to the work apart from those by DFAT and ABARE."

4.4. While it is arguable that the "*Global Climate Change*" publication arose from a discrete project on the part of ABARE and DFAT, the research results are derived from simulations run on the MEGABARE model. The Ombudsman has therefore considered whether the external funding of MEGABARE should have been disclosed in the policy research publication to ensure transparency.

MODEL DEVELOPMENT V POLICY RESEARCH

4.5. In a letter to the Ombudsman on 22 August 1997, and in a further response on 20 November 1997, ABARE drew the distinction between "specific economic policy research" and "development and documentation of the model" to justify the absence of acknowledgment of external funding from industry and other government in the "*Global Climate Change*" publication. ABARE argues that the publication resulted from a separate policy research project it conducted in conjunction with DFAT, whose contribution it acknowledged.

4.6. The fundamental reason given by ABARE for making this distinction is that it confines the area for input from Steering Committee members to model construction, thereby sectioning off the policy research ABARE conducts from the Steering Committee. In the Ombudsman's view, this is necessary because ABARE has limited means for demonstrating transparency of process in relation to the role of the Steering Committee. As a result, ABARE has to emphasise the distinction it makes between 'model development' and 'policy research' as one of the primary barriers preventing external influence in its climate change policy research work.

4.7. The Ombudsman understands the difference between model building and subsequent research based on results derived from the use of the model. However, these two processes are logically viewed as component stages in an overall research process. For the following reasons the Ombudsman does not accept that ABARE can reasonably distinguish between the contribution of sponsors to the MEGABARE/GIGABARE models and sponsorship of subsequent research publications.

4.8. The production of policy research is clearly dependent on the development of the model as an effective instrument for conducting the research analysis. The values and assumptions built into MEGABARE during its construction will obviously affect the results obtained from the model and used in policy research.

4.9. ABARE has provided a description of the model in Appendix A to “*Global Climate Change*” and lists some of the key assumptions of MEGABARE. An example of one of the assumptions is

*“there is a preference for investing savings in the country of origin. Only if there is a surplus of savings once domestic capital requirements have been satisfied will a country consider investing abroad”.*³

By way of illustration, a list of some of the major features and assumptions of the model is provided at Attachment B.

4.10. These broad assumptions are expressed in complex equations which model their effects, and are intrinsic to the results obtained from the MEGABARE model used in policy research projects. On this basis the MEGABARE model development is clearly fundamental to the “*Global Climate Change*” policy research project.

4.11. ABARE has provided the Ombudsman with a list of its publications since 1994 based on the MEGABARE model, and informed the Ombudsman of the range of conferences and forums at which ABARE has presented its climate change modelling work. These include the Energy Modelling Forum, the Intergovernmental Panel on Climate Change, and the AIC Government Policy Conference in August 1997.

4.12. The Ombudsman accepts that the MEGABARE model is one of the more widely reported climate change economic models in the international arena and that its research results have been subject to public review through its “*Global Climate Change*” publication. This contrasts with some overseas models that are proprietary products, whose research cannot be independently evaluated. However, as discussed earlier (paras 3.56 - 3.62), ABARE has not completed its technical documentation for the models which means the MEGABARE and GIGABARE models also are not yet fully accessible for peer evaluation.

³ ABARE; **Global Climate Change: economic dimensions of a cooperative international policy response beyond 2000**, Commonwealth of Australia, 1995, Appendix A, p. 149.

PUBLIC DISCLOSURE OF EXTERNAL FUNDING BY ABARE

4.13. As ABARE has not acknowledged sponsors for the MEGABARE model in its major policy research publications, the Ombudsman sought details from ABARE on the mechanisms it had used to publicly disclose external funding of the model, and of the GIGABARE model.

4.14. ABARE replied that it had publicly acknowledged the external funding in a conference paper⁴ given at a Government Policy Conference on 4-5 August 1997 and that it is presently preparing a publication on the full documentation of the MEGABARE model which will acknowledge the contributions of all sponsors.

4.15. ABARE also referred to the role of industry and other government agencies in its submission to the 1997 Prime Minister's Awards for Innovation in the Public Sector stating;

"This is the first time that ABARE has developed such a large and comprehensive model and has undertaken a project in a joint venture with industry and other government agencies".

4.16. The only other source of public disclosure ABARE identified was its 'capability statement' document. However, though this document does refer to "extensive industry and departmental support", it provides no detailed disclosure of the Steering Committee membership or financial contributions to the models.

4.17. On the information available to the Ombudsman ABARE had not publicly disclosed details of external funding prior to the publication of "Global Climate Change" in November 1995. This is despite ABARE receiving contributions from sponsors of \$77,000 in 1993-94 and \$210,000 in 1994-95. The Ombudsman considers that as the "Global Climate Change" publication represented ABARE's first significant opportunity to acknowledge the contributions of MEGABARE's sponsors, it should have done so. ABARE's failure to do this represents a lack of transparency and exposes it to claims of deliberate concealment.

4.18. There is also anecdotal evidence to support the ACF's contention that there was limited public knowledge of the external funding for MEGABARE. For example, the Ombudsman received correspondence from Professor Mark Diesendorf of the University of Technology, Sydney. Professor Diesendorf reports that in the early 1990's he was involved in a community consultative committee which met on a 6 monthly basis at DFAT in Canberra, and received briefings by ABARE on the development of MEGABARE. He stated that despite these briefings;

"At the time I was unaware of the existence of an 'inner circle' steering committee comprising greenhouse gas producers who were contributing to the funding of the model. I only learned of this years later from an article by Gavin Gilchrist published in the Sydney Morning Herald in 1995".

4.19. ABARE responded to the criticism by Professor Diesendorf, stating that the briefings he referred to were not briefings on MEGABARE but on the

⁴ ABARE Conference Paper 97.16; **The MEGABARE model and climate change policy: The role of research in policy development; August 1997.**

content of the joint research project with DFAT that resulted in the “*Global Climate Change*” report. For reasons previously stated, the Ombudsman considers ABARE's distinction between this research project and MEGABARE to be tenuous and shares Professor Diesendorf's concern that information about the external funding arrangements for MEGABARE were not communicated by ABARE at the forum.

4.20. It is evident from ABARE's files that support and funding from both other government agencies and industry were necessary to ensure that MEGABARE could produce and promulgate results in the short time frame available for the development of government policy on greenhouse gas emission controls. This has been acknowledged by ABARE in a number of documents, including its conference paper for the Government Policy Conference in August 1997, *The MEGABARE model and climate change policy*. In the paper ABARE stated that;

“Finally, it was apparent that there was relatively little time in which to make an effective contribution: the new analysis would have to be prepared in time to contribute effectively to the decisions of the Conference of the Parties, the first meeting of which was scheduled for early 1995”.

4.21. Australian industry also appears to have believed a partnership existed with ABARE in the development of the model. For example, the Australian Coal Association stated in its submission to the Taylor Inquiry in 1995 that MEGABARE “*is a joint government-industry initiative being conducted by ABARE*”⁵.

4.22. Finally, as discussed in paras 2.22 - 2.24, ABARE is unable to differentiate between the funds contributed by different sponsors to the projects which have attracted external funding. Therefore ABARE would not be able to identify through its accounting arrangements how particular sponsors funds were used.

CONCLUSIONS

4.23. **The Ombudsman believes that the distinction made by ABARE between model building and policy research does not reasonably remove ABARE's obligation to acknowledge in its research publications contributions by industry and other Commonwealth government agencies to the development of the MEGABARE model (for the reasons discussed in paras 4.7 - 4.22 above).**

4.24. **In particular, given the significant role Australian industry and other Commonwealth government agencies played in supporting and funding the development of the MEGABARE model, the Ombudsman considers it is misleading for ABARE to have acknowledged only the joint authorship and financial contribution by DFAT in its major MEGABARE publication “*Global climate change*”.**

RECOMMENDATIONS

4.25. **The Ombudsman considers that ABARE should ensure that all sources of external funding are disclosed in research publications based on its climate change models.**

⁵ Extract from the ACA submission to the Taylor Inquiry found in ABARE file.

BALANCE AND BIAS

4.26. In its letters to the Ombudsman ABARE has strongly argued the importance of the distinction between ‘model development’ and ‘policy research’. As stated previously (para 4.6) this is fundamental to ABARE's contention that members of the Steering Committee were kept at arms length from its public policy research. In its letter of 28 January 1998 ABARE contends that its climate change modelling has not been influenced by Steering Committee members for the following reasons.

“First, we have shown in an earlier response why the heterogenous interests represented in the Steering Committee, together with other considerations, precluded the possibility of ‘a fossil industry view’ having formulated, let alone imposed on ABARE. Second, the assumptions embodied in MEGABARE are neutral from an industry sector perspective. Third, the assumptions embodied in MEGABARE and the results produced from it are subject to the discipline of evaluation in peer review forums such as the Energy Modelling Forum and wide dissemination through publication.

The neutrality of the assumptions in MEGABARE can be demonstrated at several levels:

- *At the most general level, general equilibrium models as a class embody a broad range of assumptions, but these are well understood. General equilibrium models are widely accepted as being the most appropriate tool for modelling global climate change policy issues.*
- *MEGABARE is based on the international collaborative GTAP model. GTAP’s assumptions are in the public domain and can in no way be seen as embodying a specific industry bias.*
- *The innovations to GTAP that have been incorporated in MEG/GIGABARE are neutral from an industry perspective and have also been put into the public domain in the form of published interim documentation. The key innovations are the representation of economic change over time, population dynamics and the technology bundle approach to representation of the electricity and iron and steel sectors.”*

4.27. As stated in the introduction to the report the Ombudsman has not sought to investigate the efficacy of the model itself or its technical aspects. The Ombudsman therefore notes ABARE's arguments in relation to the modelling foundations of MEGABARE and GIGABARE. However, in the Ombudsman's opinion ABARE's argument that the Steering Committees membership should be considered to be heterogenous and that an ‘industry view’ could not have been formulated is more problematic. Although there would be some differences of view between members from the industry sectors, it could be argued there would also be significant commonalities related to the likely costs of greenhouse gas emission reduction targets. While this may be balanced to some extent by the membership of government agencies on the Steering Committees it is not fully balanced by the presence of representatives from the environmental nongovernment organisations and other relevant stakeholders.

4.28. The significant point is that because ABARE's research proposals are ambiguous in delineating the role of Steering Committee members in relation to ‘model development’ and ‘policy research’ the Ombudsman considers it would be reasonable to assume that this distinction would not be clear to

Steering Committee members. The Ombudsman believes this creates at a minimum, a perception that Steering Committee members could influence policy research.

REFEREEING OF ABARE PUBLICATION

4.29. The ACF and other correspondents raised an additional issue with the Ombudsman concerning ABARE's citing of Professor Peter Dixon as an external referee for the "*Global climate change*" publication. They claim that Professor Dixon did not referee the publication and that ABARE had unreasonably used his name as a referee to lend additional credibility to the publication and ABARE's work.

4.30. Professor Dixon provided the Ombudsman with copies of his correspondence and informed us that the work he and his colleagues (Ms Rimmer and Ms McDonald) undertook for ABARE did not constitute a refereeing of the publication. He informed the Ombudsman that his Centre of Policy Studies (COPS) organisation undertook an editorial assessment of the publication which took 3 days at a cost of \$3000. According to Professor Dixon he did not become aware he had been cited by ABARE as a referee until the publication was released by ABARE.

4.31. Professor Dixon gave the Ombudsman his assessment that to have reviewed ABARE's research report as a referee would have involved at least a weeks work and would have cost ABARE considerably more than \$3000.

4.32. When this issue was raised by the Ombudsman with ABARE it disputed Professor Dixon's claims. In its letter of 20 November 1997 ABARE stated it had commissioned Professor Dixon to prepare a referees report and had paid his Centre for the report on this basis. ABARE acknowledged Professor Dixon described the document he produced as an "assessment" but stated that as it was headed "report" ABARE had no reason to assume it was other than a referees report.

4.33. The Ombudsman has examined correspondence between Professor Dixon and ABARE regarding the COPS report. In the letter of agreement sent by Professor Dixon to ABARE on 3 October 1995 there is no specific reference to the completion of a referees report. Instead the letter refers simply to a review of ABARE's "forthcoming Greenhouse study." On 18 October 1995 Professor Dixon provided the completed product from COPS to ABARE. He refers to the review as an "assessment" and states that in the opinion of the reviewers "the work needs careful editing". The text of the letter and attached report make no reference to a referees report.

4.34. In its letter of 28 January 1998 ABARE argued that the economics profession does not have any convention that "attaches profound and universally agreed differences in meaning to the terms 'referee report', 'review' and 'assessment'. The Ombudsman notes that this points to a failure by all parties, but particularly ABARE as the contractor, to specify the expectations and requirements for the work undertaken. In the Ombudsman's opinion it is unsatisfactory to suggest that Professor Dixon and his staff were cited as external referees on the basis of a misunderstanding of the work they were contracted to do.

CONCLUSION

4.35. The evidence available to the Ombudsman is more supportive of Professor Dixon's statements about the nature of the review than ABARE's contention that it commissioned Professor Dixon to referee the publication.

RECOMMENDATION

4.36. The Ombudsman considers that ABARE should acknowledge publicly it erroneously cited Professor Dixon and his staff from COPS as external referees of the "*Global climate change*" publication.

5. GUIDELINES AND PROTOCOLS FOR THE USE OF PRIVATE SECTOR FUNDS

5.1. The ACF drew attention in its complaint to the question of the guidelines and protocols ABARE relied on in managing its external funding. In particular, the ACF expressed its view that as ABARE's climate change research was informing public policy on greenhouse emission reduction strategies it needed to have clear checks and balances to prevent vested interests from exercising undue influence on public policy.

5.2. In order to examine this issue the Ombudsman investigated the steps ABARE had taken to guard against any conflicts of interest and ensure transparency in the management of the external funds of sponsors of its climate change modelling.

PUBLIC SERVICE GUIDELINES

5.3. The Ombudsman asked ABARE for information on the specific public service guidelines it considered applicable to the administration of the MEGABARE and GIGABARE Steering Committees. ABARE indicated that it had no ABARE specific guidelines or protocols relating to external funding of its projects. Instead ABARE informed the Ombudsman it relied on the broad APS guidelines and legislation that apply to all Commonwealth public service agencies.

5.4. The legislation and guidelines cited by ABARE were the Audit Act 1901, the Finance Directions and Secretary's instructions derived from the Act, the Public Service Act 1922, Guidelines on the Official Conduct of Commonwealth Public Servants (provided by the Public Service and Merit Protection Commission), the Public Service Regulations, and the Crimes Act 1914. ABARE also informed the Ombudsman that its external funding decisions were in accord with the Finance Direction 29 Charging Policy and that it had an agreement with the Department of Finance and Administration under s35 of the Audit Act to receive and use external funds. Finally, ABARE noted that it submits financial statements for inclusion in the Annual Report of the Department of Primary Industry and Energy (DPIE) and is subject to Senate Estimates hearings on its research and funding.

5.5. Although the above legislation and guidelines do provide guidance on the conduct of public service agencies and their staff, they do not deal in any detail with specific issues such as conflict of interest and perceptions of bias that may arise in relation to external funding.

CONCLUSION

5.6. The Ombudsman has found that although recent Commonwealth Governments have set external funding targets for public sector agencies, limited guidance has been developed for such agencies to ensure transparency of process and obviate conflicts of interest, apparent or real, in the management of external funds and/or sponsorship of projects.

OTHER PUBLIC SECTOR GUIDELINES

5.7. The Ombudsman canvassed a range of public service agencies to determine what additional guidelines had been developed to ensure transparency in the management of external funding. In general, information obtained by the Ombudsman suggests that the requirement on some APS agencies, including public sector research agencies, to obtain funding through external sources has not been paralleled by the development of guidelines to cover transparency issues. Some of the guidelines reviewed by the Ombudsman are discussed below.

CSIRO

5.8. Much of the research carried out by CSIRO which attracts external funding is of a commercial nature. Research of this type generally is concerned with the production of new technology or products for use in industry and does not have public policy implications. The research is subject to contracts which are designed to clearly specify relationships between the parties, ownership of intellectual property and research products, and payment arrangements etc. CSIRO has developed a comprehensive procedures manual, providing guidelines for its staff in relation to research and commercial activities.

5.9. CSIRO does however, undertake some public policy research work, such as environmental assessment impact statements, which may affect relations between CSIRO and external funders. In its Policy Circular 92/02 CSIRO clearly states that major policy initiatives will be considered by the CSIRO Board, having been recommended to the Board by the Executive Committee. This establishes an effective chain of executive responsibility within CSIRO with high level review of significant issues in relation to proposed policy research.

5.10. The Policy Circular sets out the processes for identifying policy issues for research and the criteria to be used by the CSIRO Board in selecting policy research. These include;

- the policy area is of major importance to fulfilling CSIRO's main role to conduct strategic research and facilitate its application;
- CSIRO has the scientific or other knowledge bearing on the policy issues;
- CSIRO has the expertise to contribute and it is probable that CSIRO involvement can influence policy directions; and
- the gains from involvement warrant the cost in time and resources taken for CSIRO's primary role⁶.

5.11. Additionally, the Policy Circular makes reference to managing and coordinating involvement in the research, and states 3 key principles, being;

- consult;
- keep interested parties informed; and
- obtain appropriate clearances.

The Ombudsman believes these principles would be further enhanced in the wider government context, by criteria to ensure that any information or

⁶ CSIRO Policy Circular No: 92/02, Principles and Processes for CSIRO involvement in Policy Issues, 13 January 1992.

advice provided by an organisation is complete and balanced, and meets the necessary standards for effective professional evaluation and public interest. 5.12. CSIRO has added to the above guidelines in its Policy Circular 94/18. This Policy Circular sets out the CSIRO Code of Conduct for staff. The Code deals with important issues such as conflict of interest and in particular, gives directions to staff on “External Interactions”. The Code states;

“In making public comment, acting as an expert witness or in presenting or publishing work outcomes:

- always acknowledge all substantial assistance or advice;”⁷

5.13. With the addition of criteria noted above in relation to the provision of complete and balanced information or advice, the Ombudsman considers the above guidelines issued by CSIRO would have met many of the concerns raised in the ACF’s complaint. The Ombudsman believes that written guidelines of this nature are important elements in demonstrating transparency of process by public sector research agencies in relation to public policy issues.

ABC

5.14. The Ombudsman reviewed the guidelines of the ABC in relation to sponsorship because arguably there are common aspects in the issues concerning private funding of ABC programs, documents, and other products with those of public sector research agency projects. In its Editorial Policies document, the ABC has stated a number of issues that should be considered by its Senior Executives before accepting external funding for programs.

These issues include;

- Is the ABC able to accept funds (or free or discounted services) from this outside organisation?
- Is the funder’s interest in the content direct or indirect?
- Is the program one which the ABC would consider producing or broadcasting without external funding?
- Will the scheduling or content of the program be influenced by the external funding source? Could there reasonably be a perception of influence?
- Is the ABC’s integrity likely to be affected by the funder, co-producer or independent producer’s promotional activities such as fact sheets, educational kits, publications, 0055 numbers, public events or otherwise?
- Having taken account of the above a judgement shall be made about whether the ABC’s independence and integrity are fully protected.⁸

The Ombudsman believes that the above issues translate directly to the external funding of public research policy work by agencies such as ABARE. The Ombudsman considers that any decision to proceed with external funding for such work should be fully documented, including comments on how the above issues have been resolved.

⁷ CSIRO Policy Circular No: 94/18, CSIRO Code of Conduct, 9 September 1994.

⁸ ABC Editorial Policies, December 1995, p139.

ANAO

5.15. In its Audit Report No. 29, the Australian National Audit Office (ANAO) published its preliminary study on the management of corporate sponsorship. The ANAO gave as its reasons for undertaking the study that corporate sponsorship “is a growing and largely unregulated area where there are no specific Commonwealth guidelines or policy frameworks to assist those agencies which benefit from corporate sponsorship or those that may be interested in doing so”⁹.

5.16. The ANAO recommended that Commonwealth public service agencies should develop sponsorship policy documents. It details a number of matters that need to be included in such a policy. They include;

- the aims and objectives on sponsorship for the agency;
- the ethical issues to be considered in a sponsorship relationship;
- guidelines for deciding on appropriate and acceptable sponsors, assessing potential sponsorship projects, and negotiating a sponsorship agreement;
- appropriate forms of acknowledgment for sponsorship and benefits for sponsors;
- monitoring and reporting requirements;
- accountability mechanisms to make sure that information about the full nature and extent of sponsorship agreements is available to the public;
- the requirement for a contract to be entered into for sponsorship over a specified amount;
- the treatment of funds from sponsorship as public money to be properly accounted for;
- the commitment that sponsorship would not influence the content or interpretation of any program or service; and
- a commitment to protecting the name and goodwill of the agency.

This list compiled by ANAO is a comprehensive one and demonstrates the range of issues that need to be properly considered by public sector agencies, including research agencies such as ABARE, in obtaining private sector sponsorship.

CONCLUSIONS

5.17. On the information provided to the Ombudsman by ABARE, the Ombudsman considers it does not have specific guidelines relating to transparency in the administration of external funds raising activities aimed at preventing conflicts of interest and/or a public perception of conflict of interest or undue influence by sponsors.

5.18. The Ombudsman does not consider the guidelines referred to by ABARE deal effectively with the issues and principles stated in the policy documents of the agencies discussed above.

⁹ Australian National Audit Office, Audit Report No. 29, Management of Corporate Sponsorship, 1996-97, p.3.

RECOMMENDATION

5.19. As ABARE does not have a specific policy relating to the management of eternal funds it receives, the Ombudsman considers that ABARE should develop such a policy incorporating the issues described above.

REFERENCES

- ABARE; **Global Climate Change: economic dimensions of a cooperative international policy response beyond 2000**, Commonwealth of Australia, 1995.
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- ABARE Conference Paper 97.16, **The MEGABARE model and climate change policy: The role of research in policy development**; August 1997.
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- CSIRO Policy Circular No: 94/18, CSIRO Code of Conduct, 9 September 1994.

ATTACHMENT A

MEGABARE

<u>Year</u>	<u>Steering Committee Membership</u>	<u>Funding</u>
1993-94	Australian Coal Association	\$ 50,000
	Department of Foreign Affairs & Trade	<u>\$ 27,000</u>
	Subtotal	<u>\$ 77,000</u>
1994-95	Australian Coal Association	\$ 50,000
	Bureau of Industry Economics	\$ 50,000
	Business Council of Australia	\$ 60,000
	Department of Environment, Sports & Territories	<u>\$ 50,000</u>
	Subtotal	<u>\$210,000</u>
	Total	<u>\$287,000</u>

GIGABARE

<u>Year</u>	<u>Steering Committee Membership</u>	<u>Funding</u>
1996-97	Australian Aluminium Council	\$ 50,000
	BHP	\$ 50,000
	Business Council of Australia (CA)	\$ 50,000
	CRA Limited	\$ 50,000
	Den Norske Stats Olijeselskap (Statoil)	\$ 50,000
	Department of Environment, Sports & Territories	\$ 50,000
	Electricity Supply Association	\$ 50,000
	Exxon Corporation	\$ 50,000
	Mobil Oil Corporation	\$ 50,000
	Texaco Corporation	<u>\$ 50,000</u>
	Subtotal	<u>\$500,000</u>
1997-98	Den Norske Stats Olijeselskap (Statoil)	<u>\$ 50,000</u>
	Total	<u>\$550,000</u>

ATTACHMENT B

MEGABARE is a “multiregion, multicommodity, intertemporal general equilibrium economic model” based on the GTAP model. At its most disaggregated level it covers 37 commodity sectors and 24 countries/regions*.

SOME MAJOR FEATURES AND ASSUMPTIONS OF THE MEGABARE MODEL

Production Choice Specification; A ‘technology bundle approach’ rather than a ‘nesting’ approach is used in MEGABARE to model the substitution possibilities between energy and other inputs. This technique constrains the choice of inputs to be consistent with known technologies.

Consumption and Savings Patterns; For each region the pattern of consumption and savings across age groups in the initial period is assumed to be consistent with a life cycle model.

A ‘savings reaction function’ is included in the savings equation.

Endogenous Population; Population growth is treated as endogenous based on the historical relationship between the level of per person income and rates of population growth.

Net migration rates are held as close to constant at initial levels as possible, subject to global net migration flows being zero for each age and gender.

International Capital Mobility; The growth rate of real investment in each region is modelled as an increasing function of the next year real rate of return and the growth rate of real GDP.

The specification of investment used in MEGABARE, and the eventual convergence of GDP growth rates, implies that the initial relativities between different countries rates of return tend eventually to be restored.

Determination of Economic Growth; The approach used in MEGABARE is to simulate uniform productivity growth across all activities in each country in order to obtain target per worker GDP growth rates.

Underlying this is the notion of convergence, which implies that a country with lower per worker GDP will grow more rapidly until its per worker GDP converges to that of the country with the highest value.

* This description of the MEGABARE model, and its features and assumptions, are from ABARE; **Global Climate Change: economic dimensions of a cooperative international policy response beyond 2000**, Commonwealth of Australia, 1995, Appendix A, p. 149-167.

ATTACHMENT C

- MEGABARE based research publications on climate change policy**
 ABARE, April 1997, ABARE Current Issues, Issue 3, *International climate change policy: economic implications for Japan*, ABARE, Canberra.
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