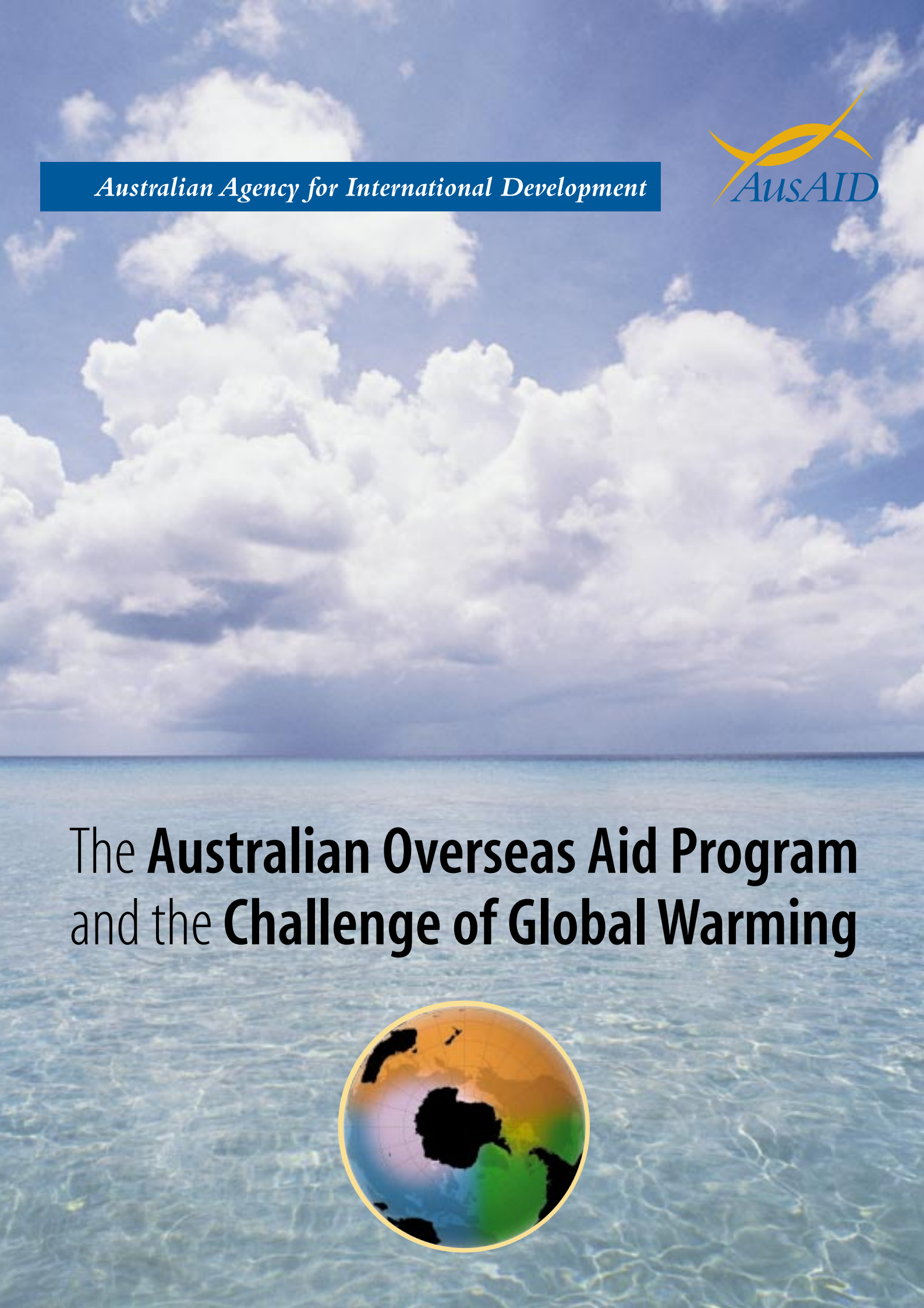

Australian Agency for International Development

AusAID

The **Australian Overseas Aid Program** and the **Challenge of Global Warming**

FOREWORD

AUSTRALIA'S overseas aid program aims to reduce poverty in developing countries and assist their sustainable development. The aid program addresses a broad range of problems including environmental ones that are major constraints to development.

Climate change is a global problem and we have a stake in cooperating internationally to come up with global solutions.

In addition to the measures we are taking domestically, Australia is active internationally in developing countries in respect of global warming. Our overseas aid program provides funding for many activities that simultaneously contribute directly to abating greenhouse gas emissions and to reducing poverty. This represents a "double dividend" in terms of contributing to good environmental and sustainable development outcomes. Naturally enough our focus is on the Asia–Pacific region. Expenditure on these activities in the 1996–97 financial year was approximately $47 million; the total value of activities is around $154 million.

These aid activities also contribute to regional stability and our own prosperity and security.

I am strongly committed to seeing the Government continue to do what is within its means to contribute to addressing the problems of developing countries. Environmental activities which also bring global benefits will continue to be a focus of the aid program.

ALEXANDER DOWNER

Minister for Foreign Affairs
November 1997

AUSTRALIA'S OVERSEAS AID PROGRAM

AUSTRALIA'S overseas aid program assists developing countries to reduce poverty and improve the standard of living of their people through sustainable development. AusAID — the Australian Agency for International Development —manages Australia's official overseas aid program, which is valued at $1.43 billion in the 1997–98 financial year. Its main focus is the Asia–Pacific region. Aid projects are developed and implemented in consultation with developing countries, responding to their most pressing needs and taking account of areas of Australian expertise.

Australia supports projects that increase the capacity of local communities to value and manage their living resources in a sustainable way. Through economic appraisal, villagers on the island of Erromango, Vanuatu, decided to protect their kauri forest. They found that the environmental benefits of the forest, which include, for example, its role as a carbon sink, were far greater than a one-off return from logging (photo: Luca Tacconi).

The prospect of global warming results from increased concentrations of greenhouse gases (such as carbon dioxide and methane) in the atmosphere. The problem we now face is that human actions—including the burning of fossil fuels (coal, oil and natural gas) and land clearing—are increasing the concentrations of some of these gases, creating the prospect of further warming of the globe.

Australia is funding overseas aid activities that aim to abate greenhouse gas emissions.

Abatement refers to two processes: first, it covers activity that reduces greenhouse gas emissions from all sectors; secondly, it refers to enhancing carbon sinks. For instance, forests act as carbon sinks by extracting and storing carbon dioxide from the atmosphere.

In addition, Australia supports projects that assist adaptation to climate change, such as adjustments in practices, processes or structures in response to projected or actual changes in climate.

… Australia accepts the seriousness of global warming, and the need for governments to do their part in addressing the problem. We are reducing greenhouse gas emissions domestically, as well as being actively engaged in international negotiations over how to deal with global warming.

AUSTRALIA'S domestic performance compares favourably with other developed countries. But only by acting together with the international community can we effectively address the problem of global warming.

Therefore, Australia's overseas aid program is funding programs and projects that help to abate greenhouse gas emissions and facilitate adaptation to climate change, while simultaneously assisting developing countries to reduce poverty. Currently these programs and projects have a total value of approximately $154 million. They include bilateral and regional projects worth about $122 million. In addition, Australia has committed approximately $32 million to climate change activities implemented by the Global Environment Facility (GEF) for the period 1991–97. Expenditure on all these programs and projects in the 1996–97 financial year was approximately $47 million. See the back page for details.

The aid program also supports a wide range of projects to improve environmental management in sectors such as energy, forests and land resources. These activities indirectly enhance the ability of developing countries to address climate change issues. They are not included in the figures just mentioned.

The importance of abatement and adaptation activities is reflected in the fact that developing countries, despite having low per capita emissions, will account for a greater share of global greenhouse gas emissions in the future, as their economies and energy demands grow to meet their sustainable development needs. By 2010 on current trends, almost half of global carbon dioxide emissions from energy sources will be attributable to developing countries. Today they are responsible for less than one third. In terms of these energy-related emissions, Asia will catch up with all OECD countries by 2015.

A solar-powered electricity generator of the type to be installed in the Philippines.

AUSTRALIAN CLIMATE CHANGE ACTIVITIES FOCUS ON FOUR KEY AREAS

ENERGY

GLOBALLY, energy use is responsible for approximately 65 per cent of greenhouse gas emissions. Many key social issues—poverty, employment, agricultural production and food scarcity, and security issues—are linked to patterns of energy use. Providing sustainable energy will simultaneously reduce poverty and improve the environment by reducing greenhouse gas emissions. By tackling this major source of emissions, large reductions can be achieved.

Reflecting Australia's expertise, the aid program particularly focuses on projects that support fuel substitution (for example, solar and biomass), and improve the efficiency of fossil-fuel-fired power stations.

SCIENCE AND ANALYSIS

RESPONSES to the challenge of global warming should be based on sound scientific information and take into account important linkages to economic and other polices. The aid program is helping developing countries to get the information they need on the effects of climate change so they may formulate appropriate responses.

FORESTRY AND LAND MANAGEMENT

PEOPLE in developing countries derive much of their fuel, building materials and other raw materials from forests, vegetation and the land. The wise use, management and conservation of these natural resources is an integral part of sustainable development.

Forests, vegetation and pastures can act as carbon sinks. Proper management practices can protect existing carbon sinks, and enhance those that have become degraded. The aid program's support for sustainable forestry, reafforestation and agroforestry projects helps address the climate change problem and ensure the general health of the biosphere.

WATER RESOURCES

BODIES of water such as rivers, lakes and oceans are important carbon sinks. Changes in ocean temperatures caused by climate change could affect the ability of the oceans to act as carbon sinks. By supporting the good management of water resources, the aid program helps poor people get clean water while also protecting biological diversity. In addition, good management maintains the ecological capacity of water catchments to act as carbon sinks.

Sea Level and Climate Monitoring Project. Honiara, Solomon Islands

RENEWABLE ENERGY TECHNOLOGY

TECHNOLOGIES that use renewable sources of energy, such as the sun, wind and biomass wastes, can be particularly cost-effective in delivering power. This power may be used to improve basic health, education and communication services in remote and poorer rural areas.

Even if major investments are made in centralised generating stations, the demand for power in the Asia–Pacific region is likely to exceed the supply for many years to come. There is a significant demand for decentralised rural electrification schemes, especially on the small islands of Indonesia, the Philippines and in the Pacific.

Australia has learnt much from successfully using renewable energy in its remote areas. These lessons can be readily adapted to the needs of the economies in the Asia–Pacific region. Many Australian firms supply equipment that embodies the latest advances in renewable energy technologies, such as photovoltaic electricity production, solar generation of heat, and biomass combustion. Renewable energy sources are available in compact, easily transportable units which can be located near customers. This reduces the sometimes prohibitive transmission and distribution costs of centrally generated power. Using this expertise, the aid program has implemented renewable energy projects in developing countries, such as the following project in the Philippines.

MUNICIPAL SOLAR INFRASTRUCTURE PROJECT

One thousand photovoltaic (solar-powered) electricity systems are being installed in 387 *barangays* (local community areas) in the Philippines in this $37 million project.

Australia's contribution is $13.1 million. The *barangays* are located in some of the poorest provinces of the country.

The systems are placed in health centres, municipal halls and schools. They will result in a reduction in local air and noise pollution; improved water supplies; better health and education facilities; and an improvement in the welfare of women and children by freeing time spent on food and water collecting. Furthermore, the solar systems will reduce the dependence of the *barangays* on non-renewable energy sources, and will reduce deforestation. By demonstrating the substantial contribution that solar energy can make to sustainable development, the project may become a catalyst for expanded use of solar power in the Philippines and elsewhere.

If diesel generators were used to provide the *barangays* with the same levels of power as the solar systems, carbon dioxide emissions would increase by approximately 10 900 tonnes over the 25-year life of the voltaic cells.

ASSISTANCE TO VULNERABLE SMALL ISLAND STATES IN THE PACIFIC

SMALL island states in the Pacific, many of which are only a few metres above sea level, are especially vulnerable to the potentially adverse effects of climate change. Many of the infrastructure assets of these island nations are located along the coastline. Climate change models predict sea levels will rise between 15 and 95 cm by the year 2100, with a 'best estimate' of 50 cm.

Australia is helping Pacific nations to address climate change. The aid program is supporting not only projects that directly target climate change problems, but also broader socio-economic development activities which help small island states to cope better with climate change.

Projects in the Pacific that contribute directly to climate change abatement and adaptation include the following:

◀ Sea-level monitoring station installed in Kiribati as part of the Sea Level and Climate Monitoring project.

▶ The National Forestry and Conservation Action Program Trust Fund valued at $3.5 million aims to assist the forest sector in Papua New Guinea. The Fund supports activities for community conservation, landowner awareness, and reafforestation. By promoting sustainable forestry, the project will enhance carbon sinks.

▶ Under the Sea Level and Climate Monitoring project, valued at $13.7 million, Australia has helped install eleven sea-level monitoring stations throughout the Pacific and has developed systems to collect and analyse the data they gather. This information enables Pacific island countries to predict exceptional climatic events and plan to adapt to global warming.

▶ Australia supports the South Pacific Forum Secretariat's energy program which promotes energy-efficiency policies and renewable energy technologies.

In addition, other Australian aid activities contribute indirectly to climate change issues in the Pacific region. These are activities such as improving forestry management, environment planning and land management. For example, Australia belongs to, and strongly supports, the South Pacific Regional Environment Programme (SPREP), the peak environment organisation in the South Pacific. SPREP helps Pacific countries, including Papua New Guinea and Pacific territories, to deal with crucial environmental and natural resource management issues, including climate change. Australia contributed $1.2 million to SPREP during the 1996–97 financial year and is its largest bilateral donor.

FURTHER EXAMPLES OF AUSTRALIAN AID PROJECTS WHICH ADDRESS GLOBAL WARMING

ENERGY FROM WASTE PRODUCTS

AUSTRALIA is providing over $4 million to help ASEAN countries develop industrial-scale fluidised-bed combustion (FBC) technologies through the Energy Biomass Residue Project. The project began in 1995 and will be completed by 2000.

Through FBC technologies, the waste products of industries such as sawmills, sugar mills, wood and rattan furniture factories, rice and palm oil mills, food processing factories and garment manufacturers are turned into useable energy through aerobic (burning) processes.

The heat energy generated from FBC, which is a cleaner process than burning diesel or coal, can be used to fuel steam generators. Moreover, emissions from the residue of the FBC process are converted to carbon dioxide rather than methane, a more potent greenhouse gas which would be produced were the residue not treated under FBC. Finally, FBC technologies have improved the viability and working environment of those industries into which they have been introduced. The enormous environmental problems of disposing of waste materials are reduced.

The project is enhancing capacity in ASEAN countries to design, construct, install, operate and service FBC technology. It is also developing an ASEAN industry to manufacture reliable, high-efficiency steam engines matched to the energy outputs of small-scale FBC plants.

AUTOMATION OF GONGZUI HYDRO-ELECTRIC POWER STATION PROJECT

THE upgrading of Gongzui hydrostation in China involves the installation of an automatic start-up facility to enable production of an extra 60 GWh of electricity per year. Improved operational efficiency is the sole reason for this increase.

The project will directly offset 78 000 tonnes per annum of carbon dioxide emissions because it does not use fossil fuels to generate electricity. Another benefit will be the reduction in emissions from sources such as the burning of coal, kerosene and fuelwood. The reductions are estimated to be equivalent to about 11 500 tonnes per annum of carbon dioxide. The project will therefore reduce carbon dioxide emissions to the atmosphere by almost 90 000 tonnes per year, while freeing resources for other sustainable development purposes.

The local farming community will increase their incomes through being allocated two-thirds of the hydrostation's additional power for irrigation, schools, and artisanal business ventures. The balance of the extra output will enter the main grid. The $3.7 million project started in 1997, and will run to 1999. The aid program's contribution is $1.3 million.

SOUTH EAST ASIA REGIONAL CLIMATE IMPACTS CENTRE

AUSTRALIA helped establish the Global Change and Terrestrial Eco-Systems Regional Centre for South East Asia so that scientists could predict how land-based ecosystems are affected by climate change, any changes in the composition of the atmosphere, and patterns of land use. The Centre assists countries in South East Asia to develop appropriate responses to global warming. It also facilitates the transfer of technologies and assists participating countries to develop strategic responses to climate change. Australia will provide approximately $2.4 million for the Centre between 1995 and 1998.

CAPACITY BUILDING FOR ENVIRONMENTAL MANAGEMENT

CAPACITY building is intrinsic to Australia's development cooperation program. It includes institutional strengthening, collaborative research and education and training. Projects in these areas provide developing countries with the capacity to put in place policies and activities to mitigate and adapt to climate change.

▶ The $6 million Papua New Guinea Department of Environment and Conservation Strengthening Project assists Papua New Guinea to sustainably manage its natural resources and environment. The project assists in modernising and strengthening the organisational structure, management practices, staff capabilities and human resource development systems of the Department.

▶ The Australian Centre for International Agricultural Research (ACIAR), which is a part of Australia's aid program, supports collaborative programs between Australian and developing country research agencies. These programs help solve major agricultural and resource problems and strengthen local research capacity. ACIAR also provides core funding to the international agricultural research centres and supports joint projects between them and Australian research agencies.

ACIAR-supported research of relevance to problems of climate change includes: carbon capture in biomass through reafforestation, conservation of crop residues, and build-up of soil organic matter; crop adaptation to higher levels of carbon dioxide in the atmosphere; improved productivity and efficiency; and quantification of the socioeconomic value of forest preservation and biodiversity.

During 1994–96, ACIAR provided $11.8 million for bilateral activities, and $6.4 million to the international agricultural research centres for research activities with a potentially positive effect on climate change. This represents about 6 per cent of ACIAR's direct research investment over the period.

The international agricultural research centres participating in this program include the International Rice Research Institute, the Center for International Forestry Research, the International Center for Research on Agroforestry, and the International Board for Soil Research and Management.

▶ In 1995 and 1996 the aid program sponsored twenty students to undertake a Graduate Certificate in Environmental Management program, facets of which included climate change issues. In 1996, the aid program sponsored approximately 750 students to study subjects related to environmental issues. A number of these courses have elements pertaining to climate change.

As the links between these capacity building projects and greenhouse gas abatement are usually indirect, such activities are not included in the total value of greenhouse gas abatement expenditure of the aid program.

Photo: Jeff Bennett

SUPPORT FOR MULTILATERAL EFFORTS ON CLIMATE CHANGE

… The Australian aid program helps fund internationally coordinated efforts to address climate change.

THE GLOBAL ENVIRONMENT FACILITY (GEF)

AUSTRALIA supports the GEF, the interim financial mechanism of the Framework Convention on Climate Change. From 1991–97 Australia committed approximately $32 million to the GEF as core funding and co-financing for climate change activities. Included in this funding is co-financing of $8.5 million for the GEF Promotion of Electricity Energy Efficiency Program in Thailand. Australia provided these funds in accordance with its obligation under the Climate Change Convention to provide new and additional financial resources to assist developing countries.

OTHER INTERNATIONAL ORGANISATIONS

WITH strong support from donors, including Australia, organisations such as the World Bank, the Asian Development Bank, and the United Nations Development Programme, are giving increased emphasis to climate change issues. For example, the World Bank has launched a Solar Initiative to hasten the commercialisation of solar and other renewable energy technologies and significantly expand their applications in developing countries.

ACTIVITIES IMPLEMENTED JOINTLY

AN 'Activities Implemented Jointly' (AIJ) pilot phase, established under the Framework Convention on Climate Change, is setting the scene for an advanced mode of Joint Implementation.

Joint Implementation is a method of reducing greenhouse gas emissions across countries in order to reduce costs. Under Joint Implementation, countries with relatively high marginal costs of greenhouse gas reduction could participate in projects in countries with lower marginal abatement costs. They could count emission reductions resulting from these projects toward their own reduction commitments. This approach would help to lower adjustment costs for themselves and the global community, while also providing benefits to the lower cost country.

Joint Implementation may also boost the ability of developing countries to get the technology and build the infrastructure they need for development, while minimising actions that would contribute to global climate change.

The aid program has contributed to AIJ by:

- providing partial support of almost $195 000 for an AIJ capacity building project focused on renewable energy in Indonesia;
- contributing about $65 000 to the cost of an AIJ Workshop in India in 1997; and
- assisting the Climatic Impacts Centre at Macquarie University to run a regional AIJ workshop in Sydney in 1997 with a grant of approximately $16 000.

These aid program activities are part of the Australian Government's AIJ Initiative. The AIJ Australia Office, a cooperative effort between a range of Australian Government departments, is actively developing policies and activities in the area of AIJ.

THE FUTURE

THE Australian Government will continue to support projects that contribute to reducing greenhouse gas emissions, enhancing carbon sinks, and adapting to the adverse effects of climate change. These projects will variously involve institutional strengthening, climate and sea level monitoring, and the transfer of practical technologies in areas such as energy efficiency, solar energy, forestry and land management. Greenhouse gas assessments will continue to be part of feasibility studies for all large AusAID projects judged as having major greenhouse gas implications.

For further information about AusAID programs contact: AusAID, GPO Box 887, Canberra ACT 2601 tel 61 2 6206 4000, fax 61 2 6206 4880 or visit our web site at www.ausaid.gov.au

AUSTRALIAN AID PROJECTS THAT ADDRESS GLOBAL WARMING[1]

Region	Activity name	Location	Total funding approved for projects ($'000)[2]	Total expenditure in FY July 1996–June 1997 ($'000)
Pacific	Forestry Human Resources Development	Papua New Guinea	19 756	3 067
	Sea Level and Climate Monitoring	Pacific	13 702	1 186
	Sustainable Forestry Utilisation	Vanuatu	5 122	1 051
	National Forestry Trust Fund	Papua New Guinea	3 450	200
	Water Hyacinth Control Project	Papua New Guinea	1 503	306
	Pacific Forests and Trees Support Program	Pacific	600	300
	Renewable Energy Project	Pacific	289	149
	Replanting and Environmental Education	Tonga	82	82
	Sub-total Pacific		**44 504**	**6 341**
Asia	Photovoltaic Rural Electrification	Indonesia	13 870	12 738
	Municipal Solar Infrastructure Project	Philippines	13 129	12 887
	Forestry Project - Sustainable Forest Management	Nepal	11 508	941
	Community Resource Management Conservation	Nepal	10 205	121
	Participatory Forestry	Sri Lanka	9 314	2 067
	Energy Biomass Residue	ASEAN	4 027	666
	Regional Climate Impacts Centre	SE Asia	2 431	767
	Coal Technology Training Program	SE Asia	2 200	1 100
	Gongzui Hydroelectric Power Station	China	1 306	1 306
	Beijing Natural Gas Distribution System	China	1 287	1 287
	Tongjiezi Hydropower Station	China	1 173	1 173
	Training in Hydropower Development	Laos	1 035	441
	Cam Son Lake Community Development	Vietnam	910	256
	Fuyang Heat Power	China	810	810
	Houaphan Micro Hydropower	Laos	468	35
	Electricity and the Environment	ASEAN	326	109
	Methane Recovery from Land-fill	APEC	150	150
	Methane Recovery from Coal Mines	APEC	150	150
	Recovery and Development	Pakistan	98	98
	Micro Hydropower Technology	Pakistan	79	79
	Wind Turbines for Electric Power	Pakistan	67	67
	Community Development Program	Sri Lanka	60	60
	Solar Project	Afghanistan	30	30
	Quality of Life and Environment—Forest Conservation	Thailand	25	25
	Dong Lan Reforestation	Thailand	25	25
	Herbal Trees Planting	Thailand	24	24
	Occupation Development for Nature	Thailand	24	24
	Community Agro-forestry Project	Philippines	10	10
	Sub-total Asia		**74 741**	**37 446**
Africa	Reforestation Replication	Tanzania	1 210	182
	Support for Forestry Sector	Namibia	556	194
	Environmental Recovery Program	Eritrea	277	277
	Soil Conservation and Reforestation	Ethiopia	146	146
	Fuel Efficient Chingwe Stoves Project	Zimbabwe	67	67
	Agroforestry Training Program	Zimbabwe	36	36
	Rural Development Program	Ethiopia	13	13
	Sub-total Africa		**2 305**	**915**
Other	Iwokrama Rainforest Program	Guyana	200	67
	Environmental Education and Community Forestry	Nicaragua	39	39
	Sub-total Other		**239**	**106**
	TOTAL		**121 789**	**44 808**
Contributions to the Global Environment Facility[3]				
	Core contributions 1991–1997[4]	Global	23 859	1 080
	Promotion of Electricity Energy Efficiency Program — GEF co-financing	Thailand	8 500	1 214
	TOTAL		**32 359**	**2 294**
TOTAL CONTRIBUTIONS			**154 148**	**47 102**

1. These activities directly contribute to greenhouse gas abatement by reducing emissions and sequestering gases. Also included are projects that help developing countries adapt to the adverse effects of climate change. The aid program also supports a wide range of institutional strengthening and capacity building projects in sectors such as energy, forests, land management and the environment which potentially, but only indirectly, enhance the ability of developing countries to address climate change issues. These projects are not included here because their benefits are not direct.

2. Total value of funds committed for programs and projects under implementation in the 1996–1997 financial year, as at September 1997.

3. Australia provided these funds in accordance with its obligation under the Climate Change Convention to provide new and additional financial resources to assist developing countries.

4. Funding directly attributable to GEF climate change activities, representing 35% of Australia's core contribution to the Pilot Phase (1991–1994), and 38.3% of contributions to the GEF's first phase (1994–97). The final payment of Australia's contribution to the Pilot Phase will be made in the 1997–98 financial year. First Phase payments conclude in 2005.

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