

BIODIVERSITY CONSERVATION: STUDIES IN ITS ECONOMICS AND MANAGEMENT, MAINLY IN YUNNAN, CHINA

Working Paper No. 29

**Final Report on ACIAR Small Project:
“Economic Impact and Rural Adjustment to
Nature Conservation (Biodiversity)
Programmes: A Case Study of Xishuangbanna
Dai Autonomous Prefecture, Yunnan, China”**

by

Clem Tisdell

March 1996



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² This is basically in the format required by ACIAR.

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WORKING PAPERS IN THE SERIES, *BIODIVERSITY CONSERVATION: STUDIES IN ECONOMICS AND MANAGEMENT, MAINLY IN YUNNAN, CHINA* are published by the Department of Economics, University of Queensland, 4072, Australia, as part of Australian Centre for International Agricultural Research Project 40 of which Professor Clem Tisdell is the Project Leader. Views expressed in these working papers are those of their authors and not necessarily of any of the organisations associated with the Project. They should not be reproduced in whole or in part without the written permission of the Project Leader. It is planned to publish contributions to this series over the next 4 years.

Research for ACIAR project 40, *Economic impact and rural adjustments to nature conservation (biodiversity) programmes: A case study of Xishuangbanna Dai Autonomous Prefecture, Yunnan, China* is sponsored by the Australian Centre for International Agricultural Research (ACIAR), GPO Box 1571, Canberra, ACT, 2601, Australia. The following is a brief outline of the Project

Rural nature reserves can have negative as well as positive spillovers to the local region and policies need to be implemented to maximise the net economic benefits obtained locally. Thus an 'open' approach to the management and development of nature conservation (biodiversity) programmes is needed. The purpose of this study is to concentrate on these economic interconnections for Xishuangbanna National Nature Reserve and their implications for its management, and for rural economic development in the Xishuangbanna Dai Prefecture but with some comparative analysis for other parts of Yunnan

The Project will involve the following:

1. A relevant review relating to China and developing countries generally.
2. Cost-benefit evaluation of protection of the Reserve and/or assessment by other social evaluation techniques.
3. An examination of the growth and characteristics of tourism in and nearby the Reserve and economic opportunities generated by this will be examined.
4. The economics of pest control involving the Reserve will be considered. This involves the problem of pests straying from and into the Reserve, e.g., elephants.
5. The possibilities for limited commercial or subsistence use of the Reserve will be researched.
6. Financing the management of the Reserve will be examined. This will involve considering current sources of finance and patterns of outlays, by management of the Reserve, economic methods for increasing income from the Reserve and financial problems and issues such as degree of dependence on central funding.
7. Pressure to use the resources of the Reserve comes from nearby populations, and from villagers settled in the Reserve. Ways of coping with this problem will be considered.
8. The political economy of decision-making affecting the Reserve will be outlined.

Commissioned Organization: University of Queensland

Collaborator: Southwest Forestry College, Kunming, Yunnan, China

For more information write to Professor Clem Tisdell, School of Economics, University of Queensland, St. Lucia Campus, Brisbane 4072, Australia or email c.tisdell@economics.uq.edu.au or in China to Associate Professor Zhu Xiang, World Bank Loan Project Management Centre, Ministry of Forestry, Hepingli, Beijing 100714, People's Republic of China.

FINAL REPORT FOR ACIAR: EXECUTIVE SUMMARY

Small Project Title:

“Economic -impact and rural adjustment to nature conservation (biodiversity) programmes: A case study of Xishuangbanna Dai Autonomous Prefecture, Yunnan, China.” Project No. ACIAR-40 (Grant or Ref.) 93/284.

Researcher: The University of Queensland

Project Leaders:

- (i) Australia Professor C A Tisdell
- (ii) China Zhu Xiang

Date of Commencement: 1 January 1994

Date of Completion: 31 December 1995

Aims of Project:

The economic interconnections of Xishuangbanna State Nature Reserve with its surrounding region and rural communities are to be studied along with their implications for its management and for rural economic development in Xishuangbanna Dai Prefecture. Some comparative analysis with other parts of Yunnan will also be undertaken. The aims of the project did not alter, and each of its objectives were addressed.

Description of Work:

The initial plan involved the collection of secondary data. A considerable amount of this data was collected in China by Zhu Xiang and forwarded to Professor Tisdell for his consideration. The next stage involved preparation for fieldwork undertaken in Xishuangbanna State Nature Reserve and Xishuangbanna Prefecture in October 1994, for example, preparation of questionnaires. During this period a considerable amount of primary data was collected and further relevant secondary data including ‘grey’ literature only accessible by a visit to Yunnan. Direct contacts were made and a lecture given at the Southwest Forestry College, Kunming. This was followed by processing of the data and

writing up of reports based on it which were widely distributed. Several of these reports were then prepared for submission to international journals and magazines and accepted for publication. Further relevant data was collected in Yunnan and in China in October-December 1995 by J. Wen an M.Ec. student of The University of Queensland which will be used in her thesis and processed for further publications and feedback to administrators in China.

Flow Chart of Activities

January- June 1994	Background research and data collection
July - September 1994	Preparation for fieldwork in Xishuangbanna; questionnaire design, etc.
October 1994	Fieldwork in Xishuangbanna and Yunnan
November 1994 - September 1995	Writing up of research reports, processing of data, publications
October- December 1995	As above plus data collection in China by J. Wen
January 1996	Producing of data and writing up of results

Results, Conclusions and Assessments:

This research confirms the importance of taking local rural communities into account in planning and implementing biodiversity conservation programs. It is necessary to reconcile strategies for nature conservation and economic development with the interests of local rural communities. Various economic means for doing this have been explored in this research. In this regard particular attention has been given to the role of ecotourism, the possible multiple-use of protected areas and the financing of nature-reserves. The pest control problem was found to be serious for villagers near nature reserves. In the case of Xishuangbanna State Nature Reserve, the main pest is the Asian elephant. Measures for compensating for damage and controlling damage are outlined.

The research results from this project are being made use of widely. The management of the Xishuangbanna State Nature Reserve is translating the working papers from the project into Chinese for their use, The Southwest Forestry College is using the materials, as are tourism authorities in Yunnan and the papers have been of assistance to the Ministry of Forestry in Beijing in devising its GEF Project. In addition, there is considerable demand for copies of working papers, both in Australia and internationally.

Follow Up:

The Biodiversity Conservation Working Paper Series will continue for the time being and will continue to disseminate follow-up research results. Furthermore, Dr Zhuge Ren, Deputy Director of Forestry, Southwest Forestry College, Kunming, will visit the Department of Economics, The University of Queensland as a Visiting Fellow for one year funded by the Chinese Government to cooperate with Professor Tisdell in extending this research. The Director, Xishuangbanna State Nature Reserve, and relevant authorities in Yunnan will continue to be informed of research findings. This research concentrated on Xishuangbanna and scope exists for extending it to other areas of Yunnan and China if funding can be found. No property rights are proposed.

It should be noted that a variety of means have been used to disseminate results. These include bulletins, widely used by personnel involved in forestry and the management of protected areas, and working papers. In addition, several conference presentations have been made.

**FULL REPORT ON ACIAR SMALL PROJECT, “ECONOMIC IMPACT
AND RURAL ADJUSTMENT TO NATURE CONSERVATION
(BIODIVERSITY) PROGRAMMES: A CASE STUDY OF
XISHUANGBANNA DAI AUTONOMOUS PREFECTURE, YUNNAN,
CHINA”. PROJECT NO. ACIAR-40 (GRANT OR REF.) 93/284**

1. BACKGROUND

China contains a high degree of biodiversity and many unique species, but its rapid economic development threatens their continuing existence. Furthermore because of its rapid economic growth, there is a risk of environmental changes occurring which could result in unsustainable ‘development’ occurring in China. These problems have been recognised both worldwide and within China. For example, the World Bank has extended financial assistance to China through its Global Environmental Facility (GEF) to assist China’s conservation of biodiversity. Further, the State Council of China adopted in 1994 *China’s Agenda 21: White Paper on China’s Population, Environment and Development in the 21st Century*, and this includes strategies for conservation of biodiversity. *China’s Agenda 21* is a response to the United Nations’ Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992 which called upon all nations to draw up an agenda for sustainable development in the 21st century.

It is, however, one thing to formulate plans for biodiversity conservation and another to put them into practice successfully. Since biodiversity conservation programmes are mostly implemented in rural areas, it is necessary to study their socio-economic impact on local rural communities. The success or failure of nature conservation programmes depends eventually on such impacts. It is not enough from a practical policy point of view to consider only the ecology of nature conservation. It is in this context that this project is of considerable importance, particularly because it is a cooperative project with biologists and ecologists.

It was decided to concentrate the study on Xishuangbanna Prefecture in Yunnan, and in particular pay special attention to Xishuangbanna State Nature Reserve. This decision was taken because Xishuangbanna had been identified by ecologists as a region of megadiversity. It is also an area in which considerable economic change is occurring. Furthermore, Chinese

authorities had expressed concern about several socio-economic problems which could adversely affect biodiversity conservation in Xishuangbanna and were anxious to develop possible win-win strategies for the area which might provide a basis for conservation strategies elsewhere in China. Strong Chinese support existed for the project and this was followed up by excellent cooperation on the Chinese side.

2. OBJECTIVES

Nature conservation reserves must be seen and assessed in their local socio-economic context. The economic interconnections between such reserves and the surrounding region and rural communities are of utmost importance for their long-term viability and the economic welfare of local rural people. Rural reserves can have negative as well as positive spillovers to the local region and policies need to be implemented to maximise the net economic benefits obtained locally. Thus an 'open' approach to the management and development of nature conservation (biodiversity) programmes is needed. The purpose of this study is to concentrate on these economic interconnections for Xishuangbanna National Nature Reserve and their implications for its management, and for rural economic development in the Xishuangbanna Dai Prefecture, but with some comparative analysis for other parts of Yunnan being undertaken.

The above will involve amongst other things a consideration of the following:

- (i) Literature review relating to China and developing countries generally.
- (ii) Cost-benefit evaluation of protection of the Reserve and/or assessment by other social evaluation techniques. This will consider the costs to residents of the Reserve, its neighbours and more widely and compare these with possible benefits. Timing and sustainability characteristics will be taken into account.
- (iii) Growth and characteristics of tourism in and nearby the Reserve will be examined. Of particular interest will be the extent to which it provides employment and economic opportunities for locals, especially groups disadvantaged by protection of the Reserve. Problems experienced by the local tourism industry will also be considered with a view to determining how best these can be coped with from an economic viewpoint.

- (iv) The economics of pest control will be considered. This involves the problem of pests straying from and in to the Reserve. The problem will be described, for example, pests listed along with damages, bearing in mind that both animal and plants may be pests which spread or stray. Particular attention will be given to the economics of control of at least one of these pests, for example, the Asian elephant. Methods of compensating farmers for damage will also be considered.
- (v) The possibilities for limited commercial or subsistence use of the Reserve will be considered. This will involve finding out about the current situation and considering ways in which use can be sustained without compromising 'essential' ecological goals in relation to conservation of biodiversity. In part, this involves considering land use in terms of UNESCO's concept of biosphere reserves. The Great Barrier Reef Marine Park is managed along similar lines, for example, for multiple use.
- (vi) Financing of the management of the Reserve will be considered. This will involve considering current sources of finance and patterns of outlays, by management of the Reserve, economic methods for increasing income from the Reserve and financial problems and issues such as degree of dependence on central funding. Political factors will influence financing and also patterns of use of the Reserve and these will be considered.
- (vii) Pressure to use the resources of the Reserve comes from nearby populations, and from villagers settled in the Reserve. How to cope optimally with this is a problem. Topic (vi) addresses it to some extent and so does topic (iii). It has been suggested that the provision of improved economic opportunities outside national parks and reserves will reduce the pressure on local populations to 'invade' such areas and appropriate their resources. Are there viable economic opportunities in Xishuangbanna Dai Autonomous Prefecture which can reduce such pressures? Some possibilities to consider are more intensive forms of agriculture and forestry. Furthermore, it seems that some current types of agricultural production may be unsustainable, for example, rubber production. In the latter case there is an increasing shortage of fuelwood for producing latex. For economic and political reasons, economic alternatives in the neighbourhood of the Reserve need to be considered.

- (viii) The political economy of decision-making with respect to the Reserve will be outlined.

3. DESCRIPTION OF RESEARCH

The initial plan involved the collection of secondary data. A considerable amount of this data was collected in China by Zhu Xiang and forwarded to Professor Tisdell for his consideration. The next stage involved preparation for fieldwork undertaken in Xishuangbanna State Nature Reserve and Xishuangbanna Prefecture in October 1994, for example, preparation of questionnaires. During this period a considerable amount of primary data was collected and further relevant second data including 'grey' literature only accessible by a visit to Yunnan. Direct contacts were made and a lecture given at the Southwest Forestry College, Kunming. This was followed by processing of the data and writing up of reports based on it which were widely distributed. Several of these reports were then prepared for submission to international journals and magazines and accepted for publication. Further relevant data was collected in Yunnan and in China in October-December 1995 by J. Wen, an M.Ec. student of The University of Queensland, which will be used in her thesis and processed for further publications and feedback to administrators in China.

Flow Chart of Activities:

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October- December 1995	As above plus data collection in China by J. Wen
January 1996	Producing of data and writing up of results

4. RESEARCH RESULTS

The project has been successful. As can be seen from the list of publications arising from it, significant research results have been obtained and published on all topics specifically mentioned in the objectives for this project. These include relevant reviews on:

1. The environment, biodiversity and Asian development, but particularly in China.
2. Economic assessments of Xishuangbanna State Nature Reserve.
3. The growth and characteristics of tourism, especially ecotourism, in Xishuangbanna setting it in its general context and involving economic assessments.
4. Pest control issues raised by biodiversity conservation especially those connected with the Asian elephant.
5. The potential and dangers of limited commercial or subsistence use (multiple use) of Xishuangbanna State Nature Reserve.
6. Important financial issues involved in managing Xishuangbanna State Nature Reserve.
7. Ways of easing pressures on the resources of the Reserve coming from nearby local communities.
8. The project has identified important political factors which impact on the management of the Reserve, for example, the issues of concessions to use the Reserve and the allocation of its budget.

Because the benefits of the project are mainly in terms of improved institutional capacity and the general provision of new knowledge, it does not lend itself to rigorous cost/benefit analysis. For this reason and because impacts are still continuing, a cost/benefit evaluation has not been undertaken.

5. USE OF RESULTS

The Director of Xishuangbanna State Nature Reserve has indicated that he finds the research reports prepared as a result of this project of considerable value to him for management

purposes (personal communication via Jie Wen) and has requested copies of all working papers from this project. While some have already been translated into Chinese, he has arranged for others to be translated by his assistant with a view to using them for the management of the Reserve. Furthermore, as a result of interactive discussions during fieldwork, both at the headquarters of the Reserve in Jinghong and at the administrative stations of the sub-reserves located at Mengyang, Mengla and Menglun, much was learnt on both sides - that is by the researchers and the park personnel. A similar situation exists in relation to the Tourism Bureau of Xishuangbanna Prefecture and that for Mengla.

The research undertaken is also of use to the Southwest Forestry College which is introducing a course in ecotourism. Professor Tisdell gave a lecture on this subject at the College. Dr Zhuge Ren, Deputy Director, will visit the Department of Economics at The University of Queensland later this year for a year as Visiting Fellow to follow up aspects of this with Professor Tisdell and colleagues, as well as engage in joint research about conservation on steepplands, with particular reference to Yunnan;

As a result of his involvement in the World Bank Loan Project at The Ministry of Forestry, Beijing, Zhu Xiang was able to make direct use of information and expertise developed as a result of his involvement in this project. The World Bank Loan Project required evaluations to be prepared for GEF funds.

At The University of Queensland, benefits include case study materials for students in Environmental Economics and in Ecological Economics (subjects popular with students from the Department of Agriculture) and assistance to postgraduate students including an M.Ec. student from China, Ms J Wen, who is completing her thesis on a closely related topic.

Results from the project have wider application than to China. Already they have provided useful background for research on sustainable rural development in North-East India and have been valuable background for the development of a research proposal to ACIAR by Clem Tisdell and Dr Kartik Roy for this region. In a recent letter, the editor of *Tigerpaper* (FAO) said that he was very pleased to publish articles from this project in his bulletin because the type of problems covered are widespread in Asia and the Pacific.

6. PUBLICATIONS

Working Papers:

- “Biodiversity Conservation: Economics, Gains and Costs in China Illustrated by Xishuangbanna Nature Reserve, Yunnan”, Clem Tisdell and Xiang Zhu, February 1994. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No.1.
- “Does the Economic Use of Wildlife Favour Conservation and Sustainability?”, Clem Tisdell, February 1994. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No.2.
- “The Environment and Asian-Pacific, Particularly East Asian, Economic Development”, Clem Tisdell, March 1994. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 3.
- “Presenting Requests for Financial Support for Protected Areas: The Role for Environmental Economics and Commonsense”, Clem Tisdell, March 1994. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 4.
- “Ranking Inter-country and Inter-regional Requests for Financial Support for Protected Areas: Environmental Economic Guidelines”, Clem Tisdell, March 1994. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 5.
- “Conservation, Protected Areas and the Global Economic System: How Debt, Trade, Exchange Rates, Inflation and Macroeconomic Policy Affect Biological Diversity”, Clem Tisdell, March 1994. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No.6.
- “Environmental and Resource Economics: Its Role in Planning Sustainable Development”, Clem Tisdell, April 1994. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No.7
- “Conservation of Biodiversity is the Most Important Aspect of Ecologically Sustainable Development: An Economic Perspective”, Clem Tisdell, April 1994. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No.8.

- “Ecotourism, Economics and the Environment”, Clem Tisdell, October 1994. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 9. (Includes translation into Chinese)
- “Socio-Economic Issues and Strategies for Biodiversity Conservation in China with Observations from Xishuangbanna”, Clem Tisdell, November, 1994. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 10.
- “Ecotourism- Its Boundaries and its Economics with Examples from China”, Jie Wen and Clem Tisdell, February, 1995. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 11.
- “Reconciling Economic Development, Nature Conservation and Local Communities: Strategies for Biodiversity Conservation in Xishuangbanna, China”, Clem Tisdell and Zhu Xiang February, 1995. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 12.
- “Tourism Development in India and Bangladesh: General Issues, and Ecotourism in the Sunderbans” Clem Tisdell, March 1995. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No.13.
- “Trends in Tourism Development in China: Issues and Opportunities”, Clem Tisdell, March 1995. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 14.
- “Tourism Development and Conservation of Nature and Cultures in Xishuangbanna, Yunnan”, Clem Tisdell and Zhu Xiang, May 1995. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 15.
- “Protected Areas, Agricultural Pests and Economic Damage: A Study of Elephants and other Pests from Xishuangbanna State Nature Reserve”, Clem Tisdell and Zhu Xiang, May 1995. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China* Working Paper No.16.
- “Financing Nature Reserves in China - The Case of the State Nature Reserve of Xishuangbanna, Yunnan: Financial Issues, Political Economy and Conservation”, Clem Tisdell and Zhu Xiang, May 1995. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China* Working Paper No.17.
- “Investment in Ecotourism: Assessing its Economics”, Clem Tisdell, May 1995. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 18.

- “Rapid Rural Appraisal (RRA), Participatory Rural Appraisal (PRA) and their Application in the Global Environmental Facility (GEF-B) Program in China”, Zhu Xiang, August 1995. *Biodiversity Conservation Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 19.
- “The Environment, Biodiversity and Asian Development”, Clem Tisdell, September 1995. *Biodiversity Conservation: Studies in its Economics and Management, .Mainly in Yunnan, China, .Working Paper No. 20.*
- “Biodiversity, Conservation and Sustainable Development: Challenges for North-East India in Context”, Clem Tisdell, September 1995. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 21.
- “Economic and Environmental Perspectives on Sustainable Agricultural Developments”, Clem Tisdell, September 1995. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 22.
- “India's Economic Development and Its Environment: General Patterns, Issues and Implications”, Kartik Roy and Clem Tisdell, September 1995. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 23.
- “Sustainability of Land Use in North-East India: Issues Involving Economics, the Environment and Biodiversity”, Clem Tisdell and Kartik Roy, December 1995. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 24.
- “Criteria for Sustainable Tourism: Why a Cautious Attitude is Needed”, Clem Tisdell, January 1996. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 25.
- “Protected Areas, Agricultural Pests and Economic Damage: Conflicts with Elephants and Pests in Yunnan”, Clem Tisdell and Zhu Xiang, January 1996. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 26.
- “Alternative Economic Instruments for Regulating Environmental Spillovers from Aquaculture: An Assessment”, Clem Tisdell, January 1996. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No. 27.

“Economics as a Basis for Conserving Nature”, Clem Tisdell, February 1996. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China*, Working Paper No.28.

"Tourism in Yunnan Province and the Xishuangbanna Prefecture of China: Achievements and Prospects" Jie Wen, March 1996. *Biodiversity Conservation: Studies in its Economics and Management, Mainly in Yunnan, China* Working Paper 30

Journals and Related Articles:

*C.A. Tisdell (1994), “Population, Economics, Development, and Environmental Security” in *Population and Global Security (Environmental Challenges II)* edited by Nicholas Polunin and Mohammad Nazim, The Foundation for Environmental Conservation, Geneva, Switzerland. Pp. 63-84.

*C. Tisdell (1994), “Conservation, protected areas and the global economic system: how debt, trade, exchange rates, inflation and macroeconomic policy affect biological diversity”, *Biodiversity and Conservation*, **3**, pp. 410-436.

*Clem Tisdell, “Environmental economic guidelines - inter-country and inter-regional requests for financial support for protected areas”, *Parks*, 4(2) (June 1994), pp. 13-21. ISSN: 0960-233X.

C. A. Tisdell (1995), “Asian Development and Environmental Dilemmas”, *Contemporary Economic Policy*, **XIII**(1, January) 38-49.

Clem Tisdell (1995), “Investment in ecotourism: assessing its economics”, *Tourism Economics*, **1**(4), 375-387.

Clem Tisdell (1994), “Tourism in the APEC Region and its Promotion in an Ecologically Sound way through Regional Cooperation”, in *Trade and Environment in Asia-Pacific: Prospects for Regional Cooperation*, workshop papers September 23-25 East-West Center, Hawaii, Nautilus Institute for Security and Sustainable Development, Berkeley, USA. Pp. 215-253.

Clem Tisdell (1995), “Socioeconomic Issues and Strategies for Biodiversity Conservation in China with Observations for Xishuangbanna” *Asian Pacific Journal on Environment and Development*, **2**(1, June), 1-12.

Clem Tisdell (1995), “Issues in Biodiversity Conservation Including the Role of Local Communities”, *Environmental Conservation*, **22**, 216-227.

Clement A. Tisdell (1995), "Does the Economic Use of Wildlife Favour Conservation and Sustainability?". Pp. 86-90 in G.C. Grigg, T. Hale and D. Lunney (eds) *Conservation Through Sustainable Use of Wildlife*, Centre for Conservation Biology, The University of Queensland.

Clement A. Tisdell and Xiang Zhu (1995), "Economics, gains and costs of biodiversity conservation in China". Pp. 110-116 in G.C. Grigg, P.T. Hale and D. Lunney (eds) *Conservation Through Sustainable Use of Wildlife*, Centre for Conservation Biology, The University of Queensland.

Jie Wen and Clem Tisdell (1996), "Regional Inequality and Decentralisation of China's Tourism Industry". Pp. 107-120 in Gary Prosser (ed) *Tourism and Hospitality Research: Australasia and International Perspectives*, Bureau of Tourism Research, Canberra.

Clem Tisdell and Jie Wen (1996), "Criteria for Sustainable tourism: Why a Cautious Attitude is Needed". P. 91 in *Australian Tourism and Hospitality Research Conference 1996: Abstracts of Working Papers*, Centre for Tourism, Southern Cross University, Lismore.

Forthcoming Research Papers

Clem Tisdell and Zhu Xiang (1996) "Reconciling Economic Development, Nature Development and Local Communities: Strategies for Biodiversity Conservation in Xishuangbanna, China", *The Environmentalist* **16**(3), 203-211.

Clem Tisdell (1996), "Tourism Development in China: Its Nature, the Changing Market and Business Opportunities", *The Journal of Vacation Marketing*, **2**(2), 123-136.

Clem Tisdell (1996), "Ecotourism, Economics and the Environment with Observations from China", *Journal of Travel Research*, **34**, 11-19.

Clem Tisdell and Zhu Xiang (1997), "Financing Nature Reserves in China: A Case Study", *Tigerpaper: Regional Quarter Bulletin on Wildlife and National Parks Management*, **24**(4), 21-26.

Clem Tisdell and Zhu Xiang (1998), "Protected Areas, Agricultural Pests and Economic Damage: Conflicts with Elephants and Pests in Yunnan", *The Environmentalist* **18**(2), 109-118.

Clem Tisdell and Zhu Xiang (1996), "Tourism Development and Nature Conservation in Xishuangbanna, Yunnan: A Case Study", *Tigerpaper: Regional Quarterly Bulletin on Wildlife and National Park Management*, **23**(2), 20-28.

7. FOLLOW UP

The *Biodiversity Conservation Working Paper Series* will continue for the time being and will continue to disseminate follow-up research results. Furthermore, Dr Zhuge Ren, Deputy Director of Forestry, Southwest Forestry College, Kunming, will visit the Department of Economics, The University of Queensland as a Visiting Fellow for one year funded by the Chinese Government to cooperate with Professor Tisdell in extending this research. The Director, Xishuangbanna State Nature Reserve, and relevant authorities in Yunnan will continue to be informed of research findings. This research concentrated on Xishuangbanna and scope exists for extending it to other areas of Yunnan and China if funding can be found. No property rights are proposed.

It should be noted that a variety of means have been used to disseminate results. These include bulletins, widely used by personnel involved in forestry and the management of protected areas, and working papers. In addition, several conference presentations have been made.

8. OTHER ACTIVITIES

Details of institutional capacity building have been given above.

BIODIVERSITY CONSERVATION

WORKING PAPERS IN THIS SERIES

1. Biodiversity Conservation: Economics, Gains and Costs in China Illustrated by Xishuangbanna Nature Reserve, Yunnan by Clem Tisdell and Xiang Zhu, February 1994.
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