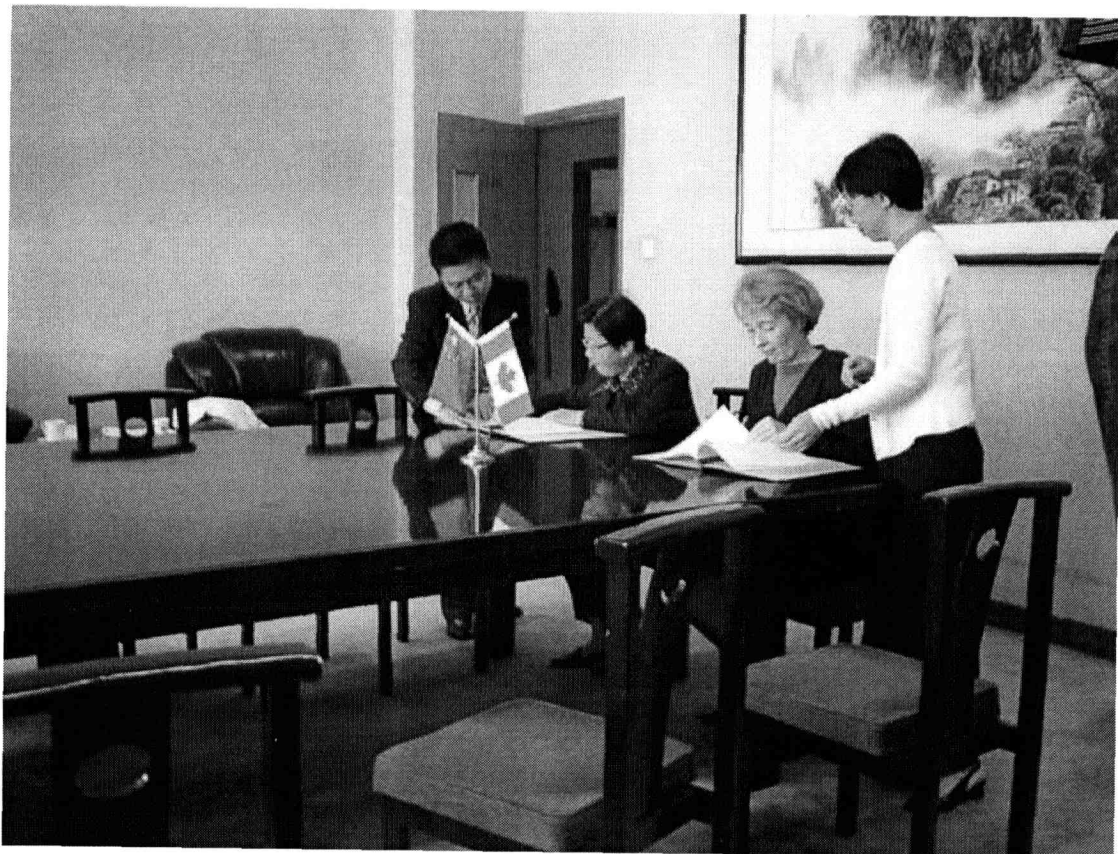


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IDRC president O'Neil Maureen and Minister Madam Zhu Lilan of Science and Technology signing renewed agreement on cooperation between China and IDRC

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January 2000

**AN ASSESSMENT OF TWENTY YEARS OF
RESEARCH COLLABORATION
BETWEEN CHINA AND
THE INTERNATIONAL DEVELOPMENT RESEARCH CENTRE**

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PREFACE

The International Development Research Centre in Canada has provided funding for research in Chinese institutions for twenty years. It was decided to mark this anniversary by carrying out an assessment of the lessons to be learned from these twenty years of partnership. It was also decided that this should be a joint undertaking between the Ministry of Science and Technology (MOST) in China and an IDRC appointed team.

The assessment was not meant to duplicate project and programme evaluations that are usually carried out by professionals in the respective research fields. Rather it was meant to assess the process of the collaboration to date to see whether changes should be made to this process. It is hoped that the assessment will be a valuable input to the thinking about future IDRC/China relations. But it is also hoped that the review might be useful more generally both for IDRC and for MOST in their relationships with other countries (IDRC) and other donors (MOST). Finally it is hoped that these 'lessons learned' will be valuable for China in its thinking about its own support for research in lesser developed countries.

The field work for the assessment took place in October 1999, and this report was prepared when members of both the Chinese and IDRC teams met in Beijing in mid January 2000. A further volume containing the translations of the fifty Chinese reports from institutions that have received IDRC support will be prepared by mid summer 2000. These reports contain more detailed evidence of the considerable impact that IDRC supported projects have had on Chinese development over the past 20 years.

CHAPTER 1

INTRODUCTION AND STATISTICAL REVIEW

1 Background

The International development Research Centre (IDRC) is a public corporation created by the Canadian government to help communities in the developing world find solutions to social, economic, and environmental problems through research. IDRC connects people, institutions, and ideas to ensure that the results of the research it supports and the knowledge that research generates, are shared equitably among all its partners, North and South. Since its foundation, IDRC has supported many research projects in developing countries all over the world and through this support and its style of delivery IDRC has become a well respected and important development research organisation.

The science and technology co-operation between China and IDRC started in 1981 when an agreement of science and technology co-operation was signed. The Ministry of Science and Technology (MOST) (previously the State Science and Technology Commission) is responsible for the co-ordination and management of the IDRC supported projects in China. During the past 20 years, IDRC has supported about 150 collaborative research projects in China with a total funding of 25 million Canadian dollars. The research in China supported by IDRC has covered a wide range of scientific disciplines such as agriculture, forestry, health, environment, resources, information, economy and social development. IDRC projects in China also covered a wide range of geographic areas, from Shanghai in the east to Tibet and Xinjiang in the west. The IDRC projects have encouraged collaborative research both within China and between Chinese and foreign teams. They have also funded participation in international conferences, workshops, training courses etc. The benefits and outcomes of these collaborations have been documented in a number of reviews, evaluations and end of project reports.

However, a complete assessment of the projects has never been done. Such an assessment would help both the MOST and the IDRC to improve their future co-operation, to help the MOST to improve its program delivery and project management efficiency, to develop its future science and technology co-operation with underdeveloped countries. To mark the 20 years of successful collaboration between the MOST and IDRC, it was decided to carry out a review and assessment of all the IDRC projects conducted in China.

2 Aims of the review

The objectives of the assessment are several fold: 1) to summarise all IDRC projects in China conducted in the last 20 years, in order to find problems and lessons learned in the management and implementation of IDRC projects and this will be used as references by the MOST in designing and managing its future international science and technology co-operation; 2) to strengthen the information sharing and exchange among the host institutions of IDRC projects and project administration organisations. As a results of this goal, information on China-IDRC co-operation and projects will be launched at the web site of MOST; 3) to provide help for IDRC to develop its policy for future relations with China; 4) to help both sides to improve their efficiencies in future planning of research programs; 5) to provide experiences which can be helpful for China to develop overseas S&T development programs less developed countries

3 Methodology of the assessment

The assessment was carried out in a variety of ways. It was organised as a multiple level project review. The IDRC-China projects were reviewed at project level, where project leaders and team members were asked to reassess their projects. Projects were also assessed at institutional level, in which the projects were categorised according to project fields which are usually managed by relevant institutions such as the Chinese Academy of Forestry, Chinese Academy of Agricultural Sciences etc. At the State (MOST) level an overall summary of the IDRC-China projects and general review was conducted by the review team organised by the MOST which consisted of experts and programme officers. In parallel IDRC appointed its own Review team which conducted an assessment based on IDRC files, project evaluations, and a questionnaire which was sent to all IDRC programme officers who had helped develop projects in China. The two review teams interacted closely in all aspects of the assessment. Small workshops involving both the review teams and key project leaders and other research staff, were held in several typical and representative institutions. These included the Chinese Academy of Forestry, the Chinese Academy of Agricultural Sciences, Qinghua University, the Jiangsu Academy of Social Sciences and other institutions in different parts of China. The Chinese project team will also visit IDRC headquarters in Ottawa at the completion of the assessment to finalise this report and prepare it for publication in English and Chinese.

4 Summarised statistical information on IDRC projects in China

4.1 Number of projects funded by IDRC in each year

Before the agreement of science and technology co-operation between IDRC and China was signed in 1981, there was only one project of which the research related to China and the implementation organisation was outside China. Since 1981 the number of projects funded by IDRC steadily increased until 1986 in which the number of IDRC projects in China peaked. Since then the number of projects has decreased until 1990, when the number of projects was only 6, after that year there was a rise in project numbers, reaching a total of 13 in 1991. Since then the number has continued to decline until the present. (Fig.1)

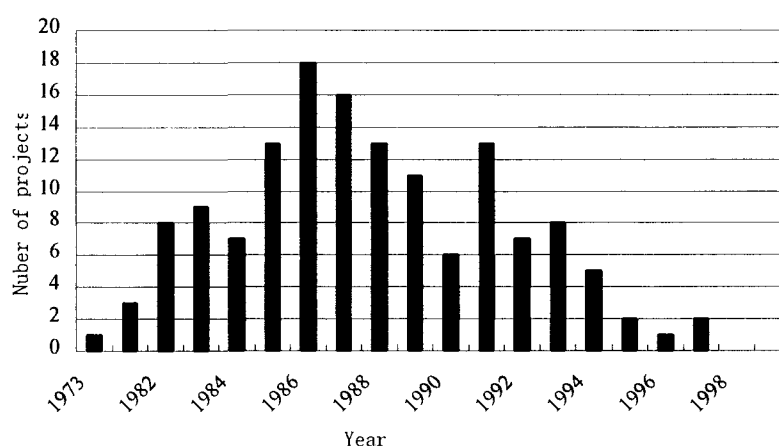


Figure 1 The number of projects funded by IDRC in China

4.2 Funding of IDRC projects in China

The total funding of IDRC projects in China over the past 20 years was estimated to be approximately 25 million Canadian dollars. The amount granted in each of the years has generally followed a similar trend to that of the number of projects. The amount of funds increased from the early 1980s, peaking in the mid-eighties, and since then has continuously decreased. The reason for these changes is not clear. It is possibly due to the overall IDRC budget, changes in its research priorities, and staff changes. The annual allocation of funds to China is shown in figure 2.

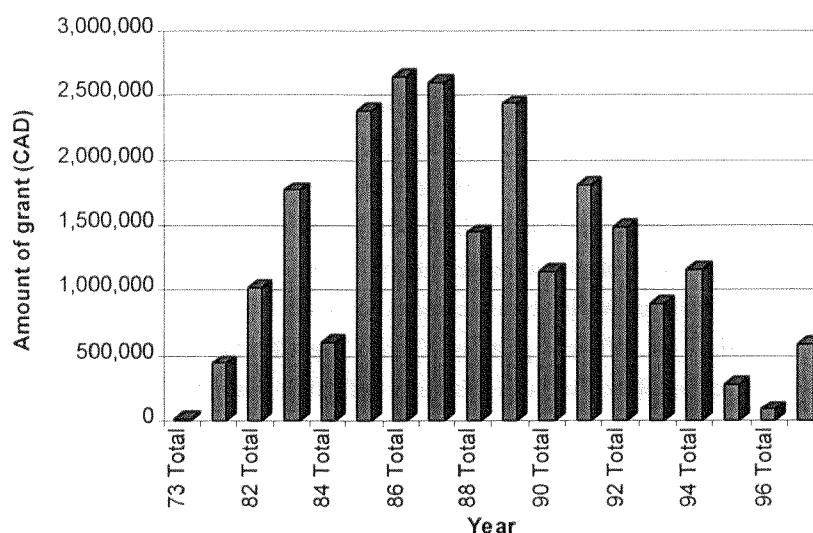


Figure 2 Annual amounts of IDRC grants to China

4.3 Sector coverage of IDRC projects

IDRC projects in China have covered a wide range of fields, such as social science and social development, agriculture, health, forestry, environment, information sciences, natural resources, energy, engineering, and earthquake studies. The number of IDRC projects in China has totalled 151, of which 24% were in social science and social development, 18% were in agricultural science, 17% were in health care, and 13% were in forestry. All other fields are under 10%, as demonstrated in figures 3 and 4.

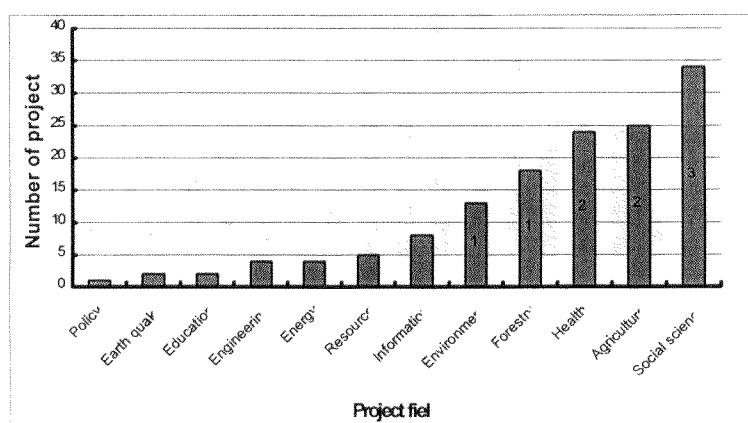


Figure 3 Number of projects in each field of research

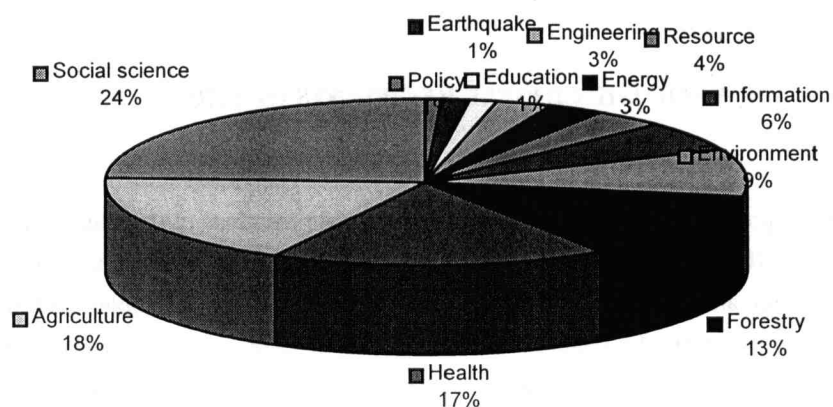


Figure 4 Proportion of IDRC projects in different fields

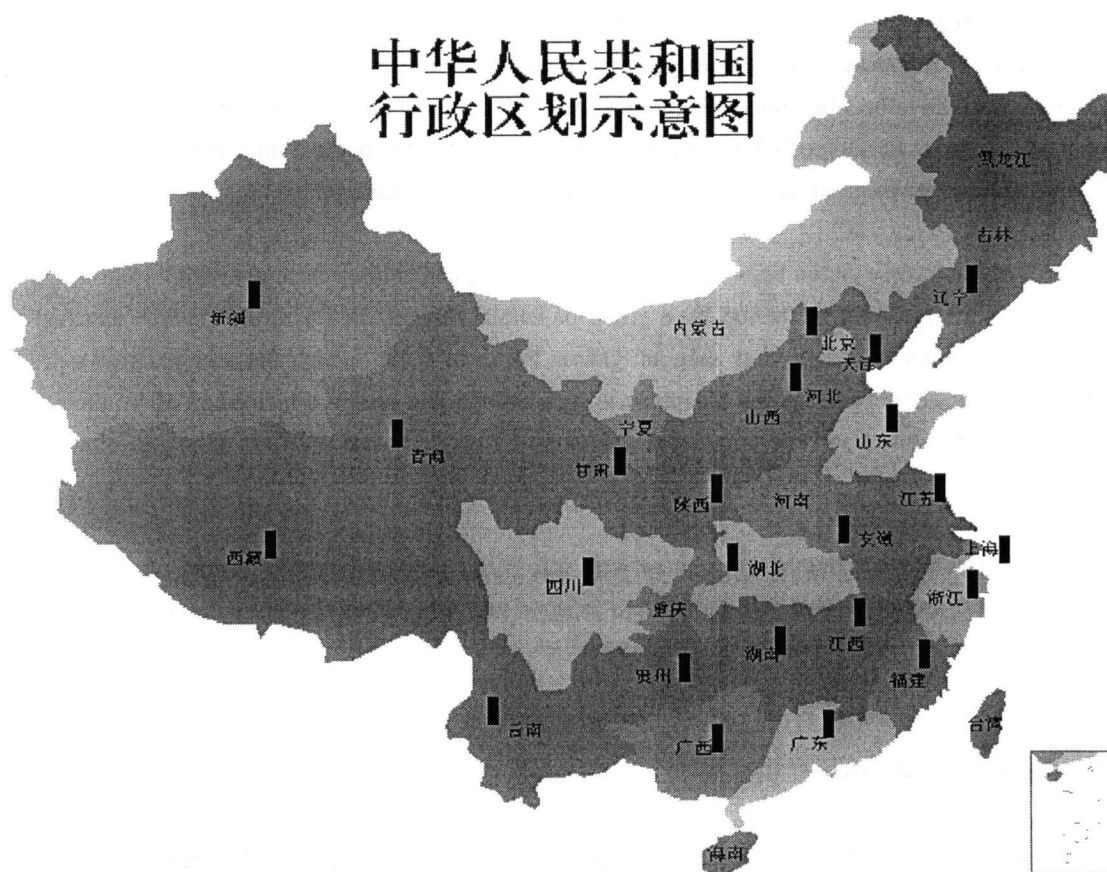


Figure 5 Distribution of IDRC projects in China

4.4 Geographical coverage of IDRC projects

IDRC projects in China have covered a wide geographic area from east to west and north to south, including Tibet and Xinjiang. About 24 provinces and municipalities have been involved in at least one of the IDRC projects. Some places have had several projects, but no projects have been located in north-eastern China, Inner Mongolia and Linxia (figure 5).

CHAPTER 2

VIEWS OF THE CHINESE RECIPIENTS OF IDRC GRANTS

In this chapter of the report we have summarised some of the main reactions of the Chinese recipients regarding their involvement with IDRC. Their views were expressed either in the interviews, which we conducted in Beijing, Nanjing, Urumqi, and Guiyang, or through written submissions from a sample of 50 institutions that had been the recipients of grants from the IDRC. We have chosen to focus mainly on those comments that related to IDRC's style of work rather than summarise the details of the substantive research achievements of the different institutions.

1. General Reactions to the IDRC

Although the review team anticipated that the recipients of research grants would be basically well disposed to the donor, we were not prepared for the degree of enthusiasm and gratitude that was expressed. The fact that this Canadian aid is given to benefit China rather than Canada was greatly appreciated by the Chinese recipients. One person said, "Canada has helped China improve its bamboo and rattan when it does not itself grow any of these trees. This shows the sincere intention of IDRC to help developing countries".

The impact of IDRC assistance on the lives of individual researchers had at times been dramatic. But it was the heartfelt warmth of the gratitude expressed by a group of ethnic villagers in Guizhou Province that had the greatest impact on the review team. They sang an 'Ode in Praise of IDRC' which documented how a project on the community management of natural resources in their village had totally transformed all of their lives. This was part of a thank you celebration organised by combined Buyi and Miao villagers in honour of a visit by the President of IDRC.

Apart from these and other anecdotal reports there were also many other substantive results of achievements presented to the team. Some of these will be referred to again in a later volume which will contain the reports from the fifty research projects studied by the Chinese review team.

2. Getting in the IDRC Door

A criticism that was made of IDRC's procedures was the difficulty of getting in the IDRC door. Once inside the experience of working with the Centre was considered good. But it seems that the process for breaking into the system was not clear at the beginning. The review team asked the Chinese researchers how they had first encountered IDRC. For several it was a chance meeting with an IDRC programme officer at a scientific conference. Others had been referred to a particular staff member by a Chinese colleague, or had met a programme officer when they were visiting China.

IDRC staff often call the process of identifying potential recipients ‘talent spotting’. To most Chinese researchers this is a hit and miss process. Several preferred the approach followed by other donors who advertise the programme areas for which they are prepared to provide grants, and call for proposals. This was considered to be a more open and transparent process.

3. **Benefits of working with the IDRC**

Quite apart from the financial benefits that flowed from an IDRC grant there were many other benefits which came from being associated with the Centre. For example:

- The enthusiasm, professionalism, and commitment of IDRC programme officers were almost universally recognised. “The working style of IDRC programme officers is something we have all learned from”, was the comment of one Chinese researcher. One (Stephen Tyler) has been awarded a Chinese national prize for his contribution to Chinese research.
- The greatest assistance has been the help provided in the preparation of project proposals. This was an activity about which most researchers were unfamiliar. They now realise the benefits of having clear objectives and methodologies for the conduct of the research. IDRC staff were credited with having introduced the Chinese researchers to new methodologies. Sometimes it has been necessary to go through five or six iterations in the preparation of the proposal before the programme officer has been willing to submit it for approval by IDRC. At first such ‘interference’ was resented, but it is now recognised as being a necessary part of a successful project.
- The whole process of project preparation, project management, project accounting, project monitoring and evaluation required by IDRC, has alerted the Chinese to international best practice in research management. This has had a positive spin-off effect as similar approaches are now followed in many national projects.
- IDRC has played a major and positive role in involving Chinese research teams with teams from other countries in regional and global networks. Sometimes the contacts developed in these networks have continued long after the initial project has been completed.
- A similar major role has been played in developing co-operative projects between institutions within China. For example, one project brought together twelve different provincial academies of social science that worked on a single major project. It had taken a foreign donor (IDRC) to bring this about.
- The IDRC has provided a variety of training opportunities with short courses; workshops; and by the provision of scholarships for overseas study.
- It is not only researchers who have benefited from training programmes. Help has also been given to research managers, accountants and administrators. This aspect is particularly appreciated since few other donors have helped strengthen research management.
- IDRC staff have helped find opportunities for the publication of the research outputs in international journals.

- The fact that IDRC provides funds to Chinese institutions for them to disburse and provide accounts, and has been willing to accept some degree of flexibility in the disbursement, was warmly welcomed.

4. Some problems of working with IDRC

Although overall the experience of working with IDRC was considered to be very positive there were a number of suggestions for changes to procedures. For example:

- Project monitoring by programme officers is welcomed by some researchers, but for others the visits are disruptive and not constructive. Several people we interviewed thought that once the research was underway they knew far more about the issues than the programme officer who visited for a few days. Yet without a detailed knowledge, and with no Chinese language ability, the programme officer would sometimes require changes to the project. This put the researchers in a dilemma. Should they change the project to ensure continued flows of funds even if they thought what was being proposed was wrong? Or should they ignore the advice and continue doing what they thought was right?
- Accounting and reporting requirements differ between donors. If a project is supported by several donors this can impose a huge burden on the research team. It was suggested that donors might co-operate and consolidate their reporting and accounting requirements. This is not a criticism of IDRC alone, but it was felt that IDRC might take a lead in getting a rationalisation of reporting requirements among donors.
- The main criticism of IDRC came from agricultural researchers who found it difficult to understand why agricultural research had been abandoned as a supportable theme by IDRC.
- Some researchers thought that IDRC's project cycle was too short. There was not enough time, or resources, to enable the researchers to go on to the demonstration or pilot phase. They thought the Centre hindered the development of innovations by stopping funding when only the research had been completed.
- There was disappointment about how little feedback was provided on any evaluations that IDRC carried out of its projects in China.
- Awards and prizes are an important part of the Chinese researchers' lives, influencing such things as pensions and housing benefits. Perhaps IDRC could instigate the process of making awards each year for the best research in different countries funded by IDRC. It would then be considered a major achievement if a Chinese researcher were to win such an award.
- Another criticism was the length of time that it sometimes took to get a response to project proposals submitted to IDRC. We heard of several cases where researchers had been kept waiting for more than six months before they even received an acknowledgement of receipt of the proposal.
- Some Chinese recipients felt that there was a lack of exchange and information flows among the IDRC project teams within China.

- Several people mentioned their concern about the process whereby IDRC identified potential recipients. Once selected as a recipient it seemed possible to receive continued support, but there was a huge barrier to cross to get in the IDRC door.

5 Research output from IDRC supported projects

Every project team consulted provided the review team with a long list of research outputs. These included reports written; papers published in Chinese journals; papers published in international journals; papers presented at conferences; patents applied for; prizes received; and briefing papers prepared.

The review team considered the possibility of collating all these facts and achievements, but decided against doing so on the grounds that this would provide little information which was directly relevant to this assessment. It is sufficient to note that all of the teams seemed to be aware that their research results had to be disseminated widely to academic and policy making audiences as well as other potential beneficiaries of their research. It was not sufficient only to prepare a report for the IDRC.

6 Comparison with other donors

Recipients were asked to compare the approach followed by IDRC with that followed by other donors in the hope that IDRC may be able to benefit from this comparison. This question usually (but not always) led to praise for the IDRC approach as compared to other donors. The following are some of the comments made:

- IDRC supports Chinese researchers to solve Chinese problems. Some other donors get Chinese researchers to collect data in China for analysis by researchers in the donor's country.
- IDRC permits Chinese research teams to administer their research grant. Not all donors do this.
- IDRC provides technical inputs and support throughout the entire project. Only a few donors do this.
- IDRC provides training not only for researchers but also for research managers. Few other donors do this.
- IDRC provides a variety of mechanisms for training according to the local needs. Such a variety is not usually forthcoming with other donors.
- IDRC has enabled Chinese research teams to interact with teams in many other countries. They are able to be, and feel to be, a part of the international scientific community. Other donors only facilitate interaction with researchers in their own country.
- IDRC has more onerous reporting requirements than most donors, but respondents were divided in their opinions as to whether this was an advantage or a disadvantage of working with IDRC.
- Other donors were considered by some respondents to have more open and fairer procedures for identifying potential recipients.

CHAPTER 3

VIEWS OF IDRC PROGRAMME OFFICERS AND CONSULTANTS

As part of the assessment the review team sent a questionnaire to all the IDRC programme officers who had been involved in projects in China. A few consultants who had worked in China for IDRC were also sent copies of the questionnaire and invited to respond. The questionnaire is reproduced as an Appendix

A total of 30 programme staff was identified as having been involved with projects in China over the past twenty years. Many of these no longer work for IDRC, and some had only a minor involvement with projects in China. There were ten detailed replies, but since these included all of the staff who had substantial involvement in China the responses are judged to provide useful insights.

The principal responses to the questions posed in the questionnaire are summarised below.

1. The role played by SSTC and MOST

The State Science and Technology Commission (SSTC) and its successor, the Ministry of Science and Technology (MOST) have the formal responsibility of approving all Chinese projects submitted to IDRC. Their role is also to help identify new research partners and to facilitate the collaboration.

There was general agreement that all of the above tasks had been performed diligently by SSTC/MOST. There was one case where it was felt that the SSTC had over-committed IDRC in what had been intended (by IDRC) as an exploratory meeting, but this was not seen as a serious shortcoming. There were many more comments of praise where it was felt that SSTC/MOST had been extremely helpful in its facilitating role.

For the future it was felt that perhaps a new type of relationship should be developed between IDRC and MOST. The two organisations should consider the need for a clearer strategy where IDRC assistance would be targeted to areas and institutions of greatest priority for China and yet which also met IDRC priorities. This would also mean that MOST would play a greater filtering role only submitting to IDRC those proposals that clearly fitted the agreed strategy. At the present time MOST submits projects which, not infrequently, do not fit into IDRC's Corporate Planning Framework. There is a low success rate within IDRC for this type of unsolicited project proposal. It was also felt that MOST might do more to advertise IDRC programmes in China, and help identify new potential research partners. The MOST web site will be a useful tool in this regard, although its main purpose is to disseminate the knowledge generated over the past 20 years, and help to advertise the principal researchers as resource persons. Also when there are only a few projects funded in China each year, widespread advertising on the web site might bring a deluge of proposals and the work involved in processing them may not be worth while.

2. The role of the host research institution

This question was meant to explore the perceived quality of the research management provided by the host research institution. Was the research management appropriate? was there a need for improvement? did IDRC contribute through training programmes to this improvement?

There was almost unanimous praise from the respondents for the quality of the research management of the host institutions. In most cases it had been a real pleasure to work with the management which had been highly skilled and who had been anxious to learn about IDRC's requirements and committed to ensuring the conduct of excellent research. On a few occasions training had been provided and new computer systems installed with IDRC help.

Some Programme Officers commented on the fact that they found it difficult to differentiate between what had been achieved by a research institution as a direct result of IDRC support and what had been achieved overall by the institution. They felt that on some occasions IDRC may be receiving credit for work that was not directly attributable to them.

3. Quality of the research staff

When IDRC began its research collaboration with China, that country was only just emerging from the decade of the Cultural Revolution. Research and higher education had been badly affected, and contacts with the outside world almost totally cut off. It was expected that the quality of the researchers and their knowledge of the foreign methods and literature would have been relatively low.

According to the responses to the questionnaire the IDRC programme officers who worked in China in the early 1980s found that most of the researchers they encountered were surprisingly well trained and competent, even if they were not well acquainted with western literature. There were occasions when the researchers lacked self-confidence when they were involved in international networks. However, once they realised they were as good, if not better, than the other country teams then the self-confidence was quickly restored.

The main difference with researchers encountered by IDRC staff from other countries in these early days was the lack of breadth, but deep specialisation of Chinese researchers. This was more than made up for by a sense of commitment to the research and by the fact that most of the Chinese researchers tended to work full time on the IDRC supported projects. This was in marked contrast to what happens in some other countries. Where appropriate, training programmes and opportunities for overseas study were organised by IDRC and these always seemed to be highly appreciated.

The situation regarding the quality of researchers in the social sciences was somewhat different. Chinese research in the social sciences had been very theoretical and ideological. There was little knowledge of western methodologies or of the literature on development studies. One IDRC programme officer assessed the quality of Chinese social science ten to fifteen years ago as warranting a grade of 2/10. Now it has improved to 6/10, but it has still some way to go to catch up with advanced international standards.

IDRC has contributed substantially to the improvement in social science research in those areas where it has been active. Some of the main IDRC contributions have been in introducing the Chinese researchers to more empirical research approaches, in demonstrating the need for interdisciplinary approaches to problem solving, and in introducing community based research.

Good social science and policy oriented research is very important in any country, but is specially so in China which is undergoing profound changes as it converts itself from a centrally planned to a market economy. IDRC has had a substantial impact in improving social science research over the past ten years. It would seem important that the organisation continue to play a role in helping to bring social science research in China up to advanced international standards.

4. Links between researchers and potential clients of the research

The issue of the links between potential clients of research results and researchers has assumed considerable prominence in recent years. This is equally true of the more industrial societies as it is for developing societies. This question was included to assess the extent to which these issues were recognised in China, and taken into account in the design of research projects and in the implementation of their results.

The extent to which clients, or potential clients, are involved in helping to shape research questions seems to be considerable. Where it makes sense to do so most projects, often through IDRC staff encouragement, have found ways of consulting potential clients in the project design.

The uptake of research results also seems to be good compared with other countries although most of the IDRC respondents admitted that they had usually not been involved in this aspect of the research. Some felt that the culture in China today was receptive to the utilisation of research results whether this was in forestry, or in policy research.

5. IDRC programme delivery

Over the 30 years of IDRC's existence it has developed a unique approach to delivering research assistance to developing countries. This can be characterised by the employment of staff who are highly professional in the scientific fields in which IDRC operates. These professional staff help identify researchers in the developing world, work with them in designing research proposals, monitor and assess ongoing research, and help build networks. Although projects must fall within the Corporate Planning Framework agreed by the IDRC Board, they are intended to meet the priorities of the developing countries. Once approved by the IDRC, projects are mostly administered by the host institution and a high degree of flexibility is permitted in the execution of the project.

A recent internal IDRC document identified fourteen characteristics of the IDRC approach to programme

delivery⁵. We asked the recipients of the questionnaire to comment on the importance of each characteristic to the success of their projects in China.

Almost all of the respondents thought that the fourteen characteristics had been important in their work. Some thought that the provision of linkages to Canadian expertise had been important, but for others this had been an irrelevant part of their project.

Some thought that talent scouting had been a necessary part of the project development, but for others this too was irrelevant.

What was clear from the responses is that the IDRC programme staff are highly motivated professionals who think that the delivery mechanism evolved by IDRC is basically a good one which is highly relevant to the success of projects in China.

6. Changes in IDRC priorities

During the 1990s there have been major changes in IDRC programme priorities. These followed a decline in the funding allocated by the Canadian Government to the IDRC and a view following the Rio Environmental Conference that more of IDRC's funding should be directed to environmental issues, and to solving a limited number of the key development problems. These changes were encapsulated in successive Corporate Planning Frameworks (CPF) which defined the new priorities and orientations. The questionnaire included a question designed to assess the impact of the CPF on the development of projects in China.

There was a general recognition that the change in IDRC priorities had been damaging to IDRC's reputation in China. Many programmes, especially in agriculture, were terminated. This caused much disappointment and frustration among the Chinese recipients. There seems to have been a failure of communication between the Centre, the SSTC, and many of the Chinese recipients, on the reasons why IDRC changed its approach, and the opportunities that the CPF provided for new initiatives. The existence of a CPF made it easier for programme staff to explain why certain programme activities were no longer permissible. But the Programmes Initiative approach also meant a longer time had to be devoted to working with recipients to develop a project proposal which was acceptable to IDRC.

7. Particular issues of working in China

This question was added to tease out any issues which were not covered by the other questions, but which might be significant.

There was a strong consensus that, as noted earlier, one of the biggest problems for IDRC staff working in China was their lack of Chinese language capability.

⁵ Sarah Earl and Terry Smutylo. *Supporting Development Research: An assessment of the specifics of IDRC's approach to programme delivery.*

The lack of Chinese language capability within the programme staff has made it difficult for them to make sound assessments of the research capabilities and knowledge of the Chinese research teams. They had found it possible to work with the Chinese teams to design research projects through the use of interpreters. But for the most part they had found it difficult to have in depth technical discussions using interpreters. If IDRC is to continue to support research in China in a major way it will be important to resolve this issue either by giving fewer responsibilities for programme staff, providing them with Chinese language training, recruiting new staff with Chinese language capabilities, or making greater use of consultants with Chinese language capability.

Another issue raised was how IDRC might increase the use of Chinese strengths in such areas as traditional knowledge, and appropriate livelihoods in regional and global networks.

CHAPTER 4

CONCLUSIONS AND SUGGESTIONS FOR FUTURE ACTION

The time and resources that were available for this assessment did not permit a thorough evaluation of the impact of IDRC on either China's research system or on China's development. What it has done is to identify a set of issues which, in the opinion of the review team, deserve further consideration by both MOST and IDRC. They should provide the basis for thinking about the next phase in the relationship between IDRC and China.

The assessment revealed a high level of satisfaction with the IDRC/China partnership on both the Chinese and IDRC sides. There were some criticisms made, but most of these were constructive and have led the review team to make some suggestions for changes to the way the partnership should work in the future.

The IDRC support has led to some notable research successes, especially in agriculture and forestry. The economic returns, reported to the review team, from some of this research is quite remarkable. Also, the help provided to strengthen social science research in China has had a noticeable impact. But some of the Chinese institutions had become heavily dependent on continuous IDRC support. Even today, the Chinese Academy of Forestry depends on foreign funding sources for 40% of its research income.

It is interesting to note that the changes which occurred in Canada in the late 1980's and early 1990's and which led IDRC to become more responsive to market needs, coincided with the Chinese reforms which pushed Chinese research institutions in the same direction. This has, in fact, been a global trend and has resulted in research institutions world wide having to become more responsive to the needs of society.

Now that China has a strong scientific base in many sectors, its relationship with IDRC needs to be rethought. We suggest that over the next 5 to 10 years IDRC should continue to work in China concentrating its efforts on a few programme initiatives which are of particular importance for China. Within these IDRC might especially continue to help bring Chinese social science research up to international standards; help promote networks of research teams within China, especially linking more experienced teams with those less experienced; continue to promote the formation of inter-disciplinary teams necessary to solve development problems; include Chinese teams in international networks (in these cases the costs of the Chinese teams might be met by MOST).

We have built on this general approach to make some specific suggestions for consideration by MOST and IDRC. These suggestions follow our general conclusions and also pick up on a number of specific suggestions made during the course of the review.

Suggestions:

1. IDRC continue to support research in China, focusing especially in those areas of great importance for China, but where China's research strengths are not yet up to international standards. This would include policy research and the management of innovation. This suggestion is made in order to utilise the IDRC strength of providing technical support as well as financial support.
2. MOST and IDRC meet (perhaps every two years, alternatively in China and Canada) to agree on a strategy for their partnership in China. This strategy would need to take into account both China's

priorities and IDRC's Corporate Planning Framework.

3. MOST and IDRC consider setting up a new joint venture where each contribute to the support of research in third countries and participate in research networks. The joint venture might eventually have a measure of independence of each organisation with its own board. To begin, however, a specific research topic might be chosen and a mechanism found for the sharing of costs. Additionally, MOST might fund the research of Chinese teams that participate in international networks.
4. MOST be more proactive in helping to identify Chinese partners at both national and local levels to work with IDRC on projects which contribute to the new strategy.
5. MOST do more to disseminate information about IDRC, and its Corporate Planning Framework, within China. The MOST web site is a good start.
6. MOST and IDRC co-operate in organising a workshop in China for all current recipients of IDRC grants. The review team found a strong sense of loyalty to IDRC among different research teams even though they were working on totally different topics. Some expressed the view that they would welcome such a meeting so they could share experiences. It might lead to the definition of best practise in research support.
7. IDRC continue the practise of employing technically qualified programme officers who help in project design and proposal writing. Consideration be given, however, to using Chinese speaking consultants in project monitoring and evaluation. Some of those consultants might be from Chinese institutions.
8. IDRC consider a more open and transparent process for choosing potential partners. Some of the grants might be awarded following a process of open competition. This process could be advertised widely on the internet. In particular, the MOST web site could be very helpful.
9. IDRC provide more feedback to Chinese research teams on any relevant project evaluations that it carries out.
10. IDRC consider making annual awards for excellence in research supported by IDRC.
11. IDRC to expand the practise of linking experienced Chinese researchers in centres of excellence with less experienced researchers in the remoter and less developed regions of China.
12. IDRC do more to inform researchers in developing countries about its changes in priorities and the reasons for making them.
13. IDRC to organise a workshop on the links between policy research and policy making. This is an important topic in China and is a subject on which there is considerable interest worldwide. Chinese researchers and policy makers would benefit from learning about international experience on this topic.
14. IDRC to consider organising training programmes for the managers of international research networks. Chinese researchers have observed that IDRC has a lot of experience at running networks and in observing how successful networks are managed. Can this experience be codified? What are the attributes of a successful network manager, and can managers be trained to acquire these attributes? If so, MOST would like to send selected Chinese research leaders for such training.

APPENDIX 1

Questionnaire sent to IDRC Programme Officers who have worked in China

ASSESSMENT OF 20 YEARS OF IDRC COLLABORATION WITH CHINA

1999 marks the twentieth anniversary of the start of IDRC/China research collaboration. To mark the occasion the Ministry of Science and Technology in China propose to carry out an assessment of this collaboration. One purpose is to help the MOST to plan future collaboration, another is to help IDRC in its thinking about future relations with China. A third objective is to help the Chinese in their thinking about a possible enlarged programme of research support to lesser developed countries. They want to identify the particularly beneficial aspects of IDRC support so that these can inform the design of any future Chinese programme.

I have been asked to participate in this assessment and will be spending three weeks in China working with the Chinese team. Tan Say Yin from IDRC's Singapore office will also participate in the assessment. The main objective will be to identify the characteristics of IDRC support which have been particularly well received by the Chinese recipients and also any characteristics which not been well received. The review team will wish, wherever possible, to learn about the impact of IDRC supported research on Chinese development, but that is not the main purpose of the assessment.

The IDRC office in Singapore, and its headquarters in Ottawa have provided the Chinese and myself with project documentation for a selection of projects, spanning different subject areas and different geographic regions in China. The projects were chosen following consultation between the Chinese and Randy Spence.

I have been reading this voluminous documentation and in the course of this have identified a number of IDRC programme officers who were involved in developing or monitoring projects in China. Some of these staff are still with IDRC, but others have moved on to other jobs or have retired. The assessment team thinks it will be useful to contact as many as possible of IDRC staff and consultants to solicit your views about the characteristics of IDRC support which you believe to have been most and least appreciated by the Chinese research teams.

We would also appreciate your own assessment of the performance of the Chinese partners. We have some information from project completion reports, but these are not available for all projects. It would be easiest if you could provide your responses in electronic form, and return it as an attachment to me. Your identity will be kept strictly confidential.

QUESTIONNAIRE

1. The role of the Ministry of Science and Technology (Previously SSTC)

To what extent did you find MOST/SSTC helpful in facilitating Collaboration between IDRC and the Chinese research partners. Do you have any suggestions of what more they might do in the future?

2. Role of other facilitating organisations such as the Chinese Academy of Forestry.

To what extent did you find the CAF helpful in facilitating co-operation between IDRC and the Chinese

research partners?

3. Role of host research institution.

Please comment on the quality of the research management provided by the host institution. Did you find that this changed over the lifetime of the project? Did any IDRC actions contribute to these changes? What actions were most important?

4 The Chinese research teams.

What, in your view, was the quality of the Chinese research teams with which you worked? How did their quality change over the lifetime of the project? To what extent did IDRC actions contribute to those changes. ? What were the most important actions?

Were there any noticeable differences between the quality of the Chinese research teams and those of other teams in other countries?

5. Views on the links between the research teams and potential clients of the research.

To what extent were potential clients or users of the research involved in the research design, or monitoring. To what extent, to your knowledge, were the results applied. Please give examples.

6. The IDRC approach to programme delivery: the case of China.

A 1998 IDRC report on Supporting Development Research: An assessment of the specifics IDRC's approach to programme delivery by Sarah Earl and Terry Smutylo identified fourteen characteristics of the IDRC approach. These were :

1. Talent Scouting and Spotting
2. Flexible and Responsive Funding
3. Motivating for Research Quality
4. Collegial Relationships with Research Partners
5. Linking Research to the Development Context
6. Institutionalization of Research for Development
7. Research Networking
8. Donor Linkages
9. Access to Canadian Expertise
10. Targeted Capacity Building
11. Supportive and Comprehensive Monitoring
12. Expert Technical and Methodological Input
13. Intense Professional Commitment
14. Corporate Level Issues.

Which of these were particularly important, in your view, in your dealings with China, and Chinese

researchers. Which were not relevant or were unimportant.

7. Changes in IDRC approach to Programme Delivery

Over the past five to ten years IDRC has spent much time in developing its own priorities and formulating its Corporate Planning Framework. How has this affected programme delivery? For example in the case of China has the existence of CPF 2 and a more focused programme made it:

- i) More difficult to identify projects which meet IDRC's and China's priorities.
- ii) Has it made it necessary for programme officers to help recipients write project proposals so as to fit IDRC requirements?

And, in your view:

- iii) Has the time to prepare and approve projects been lengthened in recent years?
- iv) What have been the benefits for China of IDRC having a CPF?

8. Were there any particular difficulties in working in China which you would wish to bring to the attention of the Assessment team. How might those difficulties be overcome?

9. Please provide any other comments which might be relevant to this assessment.

Review, Prospects and Evaluation on the Cooperative Research between CAF and IDRC

Wang Meiyao
Chinese Academy of Forestry

The cooperation between CAF and IDRC began in 1982. Through the 18-year contacts, from mutual understanding to mutual trust, we have set up the close partnership and great success has been achieved, which has become the model for the technical cooperation between developed countries and developing countries. IDRC is the greatest cooperative research partner of the CAF. This paper has reviewed the history of 18 years for the cooperation and future cooperative plan in the new century has been made.

I. Review of the history

18 years have been passed since the cooperation between IDRC and CAF. In the past 18 years, 17 projects were funded by IDRC (See Table 1), and the total amount of funding is as much as CAN.D 4.5 million. More than 200 people have participated in the projects with over 40 sites which cover 16 provinces and regions, and International Network of Bamboo and Rattan (INBAR), the first international organization with its headquarters in China was established with the funding of IDRC.

Table 1. Main Projects cooperated with IDRC

FILE NUMBER	PROJECT	PERIOD	INSTITUTE
040186	CBRM—Reclaiming Degrading Land	1995-1997	RIF
810130	Bamboo(Phase I)	1982-1985	RISF
810199	Wood Adhesive	1983-1986	RISI
820121	Paulownia	1982-1985	RIF
840273	Rattan	1985-1988	RITF
850023	Bamboo Breeding	1985-1988	RISF
850251	Fuel-wood	1986—1989	RITF
860164	Paulownia II	1985—1988	RIF
860098	Wood Utilization (Paulownia)	1987-1989	RIWF
860169	Farm Forestry Training Program	1990-1993	RIF
860264	Wood Gasification	1987-1990	RICPUFP
870329	Paulownia-dissemination of research results	1991-1994	RIF
870127	Bamboo Information Center	1987-1994	RISTIF
880100	Bamboo Technology Utilization	1989	RISF
890206	Farm Forestry	1990-1993	RIF
900074	Farm Forestry Training Program		RIF
910294	Farm Forestry Training Center	1991	RIF

II. Results of Cooperation

In the period of the cooperation, remarkable results have been achieved. With the joint efforts of the two sides, remarkable results have been achieved in the research work. The main results are as follows:

1. The research results have been awarded with many prizes of scientific and technological advance.

In the cooperative projects with IDRC, 3 sub-projects are awarded with prizes of the state level: The Rattan Research is awarded with the State-First-Class Prize of Scientific and Technological Advance, i.e. the Research of Nutrition Circulation Rule of Phyllostachys Forest and Its Application awarded with the State-Second-Class Prize of Scientific and Technological Advance; Research on breeding improved varieties of Paulownia CO20, C125 and P.tomentosa x P.fortunei No.33 is awarded with State-Third-Class Prize of Natural Science; Glue manufacture with Sulfite Cellulose Liquor gets the State Patent. In addition, 16 sub-projects are awarded with Prizes of Scientific and Technological Advance of Provincial and Ministry Level. (See table 2)

Table 2. Prizes Awarded From the Cooperative Projects with IDRC

Awarded Project	Class of Prize	Year
Rattan Research	State-First-Class Prize of Scientific & Technological Advance	1996
	First - Class Prize of scien-tech. Advance of Ministry of Forestry (MOF).	1994
Technical Research on Introduction and Cultivation of Rattan in Guangxi	Third Class Prize of Scien-tech. Advance of Guangxi	1995
Research of Nutrition Circulation Rule of Phyllostachys Forest and Its Application	State Second - Class Prize of Scien-tech Advance	1996
	Second - Class Prize of Scien-tech Advance of MOF	1995
Research on Breeding Improved Paulownia Varieties Paulownia CO20, C125 and P. tomentosa × P. Fortunei No.33	State - Third - Class of Natural Science	1995
	First Class Prize of Scien -tech. Advance of MOF	1992
Research on Distribution and Comprehensive Characteristics of Paulownia Varieties.	Second - Class Prize of Scien - tech. Advance of MOF	1990
Optimized Model of Paulownia Intercropping with Agriculture Crops	Second - Class Prize of Science - tech. Advance of MOF	1992
Compatible Technology of High - Stalk and Robust Seedling of Paulownia	Third - Class Prize of Scien - tech. Advance of MOF	1990
Bamboo Species Garden Research on Selection of Fast - Growing and Good Tropical Tree Species for Fuelwood and Breeding Technology of Fuelwood Forest	Third - Class Prize of Scien - tech. Advance of MOF	1985
	Third - Class Prize of Scien - tech. Advance of MOF	1990
Research on Selection of Fuelwood and Timber Species of Short Rotation and Cultivation Technology in Hainan Province	Second - Class Prize of Science - tech. Advance of Hainan Province	1993
Research on Tropical Fuelwood Forest	Second - Class Prize of Scien - tech. Advance of MOF	1992
Selection of Fuelwood and Timber Species of Short Rotation and Cultivation Technology in Poor Hills	Second - Class Prize of Science - tech. Advance of Hainan Province	1995
Research on Finger - joint Technology with Masson Pine and Chinese Fir Thinnings	Third - Class Prize of Scien - tech. Advance of MOF	1995
Technology of Paulownia Planting in Autumn	Third - Class Prize of Scien - tech. Advance of Hainan Province	1978
Selection and Breeding of Good Paulownia Clones by Paulownia Crossing and Selection	Second - Class Prize of Scien - tech. Advance of ShanXi Province	1987
Glue manufacture with Sulfite Cellulose Liquor	State Patent	1987

2. more social, ecological and economic benefits are obtained.

2.1 Economic income is increased and ways for making foreign exchange are expanded.

Six thousand ha. of Rattan forest was cultivated and extended in the three years from 1993-1995 as a result of the Rattan Research Project. A total new output value of 36.29 million Yuan(RMB) and Profit and tax of 7.13 million yuan (RMB) were obtained only from harvest of rattan forest.

The result from the Project of “Research of Nutrition Circulation Rule of mao bamboo Forest and Its Application” was used and extended in 10000-mu mao bamboo forest and the net output value of 410 million yuan (RMB) was increased and a foreign exchange of US\$ 21 million was made. 21 million of trees of good clones of Paulownia were totally extended and over 30% were increased for the average growth.

2.2 The ecological environment is improved and crop production is increased.

For example, due to the result of the Project of Paulownia Research, 120,000ha. of intercropping forest between Paulownia and agricultural crops was cultivated in Henan, Anhui and Shandong provinces from which the microclimate was improved and the production of agricultural crops was increased. Another example is the Project of Rattan Research. The space model of intercropping between forest and rattan is set up, with which not only the forest land fertility is maintained, thus, the growth and production of forest trees are not affected, but also the profits can be early obtained due to different harvesting season.

2.3 New ways for employment are created.

Through the Project of ‘Research on Finger-joint Technology with Masson Pine and Chinese fir thinnings, a processing mill for producing wood products, such as wood pad for truck use with Masson pine thinnings was built in Guihua Forest Farm in Chong Yang, Hubei Province. The employment for a lot of young people in that area is solved. From the extension of the research result of ‘Rattan Research project, chances were provided for the employment of 30000 people.

2.4 The crisis of energy resources is eased up to a certain extent from the development and use of wood wastes.

Through the Project of “Research on Finger-joint Technology with Masson Pine and Chinese Fir Thinnings, the problem of efficient use of plantation thinnings is solved and a lot of timber is saved for the country. Through the Project of ‘wood Gasification’, wood gas is produced with forest wastes, thus, the fuel problem is solved for the northeastern region of China. Through the Project of ‘Selection of Good and Fast-growing Tropical Fuelwood Species and Research on Cultivation Technology for Fuelwood Forest, 9 suitable species with fast-growing and high-resistant characteristics were selected with which 60000ha. of fuelwood forest was established, which can provide 3 million ton fuelwood for 600,000 farmer households, thus, the terrible shortage of fuelwood energy in the tropical rural regions was eased up.

3. Different kinds of forestry staff are trained

3.1 Management staff are trained.

86 different kinds of training courses in the field of research management, financial management, extension research, social and economic research were held with the funding of IDRC and teaching by foreign experts and 5600 people have participated in the training courses. 120 of middle-level leading cadres of CAF participated in the training courses through which the business level of some cadres was improved after training and took up the leading post of finance and management.

3.2 A group of local technical backbones were fostered

Through the participation of IDRC projects some young people graduated from junior and middle school or workers of forest farms in the sites of the projects have mastered the basic experimental methods and operating measures, popularized science and technology, improved and enhanced the quality of business and become the nucleus of the local forestry technology and some of them have been promoted to senior engineers.

3.3 A group of forestry experts have been brought up

Through the long-term cooperation with IDRC, a group of excellent people who played the leading role for forestry research and experienced project managers for international cooperation have been brought up in the field of scientific research of China's forestry. Among the researchers who participated in the cooperative projects with IDRC, 6 of them have enjoyed the government allowances and most of the responsible people for the projects have been invited by other countries as technical consultants or taking up important posts in international organizations, especially, Mr. Zhu Zhaohua from the Chinese Academy of Forestry, was awarded with the prize of 'Man of Tree' by the Baker International Fund in 1985. He was the first prize winner since the establishment of the Fund in that year. He has not only won the honor for China, but also extracted the attention on China's forestry from the forestry colleagues of the world; During the 25-year anniversary of IDRC founding in 1995, Mr. Zhu Zhaohua was cited by Canadian Prime Minister for his great contribution to agroforestry.

4. The international exchanges and contacts for China's forestry have been promoted.

Through IDRC projects, 43 experts from the Chinese Academy of Forestry were sent to India, Indonesia, Pakistan, Thailand, Malaysia, Australia, USA and others for technical consultation and guidance on bamboo and Paulownia. Since 1982, IDRC has organized over 450 research people from developing countries to visit China's forestry research results of agroforestry, social forestry, bamboo and rattan cultivation and uses, processing of non-wood forest products, mushroom cultivation.

The Farm Forestry Training Center was established in CAF in 1991 with the funding of IDRC and 6 international agroforestry training courses and 3 bamboo training courses have been successful conducted and 230 senior forestry researchers and managers from developing countries were trained. These training courses are welcome by developing countries. Through IDRC projects, China has exchanged plant resources with developing countries. For example, we have provided seeds for Paulownia and bamboo for over 30 countries and introduced seeds of bamboo and rattan from other Asian countries so that the South-South Cooperation is promoted and the cooperative network taking Asia as the center has been formed.

III. Comparison of Management Characteristics of International Cooperative Projects of Different Sources

The Chinese Academy of Forestry has undertaken international cooperative projects of over a dozen of international organizations such as IDRC and etc., of which there are common points and unique features in the management of international organizations. In Table 3, the project management organs, project focuses, characteristics of project implementation and fund are listed, and the management features are as follows:

1. There is no fixed pattern for the specific management of international sci-tech cooperative projects. Different management measures are adopted respectively in accordance with the actual circumstances of project source, scale and etc.
2. Different international organizations and different countries have varied scope and intention in their search of international cooperation. The support focus of the International Development & Research Centre, Canada is on rural development and poverty alleviation, stressing the coverage scope and network of project contents; the Australian Centre for International Agricultural Research (ACIAR) concentrates on introduction of tree species and expansion of tree cultivation and plantation to increase tree productivity; the International Tropical Timber Organization (ITTO) has a clear aim, i.e. the protection of tropical forests.
3. ITTO's major projects have a large cooperative scale, extensive scope and involvement of different levels and establish leading and management organs of 3 levels i.e. the project

steering committee, project manager and project office; IDRC sets up a project management office in the implementation institution, which is endorsed with clear responsibilities and is easy for communications, guaranteeing the continuity of scientific research; For small cooperative projects that involves a single discipline, a project group is usually set up.

4. In the field of project monitoring and evaluation, all the international organizations pay great attention to the annual evaluation or interim evaluation. IDRC and CAF conduct regular monitoring on project implementation and formulate the rules that the project must submit the technical and financial reports periodically; UNDP conducts evaluation by 3 parties, interim evaluation and final evaluation, in addition to the progress report and final report required; The project management organ set up by ITTO guides the technical performance of the project, and requires the submission of project progress report every six month.

5. In the field of project fund management, IDRC attaches importance to the fund budget report, prompt allocation of the fund upon the receipt of technical and financial report. About 2/3 of project fund is administered by the Chinese side, which is spent and allocated according to the budget with certain flexibility; ACIAR project fund is basically administered by the Australian side; UNDP project fund is administered in a way of reimbursement system by FAO or the International Exchange Centre, the Ministry of Foreign Trade and Economic Cooperation except a small portion of fund retained by ITTO for the uses of project monitoring, evaluation and management, ITTO project allocates the majority of project fund to the project group, and the Chinese side enjoys a fairly large flexibility.

IV. INTERNATIONAL COOPERATION IN PROTECTION AND CONSTRUCTION OF ECOLOGICAL ENVIRONMENT IN WESTERN CHINA

In the process of the world economy integration, the international cooperation and exchanges will play a more important role. Especially, the forestry towards the 21st century is the hot spot and core for promoting the balance between environment and development. Strengthening international cooperation and exchange is important in forestry open-door to foreign countries. We would like to conduct wide cooperation and exchange in forestry with international organizations, friendly countries and non-governmental organizations on the basis of equality, mutual benefits and reciprocal favored treatment. The following are suggestions on the fields of cooperation for the development of the western region;

1. Establishment of the Forest Ecological Network System. This research has already formed a relatively scientific and sound framework, and has set up trial sites of different types. At present, it is urgently needed to set up more trial sites in the western region.

2. Protection of wetland. It covers the principles and methods for the use of wetland, dynamic monitoring of wetland environment, rehabilitation trials of seriously destroyed wetland, as well as formulation of laws on protection and use of wetland and its management regulations.

3. Combating desertification. This includes the construction of China Center of Research, Development and Training for Combating Desertification in Asia and Africa, and the UN Asia Center of Desertification Monitoring and Evaluation; As an Asia-Africa cooperative demonstration, one demonstration project is set up for Asia and Africa respectively to carry out comprehensive control and development of desertified land, and to research, extend and apply advanced and pragmatic techniques for combating desertification.

4. Biodiversity. It includes zoning of biodiversity protection in the western region, establishment of nature conservation network system and the establishment of information system on biodiversity in the western region of China; salvation, protecting and propagation of precious, rare and endangered species in the western region; Development and research on technology of sustainable use for biodiversity resources in the western region; Comprehensive research on social security system for biodiversity protection in the western

region; Establishment of demonstration sites for biodiversity protection in different areas of the western region.

5. Protection of natural forest resources. It includes the inventory of natural forest resource in the western region, caring of regenerated forest, the control of forest insect pests, diseases and rodents, and acid rain prevention in the western region.

6. New and high technology for forestry. It includes bio-technology, information network technology, and remote sensing technology.

7. A comprehensive research with the involvement of multiple departments and multiple disciplines on the protection and construction of the ecological environment in the western region.

TABLE 3 COMPARATIVE MANAGEMENT FEATURES OF INTERNATIONAL COOPERATIVE PROJECTS FROM DIFFERENT SOURCES

SOURCE PROJECT	PROJECT EXAMPLES	ADMINISTRATIVE ORGANIZATION	STRESS OF SETTING UP PROJECT	FEATURES OF PROJECT IMPLEMENT	FUND MANAGEMENT
IDRC Input CAD 4480,000	Paulownia (1992-1990) Farm Forestry (1990-1993); CBRM- Reclaiming Degrading Land (1995-1997)	Setting up the Project Administrative Office in CAF Appointing a Coordinator for Projects	Mainly stress on single technique during 70-80s and on comprehensiveness and network during the 90s; The Projects are compatible with the National Key Projects The national demands are combined with the international key research	Chinese side plays a leading role on research method, personnel arrangement, selection of sites and instrument purchasing; Submit quarterly and annual technical reports and financial statements on time. Officers or representatives of the IDRC visit the project site 1 or 2 times a year	IDRC pays attention to the financial statements and CAF has the initiative on using and distributing funds. IDRC financial officer reviews accounts once a year and reasons should be given for overpending or surplus.
ACIAR Input 3291,000	Introduction and Cultivation Experiments for Australian Tree Broadleaved Species (1985-1993); Australian Acacias for Sustainable Development in China, Vietnam and Australia (1994-1997)	The Executing Agencies are responsible for implementing the Project CAF is responsible for management, inspection and supervision of projects.	1 The main purpose for this project is to introduce the Australian broad - leaved trees for research. 2 The basis of cooperation with Australia is the Cooperative Agreement signed in 1984	The research content is discussed and decided by the two sides. Australian side provides seeds, equipment and so on; Submit progress report every 6 month and annual report once a year.	The Australia side who provides equipment, traveling fund for research activities manages the fund. The fund is used under the control of the Australian Side and relevant compatible fund should be provided by the project implement institution Senior consultation meeting is held every 3 years by the two sides
UNDP Input US\$900,000	Capacity Building, Research and Extension for Sustainable Forest Management	The Executing Agencies are responsible for implementing the Projects;	The project is compatible with the National key project; Under the guidance of the foreign and National expert;	Tripartite evaluation by China, UNDP and Administrative Agencies once a year. Submit progress report every	The fund is managed by the Administrative Agency of the Ministry of Foreign Trade and Economic Cooperation, expenses account submission rendered

	(1997 – 2000)	CAF is responsible for the task assigned in the Agreement management, inspection and supervision of projects.	the task assigned in the Agreement is accomplished.	3 month. At the end of the second year and the end of the last year the project will be evaluated	
ITTO Input US\$2497,500	A Demonstration Programme of Sustainable Utilization of Tropical Forests by Means of Differentiated Management in Hainan Island, China (1993-1998)	Project Steering Committee; Leading Group of China; Projects Director of the State; Project Administrative Office	Protection and sustainable management is the aim; This project is implemented by the CAF and ITTO Secretariat participates in the policy decision	The project is supervised by the Project Steering Committee Submit bi-annual progress reports before 31 March and 30 Sept. Each year. At least two meetings must be held once a year by the project steering committee to discuss the progress of project.	ITTO gives the total fund to China Project Administrative office, of which 20% is reserved; (10% is for project management for institutions at all level and the Administrative office); Forestry Department of Hainan Province compatible fund for the project; Detail rules and regulations for finance and fund for the project is formulated

China-IDRC research collaboration in agriculture, environment, resource and biodiversity

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1 Background

Since the start of science and technology cooperation between China and IDRC in 1981, IDRC has supported about 150 collaborative research projects in China with a total funding of about 25 million Canadian dollars during the past 20 years. The researches in China supported by IDRC covered a wide range of scientific disciplines such as agriculture, forestry, health, environment, resources, information, economy and social development. IDRC projects in China also covered a wide range of geographic areas, from Shanghai, east of China to the Western China, Tibet and Xinjiang. The IDRC projects were implemented in variety of ways such as collaborative researches, participation in international conferences, workshops, training courses etc. A large number of significant achievements were obtained by the IDRC supported studies.

MOST and IDRC agreed to conduct a complete assessment of IDRC projects in China to mark the 20th anniversary of China-IDRC cooperation. This is not only to review and summarize the past, but also, more importantly to look into the future for a new partnership between China and IDRC in supporting development studies. As a component of the assessment activities, this paper tries to give a further insight into the IDRC projects in fields of agriculture, environment, resources, and bio-diversity.

2 Descriptive information

A detailed statistic description on IDRC projects in China was presented in the Review report by MOST and IDRC review team. Here some of the visualized major statistics are presented again with focus on agriculture, environment, resources, and biodiversity in order to make specific comparative studies of these research fields. During the past 20 years from 1981 to 2000, a total of 150 research projects have been supported with IDRC funding totaled approximately 24 million Canadian dollars (Table 1). Besides of these IDRC funded research projects, there were also a number of temporary activities such as international workshops, study tours and visits conducted with IDRC fund.

2.1 Agriculture

IDRC has supported 25 research projects in total in agriculture, with a total funding of about 6.1 million Canadian dollars (Table1, Fig1, 3), which was the largest compared with funding in other fields. The number of IDRC projects in agriculture in China was the same as in health and the second largest only next to project number in social sciences. The largest amount of

funding and smaller project number indicates that the intensity of IDRC support in agriculture was the highest. The support in agriculture accounted for 17% and 27% in terms of project number and project funding respectively (Fig 2, 3). Majority of the agriculture projects were approved and implemented during the 1980s. The studies mainly included crop breeding, cropping systems, vegetable, animal husbandry, fish nutrition and reproduction, biological pest control and agricultural information system etc (Table 2). However, since the early 1990, IDRC shifted its direction and dropped off support to agricultural studies in China.

Table 1, Comparisons of number of projects and funding in different fields

Project field	Project number	Funding (k CAD)
Geology	4	514.42
Engineering	4	483.99
Policy	2	259.768
Environment	13	2022.579
Education	8	310.403
Forestry	19	4305.158
Energy	4	290.885
Agriculture	25	6094.793
Social science	29	3584.881
Health	25	3646.883
Information	9	1045.71
Resources	8	1292.121
Total	150	23851.591

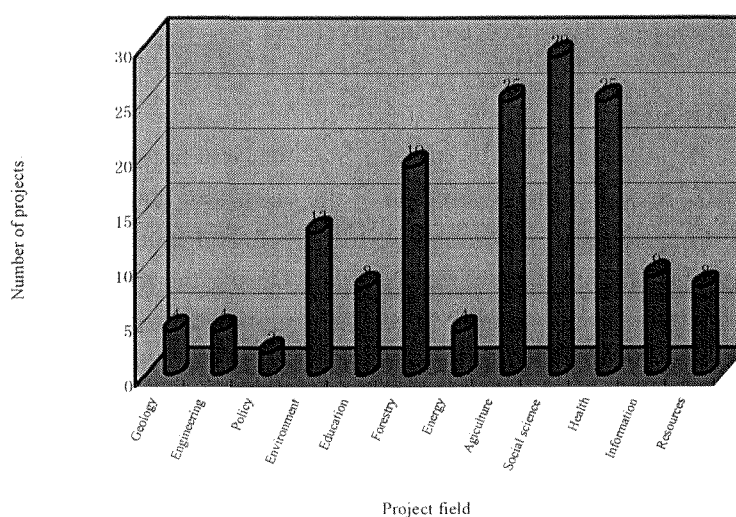


Figure 1, Total number of projects funded supported by IDRC in different fields

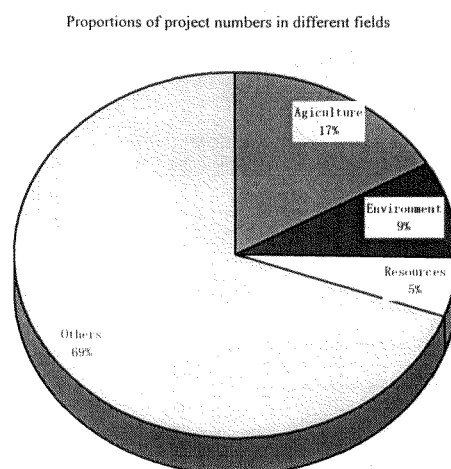


Figure 2, Relative proportions of project numbers in different fields

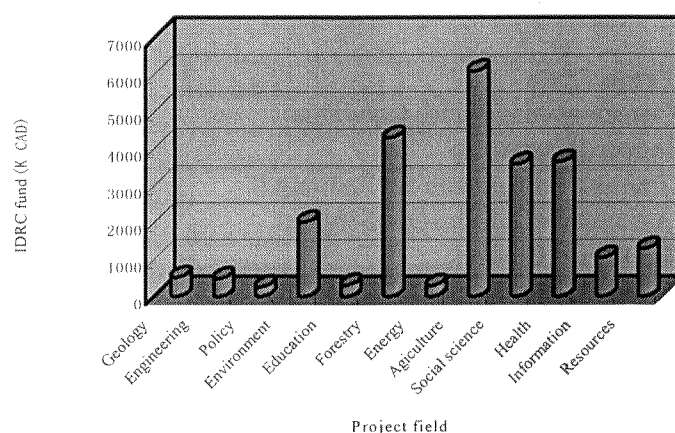


Figure 3, Funding of IDRC support in different fields

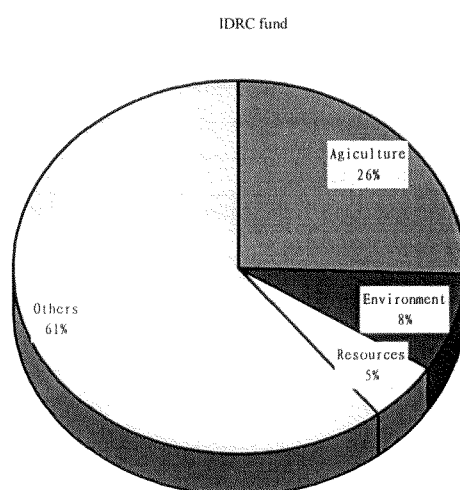


Figure 4, Relative proportions of funding in different fields

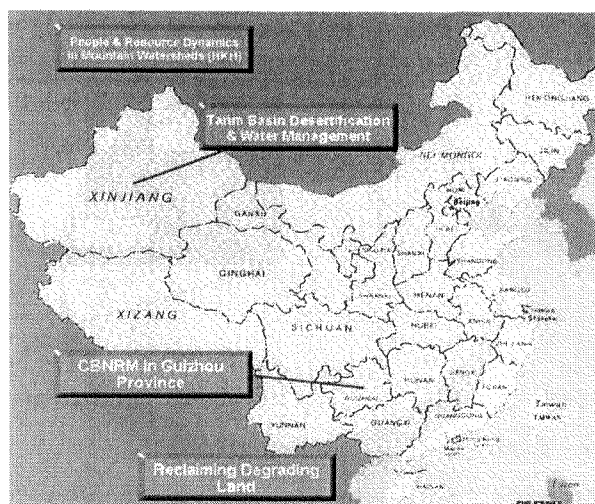


Figure 5, Active projects in CBNRM (Courtesy from IDRC web site)

Table 2, IDRC supported projects in agriculture

Project No.	Project title	Funding
730069	Gonadotropin (British Columbia)	15,375
831011	Induced Spawning	129,900
850107	Training: Integrated Fish Farming II	222,000
850233	Agricultural Information Services	357,913
851047	Biological Control	252,500
851051	Fish Genetics Network	100,400
861046	Rapeseed II	433,600
870113	Post-Harvest Systems	100,100
870237	Farming Systems Phase II	444,600
871028	Induced Spawning	110,500
880039	Tea Information Services	203,255
890239	Fish Nutrition	172,500
890325	Integrated Agricultural Development	198,050
910130	Rice Economy	215,950
910179	Reservoir Fisheries Research	90,000
921300	Enzyme-Enhanced Poultry Feeds	350,000
820144	Rapeseed	50,080
820188	Vegetable (China)	480,410
830002	Cropping system (China)	424,400
830230	Training Program on Integrated Fish Farming	105,000
850065	Integrated Fish Farming	290,100
861049	Aphid Biocontrol	51,100
871029	Mariculture	438,500
901034	Integrated Fish Farming II	574,700
911037	Rapeseed III	283,860

2.2 Environment

There is actually no explicit division between the projects in environment and resources. They are often overlapped with each other. However, in order to facilitate the analysis, we have to

divide these projects into groups as shown in table 1. There were 13 projects in field of environment (including biodiversity) were supported by IDRC with a total funding of more than 2 million Canadian dollars, accounting for 9% and 8% of the total in terms of project number and funding respectively (Table 1, Fig. 1-4). These 13 projects concentrated on studies of pollution control, environment technologies, environment education, marine ecology, meteorological radar, nature reserve etc (Table 3). Some of the projects involved studied both of environment and resources, such as the projects of Tarim river basin desertification and water management, nature preservation etc. Most of IDRC environment studies have completed. Only a couple of projects are still going on (Tarim river project and Guizhou CBNRM). Only one IDRC project was on biodiversity in China, “ Biodiversity conservation and sustainable development in Xishuangbanna Biosphere Reserve”. The project studied the uses of new technologies of GIS, GPS, RS and data management systems together with the traditional biological and ecological means. This project has completed in 1999 after 5 years of study.

Table 3, IDRC supported projects in environment

Project No.	Project title	Funding
910226	Biogas refrigerator	230,977
921008	Biosorbents: Use of One Waste Product to Clean Up Another	123,068
821022	Marine Ecosystem Enclosed Experiment (MEEE), Phase I	32,800
880327	Indoor Air Pollution	122,260
910176	Macroinvertebrates	99,830
928022	Environmental Education in China	149,930
944004	TIVE Environment planning (China) Pre-project meeting TOOLS	15,857
944014	Changjiang basin management/China-project development	76,797
978012	CBNRM-Tarim Basin Desertification and Water Management (Phase II)	221,570
831026	Marine Ecosystem Enclosed Experiment (MEEE) phase II	473,400
841027	Weather Radar	204,090
890077	Preliminary Scientific Research Plan for the Qomolangma Nature Reserve	228,980
928012	Sustainable Resource Utilization in Tarim Basin	43,020

2.3 Resources (CBNRM)

There were 8 projects in total in the field of resource (including CBNRM) with a total IDRC funding of about 1.3 million Canadian dollars, accounting for 5% of the total in terms of both project number and funding. The studies in resources (CBNRM) included application of remote sensing, biodiversity, fish genetic resources, mountainous rural resource management etc (Table 4). Most of the projects in these fields were completed. At present, the CBNRM in Guizhou is still going on. Details were given in the above tables of project information.

Table 4, IDRC supported projects in resources

Project No.	Project title	Funding
931151	RADASAT Remote Sensing Technology	82,800
948011	Biodiversity Conservation and Sustainable Development in Xishuangbanna Biosphere Reserve	329,656
938013	Yangtse River Carp Genetic Diversity	99,000
944005	Preparation of the Propasal "Essentail oil/China"	5,010
945006	South China sea marine science working group	42,955
948007	Tarim Basin Desertification and Water Management	307,750
948012	Community-Based Natural Resource Management In the Mountainous Area of Guizhou Province	199,820
978009	CBNRM: Community-Based Natural Resource Management in the Mountainous Area of Guizhou Province China (Ph II)	225,130

3 Intensity of IDRC support and comparisons with other fields

IDRC funding in agriculture was the highest (27% of the total) among all the supported fields. It was followed by Forestry (19%) and Social sciences (15%) and Health (15%). Other fields with higher funding were environment (8%) and resources (5%). In terms of the project number, the intensity of IDRC support was in the order of Social Science, Agriculture, Health, Forestry, and Environment etc. The number of projects supported by IDRC and the intensity of support reflected the priority of IDRC support in different periods.

4 Achievements and benefits

Sufficient evidence indicates that the IDRC funded studies have produced significant scientific, social and economic benefits. A large number of papers, monographs have been published in wide range of scientific journals domestically and internationally. Large number of visiting scholars postgraduate students including master and doctoral students were trained by the IDRC projects. Research results of some projects were awarded national, ministerial and provincial prizes. Typical examples are “Tea information service”, “Farming system” and “Harbor development”. The “Tea information service” was awarded 72 prizes and produced 0.25 billion RMB economic benefit. The “Farming system (I, II)” published 4 books and 49 papers, and produced 0.6 billion RMB benefit. The “Harbor development” project led by Nanjing University has published 2 books and 58 papers, trained 6 visiting scholars, 4 master students and 2 PhD students. (Table 5)

5 Impacts

IDRC contributed to China’s social and economic development through its support for development researchers in china. IDRC provided not only funding, but also technical help throughout the project implementation. Most of the IDRC projects have made substantial contribution to capacity building of the Chinese research institutions, such as infrastructure building, institutionalization, research network, and internationalization through a variety of ways of collaboration in research, exchange of visits, international training and conference. Many research results of the IDRC projects have been applied in practices. For example, provincial and local governments adopted in their policies the recommendations for water

resource management strategies made by the Tarim project. Suggestions developed by the Guizhou CBNRM project have been widely accepted by county and village governments and farmers, and significant social benefits have already obtained by following the project recommendations. Social benefits include raised awareness of ecological and environment protection by local officials and farmers.

Table 5, Achievements of some IDRC projects in agriculture, environment and resources

Project No	Project title	Visiting scholar	Ms student	PhD student	Books	Papers	Prize	Benefits (billion RMB)
Agriculture								
850233	Agricultural Information Services	5			1	71	3	
880039	Tea Information Services	2			1	6	72	0.25
861049	Aphid Biocontrol	1	1			2		
851047	Biological Control	2				20		
830002	Farming Systems (Phase I/II)	3	2		4	49		0.6
870237								
890239	Fish Nutrition	2	7	1	1	11		0.23
910179	Reservoir Fisheries Research				10			
Environment and Resources								
870314	Diffusion of Improved Biomass Stoves			1		3	1	
880123	Urban Energy Consumption and Air Pollution Network		1			2		
948007	Tarim Basin Desertification and Water Management	5	2	2		15	1	
978012	CBNRM-Tarim Basin Desertification and Water Management (Phase II)		1	2				
928012	Sustainable Resource Utilization in Tarim Basin			1		1		
928022	Environmental Education in China			1	1	4		
910226	Biogas refrigerator							
871003	Harbour development	6	4	2	2	58		
921008	Biosorbents: Use of One Waste Product to Clean Up Another		3	1		10		

6 Advantages over other international projects

In comparison with projects funded by other international development aid organizations, many of studies of the IDRC projects were pioneer studies in China, opening many new areas of researches. For example, a large proportion of IDRC funded projects in agriculture were the first studies in China and these studies have laid solid foundations for further studies and making it possible for the studies to be continued upon the completion of the IDRC projects. IDRC projects have several management advantages such as the management flexibility, the careful preparation of proposal and the strict reporting requirements. While strict rules in development of project proposal and requirements for reporting are good for securing research quality and avoiding misconduct of the project, a high level of flexibility remains throughout the implementation process. Another significant feature of IDRC project is the participation by local people, government officials at various levels, particularly in the CBNRM project in which participatory method was adopted throughout the implementation of the project.

5 Discussion

5.1 From basic to applied and extension, from specific subjects to inter and multi-disciplinary

Much of the early focus of IDRC support in China was on improving scientific basis of research on Chinese forest tree and crop varieties. These projects were concentrated on specific goals in improving genetic quality and production of trees and crops and on strengthening Chinese basic agriculture, fishery and forestry research and extension systems towards these goals. At later stage, IDRC focus was shifted to extension of results through field-based training and popularization and through support for the institutionalization of the trainings. New projects were added integration of inter- and multi-disciplinary approaches to larger and more general goals for development. The support for integrated farmland and agro-forestry systems started to take social-economic and institutional considerations more seriously and to put research efforts much closer to the problems in poor communities, ecosystems and at a basin levels rather than in experiment site or research station.

IDRC has made great contribution to both institutional and personal capacity building of Chinese research institution and their research and management staff. Early IDRC focus was on central level institutions, which are usually the leading research bodies in China. New efforts have been put to help provincially based institutions and local agencies, particularly institutions away from Beijing, and to help multi-disciplinary Chinese research teams build capacity to work in a participatory fashion with poor communities and relevant local government agency staff as well as local farmers at the grassroots level. Recent IDRC support has been reduced significantly in both number and funding. It tended to focus on building up self-development capacities in a way of increasing participatory efforts to address inter-related forces affecting poor people in ecologically fragile and remote areas. The currently active IDRC projects in Xinjiang and Guizhou in western China clearly match with the Chinese development needs.

5.2 Future direction and priorities

With the rapid economic development, China is facing big challenges of environmental and resource problems, this is particularly serious in the under-developed western region of the country. IDRC has gained tremendous expertise and experience since its foundation 3 decades ago. It is believed that collaboration between China and IDRC will certainly make even greater contribution to the further development of China, especially the western region. 20 years of China-IDRC cooperation indicated that IDRC working together with Chinese partners could play a greater role in China's western development in providing financial support, expertise, research networking and management.

5.2.1 Food security

Even the most remote and marginal communities have dramatically increased their interaction with national and international markets under the impact of globalization, urbanization and the revolution in information and computer technologies. As a result, production and natural resource management decisions are increasingly driven by income earning, rather than

subsistence imperatives. On the other hand, over exploitation of the natural resources, for example the deforestation has caused serious environmental problems. These fundamentally change the ways in which natural resources are viewed and managed. At the same time, under the pressures of structural adjustment and decentralization, these communities are being required to assume a much greater resource management responsibility, often without the necessary skills, knowledge and financial mechanisms.

Western development and protection of natural forests are amongst the top priorities of the Chinese government. In order to meet with priorities of IDRC and China, a project may be considered for IDRC support to conduct studies on impacts, problems and solution of China's natural forests protection program on life of farmers who relies on timber products. The proposed studies will be grounded in local perspectives and priorities through participatory methods. It will examine issues of institutional development and governance; choice, access and adaptation of production technology; monitoring, indicators and information exchange, in relation to the requirements of local management of productive resources. The appropriate policies to encourage a harmonious balance of equity, production efficiency and sustainability will be the outcomes of the project.

5.2.2 Biodiversity

Biologically diverse ecosystems are fundamental to the complex and essential environmental services on which all life depends. Currently, much of the world's remaining biodiversity is concentrated in areas inhabited by indigenous peoples and marginalized groups whose technologies and management practices are threatened by globalization.

Chinese medicinal plants have been globally accepted for its great value in human health. Genetic resources and biodiversity of the medicinal plants are important factors for its sustainable development. Over exploitation should be avoided. A project on conservation and sustainable utilization of medicinal plant resources in China is proposed. The project will study the relationship between local management of biodiversity and global policy initiatives and processes for the appropriation of these resources. The challenge is to identify the physical, socio-economic, cultural and policy conditions under which the use of biological resources enhances both their conservation and their benefits for all humanity, especially for the marginalized groups most closely associated with them.

Comments from persons who have been interviewed

(Based on notes taken at the interviews or workshop, not confirmed by speakers)

Review Team visit to CAF

Vice president Zhan Jiurong:

CAF has hosted 17 IDRC projects in the past 20 years, almost every year we got one project. Almost all projects have made significant contribution to scientific research, personnel training etc. President Jiang Zehui will take part in the activities of receiving IDRC president.

Director Chen Xuhe, Division of Int. Coop.

17 of the 150 IDRC projects were forestry projects, accounting 11.33%. 3 projects awarded national level prizes, 16 were provincial or ministerial prizes, and 1 patent. Direct economic benefit was some of programs like Rattan and Bamboo programs. Indirect benefit includes improvement of ecology, crop production. In future, hope the IDRC projects have impacts on national and local priority projects.

Zhu Huanming: Project Leader of Wood Utilization

Even the project was small, we got the third grade prize of S&T advancement awarded by the Ministry of Forestry. IDRC projects were very impressive. A good point is that the extension of results is very useful for China. More attention on practical aspects. IDRC is very helpful to developing countries even IDRC got no benefit at all. For example, the bamboo project, we know that Canada has no bamboo at all.

IDRC was somewhat different from other foreign aided projects. It was very efficient. Through the project, we trained researchers. IDRC invited famous scientist to train Chinese in Canada. By training, we learned a lot and applied what have learned in China. IDRC used to support a lot of forestry projects, but big fund has been put into the few big projects. A lot of focus was on environment and economic studies. Suggestion is IDRC not to only support on topics of fashion but also on those minor areas which are important to people.

In addition to the prizes, we also published papers in scientific journals, participated international conferences as invited speakers. Exchange with foreign visitors, collaboration with domestic partners. The factory attracted many visitors and when the visitors went back they set up their own similar to this, helping the spreading of the research results.

By comparing with other foreign projects, interaction between Chinese researchers and IDRC program officer may be problematic. The recipient has to follow the advisors for proposal preparation, which is good. Language advantages for using Chinese advisors more efficient. Very detailed design of the proposal. Checking progress every 3 months (a good system).

IDRC helped to transfer technology developed by the project to India. IDRC and the project

recipient should make joint efforts to make the results extended.

Lu Xinyu: Pawonlia and agroforestry project:

My idea is that the IDRC project duration was too short. From the point of view of research, the forestry projects should be dealt with differently from other sectors. It requires longer time to get results. For instance, the Pawonlia project had obtained both national and ministry prizes. But the extension was not supported either by IDRC or government. The superior genetic material developed could not be applied in operation in large scale, hence no economic benefit.

Suggestion for future cooperation: the natural forest protection program needs a large number of improved genetic material for the establishment of high yielding and fast growing plantations, it is suggested that an IDRC project on extension of superior planting materials, set up a model forests demonstrating both commercial and environmental potentials. That is to use the best results of the best IDRC-China cooperative project. Future IDRC support should consider mainly for extension of results, longer project duration and pilot trials to demonstrate good results.

Madam Zhang: (Bamboo Information Center project)

The project obtained significant achievements: published on journal, bamboo abstracts, more than 500 photos of bamboo, database of all papers on bamboo, the studies also supported by ITTO.

One suggestion/criticize: IDRC should give feedback if applications submitted to IDRC. For example, we were encouraged to submit a proposal conducting studies with India, but never replied. Now it seems to have been related to INBAR.

Regarding project management, it was suggested that IDRC not to interfere into too detailed the things, it was felt that IDRC was too strict and too official in project management.

Zhu Huanming: But my opinion was different, why IDRC try to keep you so strictly on the plan, too inflexible? This is good to keep the fund be properly used and avoid any misuse of the fund.

The IDRC president's visit to CAF

CAF: Zhang Jiurong Vice president:

By working together with IDRC, CAF co-established the INBAR. In the first 2 years, 19 countries have joint as member countries and many other countries are preparing the joining. Future cooperation should match the IDRC priorities with national priority or SFA priority research programs.

Presiden Jiang Zehui:

Hope a better cooperation with IDRC in the new century. CAF priority areas are: Forest Ecological and environmental protection; commercial forest development; desertification prevention etc.

MOST-IDRC workshop

Qinghua University: Vice president Gongke:

IDRC project established a set of effective assessment methods for pollution analysis, a strong experimental research team. The urban household energy survey was the first time in China.

Main success include: focus on key problems of China's sustainable development, extensive involvement by local people, project funding goes to the executive institutions, stress on field and on-site investigation and practical effects.

CAAS: Wang Ren, Vice President:

IDRC projects laid solid foundation for the research areas, facilitating further continued studies. Contributed to the institutional capacity building.

CAF, Vice president Zhang Shougong:

CAF got 4.5 million CAD IDRC funding.

Beijing City Health Bureau: Director Zhu Zhonghan:

Results and recommendations from the IDRC project have been adopted in government policies.

IDRC President's Guizhou visit

Professor Chen Deshou (GAAS):

The project was designed to formulate a blue print of policy recommendation to all levels of governments, but the project has not been finished yet. It is clear that our suggestions from the studies have been adopted by the county level and village level government and have shown great influence on rural development. Other villages have followed the model village of the project.

Sustainability of the research was considered at the very beginning of the project design.

A suggestion was: Because of the feature of the project, natural science plus social science, project researchers worry about the fact that limited places for them to publish their research results in China. Achievements will be difficult to be acknowledged. IDRC could consider launching a prize annually awarded to carefully selected projects.

Yu Jian, DDG of Guizhou S&T Commission:

The provincial government attaches great importance to the project and made its best to facilitate the implementation of the project. Local governments highly regarded the project. A full policy recommendation will be available as the time being. When the project comes to complete, recommendations from the project will be carefully studied by governments and will be extended to practical use.

Guizhou has relatively few international S&T cooperation projects compared with other provinces. Besides the IDRC projects, there were WB projects and UK ODA projects. All these projects were very successful. These supports not only provide support of finance, but also on capacity building.

Interview at Qinghua

Qinghua IEEEET, deputy director Lu Yingyun:

The collaboration with IDRC started from 14 years ago in energy studies, late in environment and sustainable studies. In China, energy sector is closely connected with environment. Huge rural areas rely on traditional energy, the renewable energies. The use of traditional energy caused degradation of ecology and environment, rural energy issue in China is a big issue. IDRC projects started in urban energy survey and later involved in desertification, western arid and semi arid areas become governmental concerns.

The 15 years collaboration with IDRC are all the important issues, research results have substantially contributed the regional development (Details in the review papers). IDRC support is very effective. IDRC fund is delivered to host institution, and majority of involved scientists is scientist. IDRC support is particularly effective for capacity building for Chinese research institutions and for local people.

Regarding IDRC project management, IDRC has a very strict project monitoring and evaluation system, which is good for the success of the project.

Professor Ma Yuqing:

The IDRC project of household energy survey has filled a empty area in which there was no previous study and no data available. Through IDRC training, researchers from Qinghua and existing provincial urban social economic survey team worked together to carry out the surveys, more cost effective. Also conducted survey on indoor pollution. A new survey is needed after more than 10 years development.

Interview at CAAS:

Vice president prof. Wang Ren:

The IDRC projects focused on activities on strategic vision and laid fundamentals, for example, the biological control project (2 phases), through the project involved by at least 10 institutes. The project laid strategic merit lead to the expansion and continuing activities although project was small but strategically important.

The farming system project: Agriculture development guidelines develop sustainable production for various specific systems. You need to define crop-producing system to different regions, to integrate local conditions.

The project laid foundations for the start more than 10 years ago.

Information project: IDRC funded agricultural information center which is the foundation of the information & documentation center.

IDRC identification of projects were very good and we appreciate all the IDRC supported projects are important projects.

Negative comments: Due to the shift of IDRC priority away from agriculture, We lost contacts with IDRC, but in China, studies in these fields are still the most important fields. IDRC should have continued its already supported area of agriculture.

Natural resource management in the context of sustainable development

Policy research synchronization with the current policy development of agriculture and natural resources.

CAAS-IDRC could have resulted good projects in biological control although the discontinuation of IDRC supports. The products developed by the bio-control project are still being put in practice in several provinces.

It is suggested that IDRC should include component to develop related policy studies.

Similarly, the farming system has been integrated to local policies. To develop wise and correct agricultural policies which IDRC would be able to help.

To resolve the conflicts between the intensive agriculture (intensification) with sustainable agriculture development. While pursuing the sustainable agriculture development, use traditional agriculture method, how to balance the conflicts is a question to be answered.

Prof. Guo:

From 1980 to 1995, I worked with IDRC senior staffs such as Goden Benda, John Graham etc. In crop program. The first phase project was titled “cropping system” and the second phase titled “farming system” indicating expansion of the project coverage.

What the good of IDRC is that it focuses on interests of the recipient country not the IDRC. This point was very clear. But we need to fit our priority to IDRC’s priority. I very much appreciate that IDRC considers our interests. IDRC staff worked together with us to make project budget, and it was relatively free to use the budget without asking approval by IDRC, but more than 10% will need approval. We have very friendly, frankly working relation with IDRC staff. IDRC staff was very much impressed by the stly of Chinese researchers using the project fund, taking buses rather than taxis, to save money. Experiment site was selected at suburb area and suggested to be in poor rural areas. Any problems encountered in the implementation could be solved by discussion with IDRDC staff.

How did we get connected with IDRC? In 1980, at an international conference, I met an IDRC

officer who hoped China to be a member of Asian Cropping Networking system. In 1982, 2 IDRC officers visited China on cropping system and national network members in China.

Integration of rice production with pig raising.

It is also important to get China's support (provincial) in addition to IDRC fund.

Sustainable cropping system

How to integrate different crops optimally as a cropping system, ie. Rice-rice, rice-wheat, rice-fish etc.

14 achievements were obtained.

600 million US\$ benefit from the project (profit) to the farmers.

International exchanges were broadened (more than 100 visits in and more than 100 visits out). Many research staffs became leaders of institutes (provincial academy).

Wang Ren: (Additional points)

Compare with other foreign programs:

Ford foundation focus on local priority, we appreciate its program policy. We are continuing the research with our own priority. A different cooperation with USEPA: In terms of data needs and providing funds, IDRC is more advantageous. Disadvantages: Agriculture is still our priority in China. Agriculture does relate to environment, not only for food. The priority of IDRC should continue to include agriculture.

Although the food supply is currently enough, but survey showed that there will be in short within decades or so. Agriculture is still the priority for China and IDRC should reconsider its policy.

Prof. Guo became a member of the Board of The Asian Cropping Association.

Prof. Bao Jianzhong's group:

The pest control project had more than 20 members working on the project. More than 7 units were involved in the project. Over 50 persons were trained in the 6 years of implementation. Right now, some people are still working in this area. Myself is in charge of beneficiary insects laboratories. But some member shifted to different work. Some are still working in the same area. But the project formed a very good foundation and equipment of the project has contributed very much, and we hope to reestablish the collaboration in future.

Ms Yang:

The Biological Control Institute just started to collaboration with IDRC when I was just graduated. The project contributed the establishment of the institute. In comparing with other ACIAR projects, I've worked 2 terms. ACIAR project were much focus on research and transfer of Australian technology to China. Also ACIAR project was relatively small. The project modifies

and adopts Australian experience to Chinese conditions.

Suggestions for future:

Canada still has many skills and expertise, but we found difficulty to collaborate with Canadians due to the change of IDRC priority. Agriculture is really an important area which closely relating to environment and biodiversity.

Information project:

Although the fund was small, it was really helpful, particularly in terms of training, computing on information processing.

One of the achievements is setting up an information network, which can be used for agricultural literature process and can be submitted to AGRIS. We also develop Chinese database through project. We strengthened our capacity in agriculture information technology.

With the help from IDRC. A highly experienced programmer is positioned to help us even for a small component.

Established a national literature retrieval system with this. We provide training to provincial people now. We now have a very qualified information process team including translation. So much changes in computing facility. One may have one or more computers, but all these started from scratch. We appreciate the benefit effects of the IDRC projects. From the global view the change of priority of IDRC is justified, but agriculture can not be separated to those environment issues. I hope IDRC could incorporate agriculture with environment and resource issues.

Review team visit to JASS (Jiangsu Academy of Agricultural Sciences):

President Jia Zhen:

The project was featured: large scale, involvement of many researchers and institutions, more than 380 persons, 22 institutions and 12 provinces. Wide coverage of fields of social sciences, economics, political science, regional economy, industry economy, trade and environment etc.

The project has significant effects on decision making of the local governments. The project had good cooperation with government sectors, research results were adopted by governments, e.g. environment protection, sustainable development was attached great importance by governments at various levels.

Academic value: The wide coverage of many research subjects. The long duration make it accumulated sufficient academic worth, gradually shows off its value in the changing process in the south.

Achievements were made in: Research capacity of staffs and institutions was strengthened by training courses, workshops. China stressed on qualitative analysis in the past, but now more

qualitative and quantitative were integrated, application of statistic methods. Improved research methodology. The project management was standardized. Coordination was well conducted. Formulation of rules of management of personnel, research funding. It was a successful project of 5 years of cooperation of more than 380 research staff, more than 10 institutions, no conflicts occurred.

The management model that the project adopted was suitable for the Chinese situation and workable. Project had steering committee composed of Chinese, which directs a coordination committee. IDRC had scientists in expert panel and giving instructions.

Yan Yinglong:

Research capacity: widened view, improved research methods. Understanding research frontier, project was object oriented and suitable for young researchers. Foreign partners deepened the understanding of China.

The project management was of very good demonstration effects. It was open, democratic, equal and competitive, particularly good for youngsters.

Impacts: This project showed some impacts on some problems in China, but not the overall policy of China.

Research network: The research network formed by the project still has impact and the information exchange has been continuing.

Comparing with other projects and suggestions: The project had too wide coverage, involving large number of efforts. The development levels of southern provinces were not the same, which causes problems. IDRC was more restrict in comparison with other projects.

Proposals for the Ford projects should pass examination by both Chinese and American experts. First to decide the amount of fund needed. Once funded, it requires periodic progress report. The disadvantage of Ford was since the start of project, no longer how it was progressing. Ford was flexible management.

Visit to XJASS (Xinjiang Academy of Agricultural Sciences) by review team:

Dai Jian, the projector leader:

Technology was important, but management is a key component. New technology was actually already used from both abroad and China. The successful experience were:

Wide range of cooperation: inter-disciplinary cooperation between experts of different disciplines such as resources, environment, economy etc. High level experts such as Qinghua University. Between technicians with local farmers, among international experts.

Information exchange: Collection and dissemination of information domestically and internationally.

Funding support: Although the IDRC fund was not much, but it was used in important aspects. Its advantage in comparing the UNDP, JICA projects, was that the use of IDRC fund was decided by both IDRC expert and local experts. Local expert knows where the fund was mostly needed, improving the efficiency of use of funding.

IDRC requires that the project must cooperate with local government, so the project was very useful for the local government.

Proposal for water management was made. Periodic research results was continually provided to the local government. For example, the proposal of water pricing in 1993 is still being used now. Proposal for Tarim water resource management was also adopted by local water management authorities. A desertification plan was adopted by the provincial forestry bureau.

Professor He, president of XJASS:

The project received attention from government at the very beginning. International project is easier to get government attention hence more possible to get funding for the project. Many researchers were trained by sending out for overseas training and inviting foreign experts to come. More opportunities provided by the project than no project.

Suggestions: Big project should be reported to government agencies not only the provincial government but also central government in order to seek the government support and to publicize its impact. Tarim problem involves many aspects and need more and wider studies, systematic studies. Studies in transportation, network, and improvement of living standard need increased support.