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**PROMOTING ACADEMIC AND EDUCATIONAL RELATIONS
WITH TAIWAN: A PRELIMINARY REPORT**

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SUMMARY

Canadian educational and academic relations with Taiwan have not kept pace with the expansion of bilateral economic exchange, changes in the political economy of Taiwan, or current developments in PRC-ROC relations.

This report situates post-secondary educational and academic affairs in the broader history of Canadian contact with both the ROC and the PRC. It then outlines developments in educational and academic contact with Taiwan in the past two years. Finally, it offers several suggestions on how to advance Canadian interests in the areas of faculty exchanges, research and conferences; study abroad, especially Taiwanese in Canada; and the promotion of Canadian studies at universities and research institutes in Taiwan.

The principal argument is that Taiwan deserves special attention in the areas of educational and academic cooperation. Because of past Canadian policy and the absence of significant historical connections, government needs to play a role in initial funding, though this will not be large, and in legitimating and facilitating private contacts.

The principal recommendations are to do the following:

1. Create a Canadian Working Group on Educational and Academic Exchange with Taiwan to examine and implement suggestions on how to promote bilateral cooperation.
2. Open a permanent Office for Sino-Canadian Educational Exchange attached to the Canadian Trade Office in Taipei.
3. Create a scholarship program for top Taiwanese students to attend Canadian universities.
4. Inform Canadian scholars and university officials, as well as the relevant parties in Taiwan, that scholars from Taiwan are eligible for existing government programs such as the Faculty Enrichment Grants.
5. Send a small delegation to Taiwan later in 1990 to gather information and confer with relevant parties about how to expand academic cooperation.
6. Launch a pilot program in conjunction with a major university in Taiwan to promote awareness of Canada through a visiting lecture and seminar series.
7. Convene a national conference on promoting academic and educational relations with Taiwan.
8. Create and publicize a small fund to promote scholarly conferences and joint research programs between institutions in Canada and Taiwan.

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A concluding section makes several additional recommendations on issues that deserve further attention and study in the near future.

Three appendices are attached which include statistics on Taiwanese students abroad and foreign students in Taiwan; a collection of recent materials on universities, colleges, and research institutes in Taiwan; and an outline of the arrangements for David Lysne's forthcoming visit to Taipei.

INTRODUCTION

Until very recently, Canadians have tended to view the Republic of China on Taiwan as something of a historical anachronism significant only as a recurrent thorn in the side of our developing relationship with the People's Republic of China. This perception of Taiwan as a nuisance and a sideshow is changing quickly. Developments in Canada, Taiwan and mainland China now offer an opportunity and an imperative for Canadian contact with Taiwan to be expanded. The difficult policy problem is how to take advantage of these opportunities in an era of fiscal constraint and without risking other policy objectives with respect to the PRC.

For twenty-five years, trade and commerce have been the preponderant dimension of Canadian relations with Taiwan. The principal actors have operated in private, rather than governmental capacities. This stands in contrast to our relationship with the PRC which, at least since 1970, has been dominated by geo-political concerns and state agencies. With limited and careful support from the provincial and federal government, private initiative will, and should, continue to be the driving force in expanding connections with Taiwan.

The objective of this report is to outline the current state of academic and educational relations between Canada and Taiwan and to propose short and medium term steps for promoting these relations. The focus is post-secondary education and research. Three main areas are considered: faculty exchanges, research and conferences; study abroad, especially Taiwanese in Canada; and the promotion of Canadian studies at universities and research institutes in Taiwan.

There are five main reasons for promoting contact between public and private educational institutions in Canada and Taiwan.

- (1) It is in the interests of Canada to deepen and broaden our understanding of Taiwan and the Taiwanese understanding of Canada. The advantages are economic, intellectual, and social.
- (2) Our contact with Taiwan is likely to increase in future. This is so because of the dynamism of its economy, the increasing democratization of its political system, and outflows from Taiwan in the forms of trade, investment, tourism and emigration.
- (3) Our current links to Taiwan lack balance, focusing almost exclusively on trade and investment. As with most Asian countries, a more comprehensive and intensive relationship is necessary to achieving the long term expansion of commercial relations as well as other objectives.

- (4) There is intrinsic scholarly value in expanding contact. Considering the world-class quality of scholarship and research at the best institutions in Taiwan, and the thousands of Taiwanese students who study abroad each year, Canadian universities and colleges can benefit from expanded exchange of students and faculty as well as research collaboration.
- (5) In view of the constraints of Canada's one-China policy and our substantial relations with the PRC, educational and academic matters are a comparatively safe way of moving ahead on the Taiwan front without jeopardizing other commercial and geo-strategic objectives with respect to mainland China.

PART ONE: PAST AND CURRENT ACADEMIC CONTACTS

HISTORY

Taiwan was first incorporated into China in 1683 as a prefecture of Fujian province. It achieved provincial status 1887. Presbyterian missionaries from Canada began arriving in Taiwan in the 1870s, well before our traders and diplomats. Dr. George Leslie MacKay (1844-1901), the best known of the Canadian missionaries, combined evangelism, medical pioneering, and educational reform in north Taiwan between 1872 and 1901. Less celebrated in Canada than a Norman Bethune or Robert McClure, his memory lives on in Taiwan, most tangibly in the MacKay Memorial Hospital, one of the leading medical institutions in Taipei which also has branch operations in Tamsui and Taitung. Associated with the hospital is one of Taiwan's few nursing schools. MacKay's educational efforts concentrated on theology and the founding of a high school eventually open to both men and women. The current President of the Republic of China, Lee Teng-hui, is an alumnus of the school.

In 1895 Taiwan became a Japanese colony. Fifty years later, after the Japanese surrender in World War II, it was returned to Chinese rule. Canada had recognized the Nationalist government of the Republic of China in the 1920s but did not establish direct diplomatic representation with it until 1943. During and after World War II, Canada provided material support to Chiang Kai-shek's government. Following the Communist victory on the mainland in 1949, the Nationalist government withdrew to the island of Taiwan. Canada continued to recognize Chiang's government and to support its representation in international organizations such as the United Nations until 1970.

Canadian interest in and commitment to the Republic of China on Taiwan was never substantial, even during the twenty-one years of formal diplomatic relations. The ROC government established an embassy in Ottawa and consulates in two other Canadian cities. Canada did not reciprocate, instead handling consular and commercial relations out of the High Commission in Hong Kong. A small trading relationship began in the

late 1960s but was not matched at the diplomatic level nor at the level of people-to-people contact through such channels as immigration, tourism, or cultural and academic exchange.

The status of Taiwan was a central problem in Canada's negotiations with the PRC preceding the establishment of formal diplomatic relations in October 1970. The second and third paragraphs of the formal communique of October 13 read as follows:

- The Chinese Government reaffirms that Taiwan is an inalienable part of the territory of the People's Republic of China. The Canadian Government takes note of this position of the Chinese Government.
- The Canadian Government recognizes the Government of the People's Republic of China as the sole legal government of China.

As applied by the Trudeau government, the one-China principle was scrupulously and vigorously observed. Canada actively promoted PRC representation in international organizations such as the United Nations and the removal of the representatives of the Republic of China. Unlike the United States, which recognized the PRC in 1979 but subsequently passed the "Taiwan Relations Act" to ensure ongoing relations and a security commitment, the Canadian government cut virtually all contact with Taiwan in 1970. Nor did it promote or encourage private channels of communication.

Canadian policy stated that there was to be no official or government to government contact; government programs and services were not to be extended to Taiwan; Taiwanese were not permitted to enter Canada for official or political purposes; and federal ministers and officials were forbidden to travel to Taiwan. Through the 1970s and into the early 1980s, relations were in the deep freeze. Both sides, but especially the Taiwanese, accumulated a list of grievances, prime among them the issuance of visas.

This situation began to change in 1983. Business was the key link. The first Taiwan trade mission visited Canada in November 1983. In January 1984 the Canadian Society of Taiwan was created with a membership of about two hundred Canadians working and living in Taiwan. Five months later the Pacific Basin Economic Council held its meetings in Vancouver and a Taiwanese delegation was permitted to attend. In November of 1984 a flag-bearing ship of the China Steel Corporation docked in Vancouver. Two years later, Taiwan was admitted to the Pacific Economic Cooperation Conference and was represented at the meetings also held in Vancouver. The most important development occurred in late 1986 when the Canadian Chamber of Commerce, using funds supplied by the Government of Canada, opened the Canadian Trade Office in Taipei. Shortly thereafter, the Canada-Taiwan Business Association (CTBA) was formed.

Taiwan has developed into a major economic force. It is now the world's thirteenth largest trading state; its annual growth rate averaged more than 8% in the 1980s; per

capita annual income has reached approximately \$9500; accumulated foreign reserves now exceed \$85 billion. In 1989, Taiwan's total GDP for a population of about 20 million was more than thirty-five percent as large as that of the PRC with a population fifty times larger. It has also become a significant exporter of capital. In 1989, its direct foreign investment in Eastern Asia exceeded \$5 billion.

Considering Canada's interest in trade, the absence of a deep historical connection, and political sensitivities inspired by Canada's close relationship with mainland China, it is not surprising that the overwhelming dimension of our bilateral relations with Taiwan has been economic. From virtually nothing in the early 1960s, Taiwan is now Canada's seventh largest trading partner. Two-way trade in 1989 exceeded \$3.2 billion. All five major Canadian banks now have offices in Taipei. Emigration and investment from Taiwan to Canada have been increasing steadily in the past three years.

This modest momentum towards expanded relations has been the product of several factors. From the Canadian perspective, the most important are the recognition of Taiwan's economic importance as a trading partner, as a potential source of investment, and as a major player in the Eastern Asian regional economy. There is also a new acknowledgement of political changes which are transforming one-party authoritarian rule into a more democratic form of electoral competition.

Viewed from Taipei, the 1980s were a period of adjustment to the major shocks produced by its increasing diplomatic isolation, leadership succession problems, and social upheaval. The two principal outcomes have been a new sense of self-confidence about its future and a new policy line in international affairs. In the last years of President Chiang Ching-kuo and, more strikingly, under current President Lee Teng-hui, the policy of exploiting commercial and cultural relations to score points in the competition with Beijing, has largely been replaced by a move toward assuring security and prestige through "substantive relations." This marks an important turning point in foreign relations as well as the base of legitimation of the KMT in Taiwan.

The pragmatism and flexibility associated with the policy of "substantive relations" have facilitated the expansion of unofficial connections with Canada as well as many other countries in Asia, Australasia, the Middle East and Western Europe. More recently, trade and cultural relations have been expanded even with the socialist countries of Eastern Europe and Indochina.

The final factor has been the evolving relationship between Taiwan and the mainland. From a situation of overt hostility and uncompromising opposition in the early 1980s, tensions have been somewhat reduced in the past three years. ROC citizens are now permitted to visit the mainland, "indirect" trade has reached about \$3 billion per year, and Taiwanese investment in the mainland has been running at about \$150 million per month. The end of ideological conflict and reunification are far off, but the lessening of tension between the two sides has increased the area for manoeuvre by foreign countries which wish to increase relations with Taiwan while maintaining contact with the PRC. This room for manoeuvre has been perceptibly widened by changes in public perceptions

of China after the Tiananmen Incident and by deepening Western worries about the long term future of mainland China's modernization process.

EDUCATIONAL AND ACADEMIC RELATIONS

Bilateral academic and educational exchange has been very slow to develop. Until recently, its principal advocates have been government agencies in Taiwan and a small number of professors and teachers in Canada, usually of Chinese descent. The major source of funding, although the amount has not been large, has been government organizations in Taipei, especially the Pacific Cultural Foundation, the China Youth Corps, the Ministry of Education, and the Ministry of Foreign Affairs. The most important Canadian organization had been the Canada Taiwan Friendship Association which has been active in promoting exchanges, though principally at the high school level and without extensive support in major Canadian universities. Two cities (Winnipeg and Pickering) are twinned with counterparts in Taiwan but promotion of post-secondary educational exchange has not been emphasized.

Existing academic and educational relations can be divided into two main areas: university study abroad; and faculty research and conferences.

University Study Abroad. One of Taiwan's principal exports has been students. Since 1954 about 120,000 have been given permission to study abroad, more than 90% choosing the United States. A very high percentage of the students studying overseas have been enrolled in graduate programs. Until last year all male undergraduates were compelled to remain in Taiwan for in-school military training; females for nurse's training. This regulation was lifted in the spring of 1989, raising the prospect of a greatly increased outflow of undergraduates seeking foreign degrees. Statistics are not yet available on whether in fact this has happened.

A very high proportion of Taiwanese students are privately financed. The number returning to Taiwan after graduation from a foreign institution is increasing but it is important to note that a large majority remain abroad. In 1987, for example, 6,599 left Taiwan to study overseas and 1,920 returned home; in 1988, 7,122 students left Taiwan and 2,296 returned. See Table 1.

Canadian universities have attracted a very small number of Taiwanese. In fact the number has dropped considerably in the 1980s to an average of about thirteen new students per year. See Tables 2, 3 and 6. Most estimates have the total number now studying in Canada at about 100. Of the roughly ten thousand foreign graduate students in Canadian universities, less than 1% are from Taiwan while more than 5% are from Hong Kong. By way of comparison, there are somewhere between 25,000 and 30,000 Taiwanese now doing graduate studies in the United States. This ranks number two in the list of foreign students in the U.S. by country, just below the PRC.

There are several reasons why Canada has not been a more popular destination. One is that the formal political relationship has never been warm. This has reinforced the

unfortunate and sometime inaccurate perception that visas are difficult to secure and that students from Taiwan are not welcome. Second, students are unfamiliar with Canada in general and Canadian educational institutions in particular. The links to the United States are very deep, the product of a "special relationship" dating back to World War II, and reinforced by a very large overseas Taiwanese population in the United States. It is worth observing that more than 30% of the members of the Cabinet of Executive Yuan since 1949 have completed degrees at American universities.

American universities recruit vigorously in Taiwan, maintain numerous exchange and scholarship programs, and promote joint research activities at the faculty level. For a variety of reasons, Taiwanese students perceive their chances to be very good of obtaining permanent resident status in the United States upon graduation.

Conversely, the number of Canadians studying in Taiwan has also not been large. The total number of Canadian students has never been much higher than one hundred per year, though the number has swollen somewhat in the past eight months as a result of disruptions on the mainland. Like other foreign students, they generally spend one or two years in Taiwan studying language or culture. See Tables 4 and 5. Virtually no Canadians receive ROC government support. By contrast, under a recent arrangement between the U.K. and Taiwan, thirty U.K. students will now receive scholarships from the ROC government.

Faculty Research and Exchange. Since 1986 there have been several initiatives in the area of faculty-level exchange. There is now considerably more enthusiasm in Canada for bilateral contacts, partly the result of a new found confidence in the quality of scholarship and education in Taiwan. Scholars and administrators in Canada also appear less worried that exchanges with Taiwanese universities and colleges will jeopardize existing links with institutions in mainland China. Here the experience of more than a dozen American universities which sponsor programs in both the PRC and Taiwan has perhaps been significant. At the same time, the few Canadian contacts with Taiwan have been sponsored by individual universities, institutes, or scholars with little coordination on a national or even provincial basis.

In January 1987 Dr. Bernard T. K. Joei and Tamkang University hosted an academic symposium on Canada held in Taipei. Eighteen Canadians participated, among them eight academics from six Canadian universities. Several of the papers presented were later published in a conference volume, Canada in the Evolving Pacific Community.

In September 1988 the University of Toronto and York University hosted a return conference in Toronto. It too produced a published volume, Taiwan in Transition: Political Development and Economic Prosperity. The 15-member delegation of scholars from Taiwan, principally political scientists and economists, was led by Dr. Chang King-yuh, at that point the Director of the Institute of International Relations and now the President of National Chengchi University. After Toronto, the delegation visited universities in Ottawa, Quebec City, Montreal, Edmonton, and Vancouver. Funding was secured from several Canadian sources including the federal government and the

government of Ontario, as well as several Canadian universities, research institutes, and private associations.

The two conferences generated several contacts among social scientists which are beginning to take institutional form. One likely institutional linkage is an ongoing series of conferences and, at a later point, student exchanges between, on the Canadian side, the University of Toronto - York University Joint Centre for Asia Pacific Studies and the York University Centre for International and Strategic Studies and, in Taiwan, the Institute for International Relations (National Chengchi University) and National Taiwan University.

A new project has recently been launched by the Faculty of Management at the University of Calgary. Directed by Dr. Philip Chang, the "Canada-Taiwan International Business Program" is intended to familiarize Taiwanese business executives with investment and trade opportunities in Canada and recent developments in management science. Its origins lay in a resolution adopted at the third annual conference of the CTBA in Edmonton in May 1989. The Program is being run in consultation with Cheng Yuan Christian University and will have an academic component designed to facilitate exchanges of professors. The 10-member Advisory Board includes Samuel Shieh, governor of the Central Bank of China, Yin Shih-hao, President of Chung Yuan University, Peter Loughheed, and Murray Fraser, President of the University of Calgary.

In Quebec, Le Fond de la Recherche en Sante du Quebec has signed an agreement with the ROC's National Science Council to provide two post-doctoral research training grants to Taiwanese candidates. The NSC has indicated an interest in establishing collaborative relationships with other national and regional agencies in Canada.

A new association, the Canadian Society for Chinese Studies, is currently being organized to promote academic study. It parallels a similar organization in the United States and will be comprised of academics and professionals, principally of Chinese descent.

Republic of China statistics indicate that in 1989, 72 scholars from Taiwan attended a total of 32 conferences in Canada, including a special physics conference.

CURRENT INITIATIVES

National Level. A small number of university administrators have visited Taiwan independently in the last ten years. A higher profile visit is currently being organized. In 1989 the ROC's Ministry of Education, through the ROC's Coordinating Council for North American Affairs in Washington, invited the Association of Universities and Colleges of Canada to organize a trip of university presidents to Taiwan. The invitation has been accepted and presidents from four universities (P.E.I., Sherbrooke, Ottawa, Regina) will visit Taiwan between May 26th and June 2nd of this year.

Provincial Level. British Columbia has recently expanded its trade office in Taipei to include one person responsible for educational matters. The operation is jointly administered and funded by the Ministries of Education, and Advanced Education and Technology. Its functions are (a) to assist and evaluate the English proficiency of Taiwanese students applying to enter secondary schools in British Columbia; and (b) to familiarize Taiwan students with post-secondary institutions in B.C., assist applicants, and, at a later date, promote academic linkages between post-secondary institutions in B.C. and Taiwan.

PART TWO: RECOMMENDATIONS AND PROPOSALS

For reasons of political practicality and operational efficiency, as well as general principle, individual scholars, universities and research institutes should be the driving force in academic exchanges. The only solid and durable foundation for intellectual exchange, joint research projects, and institutional linkages is contact at the ground level.

Governments should play two roles. The first is in the traditional areas of promoting Canadian studies abroad and recruiting qualified students into the university and college systems across Canada. The second function is peculiar to the Taiwan case. It concerns the legitimation of the process of academic exchange. In addition to all of the normal difficulties inherent in intellectual contact, Taiwan raises special problems. One of these is the prudential worry that institutional relations with Taiwan will jeopardize existing, hard won, relations with mainland China. Canada's relationship with the PRC has been a high priority issue for much of the past two decades. Considering that governments on both sides play a dominant role in most aspects of the relationship, official sensitivities are especially important.

There is also a vague but unmistakable feeling that Taiwan and the Republic of China are out of bounds, illicit and, in some minds, unsavory. The historical roots of this go back to Canadian responses to the corrupt and repressive government of Chiang Kai-shek on the mainland. More recently, this hands-off attitude has reflected official government policy and the perception that Taiwan is a pariah state as evidenced in its exclusion from most international organizations.

Recent steps by the federal government to change this perception have paid dividends. Ottawa's quiet support for Taiwanese participation in the Pacific Economic Cooperation Conference (PECC) process, the opening and expansion of the CTOT, the expansion of informal diplomatic contacts, are all sending new signals. A small but symbolic contribution from DEA to the 1988 Toronto Symposium on Taiwan, as well as the success of the symposium, did a great deal to allay worries and build confidence among provincial officials and university administrators.

The following are suggestions for specific action in three areas of academic and educational exchange. Though the problems and prospects differ in each area, they are

clearly interconnected. A successful strategy will involve simultaneous initiatives in all three.

As a preliminary step, the first recommendation is to form a small group for advancing educational and academic relations with Taiwan.

Specifically:

- (1) Create an Educational and Academic Working Group on Taiwan to gather information and offer detailed proposals on the timing and substance of Canadian initiatives. Its composition would include a representative of DEA, a representative from a national level educational association such as the AUCC, and two or three academics with experience in Taiwan.

ATTRACTING TAIWANESE STUDENTS TO CANADIAN POST-SECONDARY INSTITUTIONS

There is a very large export "market" of students that can potentially be tapped. Canada is clearly in a position of playing catch up to the United States. The American presence in Taiwan at the cultural and educational level is enormous and long standing. But we have even fallen behind newer competitors such as Australia, Austria, Belgium and the U.K. Britain has recently taken a new initiative in creating a four person addition to its Anglo-Taiwan Trade Committee which is responsible for educational affairs.

The recent opening of an educational office attached to the British Columbia Trade Office is a useful move. Despite occasional efforts by the Canadian Society in Taipei, which has about 200 members, the most basic material about Canadian educational institutions is not being collected or disseminated. Ironically, the only collection of this material is held at the library of the American Institute in Taiwan.

Two areas - institution building and scholarships - need special attention.

Specific steps:

- (1) Open an Office for Sino-Canadian Educational Exchange (OSCEE) attached to the Canadian Trade Office in Taipei. Its objectives would be: (a) to disseminate information in Taiwan about Canadian institutions of post-secondary education; (b) to facilitate the preparation of visa applications, admission forms, etc.; (c) to assist academic cooperation between scholars and administrators in Taiwan and Canada. It would be funded by participating provincial governments and the federal government, perhaps through the medium of an annual grant to the Canadian Chamber of Commerce.

- (2) Create a scholarship program for top Taiwanese students to attend Canadian universities. The program would be coordinated through the OSCEE but would be funded by contributions from the private sector, the Canadian Society in Taiwan, and an initial grant from the Department of External Affairs through the CCOC. It would be expected that a similar scholarship program for Canadians to study in Taiwan would be considered, and funded, by the Taiwan side.

PROMOTING CANADIAN STUDIES IN TAIWAN

In Taiwan, knowledge about Canada runs far behind interest in Canada. Here again, compared to the United States, we are very much in a catch up position. Promotion of Canada is currently done almost exclusively on a voluntary basis by the Friendship Societies, the Canadian Society in Taiwan, energetic individuals and the recently formed Taipei Council on Canadian Affairs composed of Chinese with a special interest in Canadian business, politics and society. The CTOT is an important representative organization, but it does not have the resources for systematically raising the profile of Canada in schools and universities, much less among the general public, in Taiwan.

The federal government and agencies such as the Asia Pacific Foundation already have the mandate and resources to promote Canadian studies abroad. The main task is to apply them to Taiwan. At a minimum, what is needed is a steady supply of basic materials including maps, textbooks, university and community college calendars, and Canadian publications.

Specific steps:

- (1) Employ the OSCEE as the local distributor of Canadian materials and publications. If space and budget permit, the creation of a Canadian library would be useful. An alternative would be a joint arrangement with the library at the American Institute in Taiwan which in past has been receptive to the idea.
- (2) Better inform Canadian scholars and university officials that scholars from Taiwan are eligible for such existing programs as the Faculty Enrichment grants.
- (3) Inform scholars and administrators in Taiwan of the existence of these programs. One component would be a visit of small delegation of Canadian academics and officials for a promotional and study tour to Taiwan early in the next academic year. A second component would be to invite a small delegation of university administrators and scholars from Taiwan to visit Canada. Arrangements for both could be handled by a national organization such as the AUCC or, alternatively, a regional organization such as the Joint Centre for Asia Pacific Studies in Toronto working in conjunction with a research institute or university in Taiwan.

- (4) Launch a pilot program at one or two of the major universities in Taipei (National Taiwan University, National Cheng Chi University are good candidates) which would involve a year long seminar on aspects of Canadian history, politics and culture. This might take the form of a monthly lecture by a visiting Canadian faculty member and a seminar following each lecture which would feature prominent Taiwanese academics in discussion. It would be necessary to arrange an academic co-sponsor in Taiwan as well as support from such organizations as the Canadian Society in Taiwan, the Taipei Council on Canadian Affairs, and the CTOT. Again, the OSCEE could play a facilitating role in conjunction with either the AUCC or a regional organization such as the JCAPS.

INSTITUTIONAL LINKAGES, CONFERENCES AND JOINT RESEARCH PROJECTS

It is worth emphasizing that Taiwanese academics have not been isolated from the outside world. Their top scholars and researchers are extremely well connected with leading institutes and universities in the United States, Japan, South Korea and, to a lesser extent, Western Europe. The best institutions are increasingly selective in assessing new bilateral projects. And there is a concerted effort by the Ministry of Education to see more institutes and universities involved.

Beyond its intellectual merits and research payoff, increased contact between scholars is an essential step in attracting first-rate graduate students. The best students in Taiwan have many options open to them. The reputation of Canadian institutions as well as personal contacts are crucial in getting them to choose the comparatively unfamiliar path to Canada.

The matching of institutions and scholars is a process best left to the scholars themselves. Government can be helpful in the following ways.

Specific steps:

- (1) A national organization such as the AUCC should convene a conference on promoting academic exchange between institutions in Taiwan and Canada. The main participants would be Canadian scholars involved in research exchanges, provincial officials responsible for promoting educational exchanges, and selected scholars and educational officials from Taiwan. It perhaps could be timed to coincide with the CTBA meetings. The location could either be in Canada or Taiwan.
- (2) Make available a small fund for special grants to academic conferences and research projects which link leading research institutions in Taiwan and Canada. The funds would be allocated to supplement other sources of

funding rather than replace them. In addition to established university centres and research institutes, one area of potential mutual interest would be a collaborative project related derived from one of the functional task forces of the PECC.

POTENTIAL PROBLEMS AND OBSTACLES

Vocabulary. Academic forums have progressed beyond the earlier jousting on "Taiwan" versus "Republic of China." The basic operating rule has been that when Canada, Canadian conventions and policies reign; when in Taiwan, ROC policies reign. The Taiwanese have generally been quite flexible in using "Taiwan" in naming joint committees such as the Canada-Taiwan Business Association. In educational matters, there is the additional advantage that Canadian provinces have large responsibilities in the area. A more complex problem, though less politically important, is the matter of transliteration systems between Chinese and English.

Political manipulation in Taiwan. Bureaucratic rivalries in Taiwan are intense as are factional divisions and personal ambitions. Canada has not yet developed either the institutional capacity or the personal relations to allow us to move as effectively as do the American in academic relations. In unofficial diplomatic dealings between Canada and Taiwan in the past two years, there have been unfortunate breeches of trust and confidentiality which have slowed otherwise promising initiatives.

There is no simple solution to the problem. Academic issues are, of course, less incendiary than issues of diplomatic representation and consular affairs. The best general strategy is to proceed slowly and incrementally, using personal relations that have been emerging over the past several years. It is also important to avoid generating any expectation that expansion of academic relations will lead, now or later, to changes in the official Canadian position on a one-China policy. Very few academics in Taiwan are pushing for these objectives, but the Ministry of Education has been known occasionally to push hard for political points in the conflict with Beijing.

Caution Among Canadian Institutions. Universities and governments in Canada have exerted considerable efforts to develop linkages with counterparts in the PRC. Few are willing to risk these connections. They will need time to develop confidence that they can also have simultaneous contact with institutions in Taiwan. This again suggests that timing is very important and an incremental approach the best way to proceed. It will also be important not to generate too many large expectations about what can be achieved in the short run. Attracting significant numbers of high quality Taiwanese students to Canada, for example, will take several years. "Taiwan-mania," along the lines of the "China-mania" of twenty years ago, is unlikely to develop and should not be encouraged. Developing common research and scholarly interests is a surer and more profitable form of cooperation.

Funding. This is not a situation in which Canada is providing foreign aid. In fact, most of the initiative and funding for academic contact up to this point, albeit on a modest

scale, has come for the Taiwan side. In light of the perennial trade imbalance in Taiwan's favour (about \$1.2 billion in 1989) this should not cause any great guilt. Should a solid foundation be set, there are several sources of funds, private and governmental, which can eventually be mobilized. For example, the Chiang Ching-kuo Foundation is planning to spend \$75 million (U.S.) over the next five years in North America to fund academic research. It would thus be useful for Canadians at this point to demonstrate a measure of reciprocity as a signal of sincerity and interest.

PART III. FOR FURTHER EXAMINATION

This report is a preliminary step in the formulation of a coherent strategy to promote bilateral educational and academic relations. The suggestions it contains will benefit from more examination and development. Additional investigation is needed in at least three areas.

1. A feasibility study is needed to assess the objectives, organization, and financing of the proposed Office for Sino-Canadian Educational Exchange. The relevant parties on the Canadian side include DEA, the relevant provincial ministries (especially in British Columbia, Alberta, Ontario, and Quebec), the CCOC, AUCC, and selected academics with experience in Taiwan.
2. A report should be compiled on the policies and tactics of other countries which currently operate, or are in the process of initiating, educational and academic programs in Taiwan. The most important, of course, is the United States. Special attention should also be given to recent initiatives by Australia, Austria, the U.K., France, Belgium, West Germany, and Japan. For example, Austria and Belgium have recently come to agreement with Taiwan on an exchange of visiting professors. The terms, vocabulary, and financing of the exchange are of obvious interest. It is also important to assess how these countries have "managed" PRC responses. One option worthy of consideration is creating multilateral conference arrangements in which scholars from the PRC, as well as Taiwan, Canada and other countries are included.
3. More information is needed about Taiwanese students studying abroad. One important area is the effect of recent changes in government policy which now permit undergraduates to go overseas. Another is the profile of students who chose Canadian universities in past along with the problems and prospects of attracting more to Canada in future. Discussions should be held with relevant persons in Canadian universities and colleges, the Chinese Canadian community, professors and university administrators in Taiwan, and government agencies in Taiwan, particularly the Ministry of Education, the Ministry of Foreign Affairs, and the National Science Council.

LIST OF ABBREVIATIONS AND ACRONYMS

AUCC	Association of Universities and Colleges of Canada
CCOC	Canadian Chamber of Commerce
CTBA	Canada-Taiwan Business Association
CTOT	Canadian Trade Office in Taipei
JCAPS	Joint Centre for Asia Pacific Studies (Toronto - York)
KMT	Kuomintang (Nationalist Party)
NSC	National Science Council (ROC)
OSCEE	Office for Sino-Canadian Educational Exchange
PECC	Pacific Economic Cooperation Conference
PRC	People's Republic of China
ROC	Republic of China

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APPENDIX I

STATISTICS ON STUDENTS ABROAD

Table 1. Approvals for ROC Students to Study Abroad in the 1980s

1980	5933
1981	5363
1982	5925
1983	5690
1984	5410
1985	5979
1986	7016
1987	6599
1988	7122

Source : Statistical Yearbook of the Republic of China 1988 and Republic of China Yearbook 1989.

Table 2. 1987 and 1988 Approvals of ROC Students to Study Abroad

	1987	1988
Australia	8	41
Austria	9	11
Belgium	16	24
Canada	13	15
France	69	115
West Germany	92	144
Japan	224	252
Spain	23	27
Thailand	21	6
U.K.	38	49
U.S.A.	6052	6382
Others	34	56
Total	6599	7122

Source : Statistical Yearbook of the Republic of China 1988 and Republic of China Yearbook 1989

Table 3. 1987 Approvals of ROC Students to Study in North America by Field of Study

Field of Study	U.S.A.	Canada
Education	50	-
Fine Arts	109	1
Humanities	603	2
Social and Behaviour Science	374	2
Business and Administration	991	1
Law and Jurisprudence	86	-
Natural Science	439	-
Mathematics and Computer Science	381	1
Medical Science	268	2
Engineering	1946	1
Architecture and Town Planning	103	-
Agriculture, Forestry and Fishery	205	1
Home Economics	74	-
Transportation and Communication	105	-
Service Trades	34	-
Mass Communication and Documentation	139	-
Others	145	2
Total	6052	13

Source : Statistical Yearbook of the Republic of China 1988

Table 4. Number of Foreign Students in Taiwan By Country, 1987-1988 and 1988-1989

	1987-88	1988-89
Australia	41	60
Belgium	51	47
Canada	97	101
France	151	177
West Germany	350	478
Indonesia	291	217
Italy	36	33
Japan	809	861
Korea	893	1458
Philippines	133	160
Singapore	35	32
Thailand	137	131
United Kingdom	109	119
U.S.A.	1139	1253
Others	313	443
Total	4585	5640

Source : Statistical Yearbook of the Republic of China 1988 and Republic of China Yearbook 1989

Table 5. North American Students in Taiwan By Field of Study, 1987

Field of Study	U.S.A.	Canada
Humanities	1122	95
Other	17	2

Source : Statistical Yearbook of the Republic of China 1988

Table 6. Annual Approval of ROC Students to Study in North America

	U.S.A.	Canada
1960	531	10
1961	733	15
1962	1387	78
1963	1685	129
1964	2026	125
1965	1543	111
1966	1696	164
1967	2047	144
1968	2272	107
1969	3015	68
1970	1825	35
1971	2289	14
1972	1867	16
1973	1650	30
1974	1992	43
1975	1824	139
1976	3173	111
1977	3369	44
1978	4350	33
1979	5463	31
1980	5572	19
1981	4976	19
1982	5572	12
1983	5371	10
1984	5066	9
1985	5532	9
1986	6449	11
1987	6052	13
1988	6382	15
Total	95,709	1,551

Source : Ministry of Education, ROC, as quoted in Philip C. Chang, "Education: A Missing Link in Canada - Taiwan Business Relations." Third Annual Meetings of the CTBA, Edmonton, April 1989.

APPENDIX II

UNIVERSITIES, COLLEGES AND RESEARCH INSTITUTES IN TAIWAN

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Republic of China 1988: A Reference Book. Taipei: Government Information Office, 1988.

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36 Universities and Colleges

With the rapid economic development of the Republic of China, increased attention has been focused on her institutions of higher learning. While less than 1% of the student population in the 1950 academic year were university students, 3.9% of all students were university, college, or graduate students in 1986.

Skills in the applied sciences are increasingly needed by the island's modern industries. Approximately 46.3% of Taiwan's university/college population today consists of students in the engineering and natural sciences.

University/college education in the Republic of China is open to all senior high school graduates. Admission procedures involve a nationwide college entrance examination held once annually in early July.

A university/college candidate must decide in his or her second year of senior high school what general range of subjects he or she wishes to pursue in university or college: arts, sciences, agriculture and medicine, or business and law. Candidates interested in the arts, business, or law take one set of courses, while those interested in the sciences, agriculture, or medicine take a different set. The test items on the university/college entrance exams are specifically tuned to these four areas. When registering for the examination, a student lists in order of preference the universities or colleges where he would like to study, and the specific department he prefers. Examination scores then determine the student's chances of pursuing the paths he chooses. In the 1984 academic year, the Ministry of Education adopted new regulations for the university entrance examinations: after taking the exam and receiving their scores, the candidates fill in a list of their preferred departments as well as universities or colleges, according to their scores and the minimum standards for each department set by the Ministry of Education. New regulations enable candidates to foresee how far they can reach and select a major based on interest rather than on one's predicted chances of gaining admission. Over 100 thousand students take these exams annually, with 30-35% admitted to universities and colleges.

To complete work for a bachelor's degree, each student must fulfill the departmental and general requirements, and must complete at least 128 credits of undergraduate work, in addition to courses in physical education and military training.

A master's degree candidate must take a minimum of twenty-four course credits plus four thesis research credits and pass a written

comprehensive examination. Doctoral degree candidates are allowed a period of two to six consecutive years of study to complete their program. The student is required to take at least eighteen credits of coursework, and take comprehensive and major field examinations. After successfully fulfilling these requirements, the candidates of a master's and a doctor of philosophy degree must take a final-oral examination on the student's dissertation and on his major field by a committee invited by the university or college.

National Taiwan University

National Taiwan University (NTU) was founded after the restoration of Taiwan to China in 1945. Its predecessor was the Taihoku Imperial University established by the Japanese in 1928, the first university in Taiwan.

The university has seven colleges with forty-seven departments and fifty-five graduate institutes on three campuses. Among them, fifty-four graduate institutes offer master's programs and forty-five offer doctoral programs. Affiliated organizations include: Computer Center, Hydraulic Research Laboratory, Tjing Ling Industrial Research Institute, Center for Earthquake Engineering Research, University Experimental Farm, Experimental Forest, Veterinary Hospital, Highland Farm, Agricultural Exhibition Hall, University Hospital, Population Study Center, Audio-Visual Center, and Institute of Fishery Biology.

In the 1986 academic year, NTU had an enrollment of 16,533 students, with 2,257 faculty members and 1,207 staff members. NTU is one of the largest and most prestigious institutions of higher learning in the Republic of China today.

National Tsing Hua University

National Tsing Hua University (NTHU) was established in 1911 as Tsing Hua Imperial College, a junior college in Peking which annually sent its graduates to the United States to complete their baccalaureate studies. The college gained university status in 1925, and in 1928 was renamed National Tsing Hua University. It soon emerged as one of the most prominent institutions of higher learning in China. In 1955, the Government of the Republic of China decided to establish an Institute of Nuclear Science in the graduate institute of

Programs Offered by National Tsing Hua University

Departments	Bachelor's	Master's	Doctoral
College of Liberal Arts			
Chinese Literature	.	.	.
Foreign Languages and Literature	.	.	.
History	.	.	.
Philosophy	.	.	.
Anthropology	.	.	.
Library Science	.	.	.
College of Science			
Mathematics	.	.	.
Physics	.	.	.
Chemistry	.	.	.
Geology	.	.	.
Zoology	.	.	.
Botany	.	.	.
Psychology	.	.	.
Geography	.	.	.
Atmospheric Sciences	.	.	.
Oceanography	.	.	.
Biochemical Sciences	.	.	.
Fisheries Science	.	.	.
College of Law			
Law	.	.	.
Political Science	.	.	.
Economics	.	.	.
Sociology	.	.	.
San Min Chu I	.	.	.
College of Medicine			
Medicine	.	.	.
Public Health	.	.	.
Pharmaceutical Science	.	.	.
Nursing	.	.	.
Medical Technology	.	.	.
Dentistry	.	.	.
Rehabilitation Medicine	.	.	.
Anatomy	.	.	.
Biochemistry	.	.	.
Physiology	.	.	.
Pharmacology	.	.	.
Pathology	.	.	.
Microbiology	.	.	.
Clinical Medicine	.	.	.
College of Engineering			
Civil Engineering	.	.	.
Mechanical Engineering	.	.	.
Electrical Engineering	.	.	.
Chemical Engineering	.	.	.
Naval Architecture	.	.	.
Computer Science & Information Engineering	.	.	.
Environmental Engineering	.	.	.
Material Engineering	.	.	.
Applied Mechanics	.	.	.
College of Agriculture			
Agronomy	.	.	.
Agricultural Engineering	.	.	.
Agricultural Chemistry	.	.	.
Plant Pathology and Entomology	.	.	.
Forestry	.	.	.
Animal Husbandry	.	.	.
Veterinary Medicine	.	.	.
Agricultural Economics	.	.	.
Horticulture	.	.	.
Agricultural Extension	.	.	.
Agricultural Machinery Engineering	.	.	.
Food Science & Technology	.	.	.
College of Management			
Business Administration	.	.	.
Finance	.	.	.
Accounting	.	.	.
International Trade	.	.	.

National Tsing Hua University. In 1956, the university was relocated in Hsinchu, Taiwan, as a single graduate institute with twenty students. Today, the university has four colleges, comprised of twelve undergraduate departments and seventeen graduate institutes with 3,585 students enrolled in 1986.

The university, which specializes in the study of basic and applied sciences, is now directing its academic emphasis toward two primary tasks: the promotion of interdisciplinary programs, among

Programs Offered by National Tsing Hua University

Departments	Bachelor's	Master's	Doctoral
College of Science			
Mathematics	.	.	.
Applied Mathematics	.	.	.
Physics	.	.	.
Chemistry	.	.	.
Life Science	.	.	.
Computer & Decision Sciences	.	.	.
College of Engineering			
Materials Science and Engineering	.	.	.
Chemical Engineering	.	.	.
Power Mechanical Engineering	.	.	.
Industrial Engineering	.	.	.
Electrical Engineering	.	.	.
College of Nuclear Science			
Nuclear Science	.	.	.
Nuclear Engineering	.	.	.
Radiation Biology	.	.	.
College of Humanities & Social Sciences			
Chinese Literature & Linguistics	.	.	.
Foreign Languages	.	.	.
Economics	.	.	.
History	.	.	.
Linguistics	.	.	.
Sociology & Anthropology	.	.	.

which the development of life science will be a main focus, and the realization of an equal emphasis on sciences and humanities in research and instruction.

National Tsing Hua University places strong emphasis on interdepartmental liaison and cooperation in teaching and research. Undergraduate curricula are designed in accordance with the principles of quality, flexibility, and consistency. A liberal education and career training are both emphasized. On the graduate level, interdisciplinary programs are encouraged, and more graduate institutes in humanities and social sciences are to be set up in the next few years. Research centers for optoelectronics, nuclear science and technology, materials science, computers, bioengineering, and a central laboratory have been set up on campus with a view to promoting long-term interdisciplinary programs as well as raising the quality of research work. The university also has a Scientific Instruments Center to provide support services to teaching and research. In a joint project with the governmental Chung Shan Institute of Science and Technology, NTHU provides personnel and facilities to the Tzu Chiang Research Institute, which unifies the efforts of academic institutions to develop science and technology of national defense interest. Research is at the heart of NTHU, and the university's steadfast commitment to academic excellence is manifested by the fact that its faculty members publish an average of two papers each year, one



Department of Control Engineering, National Chiao Tung University.

of which is published in an international journal, as well as by the fact that the annual ratio of the budget for cooperative research projects to the university's overall budget is a remarkable 1:3.

National Chiao Tung University

National Chiao Tung University was founded in Shanghai in 1896 to specialize in railway, electrical, and mechanical engineering, and administrative education. The reestablishment of the university in Hsinchu, Taiwan, began with an institute of electronics, which was inaugurated in 1958. Following that, two undergraduate departments of electrophysics and electronics engineering started in 1964. At present, it has three colleges with twelve departments and twelve graduate institutes. The university's enrollment in the 1986 academic year was 3,844.

Research activities are conducted with emphasis

on applied technology in the fields of electronics, computer engineering, management science, electro-optical engineering, and so forth.

The current research activities in electronics include computer-aided designs for VLSI system; computer-aided design for VLSI devices and circuits; process simulation models for VLSI; electronic material technologies for VLSI; new devices and integrated circuits; semiconductor device physics and measurements; solid-state physics and materials; sensors and transducers, and their interface circuits; network theory and system simulation techniques; industrial control and system design techniques; and so forth.

Research work in computer engineering covers design of Chinese typesetting systems; pictorial information systems; pattern recognition and image processing applications; computer-aided design of digital systems and very-large-scale integrated circuits; multiprocessor systems and their operating systems; distributed database systems; algorithm

Programs Offered by National Chiao Tung University

Departments	Bachelor's	Master's	Doctoral
College of Engineering			
Electronics Engineering	•	•	•
Control Engineering	•	•	•
Communication Engineering	•	•	•
Mechanical Engineering	•	•	•
Civil Engineering	•	•	•
Computer Engineering	•	•	•
College of Science			
Electro-physics	•	•	•
Applied Mathematics	•	•	•
Information Science	•	•	•
Applied Chemistry	•	•	•
Electro-optical Engineering	•	•	•
College of Management			
Management Science	•	•	•
Transportation Engineering & Management	•	•	•
Industrial Engineering & Management	•	•	•
Traffic & Transportation	•	•	•

analysis; software engineering; robotics; modeling and simulation; special processors for parallel processing and artificial intelligence computer networks and distributed computing systems; computer graphics application; and so forth.

The research in electro-optical engineering now in progress includes laser technology and applications; nonlinear optics; spectroscopy; fiber optics; I. R. detectors and remote sensing; liquid crystal; semiconductor optoelectronic devices; special optical materials; and so forth.

The Institute of Management Science has contracts with the Ministry of Communications, the Taipei City Government, the Taiwan Power Company, and other organizations for the training of personnel and research in specified areas.

The Institute of Traffic and Transportation conducts research on traffic control in Taipei City, railway administration systems, management analysis of Taiwan enterprises, and computerization of management systems, among others.

National Chengchi University

National Chengchi University, founded in Nanking in 1927, is now located at Mucha, Taipei. The late President Chiang Kai-shek was its first president and held the post until 1947. It has three colleges consisting of twenty-five departments and twenty-three graduate institutes. The three colleges are the College of Liberal Arts and Sciences, College of Law, and College of Commerce. The twenty-three graduate institutes offer studies in education, political science, international law and diplomacy, journalism, public finance, Chinese literature, public administration, land economics, business administration, law, East Asian studies, statistics, accounting, China border area studies, economics, international trade, Dr. Sun Yat-sen's doctrine, history, psychology, insurance, western



The Language Lab of National Chengchi University.

language and literature, sociology, and applied mathematics. Eleven of the graduate institutes—Chinese literature, political science, business administration, education, law, land economics, East Asian studies, journalism, Dr. Sun Yat-sen's doctrine, economics, and history—offer doctoral programs. The university's enrollment in the 1986 academic year was 6,723.

NCU emphasizes social sciences. Its departments and graduate institutes of Arabic language and literature, public administration, journalism, land economics, China border area studies, and international law and diplomacy are unique in this country and highly regarded, and produce many high-ranking officials in the central and local governments.

The university's Institute of International Relations conducts research on international affairs with special emphasis on Chinese and Soviet Communist affairs. The institute sponsors many international symposiums and conferences. Conferences for Sino-American and Sino-Japanese scholars are held annually to provide opportunities to exchange views and research findings on Chinese Communist affairs.

The purpose of the Center for Public and Business Administration is improving business management and public administration through teaching, research, in-service training, and consulting services. It offers in-service courses to government officials and military officers of upper- and upper-middle levels in order to transmit new ideas and concepts to them. So far, more than 100 thousand persons have had training of one kind or another under this program. The center also

conducts international meetings of various types to promote cultural exchange and mutual understanding.

The university's Supplementary Junior College of Public Administration on the Air, founded in 1977 at the request of the Ministry of Education and the Central Personnel Administration, offers college courses to lower-level government employees. With the cooperation of the China Television Service, the college helps improve the quality of public service.

National Taiwan Normal University

National Taiwan Normal University (NTNU) had its origin in the founding of the former Provincial Taiwan Teacher's College in 1946, which was promoted to the status of a university in 1955. On July 1, 1967, the university became a national institute bearing its present title.

The main function of NTNU is training secondary school teachers. The undergraduate program at NTNU consists of a four-year on campus course of study plus one year of teaching practice. All undergraduate students are awarded monthly allowances and free tuition and lodging. They, in turn, have to serve as secondary school teachers for four years after graduation.

NTNU has four colleges (education, arts, sciences, and fine and applied arts) located on two campuses (the main campus is on Hoping East Road and the second campus is in the Kungkuan area of Taipei).

The students in NTNU's Extension Division are either in-service teachers of primary and secondary schools or educational administrators. Every summer vacation, the Extension Division offers graduate courses for in-service secondary school teachers and educational administrators. Upon completion of forty credits in four years' time, students receive a certificate, instead of a master's degree.

Affiliated with the university are several specialized units: Counseling Center, Audio-visual Education Center, Computer Center, In-service Teachers' Education Center, Office of Foreign Student Affairs, Mandarin Training Center, French Training Center, English Language Training Center, Science Education Center, Special Education Center, Affiliated Senior High School, Center for the Teaching of Dr. Sun Yat-sen's Doctrine, Research Center for Humanistic Education, and Council on Alumni Guidance. NTNU's Mandarin Training Center is one of the largest and most modern schools in the Republic of China for the teaching of all levels of standard Mandarin and written Chinese to nonnatives.

For the 1986 academic year, NTNU had an

Programs Offered by NTNU

Departments	Bachelor's	Master's	Doctoral
College of Education			
Civic & Moral Education	•	•	•
Dr. Sun Yat-sen's Doctrine Education	•	•	•
Educational Psychology	•	•	•
Guidance	•	•	•
Health Education	•	•	•
Home Economics	•	•	•
Industrial Education	•	•	•
Information & Computer Education	•	•	•
Physical Education	•	•	•
Social Education	•	•	•
Special Education	•	•	•
College of Arts			
Chinese	•	•	•
English	•	•	•
Geography	•	•	•
History	•	•	•
College of Fine & Applied Arts			
Fine Arts	•	•	•
Industrial Arts Education	•	•	•
Music	•	•	•
College of Sciences			
Biology	•	•	•
Chemistry	•	•	•
Earth Sciences	•	•	•
Mathematics	•	•	•
Physics	•	•	•

enrollment of 7,520 students with 788 faculty members.

National Cheng Kung University

National Cheng Kung University (NCKU), situated in the city of Tainan, was founded in 1931 during the Japanese occupation as the Tainan Higher Technical School. With the retrocession of Taiwan to China in 1945, it was reorganized as Provincial Tainan Technical Institute. As a result of its rapid growth, it was first elevated to the Taiwan Provincial College of Engineering in 1946, later in 1956 to Provincial Cheng Kung University, and finally in August 1971, to National Cheng Kung University. In the past forty years, it has developed from an engineering college of only six departments (mechanical, electrical, chemical, mining and metallurgical, civil, and architectural engineering) to a large university comprising twenty-nine departments in five colleges (liberal arts, sciences, engineering, management, and medicine), seventeen graduate institutes, an evening division of thirteen departments, an affiliated Technical Night School, and a Supplementary Junior College of Commerce on the Air.

The university has academic cooperative programs with many renowned universities in the United States, West Germany, France, and the Republic of Korea, which have been very fruitful. In the 1986 academic year, the university had an enrollment of 11,564 students, of which 1,171 were graduate students and 10,393 were undergraduates, including 3,439 evening students. The student/faculty ratio is fourteen to one.

Programs Offered by National Chung Hsing University

Departments	Bachelor's	Master's	Doctoral
College of Liberal Arts			
Chinese Literature	.	.	.
Foreign Languages & Literature	.	.	.
History	.	.	.
History & Language	.	.	.
College of Sciences			
Mathematics	.	.	.
Physics	.	.	.
Chemistry	.	.	.
Earth Sciences	.	.	.
Biology	.	.	.
Applied Mathematics	.	.	.
College of Engineering			
Mechanical Engineering	.	.	.
Electrical Engineering	.	.	.
Chemical Engineering	.	.	.
Mineral & Petroleum Engineering	.	.	.
Metallurgy & Materials Engineering	.	.	.
Civil Engineering	.	.	.
Hydraulic & Oceanic Engineering	.	.	.
Architecture	.	.	.
Surveying Engineering	.	.	.
Engineering Science	.	.	.
Environmental Engineering	.	.	.
Naval Architecture & Marine Engineering	.	.	.
Urban Planning	.	.	.
Industrial Design	.	.	.
Aeronautics & Astronautics Engineering	.	.	.
Mining, Metallurgy, & Materials Science	.	.	.
Photogrammetry	.	.	.
College of Management			
Industrial Management Science	.	.	.
Business Management	.	.	.
Transportation & Communication Management Science	.	.	.
Accounting	.	.	.
Statistics	.	.	.
College of Medicine			
Medicine	.	.	.

National Chung Hsing University

National Chung Hsing University, founded in 1919, was originally a special department of Taihoku Imperial University (today's National Taiwan University). It became independent in 1943 and was moved to Taichung. After the retrocession of Taiwan to the Republic of China in 1945, it was named the Taiwan Provincial Agricultural Junior College, offering courses in agronomy, forestry, and agricultural chemistry.

The college was reorganized and expanded in 1961 into the College of Science and Engineering, which was then combined with the College of Law and Commerce in Taipei (founded in 1949), to become Taiwan Provincial Chung Hsing University.

With the addition of an evening school to the College of Law and Commerce in Taipei and the main campus in Taichung, the university was granted national university status in 1971. A College of Liberal Arts was set up in late 1968.

In the 1986 academic year, the university had a teaching and research staff of 993 and a student body of 12,061, including 11,531 undergraduates and 530 graduate students engaged in advanced studies.

Programs Offered by National Chung Hsing University

Departments	Bachelor's	Master's	Doctoral
College of Arts			
Chinese	.	.	.
Foreign Literature	.	.	.
History	.	.	.
College of Law & Commerce			
Law	.	.	.
Public Administration	.	.	.
Economics	.	.	.
Sociology and Social Work	.	.	.
Land Economics & Administration	.	.	.
Accounting	.	.	.
Statistics	.	.	.
Business Administration	.	.	.
Cooperative Economics	.	.	.
Public Finance	.	.	.
Urban Planning	.	.	.
College of Science & Engineering			
Chemistry	.	.	.
Physics	.	.	.
Botany	.	.	.
Applied Mathematics	.	.	.
Mechanical Engineering	.	.	.
Civil Engineering	.	.	.
Environmental Engineering	.	.	.
College of Agriculture			
Agronomy	.	.	.
Horticulture	.	.	.
Forestry	.	.	.
Water & Soil Conservation	.	.	.
Soil	.	.	.
Plant Pathology	.	.	.
Entomology	.	.	.
Food Science	.	.	.
Agricultural Economics	.	.	.
Animal Husbandry	.	.	.
Veterinary Medicine	.	.	.
Agricultural Mechanics	.	.	.
Agricultural Marketing	.	.	.

The university has four colleges and two evening schools. The College of Liberal Arts has three departments; the College of Law and Commerce, ten departments and five research institutes; the College of Science and Engineering, seven departments, four graduate institutes, and nine subordinate units; the College of Agriculture, thirteen departments, eleven graduate institutes, and nine subordinate units; Taichung Evening School, five departments; and Taipei Evening School, ten departments. In addition, the university has a Computer Center and an Agricultural Biotechnology Laboratory.

Since 1971, National Chung Hsing University has carried out many joint projects with foreign universities. Exchange visits and joint academic ventures have been conducted with California State University, the University of West Florida, California State University at Fresno, the Ohio State University, Kon-kuk University (Korea), Jeonbug National University (Korea), the University of Munich, and the University of Tübingen.

National Central University

National Central University, founded in Nanking in 1915 and reactivated in Taiwan in 1962, now consists of four colleges, thirteen departments, and

Programs Offered by National Central University

Departments	Bachelor's	Master's	Doctoral
College of Liberal Arts			
Chinese Literature	.	.	.
English	.	.	.
French	.	.	.
College of Science			
Physics	.	.	.
Mathematics	.	.	.
Atmospheric Physics	.	.	.
Geophysics	.	.	.
Physics & Astronomy	.	.	.
Optical Sciences	.	.	.
Statistics	.	.	.
College of Engineering			
Chemical Engineering	.	.	.
Civil Engineering	.	.	.
Electrical Engineering	.	.	.
Mechanical Engineering	.	.	.
Computer Science & Electronic Engineering	.	.	.
College of Management			
Industrial Economics	.	.	.
Business Administration	.	.	.
Information Management	.	.	.

twelve graduate institutes.

The four colleges are science, engineering, liberal arts, and management. Their departments include physics, geophysics, and atmospheric physics; mathematics; chemical, civil, mechanical and electrical engineering; Chinese literature, English, French; and business administration and information management. The graduate institutes are geophysics, mathematics, atmospheric physics, physics and astronomy, statistics, optical science, civil engineering, chemical engineering, computer science and electronic engineering, mechanical engineering, Chinese literature, and industrial economics.

In addition, three research centers have recently been established for the coordination and promotion of interdisciplinary research. They are the Center of Space Science and Remote Sensing, the Center of Optical Sciences, and the Center of Environmental Engineering.

Among the university's main facilities are a computer center equipped with a Vax 8650 and a Cyber 170-720 computer, as well as a library with a seating capacity of two thousand. National Central University has a scenic campus covering more than 135 acres.

In the 1986 academic year, the university had an enrollment of 2,765, with 376 faculty members and 100 staff members.

National Sun Yat-sen University

National Sun Yat-sen University was named after the founding father of the Republic of China to commemorate his great accomplishments. It was established on July 1, 1980, with four departments and two institutes. It is one of the newest higher educational institutions in the Republic of China and the first comprehensive university in the



An archery course at National Sun Yat-sen University.

Programs Offered by National Sun Yat-sen University

Departments	Bachelor's	Master's	Doctoral
College of Liberal Arts			
Chinese Literature	.	.	.
Foreign Languages & Literature	.	.	.
College of Science			
Chemistry	.	.	.
Physics	.	.	.
Biology	.	.	.
Applied Mathematics	.	.	.
College of Engineering			
Electrical Engineering	.	.	.
Mechanical Engineering	.	.	.
Materials Science & Engineering	.	.	.
College of Management			
Business Management	.	.	.
Information Management	.	.	.
Financial Management	.	.	.
College of Marine Sciences			
Marine Resources	.	.	.
Marine Biology	.	.	.
Marine Geology	.	.	.
Sun Yat-sen Institute for Interdisciplinary Studies	.	.	.

Kaohsiung-Pingtung area in southern Taiwan.

The university now has five colleges with eleven departments and ten graduate institutes. Among them, the Sun Yat-sen Institute for Interdisciplinary Studies concentrates mainly on the study of Dr. Sun's thought in the fields of economics, political science, and social science.

In the 1986 academic year, the university had an enrollment of 1,582 students, with 273 faculty members and 101 staff members. The ultimate goal of the university is to build a medium-sized institution of higher education that includes colleges of arts, sciences, engineering, management, marine sciences, fine arts, and medicine.

Soochow University

Soochow University, founded by missionaries of the Methodist Episcopal Church in 1900, was located in the city of Soochow, Kiangsu, China.

In the beginning the university had a medical school and two colleges; in 1912 they united to form the College of Arts and Science. A law school on a Shanghai campus was added in 1915, inaugurating the study of comparative law in China. Soochow granted the first two M.S. degrees in chemistry in China in 1917.

In 1949, the communist occupation of the mainland temporarily suspended university operations.

In 1951, the Soochow Alumni Association in Taiwan began the process of reactivating the university by founding Soochow Preparatory School in downtown Taipei. This was recognized by the Ministry of Education as "Soochow University Law College" in 1954 and moved to Waishuanghsi, Shihlin, in 1958. Soochow finally regained university status in December 1969.

Today, the university has five colleges with twenty departments, six graduate programs, and a division of Extension Education. The Colleges of Arts, Science, and Foreign Languages & Literature are located in Waishuanghsi, on the main campus. The colleges of Law, Business, Extension Education, and the Evening Division are all on the downtown campus. Student enrollment in the 1986 academic year was 11,256.

The educational goal of Soochow University is to shape complete individuals to serve society. Like all universities, Soochow has its own specialties. The Department of Music has a well-equipped music hall and the faculty are leading musicians in Taiwan. The Department of Microbiology is the first undergraduate department in Taiwan in this field, and a graduate program is in the planning stage. The Japanese Department of the School of Foreign Languages has pioneered new techniques in the study of Japanese; German is also strong. The Law School is famous for both Anglo-American and Chinese law; its law library probably has the best collection of US legal texts in East Asia. Soochow accounting majors are eagerly sought by large corporations in Taiwan. In these and other ways, Soochow University provides important manpower for the modernization and development of Taiwan.

Tunghai University

Tunghai University, situated in Taichung in central Taiwan, was established in 1955 as the first private university in the island province. It is supported by the United Board for Christian Higher Education in Asia, an affiliate of the World Council of Churches.

The university has six colleges (arts, science, engineering, management, law, and agriculture) with twenty-eight undergraduate departments, ten



The Tunghai University campus is known for its scenic beauty.

graduate institutes offering master's degrees, and two doctoral programs (in sociology and philosophy). There are 7,545 daytime students and 2,942 in the evening division.

Tunghai's current five-year plan calls for the establishment of several new departments and graduate institutes. Construction was recently completed on the new University Library, Management Training Center, Student Union, and a large auditorium with four thousand seats.

Tunghai is a Chinese university with an international flavor. Each year about a hundred overseas Chinese students come from several other Asian countries for their university education, and a number of foreign students come for one year or more of intensive Chinese studies under a University of Massachusetts program. A few Western faculty members serve on a long-term basis, and each year several other foreign professors come on short-term appointments. About thirty younger native speakers of English spend two to three years at Tunghai teaching in the required freshman English program. French, German, Spanish, and Japanese courses are also offered by foreign teachers.

Tamkang University

Tamkang University, which was founded as Tamkang Junior College of English in 1950, was the first private institution of higher learning on Taiwan. It is situated in Tamsui, a suburb of Taipei. In 1958, Tamkang Junior College of English changed its name to Tamkang College of Arts and Sciences. In 1980, the Ministry of Education raised it to university status.

The university has five colleges (liberal arts, science, engineering, business, and management), an evening section, and a school of graduate studies. It also has fifty departments and fifteen

graduate institutes. Total student enrollment stood at 18,412 in the 1986 academic year.

Fu-jen Catholic University

Fu-jen Catholic University, which is situated in the Taipei suburb of Hsinchuang, was first founded in Peking in 1925. The original university was founded largely with the assistance of the Benedictine Fathers from St. Vincent's Archabbey of Latrobe, Pennsylvania. A large amount of financial assistance came from the Vatican and Catholic organizations in the United States and West Germany.

At present, Fu-jen has a day and an evening division. The day division consists of seventeen graduate institutes, one of which offers a Ph.D. program in philosophy and has 369 students. It has six colleges, thirty-seven departments, and 177 classes, with a total enrollment of 10,426. The evening division consists of thirteen departments and eighty-five classes with a total of 4,646 students. The total enrollment of the university is currently 15,072, including 735 overseas Chinese. As of the present, 26,649 have been graduated from the day division and 7,919 from the evening division.

The university is well known for the quality of its education. It fosters the faculty's intellectual vitality by a well-balanced division of labor between research and teaching, and between graduate and undergraduate teaching. At present, the faculty consists of 223 professors, 260 associate professors, 531 instructors, and 154 specialists in various fields, with the majority enjoying fulltime status.

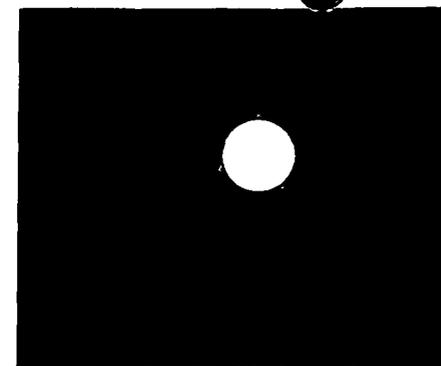
Chinese Culture University

Chinese Culture University, located on Yangmingshan, was founded in 1962 as the College of Chinese Culture. The name "Chinese Culture" was suggested by the late President Chiang Kai-shek. The graduate school was established first, with the day and evening divisions of the undergraduate school being added the following year.

Chinese Culture University has a total of fifty-eight departments. There are eight graduate institutes offering doctoral degrees and thirty-one offering master's degrees. The undergraduate school is divided into nine colleges. Total enrollment in 1986 was 18,659 students.

Feng-chia University

Feng-chia University, located in the central part of Taiwan, was founded on July 5, 1961, to



Sunset at Chinese Culture University, which has the highest elevation among Taiwan's universities and colleges.

commemorate the anti-Japanese hero Ch'iu Feng-chia.

When it first received accreditation from the Ministry of Education, it had only four departments: civil engineering, hydraulic engineering, business administration, and accounting.

The university now includes four colleges: engineering, business, science, and management. In addition, it has a graduate school with eight institutes, twenty-six departments, an evening school, and nine special classes for overseas Chinese students.

In the 1986 academic year, the university had an enrollment of 16,267 students, with 1,448 faculty members, 207 staff members, and more than 40 thousand alumni.

Its Engineering and Business Colleges in particular have made significant contributions to the national construction of the Republic of China.

Chung Yüan Christian University

Chung Yüan Christian University, located in Pujen Kang in Chungli, was founded on October 15, 1955.

The university was set up by a group of Christian educators whose goal was to train young men and women to be able scientists and engineers, and also to teach them about Christianity. When the university opened, it had only 220 students and four departments. It had 9,639 students in the 1986 academic year.

Chung Yüan Christian University has a College of Engineering, a College of Business, and a College of Science. There are nineteen departments and ten graduate institutes. The Evening School was established in 1965 and currently has six departments.

National Taiwan College of Marine Science and Technology

The National Taiwan College of Marine Science and Technology (NTCMST) was founded in 1953. The college has twelve departments and six graduate institutes with 429 faculty members, 64 staff members, and a student enrollment of 2,999 in the 1986 academic year.

The college is known as a unique research and

Programs Offered by NTCMST

Departments	Bachelor's	Master's	Doctoral
Marine Transportation	.	.	.
Marine Engineering	.	.	.
Shipping & Transportation Management	.	.	.
Nautical Technology	.	.	.
Marine Engineering & Technology	.	.	.
Maritime Technology	.	.	.
Fisheries	.	.	.
Marine Food Science	.	.	.
Aquaculture	.	.	.
Naval Architecture	.	.	.
Harbor & River Engineering	.	.	.
Electronic Engineering	.	.	.
Oceanography	.	.	.
Marine Science	.	.	.

educational center in the domains of maritime sciences, fisheries, marine sciences, and maritime engineering. For more than three decades, the college has played a leading role in the development of marine science and technology. NTCMST graduates can be found in prominent positions in Taiwan's shipping, fishing, food, and engineering industries.

Faculty members actively devote themselves to research activities as well as teaching. An average of fifty research projects sponsored by governmental or private agencies have been completed each year during the past three years. The college also aims to promote international cooperative relationships.

National Taiwan Institute of Technology

The National Taiwan Institute of Technology (NTIT) was founded in 1974, the first institution of higher learning to offer bachelor's and graduate degrees within the nation's technical and vocational education system.

The institute consists of seven undergraduate departments and one graduate school providing both M.S. and Ph.D. programs. The enrollment for the 1986 academic year was 2,613 and the number of faculty members was 235. The total graduates to date are 7,615, including undergraduate and graduate programs.

NTIT's educational programs emphasize both

theory and practice so that graduates are really able to apply their newly-acquired expertise to the challenges of our rapidly developing economy. Its graduate programs also emphasize the nation's needs for increasingly advanced engineering technology. Graduate students are encouraged to do their research work on problems currently faced by industry.

The National Institute of the Arts

The National Institute of the Arts was established in July 1982. It admits high school graduates for a five-year professional program leading to a bachelor of fine arts degree in music, fine arts, theater, and dance.

The program emphasizes the humanities in order to give the students a profound understanding of Chinese as well as western cultural traditions. An integrated program of lectures, seminars, workshops, and practice performances is designed to enable students to realize their creative potentials in the arts.

The institute at present has five classes each in the departments of music, fine arts, theater, and dance, with a total enrollment of 519 in the 1986 academic year. The male to female student ratio is about even. All students accepted for study are Chinese nationals, as the institute is not yet prepared to accept foreign students.

The Traditional Arts Research Center of the institute investigates traditional and folk arts. It has on-going projects on Chinese traditional theater and music. In addition, the experimental orchestra and chamber group as well as the student dance and theater groups schedule frequent performance tours. The fine arts faculty and students also hold exhibits of their works on selected themes.

National Taiwan College of Education

In order to develop reliable high school teachers, the hillside Teacher's Society at Paisha Village of Changhua was selected by the provincial government to establish the College of Education in Taiwan on August 1, 1971. The college was reorganized in July 1980 and officially named the National Taiwan College of Education. In August 1984, the college established an affiliated senior vocational industrial school. It has three graduate institutes (guidance, special education, and science education) and nine departments (guidance, language education, special education, industrial education, business education, mathematics, physics, biology, and chemistry). Student enrollment in the 1986 academic year totalled 2,248.

National Yang-ming Medical College

Founded in 1975, the National Yang-ming Medical College (NYMMC) has been accredited by the Ministry of Education as one of the best equipped and staffed medical colleges in the Republic of China. In addition to medical doctors, NYMMC trains dentists, nurses, and medical technicians. Master's degree programs are offered by seven institutes in the following fields: neurosciences, microbiology and immunology, biochemistry, medical engineering, physiology, pharmacology, and public health. Ph.D. programs are offered by the Institutes of Biochemistry, Microbiology and Immunology, and Clinical Medicine. In the 1986 academic year, NYMMC had an enrollment of 1,539 students, with 199 faculty members and 137 staff members.

Before internship, students of the School of Medicine receive financial aid from the government covering tuition, board, lodging, clothing, and books. After graduation, the students are assigned to government hospitals or public health centers where they are required to serve six years.

National Kaohsiung Teachers' College

The National Kaohsiung Teachers' College, formerly called the Provincial Kaohsiung Teachers' College, was founded in August 1967 to train secondary school teachers, in accordance with the policy of compulsory nine-year education. At first, the college consisted of only three departments: Chinese, English, and mathematics. In 1968, the Evening School, composed of the departments of Chinese and mathematics, was established. The Department of Industrial Education was added to the college in 1969, and those of education and chemistry in 1970.

The Graduate Institute of Chinese Language and Literature was established in 1974, and the Graduate Institute of Education in 1978. The Department of Physics and the Affiliated Senior High School were added and the Evening School was expanded. On July 1, 1980, the school was renamed the National Kaohsiung Teachers' College.

At present, the college consists of two graduate institutes, seven departments in the day school, five departments in the evening school, and seventy-nine classes. The total number of graduates from both the day and evening schools is over 13,200.

Providence Women's College of Arts and Sciences

Originally known as Providence English College, this institution received its official registration

papers from the Ministry of Education in 1956. In 1963, the official name was changed to Providence Women's College of Arts and Sciences. It was founded by Mother Marie Gratia Luking of the Sisters of Providence of Saint Mary-of-the-Woods, Indiana, USA.

The small but picturesque campus of Providence College was formerly located in Taichung. The college moved to a new site in Shalu on the outskirts of Taichung city in September 1987. Along the big road to Taichung Harbor, this new campus has an area of about seventy acres. Buildings in the new campus are well-designed for different teaching purposes. Since moving to the new campus, the area is much larger and additional departments and graduate programs are being added. The college is at present the only university exclusively for women in the Republic of China.

At present, the college consists of two graduate institutes (western languages and literature, and applied chemistry); nine departments in the day school (Chinese literature, western languages and literature, business, applied mathematics, applied chemistry, food and nutrition, information science, youth and child welfare, and tourism); and three departments in the evening school (Chinese literature, western languages and literature, and business).

During the past two years, a special thrust has been made to strengthen the administrative and teaching staff.

Tatung Institute of Technology

The Tatung Institute of Technology (Tatung Tech) owes its existence to the wisdom and generosity of Chairman S. C. Lin, a leading pioneer of industry in the Republic of China. Recognizing the fact that industrialization hinges on the education of youth, he established and endowed the Tatung Senior Vocational School of Industry in 1943. In 1951 Chairman Lin, in collaboration with close friends, set up the Hsieh-Chih Association to help organize Tatung Tech, and began to offer three two-year programs in 1956. Tatung Tech is supported by funds invested in the Tatung Company, which was also established by Chairman Lin. Article 1 of the Articles of Tatung Company reads: "To carry out industry-education co-operation with Tatung Institute of Technology and Tatung Senior Vocational School of Industry, this company accepts investments from the two schools, with the derived dividends to be used solely for educational purposes. This company also accepts investments from the general public for its capital fund, and is organized in accordance with the Company Law. It is herewith entitled the Tatung

Company." In 1962, the Institute was accredited as a four-year college.

Besides basic research, the institute conducts applied research under contracts offered by the Tatung Company. In order to meet the needs of the Tatung Company, which must keep pace with technical advances in the modern industrial world, the institute offers the company's personnel a wide variety of practical courses, specialized programs and seminars, as well as on-the-job training. This industry-education cooperation also gives every Tatung Tech student an unusual opportunity to integrate classroom theories with practical work experience.

In the 1986 academic year, Tatung Tech had an enrollment of 1,562 with 282 faculty and staff members.

Taipei Medical College

This college formally started classes on August 1, 1960, with a total enrollment of 205 students admitted in the Department of Medicine (later changed to the School of Medicine), the School of Dentistry, and the School of Pharmacy. In the 1962 academic year, the college was permitted to add a five-year Night School of Pharmacy and a five-year Junior College of Nursing and Midwifery. Since 1965, the college has also had a five-year Junior College of Medical Technology. In 1975, five-year junior colleges were ordered to stop enrolling new students. Coursework for the colleges was also to be stopped after the currently enrolled students were graduated. The Junior College of Medical Technology then became the School of Medical Technology, and the Junior College of Nursing and Midwifery was transformed into the School of Nursing. The School of Nutrition and Health was established in 1979, and the Graduate Institute of Pharmaceutical Sciences was established in 1983. A six-floor auxiliary hospital was completed in July 1976. An outpatient clinic was established on August 6 of the same year in order to meet instructional demands.

Kaohsiung Medical College

The Kaohsiung Medical College was inaugurated by Mr. Frank Chi-chuan Chen, the first chairman of the Board of Trustees, and Dr. Tsung-ming Tu, the first president of the college, on October 16, 1954. The college is one of the best medical colleges in Taiwan.

The total campus area of 100,528 hectares was donated by Mr. Chen, a former mayor of Kaohsiung city. Eight departments and three graduate institutes are included on the campus:

1. Department of Medicine: (a) Post-senior high school education program (seven-year course including two-year premedical course and one-year internship); (b) Post-baccalaureate education program (five-year course including one-year internship).
2. Department of Dentistry (six-year course including one-year internship).
3. Department of Pharmacy (four-year course).
4. Department of Nursing (four-year course).
5. Department of Technology for Medical Sciences (four-year course).
6. Department of Public Health (four-year course).
7. Department of Psychology (four-year course).
8. Graduate Institute of Medicine (for M.S. and Ph. D. degree).
9. Graduate Institute of Pharmaceutical Sciences (for M.S. degree).
10. Graduate Institute of Dental Sciences (for M.S. degree).

The college also has three research centers: Tropical Medicine Research Center, Industrial Hygiene Research Center, and Natural Products Research Center.

The college library houses 63,018 volumes and 1,507 medical and related scientific periodicals. In the 1986 academic year, the college had 396 faculty members, with 3,080 students and 7,757 graduates.

The college hospital (Chung-Ho Memorial Hospital), with nine hundred beds, is presently one of the four first-class teaching hospitals in Taiwan and the best teaching hospital in south Taiwan. The college hospital has twenty-one departments: internal medicine, surgery, obstetrics and gynecology, pediatrics, ophthalmology, otorhinolaryngology, orthopedic surgery, urology, dermatology, neurology, psychiatry, radiology, anesthesiology (including a pain clinic), dentistry, clinical pathology, rehabilitation medicine, nuclear medicine, a general laboratory for clinical diagnosis, radiotherapy, preventive medicine, and family medicine.

The college has an active exchange program with the University of Arkansas for Medical Sciences in the United States to promote international cooperation in the medical sciences between the two institutions.

Chung Shan Medical and Dental College

Located in the central part of Taiwan, the Chung Shan Medical and Dental College, formerly named Chung Shan Dental College, was founded in 1960 by Dr. Chou Ju-ch'uan, a renowned dentist in Taichung. The college was established to alleviate

the lack of professional dentists at that time. Later, in response to community need, a medical department was added in 1962, and the Ministry of Education approved the upgrading of the institution to a junior college. On August 1, 1977, the college was promoted to a medical college.

The college is equipped with research laboratories in anatomy, physiology, pathology, pharmacology, microbiology, parasitology, biochemistry, biology, chemistry, physics, and others. The tissue culture research laboratory was the first laboratory of its kind in the country. The laboratory is now a center for anticancer research. The college's affiliated teaching hospital, the Dr. Sun Yat-sen Memorial Hospital, founded in 1966, was also the first teaching hospital among private medical schools.

Currently the college has six colleges, including medicine, dentistry, nursing, medical technology, nutrition, and rehabilitation, with a total enrollment of more than two thousand students.

China Medical College

The China Medical College was founded in 1958 by a group of enthusiasts of Chinese traditional medicine. Their goal was to initiate a renaissance of Chinese herbal medicine and acupuncture. Later, the school's goal was expanded to include "the absorption of modern knowledge and technology

of western medicine." Since Dr. Chen Li-fu, Senior Advisor to the President of the Republic of China, was elected as chairman of the Board of Directors in 1972, this goal has been further developed "to combine Chinese and western medicine, and create a new system of medical science."

Originally located in Taichung city, CMC now has two campuses and two affiliated hospitals, separately located in Taichung and Peikang. The main campus in Taichung includes basic medical science, pharmacy, public health and dentistry, administration and library, nursing and acupuncture buildings, and student dormitories.

CMC consists of seven medical and paramedical schools for undergraduate education, all of which offer bachelor degrees; and four graduate programs, conferring master's degrees in the fields of Chinese medicine, Chinese pharmaceutical science, pharmaceutical chemistry, and hospital administration. In addition, an extension education program for acupuncture, and an intensive training course in medicine for doctors of traditional Chinese medicine and pharmacists is available. Two affiliated hospitals play a major role in clinical training and service to society.

CMC has a full-time faculty of 171 members, among which 151 are associated with medical subjects. Most of the senior faculty were trained overseas, mainly in the United States or Japan, and possess M. D. or Ph. D. degrees.

37 Science and Technology

National Science Council

The National Science Council (NSC) was developed as an expansion of the former National Council on Science Development (NCSD) in 1967. The original NCSD was founded on February 1, 1959, by the Academia Sinica and the Ministry of Education.

In 1972 the president named the NSC a permanent scientific and technical executive agency. As staff to the premier, NSC recommends national scientific and technical policy, and plans, coordinates and evaluates research and development activities. NSC is a funding agency and promotes and supports academic research, scientific and technical training, and international cooperation. It supervises the Science-based Industrial Park and thus promotes the establishment of high technology industry.

NSC is under the direct supervision of the Executive Yuan. It consists of a planning coordination evaluation division, a program administration division, an international program division, and five scientific divisions of natural sciences and mathematics, engineering, life sciences, humanities and social sciences, and science education.

In recent years, NSC has devoted itself with equal emphasis to the development of basic and applied sciences. This dual mission science policy is necessary so that NSC, in its role of supporting applied research, can plan for the potential needs of basic research in the natural sciences as well as the humanities and social sciences.

Major Achievements

As staff to the Executive Yuan, a funding agency, and administrator of the Science-based Industrial Park, the NSC engaged in the following activities in fiscal year 1987:

1. To promote the nation's science and technology development: (1) drew up twelve mid-term programs for key science and technology development; (2) established the nation's science and technology development indicators from 1980 to pinpoint the nation's science and technology R & D activities; (3) edited the ROC Science and Technology Yearbook, as it has since 1983, to present a summary on the nation's science and

technology development; (4) enforced the Council's planning and evaluation systems; and (5) evaluated sixty-six important governmental science and technology programs with a budget of NT\$6,400 million. Of the total, twenty-one were put on a monitoring list for continuing evaluation.

2. To support academic research: (1) supported research in twenty-four disciplines, including six in natural sciences, five in applied sciences and engineering, three in life sciences, six in social sciences and humanities, and four in science education; (2) subsidized 2,543 specific research projects in various universities, colleges, and research institutes with a total subsidy of NT\$1,270 million; (3) implemented selected integrated research projects based on the specialities of domestic researchers and the feasibility of local research capability; (4) cultivated and recruited high-caliber scientists through regular academic research subsidies, and the dispatch of science and technology personnel to domestic and/or foreign academic institutions for specific training or advanced degrees; (5) presented 2,819 individual awards to science scholars including professors, associate professors, instructors, and research assistants, to encourage them to do research work; (6) provided over 120 thousand instances of instrument services to more than 900 researchers in the nation's 300 academic and research institutes; provided 80,345 instances of on-line retrieval services; responded to 5,779 requests for information from overseas; and provided copying services on 143,985 occasions; and (7) dispatched and received 240 scientists and specialists to and from the United States, Japan, Europe, the Republic of South Africa, and the Kingdom of Saudi Arabia; invited 119 internationally known scholars to give lectures, and dispatched 506 specialists to international conferences and symposia; held seventy-four bilateral symposia with the United States, Japan, Europe, and the Republic of South Africa; carried out collaborative research projects with the United States (twelve cases, not including a collaborative research project on TAMEX), Germany (three), and the Republic of South Africa (five).

3. To promote the establishment of high technology industry: The Science-based Industrial Park allocates a large portion (an average of 5.94%) of its revenue to research and development. Such efforts, essential for the development of high technology, have resulted in world-wide recognition in different fields for many firms in the park.



Examination of a hard disk at ITRI.

Current Programs

The NSC's current programs include:

Research in the Natural Sciences

1. Reinforcing cooperation between NSC and public or private colleges, universities, and institutes, such as the Academia Sinica, in order to promote basic research in mathematics, physics, and chemistry.

2. Promoting basic research in geology, geophysics, and atmospheric science, and enhancing the standards of oceanography.

3. Coordinating with the Republic of China Ten-year Science and Technology Development Plan (1986-1995); mapping out twenty-seven development projects; and combining manpower and resources to promote research cooperation.

4. Paying special attention to the further development of the research centers of mathematics, physics, and chemistry, including planning and promoting, coordinating each research program and activity, and extending library services with more books and journals.

Research in the Life Sciences

1. *Biotechnology*: Promoting research programs on the development of a Hepatitis B vaccine with recombinant DNA; monoclonal antibodies in hepatoma, cervical cancer, and breast cancer cells, through the Hybridoma Research Center; and tests for the diagnosis of Hepatitis B virus surface antigens. NSC also cooperates internationally in the exchange of biotechnology and has made progress on the Development Center for Biotechnology.

2. *Prevention of hepatitis*: Six programs are stressed in this field: (1) support of the Hepatitis B vaccine test; (2) establishment of a plasma vaccine plant in cooperation with the French Pasteur Institute; (3) follow-up research of hepatitis in newborn babies; (4) study of pathological changes of the liver in surface antigen-carrying children with Hepatitis B and no-symptom vertical infection; (5) study of hepatitis' e-antigen in human milk; and (6) study of molecular levels in the relationship of hepatoma and the Hepatitis B virus.

3. *Agricultural research*: Supporting field research in agriculture, forestry, fisheries, and animal husbandry; emphasizing agricultural and biological resources development, environmental maintenance of agricultural production, improvements in forest genetics and cultivation; developing new pisciculture technology; using biological technology to stimulate fish cultivation and genetic improvement, and research on nutrition and vaccines of fish.

Research in Engineering and Applied Sciences

1. *Information technology*: Four programs are stressed: the made-in-Taiwan operation system, the expert system, the intelligent work-station, and integrated multiproject chip programs.

2. *VLSI circuit research*: Research includes (1) study of various VLSI CAD tools, (2) development of chip design and simulated package programs, and actual production of chips through MPC-multiproject chip programs, (3) computer development of the integrated large system, and (4) establishment of technology relevant to the process of producing VLSI circuits and planning aimed at the development of submicron technology.

3. *Materials technology*: This field emphasizes research on metal materials (the study of Fe-Al-Mn stainless steel), photoelectronic materials (III-V compound materials), polymer materials (composites, functional polymer, and processing technology), and silicon materials (an interdisciplinary research program for solar and electronic silicon materials).

4. *Photonic technology*: Research programs in the fields of laser chemistry and laser physics are supported. The former includes transient studies of laser-induced photochemical processes, electric deflections of V3-excited octahedral molecules, and studies of physical photochemistry. The latter concentrates on research of reinforced radiation and activation on metal surfaces with the Raman spectrum of laser-detected particle molecules to establish a laser holography laboratory, and the use of holographic techniques to study three-dimensional dynamic particle fields and to produce CO₂ lasers for the creation of neutral atoms.

5. *Automation technology*: The upgrading of teaching facilities for automation technology and the training of manpower in automation engineering are stressed.

Research in the Humanities and Social Sciences

1. Coordinating plans concerning culture and economy; planning and supporting special research programs on manpower development policy, international trade, financial policy, social changes, urban development, housing policy, advanced education, management science, and juvenile psychological development.

2. Promoting research programs in philosophy, history, linguistics, anthropology, and archaeology in order to elevate the level of domestic academic research.

3. Planning and supporting the systematic compilation and organization of historical records and data files, and special research to preserve and promote traditional culture.

4. Providing plans to solve or improve social,

economical, legal, educational, and managerial problems for the government's reference.

5. Holding symposiums on the humanities and social sciences in order to improve international academic exchange.

6. Cultivating talents in the humanities and social sciences.

Research in Science Education

1. Subsidizing research on basic science courses development to meet future demands of science education, such as the study of courses and teaching

material, development theory, theory regarding students' learning and conceptual development, teaching methodology, teaching environment, and ways to assist talented students.

2. Promoting experimental projects regarding science education development. At present, two fields are being emphasized: (1) discovering, assisting, and cultivating talented students; and (2) studying and developing instructional materials for software systems for computers.

3. Assisting the national, provincial, and local educational authorities in studying and improving

A display in the Institute of Ethnology at Academia Sinica.



science education, such as the subjects analysis of the Joint Entrance Examination of High-Schools on science courses, general physics, and chemistry laboratory courses, in colleges and junior colleges, and the upgrading of teachers' qualifications.

Research Programs for Consolidation of Science and Technology

1. *Mitigation of natural hazards:* Research programs related to meteorology, flood control, seismology, slope stability and landslides, and the Science and Technology Information Center for Natural Hazard Mitigation.

2. *Sex pheromones project:* This project includes mass rearing, gland morphology, bioassay and ecological surveys, field testing, chemical separation and identification, and chemical synthesis.

3. *Environmental protection:* Interdisciplinary programs to study pollution problems unique to the Taiwan area, including water, air, solid waste, and noise pollution, as well as strategies and means of pollution control.

4. *Problems of the aged:* Major concerns in this field include medical care, housing, psychological adjustment, and social impact.

Academia Sinica

The Academia Sinica was founded in Nanking in 1928. It owes its birth essentially to Dr. Sun Yat-sen, founder of the Republic of China, who strongly advocated the establishment of a national academy charged with promoting science. The number of its research institutes had increased to ten before the outbreak of the Sino-Japanese War in 1937. During the war years, it continued to function in the interior provinces of Szechwan, Kweichow, and Kwangsi.

In 1945, after the war was over, the Academia Sinica moved back to Nanking and Shanghai. When the Chinese Communists usurped the mainland, it had thirteen institutes. Much of its personnel and equipment was left behind or lost during the evacuation to Taiwan in 1949. Only the Institute of Mathematics and the Institute of History and Philology were moved to the island intact. Despite adverse conditions in the early 1950s, the Academia Sinica has gradually built up its present site at Nankang, Taipei.

As the highest academic institution in the Republic of China, the Academia Sinica has, according to its charter, two basic missions: conducting scientific research in its own institutes and aiding and coordinating efforts of other research institutes and universities in their scientific pursuits.

The Academia Sinica is a governmental institution financed primarily by the government.

Yet it holds a unique and virtually independent position in the governmental fabric of the Republic of China.

Presently, there are fifteen institutes which cover mathematics, physics, chemistry, earth sciences, information science, statistical sciences, botany, zoology, biological chemistry, history and philology, modern history, ethnology, economics, American culture, and the Three Principles of the People.

In addition, preparatory facilities for two other institutes to be officially inaugurated have been established: the institutes of Biomedical Sciences and Atomic and Molecular Sciences. A Central Laboratory of Molecular Biology is also being established.

Assembly of Members

The most important body of the Academia Sinica is the Assembly of Members. Members are elected from among Chinese scientists and scholars of distinction. Their duties include electing new members, organizing the Council of the Academia Sinica, formulating national policies on research, and pursuing specific research at the request of the government.

As an executive committee of the assembly, the Council of the Academia Sinica is made up of thirty to fifty members elected by members of the Academia Sinica. Their tenure of office is three years. The current president of the Academia Sinica is Dr. Wu Ta-you.

The Academia Sinica is staffed with 439 researchers. These break down into four levels: research fellows, associate research fellows, assistant research fellows, and assistants. Eight of the institutes related to science are introduced below:

Institute of Mathematics

The Institute of Mathematics was established in 1947. Since 1970, the institute has been promoting intensive programs in probability and statistics. Since 1978, special emphasis has been put on fundamental research. In addition to directing and coordinating research programs, the institute continually sponsors talks, seminars, and symposia on a variety of topics.

Institute of Physics

The Institute of Physics was first established in 1928 in Peking and was reactivated in Taiwan in 1962. At present, the research activities of the institute involve mainly the following areas: theoretical physics, nuclear physics, solid state physics, biophysics, and fluid-dynamics.

The institute has academic contacts with a number of universities, including National Tsing-hua University and National Taiwan University.

Institute of Chemistry

Research of the institute covers both basic and applied chemistry. Major fields include organic chemistry, inorganic chemistry, physical chemistry, food chemistry, and marine chemistry.

Institute seminars, held about once a week, are led by visitors or the institute research staff. Individual group meetings are held regularly by each research group. Active research is demonstrated through presentations and publications in many professional meetings and journals.

Institute of Botany

Areas of research undertaken include plant genetics, molecular and cellular biology, biochemistry, plant tissue and cell culture, plant physiology, plant productivity, microbiology and plant pathology, natural products, plant resources, plant systematics, and ecosystems.

Institute of Zoology

The establishment of the Natural History Museum of the Academia Sinica in Nanking in 1929 initiated what was to become the present Institute of Zoology. The Natural History Museum became the Institute of Animal and Plant Studies in 1934 and was divided into the institutes of Zoology and Botany in 1944.

The purpose of the Institute of Zoology is not only to facilitate pure academic research but also to contribute to advancing the standard of living for the people of the Republic of China. The institute has three divisions which support each other. These are the divisions of Marine Biology, Physiology-Biochemistry, and Morphology-Genetics.

Institute of Biological Chemistry

Formally established in July 1977, the institute was located on the main campus of National Taiwan University. Close cooperation with the Graduate Institute of Biochemical Science of the university was recommended.

At the recommendation of its Advisory Board, the institute has concentrated its efforts on studies of biologically active proteins, such as snake toxins, hormones, and enzymes. Recently, the research scope has been expanded to include gene cloning, oligonucleotide synthesis, and monoclonal antibodies.

Institute of Earth Sciences

The institute was formally established on July 1, 1982. Both basic and applied research are carried out, with more emphasis on the former. Current research activities can be divided into three

sections: seismology, tectonophysics, and isotope geochemistry.

Institute of Information Science

The Institute of Information Science was established in June 1977. Research projects include school multimedia interface systems, intelligent Chinese text and speech processing systems, computing algorithms, and VLSI design automation, computer vision, and combinatorial mathematics.

Industrial Technology Research Institute

The Industrial Technology Research Institute (ITRI) is a nonprofit research and development organization established in 1973 to accelerate the development and broaden the scope of advanced technology in Taiwan.

To accomplish this objective, ITRI researches and develops industrial technologies and then transfers the results to local industry for commercialization. Many projects are generic technologies, developed under government contract, which will bear fruit in three to five years and then be transferred. This process enables domestic companies to produce internationally competitive products without duplicating the fundamental studies. ITRI also receives private contracts from industry to develop specific products and technologies to meet short-term needs.

ITRI is committed to meeting the needs of industry by conducting economically viable research. Projects at ITRI are categorized by the industry they will benefit. There are currently eight major industry categories in which ITRI is conducting research:

1. Electronics information industry: (1) VLSI design methodology and tools; (2) integrated circuit processing; (3) computer and communication technology; (4) system application; and (5) artificial intelligence.
2. Mechanical engineering industry: (1) industrial automation; (2) power machinery; (3) ultraprecision machining; and (4) industrial machinery.
3. Chemical engineering industry: (1) chemical processing; (2) industrial catalyst; (3) specialty chemicals; (4) polymer research; and (5) biotechnology.
4. Material science and technology: (1) electronic materials; (2) structure materials; (3) sensing materials; (4) functional materials; and (5) materials characterization and analysis.
5. Energy & mining technology: (1) energy conservation; (2) renewable energy technology development; (3) coal technology development and application; and (4) resources exploration and



A robotic arm, ITRIA, developed by ITRI.

utilization.

6. Electro-optics technology: (1) electro-optics systems; and (2) computer peripherals.

7. Pollution abatement technology: (1) incineration of industrial wastes; (2) waste water treatment; (3) industrial pollutants analysis technology; and (4) monitoring of public hazards distribution.

8. Measurement technology: (1) measurement standards; (2) measurement quality control; and (3) automated calibration.

ITRI's recent accomplishments include:

— The successful application of carbon graphite fiber technology to the manufacturing of rapier wheels for weaving machines. This unique application increases the performance and reduces the energy consumption and noise level of the weaving machines.

— The development of a batch-type solar water heater which is simple in construction and low in cost (half the conventional cost). Performance on a per unit collecting area basis is 85% of that of conventional water heaters.

— The development of three VLSI integrated circuits for IBM PC/AT compatible computers. This three-chip set will reduce the component count from ninety to twenty-one and consequently enhance the competitiveness of local manufacturers.

— The development of an autodriving processor with an innovative raster to vector algorithm which is implemented when used with both software and hardware on an optical scanner. The septa can be used as an input device for any graphic information.

— The establishment of ROC national measurement standards and calibration technologies. The provision of accurate calibration services for domestic industries to increase their competitive advantage in international markets.

ITRI is committed to preparing industry to meet the new challenges of an increasingly sophisticated technical environment. Its diverse, expert capabilities uniquely equip ITRI to upgrade technology and contribute to a better tomorrow for Taiwan's industry.

The Science-based Industrial Park

The Science-based Industrial Park, established in 1980, epitomizes the ambition of the Republic of China to launch itself into the era of high technology. Its aim is to create an ideal environment for investment to attract high technology industries to set up in the park in order to upgrade the nation's industrial level and, at the same time, cultivate its service sector, supporting industries, and technical manpower. It is expected that the park will act as a catalyst in the Republic of China's effort to readjust the country's industrial structure and work toward another economic miracle.

Now in its second phase of development with over one thousand acres of land already developed, the park has approved eighty-one investment cases, of which sixty-nine are already operating in the park. They specialize in the following high-tech fields: computer and its peripherals, telecommunications, semi-conductor integrated circuit, electronics, precision machinery and instruments, material science, and biochemical engineering.

Fiscal incentives are provided to investors in the park: there is a five-year tax holiday and exemption from import and export duties. A government joint venture option is also available for investors who need capital, in which investors' technology may be counted for up to 25% of the equity shares. In addition, low interest financing is available. There are research and development incentive programs and many technical and management training programs tailored especially for park enterprises. Public facilities, standard factory buildings, housing units, landscaping, utility supply systems, and recreation facilities are all well planned and constructed. Customs, taxation and utilities offices, banks, customs brokerage houses, clinics, bilingual



An instrument to test roundness at ITRI.

schools, and a waste water treatment plant are right in the park. Such service all in one compound greatly streamlines the business operations. Careful planning for the residents' everyday convenience and comfort as well as education for the second generation makes the park's quality of life very high.

The products of park enterprises are now sold to scores of countries around the world and have won awards and praises along the way. Total sales volumes have shot up dramatically: yearly export values for period 1981-86 were US\$4, \$27.9, \$103.5, \$241.5, \$264.8, and \$400.5 million respectively.

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THINK TANKS



**POLICY POWERHOUSES
HIGH-VISIBILITY ANALYSIS
PRIVATE STUDIES ON PUBLIC ISSUES
NEW DIRECTIONS IN FORMING POLICY**

New Directions In Forming Policy

On September 24, 1988, Finance Minister Shirley Kuo unexpectedly announced the reimposition of a capital gains tax on profits from stock sales, to take effect on January 1, 1989. The announcement hit Taiwan's impassioned stock market investors like a fragmentation bomb, triggering a plunge in the market index for 19 consecutive business days.

The decision drew mixed public opinion. Most people applauded Minister Kuo's courage for making a tough decision about the overheated market and for her position in upholding sound principles of taxation. But the decision was vehemently opposed by stock speculators, and many of them translated their anger into action by staging large-scale street demonstrations.

After the furor subsided somewhat, critics raised another issue related to Minister Kuo's announcement. They pointed out that the very process of making the decision was flawed because only a few officials had participated in the deliberations. Moreover, no concerted effort was made to cultivate advance public support for the action.

Similar questions were raised concerning another case with high public visibility. Last May an official ROC delegation was sent to the 22nd Annual Conference of the Asian Development Bank (ADB) held in Peking [see *FCR*, July 1989]. While the move was praised by many local and foreign observers as an indication of the ROC government's more flexible and pragmatic mainland policy, certain aspects of the trip caused widespread consternation.

For instance, when the ROC delegation members stood up with other delegations during the opening ceremony to greet a Chinese Communist leader, people began to wonder who had participated in the decision-making process about attending the event in the first place, and if these decision-makers had

thought through the possible consequences of their actions.

The key question underlying both these cases centered on the issue of whether or not the public should be informed and be able to offer opinions in advance concerning major government policies. The criticisms indicate that a major change in public opinion is in the making, one where ordinary citizens are beginning to demand an "opening up of the black box" of the government's decision-making process. People are not only demanding the right to know, but also the right to participate.

Taiwan's emerging pluralistic society has been characterized by Dr. Michael Hsin-huang Hsiao (蘇新煌) as a new kind of "participatory political culture" where the old lines of hierarchical superiority and subordination between government and people are being redefined. Hsiao, a sociologist and research fellow at Academia Sinica, has also characterized Taiwan as a "demanding civil society" because of the rise of special interest groups, another new phenomenon in Taiwan.

Early last year during a conference on "Democratization in the Republic of China" [see *FCR*, March 1989], Hsiao said: "Taiwan's civil society is no longer a passive receiver of the domination of the state. It has been mobilized through the experience and learning process provided by the social movements of the 1980s. Through social movements, the civil society as a whole has learned how to demand and make claims on the state."

The evaluation was reinforced a few months later by Yeh Wan-an, Vice Chairman of the Council for Economic Planning and Development. In another conference setting, he said: "Attitudes toward the government have undergone significant changes. The general public now demands that their voices be heard, their opinions respected, and their policy

ideas adopted—or at least taken into consideration." Hsiao and Yeh both imply that government planners must re-evaluate their traditional ways of deciding policy.

"The times are past when a minister pondered for a few days and then formulated a policy, or when a staff member could do the administrative planning alone," says Dr. Ma Kai (馬凱), a research fellow at the Chung-Hua Institution for Economic Research.

Ma refers to Minister Kuo's decision concerning taxation of stock market transactions: "From some follow-up reports on the decision of that policy, we learn that it was made by Minister Kuo [who has a Ph.D. in economics from Kobe University in Japan] and a few members of her staff—even the two vice ministers were not consulted. On policies as important and influential as this one, the decision-making process should be carefully considered."

Ma, who received his Ph.D. from the University of Iowa, also rejects the notion that being an expert in a certain field means that there is less necessity for consultation before making a decision. "I am really worried about experts becoming political appointees. Unlike administrative officials, political appointees should be persons with broad knowledge and not be specialists in a certain subject. That way they can have a more comprehensive understanding of the issues, yet still realize the limits on their talents and abilities."

"Moreover," Ma argues, "ordinary political appointees may consult with several other specialists for a balanced perception of various viewpoints, but specialist appointees must be careful not to lose the balance point by insisting on their own views. Otherwise, things could go to extremes."

Nevertheless, government officials must make decisions on sensitive issues, such as those concerning national securi-



Joseph Chen

Dr. Ma Kai—"The times are past when a minister pondered for a few days and then formulated a policy." Below, a vocal group protests higher taxes on stock market transactions.



Yang Wen-hung

ty, and secrecy is important. If the public were informed in advance, it might reduce the effectiveness of the policy initiative. Charles Shu-chi King (金樹基), Political Vice Minister of Foreign Affairs also holds this opinion.

"Some foreign policies concerning national security are classified to ensure the rights and interests of the state," he says. "The government has to keep such matters confidential so that related policies can be soundly formulated." King



"Flexible diplomacy" bears fruit — Premier Lee Huan greets the visiting Vice President of Liberia, H.E. Harry Moniba.

mentions as examples the government policies concerning the ROC's participation in the ADB meeting in Peking last April and the decisions on formal relations with Grenada, Liberia, and Belize last year.

Given these complexities of formulating policy, how are policy research and consultation actually conducted in the ROC government administration, and is the process changing? What is the structure of the government's in-house research organs, and how do these interact with private sector think tanks and the public at large?

"On the central government level, the Research, Development, and Evaluation Commission (RDEC) is in charge of administrative research projects, the Council for Economic Planning and Development (CEPD) administers economic and financial research projects, and the National Science Council (NSC) handles large-scale integrated research projects relating to sci-tech research," says Lin Ke-chang (林克昌), director of the RDEC's Overall Planning Department. These three are all ministry-level agencies under the Executive Yuan (Cabinet).

The RDEC, established in 1969, is responsible for five main areas: policy research, overall planning, control and evaluation of policy implementation, in-

formation systems management, and government publications. It plays the multiple role of researcher, pollster, planner, inspector, evaluator, and systems analyst. And it aims to promote innovation in government administration, enhance efficiency of public services, and generally speed up modernization of the nation.

According to Director Lin, each year the RDEC reviews social, political, and economic developments in Taiwan, mainland China, and the rest of the world, then it selects a program of 15 to 20 policy-oriented research projects. These generally fall under three categories: general administration; political, social, and educational affairs; and financial and economic issues. The research is either contracted to outside specialists, carried out by the RDEC in cooperation with academic institutions, or undertaken by the RDEC's own research staff.

"We have a carefully-planned work procedure for our research projects," Lin explains. "The RDEC staff does the initial background research, then experts and scholars in related fields, relevant government agencies, and representatives from the public are invited to participate in a seminar in order to exchange views on the best research direction, focus, and method of approach."

Lin's department selects suitable personnel to conduct the research and asks them to compile and submit detailed research plans for a screening process. When approved, often after revisions, a contract is signed and research can begin. Similar detailed checking and coordination continues until the final report is submitted to the RDEC for a

final review process. The results are then sent to the relevant government agencies for their reference and action.

"These procedures aim at ensuring high-quality research results," Lin says. He adds that of the 232 research projects completed by the RDEC from FY1976 to FY1988, the findings of 53 (roughly 23 percent) were adopted for implementation by the Premier, 72 (or 31 percent) were referred to government agencies for attention in policy formulation, 77 (33 percent) were referred to agencies for attention in improving government services or programs, and the other 30 (13 percent) were referred back to the RDEC for reference on related affairs. Those adopted by the Premier included research projects on population planning, the election system, and automobile liability insurance.

Apart from its own research programs, the RDEC assists other agencies in selecting priority research projects at the beginning of each fiscal year. The projects cover a wide spectrum of issues including public administration, policy planning, public opinion, and budget and finance. According to Lin, from FY1978 to FY1988, over 10,000 such projects were completed and the findings of more than 3,000 were adopted and implemented by the relevant government agencies.

Research projects contracted by CEPD and the NSC follow similar procedures in their specific fields of interest. The functions of CEPD are to assist the financial and economic sectors in strengthening the domestic economy and to study the impact of global economic trends on domestic economic structure. The NSC concentrates its efforts on scientific and technological development.

The annual research budget for the RDEC is currently about US\$1 million. According to the NSC, the budget for R&D spending on science and technology (excluding national defense) was close to US\$1.5 billion in 1988. Figures on total government R&D expenditures in economic research are not available, but most of CEPD's budget—US\$12.5 million for FY1990—is spent in this area.

The RDEC's research projects have so far been contracted directly to indi-

vidual specialists rather than institutions because the specialties of researchers are considered the most important selection criterion. Director Lin expects even more contacts with local research institutions in the future.

"We are glad to see an increase in the number of policy and issue research institutions, both public and private, and we look forward to closer cooperative relationships between them and government agencies," Lin says.

An increasing number of such research institutions have recently been set up in Taiwan. Like their think tank counterparts abroad, they are formed to offer expert analysis and advice on a wide range of government policies. The most active institutions include the Institute of International Relations (IIR) at National Chengchi University, the semi-official Chung-Hua Institution for Economic Research, the Taiwan Institute of Economic Research, the 21st Century Foundation, and the Institute for National Policy Research [see accompanying articles].

Based on his own experiences as a contracted researcher, Dr. Ma Kai says that the government has yet to utilize its resources effectively. "Take Chung-Hua as an example," he says. "It was established with the help of government funding as a non-profit private research organ. Its goal was to find ways to reduce administrative problems in government institutions in such areas as excessive red tape and inappropriate salary scales. But in fact, it started to undertake policy research for the government's reference."

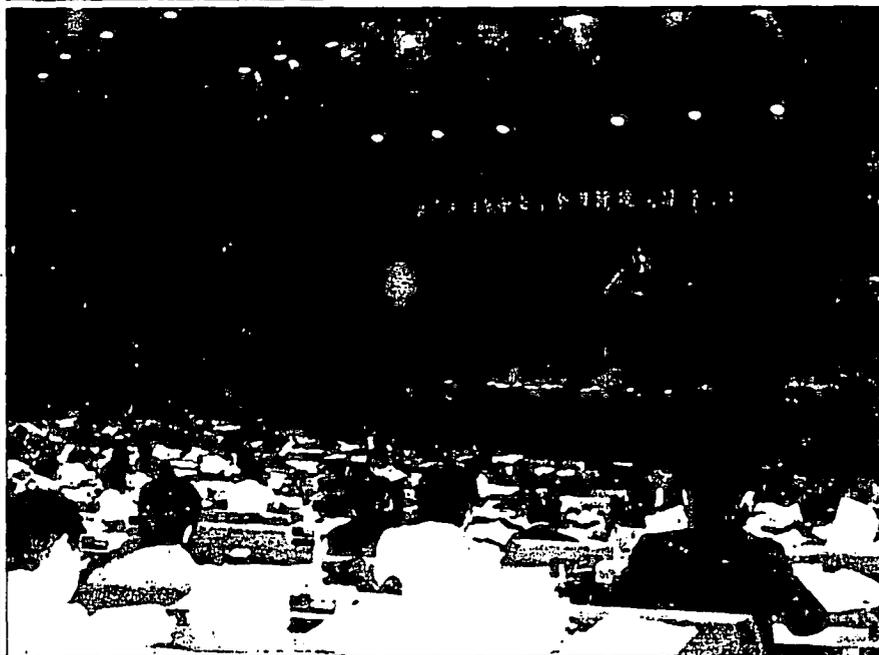
Ma says this self-directed shift in function altered the nature of the institution where he works as a research fellow, and the change has unexpectedly worked to its disadvantage: "Chung-Hua gradually moved so far away from the government that government agencies now no longer know how to use its resources—and it doesn't know how to contribute to the government."

According to Ma, a business relationship has evolved between Chung-Hua and the government. "Ironically, we have now become critics of government policies rather than participants in



Chung-Yung-shu

**RDEC Director Lin Ke-chang—
"We are glad to see an increase
in the number of policy and
issue research institutions."
Below, the RDEC sponsors a meeting
on R&D for government agencies.**



Courtesy of RDEC

the policymaking process," he says. "This is a loss to the government, because resources can be fully exercised only when they are put in the right place."

Apparently the current situation has also had some impact on the attitudes of researchers. "There is some justification for saying that we researchers in Chung-Hua have become rather passive and have fewer ambitions. We are not short of money, and therefore don't feel as much pressure to produce. In comparison, the Taiwan Institute of Economic Research plays a much more relevant role than we do. It was founded as a private research institute, and after the donations to it were suspended, it has been forced to look actively for research work in order to survive."

As for the IIR at National Chengchi University, Ma argues that it cannot be considered a research organ. "I would call it an 'academic department of foreign affairs' sponsored by the government," he says. Ma adds that the government so far has no real think tank for policy consultation and research, and it has not effectively made use of other private think tanks.

Dr. Liu Tai-ying, Director of the Taiwan Institute of Economic Research, agrees with Ma's view. "Think tanks can be of great help to the government," he says, "Although the government does have quite a few talented high-ranking officials, they are always busy attending meetings which seldom come up with concrete policies because of so many different opinions from each agency. I believe that government agencies should entrust think tanks with more policy research and planning work, while public officials should pay more attention to putting these research results into action."

Liu adds that the government lacks human resources and time to do research work. "My institution, for example, is one of the think tanks that provides such services. After we do the research, the government can then discuss the results and decide whether they should be adopted as policy or not."

Many government officials already realize the value of think tanks. Based

on his years of experience in consulting with research institutions, Wang Chien-shien, Administrative Vice Minister of the Ministry of Economic Affairs, says: "The government is always very prudent in the policymaking process in order to formulate complete and appropriate economic policies. And we have had frequent consultation with local experts and entrepreneurs for their opinions. Because of its many qualified specialists, Chung-Hua and the Taiwan Institute of Economic Research have frequently done special research projects on domestic and international economic issues for the government's reference."

The government has also formed a number of in-house research arms. For example, the Ministry of Foreign Affairs has the Research and Planning Board, which is responsible for foreign policy research. Political Vice Minister King Shu-chi serves as chairman of the board [see accompanying interview]: "The Research and Planning Board frequently consults with experts and scholars in local academic research institutions and think tanks," King says, "because they can play a very active role in the formulation of foreign policy."

The Environmental Protection Administration (EPA) also cooperates with local research institutions. Director Chen Yeong-ron (陳永仁) of the Overall Planning Department says that ever since the EPA was upgraded to a ministry-level organization in August 1987, it has placed greater emphasis on various environment assessment and policy-planning research projects.

This has been reflected in the EPA's allocation of resources. The budget for research increased from US\$220,000 in FY1983 to US\$11 million in FY1989, and close to 200 research projects were contracted to different institutions and researchers in FY1989. In addition to universities and research institutes, the EPA has given a few projects to private environmental protection organizations such as New Environment Foundation and John Tung's Foundation. (The EPA has to submit its large-scale research projects to the National Science Council for

Brain Trusts

INTERVIEW BY CHEN WEN-TSUNG

Many foreign policy issues are considered classified by government officials because they concern national security interests. But in the ROC, as in other countries, the public frequently seeks a role in deciding policies that affect their lives.

Think tanks provide one of the higher-visibility methods of communicating views and opinions to government officials and agencies. While government-sponsored think tanks have been important for quite some time in the ROC, they are now being supplemented by privately-supported counterparts.

Like other countries, the ROC think tanks draw upon the best and brightest in government and academia. As a result, their discussions and recommendations often reach the highest levels of government.

In order to learn more about the role think tanks play in the policymaking process, FCR Managing Editor Chen Wen-tsung interviewed Political Vice Minister of Foreign Affairs King Shu-chi (金樹基), who serves concurrently as Chairman of the Ministry's Research and Planning Board. Excerpts follow:

**Vice Minister King Shu-chi—
Think tanks "play a very pivotal role in helping formulate foreign policy."**

FCR: What are the major functions of MOFA's Research and Planning Board, and what is your evaluation of the links you have established with local think tanks?

King: The Board was set up for several reasons. One was to promote frequent contacts with experts and scholars at local academic research institutions and other think tanks in order to coordinate cooperative research and planning projects on foreign policy and related issues. Research reports from these sources provide valuable reference material for the Ministry.

The Board also sponsors seminars and symposia where local scholars and experts on international affairs can have face-to-face discussions with the Ministry's staff. Through candid dialogues, we hope to cultivate understanding between the two groups and reach a balance between academic theory and actual practice in overall foreign policy and in specific diplomatic issues. Moreover, these occasions help local scholars better understand the actual operations of the Ministry.

As for the results, academic research institutions and think tanks do come up with useful analyses and recommendations. Their objective and extensive in-depth analyses are very helpful in the actual task of formulating foreign policy.

FCR: What people and institutions do you draw upon most often for scholarly and expert opinion, and what are the issues they most frequently address?

King: Our choices are based mainly upon the specific issues under consideration. But in addition to drawing on professors and experts in major universities, we consult most frequently with the In-

stitute of International Relations (IIR) at National Chengchi University, the Taiwan Institute of Economic Research, Academia Sinica, the Asia and World Institute, and the Chung-Hua Institution for Economic Research. We also draw on consultants from the Board of Foreign Trade, the China External Trade Development Council, the Council of Agriculture, the Fishery Bureau, as well as the Legislative Yuan's Foreign Affairs Committee.

Consultation subjects are quite extensive. Recently, these have included such major issues as the ROC's rejoining of international organizations, trade and economic diplomacy, exclusive economic zones in the oceans, the democracy movement on the mainland, and the "Taiwan experience" in economic and political development.

FCR: Because foreign policy decisions often concern sensitive national security issues, they are classified. In these cases, does the Ministry still consult with outside experts and solicit public opinion in advance? For example, what happened in this regard when the government decided to send an official delegation to Peking to attend the Asian Development Bank (ADB) meeting in April 1988, and when the ROC established or resumed its diplomatic ties with Grenada, Liberia, and Belize in 1989?

King: In the process of foreign affairs policymaking, scholarly views and public opinion are both important references for the government. But some issues concern national security and are classified. To ensure the rights and interests of the state, the government is duty-bound to keep these confidential.

The ADB annual meeting is an apt example of this delicate process. The Republic of China enjoys full ADB membership and has actively participated in its various activities. Therefore, we most certainly had both the right and the desire to attend its annual meeting. However, two years ago the ADB, without our

consent, changed our name to "Taipei, China," thus infringing on our rights and interests.

The complexity of the situation was further complicated by the ADB's selection of Peking as its meeting place. In the process of deciding whether to attend or not, the government carefully studied the possible reactions of the public and devised strategies to cope with potential problems so that the final decision would be in the best interests of our country.

In the second example, the negotiations were conducted confidentially to avoid disruption by the Chinese Communist regime or some people in those three countries as a result of premature exposure of the issues. Because we had taken all kinds of possibilities and countermeasures into consideration during our decision-making process, our diplomatic effort was a success, and it also forced the Chinese Communists backward into a defensive position.

FCR: Can think tanks, whether public or private, really play a role in formulating foreign policy, or they can only offer theoretical analyses that can be rarely translated into action?

King: In today's democracy, government administration must be based on the people's wishes, and we do take public opinion into account when designing and implementing foreign policy. The Ministry carefully reviews and evaluates domestic and international situations before a policy is decided and it also consults with experts in government or private think tanks such as the 21st Century Foundation, the Institute for National Policy Research, and the IIR of National Chengchi University. In this way, academic research can tie in well with the actual work of finding the best solutions.

As a result, I believe that both public and private think tanks not only can provide theoretical analyses, but can also play a very pivotal role in helping formulate foreign policy. ■



Courtesy of MOFA



"No dumping!" The ROC's environment is finally receiving more R&D attention.

approval before a new fiscal year starts.)

"It is a healthy phenomenon that local civic groups are willing to assist and even supervise government administration in environmental protection issues," Chen says. "We always invite them to take part in related conferences and meetings."

But what if the contracted research projects are of poor quality? To deal with this problem, the EPA has already set an example by designing a program to evaluate the research reports conducted by its contracted researchers. "Each year the EPA entrusts other research institutions with almost 200 research projects," Chen explains. "To supervise them properly and ensure their quality, we have invited other specialists to screen the research reports completed over the whole fiscal year. The assessments focus on research methods, structure, conclusions, suggestions, and even the language used in the research reports. The best ones receive awards from the EPA, while those who fall below standards will not receive research grants for a minimum of two years."

Among the research projects contracted in FY1988 and FY1989, Chen says that 150 are already completed, and 95 of them have been either partially or completely adopted for policy implementation. He says that almost 40 percent of the studies submitted are too long-range in nature, making it difficult to act upon them.

Chen emphasizes the importance of putting the right spin on reports to encourage administrators to implement them. "We are an administrative agency and not a academic research organ," he says. "What we need are concrete plans for immediate action so that people can benefit from government administration as soon as possible. Of course there should also be some long-range plans, but these should account for only 10 to 15 percent of the total."

The EPA is the first government agency to award or penalize contracted researchers for the quality of their work, and its decision may set a trend that will help all government agencies acquire higher quality research support. "We believe the contracted persons or institutions will now pay more attention to refining their projects," Chen says.

Other than getting help from think tanks, Dr. Ma Kai suggests that every government agency should establish its own specialized brain trust in order to deal with short-term or emergency cases. "They can conduct small-scale, short-term studies and also keep in touch with outside resources for policy research," he says. "Since they are familiar with government priorities, the heads of the agencies can consult directly with them in the case of an emergency."

Ma's view is echoed by Director Lin of the RDEC: "This is what the govern-

ment has been trying to do over the past few years. Many R&D departments have been set up inside the agencies. They have found the personnel, set up planning, and allocated budgets for these research arms. And the government has encouraged these developments further by giving awards to outstanding research work conducted by government employees."

Although some officials complain that these researchers are often occupied with administrative affairs and have insufficient time to conduct real research work, R&D in government administration is gaining momentum.

In addition to the executive agencies of government, the Legislative Yuan in January 1989 set up its own research department, the Legislative Consultation Center. It conducts studies, analyses, and appraisals of bills, and conducts research to answer inquiries from individual legislators and legislative committees. It also provides translation services.

"The Consultation Center has three sections—bills, budgets, and translations—and 17 legislative consultants. Its establishment marks the beginning of new page in the history of ROC legislation," says Dr. Yu Yuh-chao (余玉照), coordinator of the Center.

So far, the Center has produced a dozen research reports on legislative bills, including reports on environmental protection, the FY1990 budget for public enterprises, the FY1990 general budget of the central government, the revised Banking Law, and the law on welfare of senior citizens.

"We are extremely careful in the process of study and appraisal of bills," Yu says. "Only after we have concrete information will we make suggestions or revisions to the original bills, because we know very well that our evaluation results are important. In this way, we aim to upgrade the quality of legislative bills."

The Center's work is backed by the Legislative Yuan's well-stocked Library & Information Service, which provides reference services and computer-based information services. "The Yuan's Universal Databases Access Service provides information from more than 250 data-

bases in a broad scope of disciplines, which helps us serve legislative inquiries very effectively," Yu says.

But there is still a manpower problem, especially in light of the number and complexity of bills that need to be considered. "We are expecting an expansion in the composition of the Center in the near future," Yu adds. "At that time, we will be able to provide research support in much greater depth."

In addition to views and suggestions from experts, public opinion is also an important reference for government policy and administration. As a result, public opinion polls—a relatively new phenomenon in Taiwan—have gained greater importance. The RDEC in particular has been a leader in utilizing this resource.

According to Director Lin, the RDEC has been conducting large-scale opinion surveys and analyses of views carried by the mass media since 1978. Seven of these large-scale surveys have been done so far, with topics covering the public's evaluation of government performance, the attitudes of civil servants, voting behavior, and views on social change. In 1988, the RDEC established a telephone survey system to collect regular samples of public opinion on current issues.

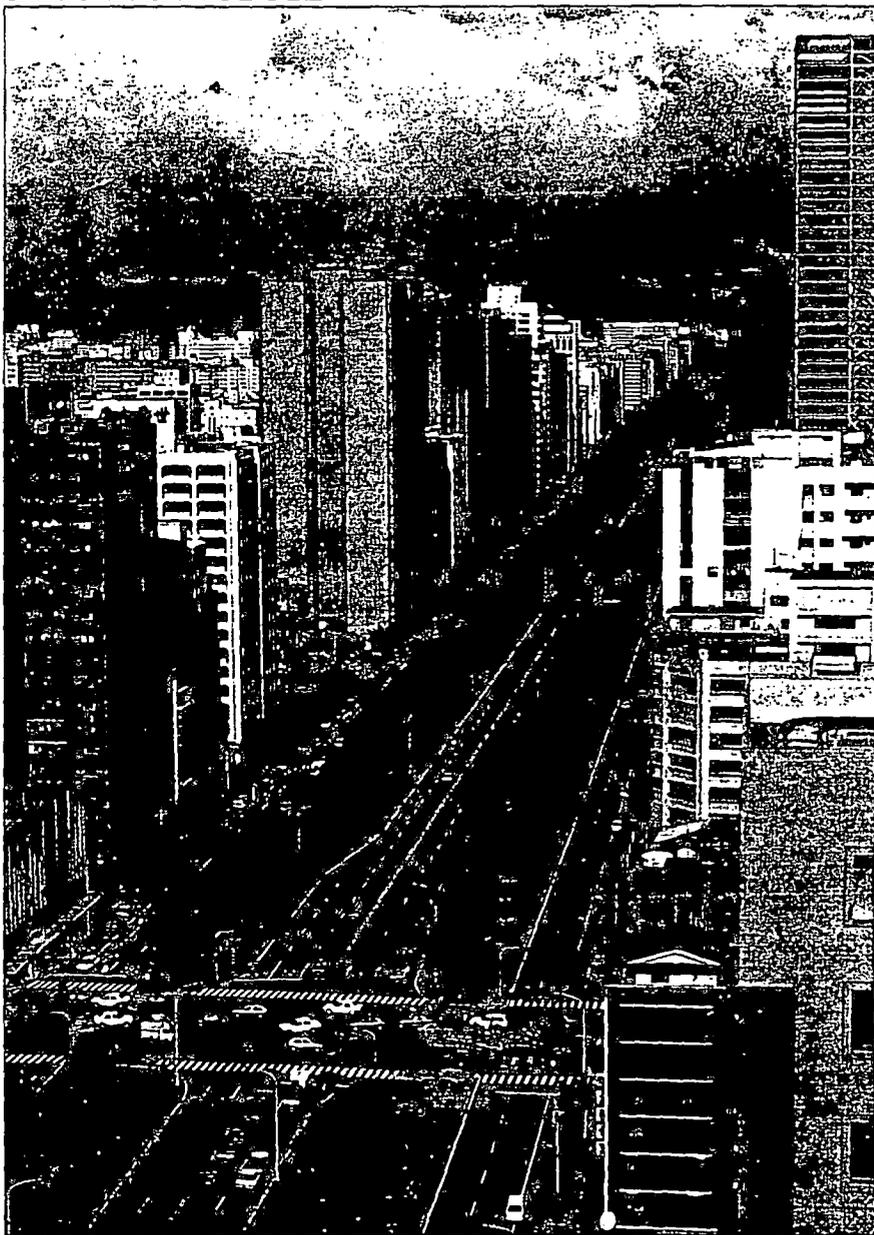
"As Taiwan's society gets more pluralistic and sophisticated in the wake of political liberalization, the ROC government more and more requires a body of well-researched policy options," Lin says. "Because the government must cope with mounting problems such as crime, labor disputes, social welfare, and environmental pollution, we must place more emphasis on better-quality research projects that yield a higher rate of implementation by government offices."

The RDEC will have considerable help in analyzing these issues. As domestic and international issues increase in complexity, there is every indication that government policymakers will turn more frequently to both public and private think tanks for the sophisticated research and recommendations required to make effective policy decisions. ■



Chung Yung-ho

Dr. Yu Yuh-chao—The establishment of the Legislative Consultation Center "marks the beginning of a new page in the history of ROC legislation." Below, the cost of new housing is causing heated public debate.



Jowanh Chen

Private Studies On Public Issues

As the 20th Century draws to a close, ROC policymakers face compelling issues, such as successfully continuing the democratization of political life, redefining social norms and values, and determining the best route to take in developing the nation's science, technology, and economy. The growing complexity of these and other issues has encouraged greater utilization of think tanks by both government bureaucrats and parliamentarians.

Three of the best-known think tanks in the private sector are the 21st Century Foundation, the Institute for National Policy Research, and the Asia and World Institute. Each institution has gathered together an impressive group of scholars and advisors to address critical issues in domestic and international policy.

As the following article by staff writer Leu Chien-ai indicates, government policymakers can draw upon some impressive voices in the private sector who are eager to contribute to the decision-making process.

"Before we can find the answers to these issues, we need to mobilize knowledge and social forces, and that's why the 21st Century Foundation was established," says Michael Ying-mao Kau (高英茂), the president of one of Taiwan's newest think tanks.

Kau, who is concurrently a professor of political science at Brown University, says there is broad support for the foundation's work: "Actually the idea was brought up seven years ago by our chairman, Kao Yu-jen (高育仁), after he completed an Eisenhower Exchange Fellowship program in the U.S." During the program, Kao (who was Speaker of the Taiwan Provincial Assembly until December 1989) visited several well-known American research institutes, including the Brookings Institution, the Heritage Foundation, and the Hoover Institution. The visits convinced him that Taiwan needed a similar privately-sponsored think tank.

"But at first there was little support and funding available in Taiwan, because people prefer contributing to organized charities rather than supporting public policy studies," Professor Kau explains. Only in mid-1988 was there enough financial backing to begin operations.

The 21st Century Foundation joined various other civic organizations set up in the past several years. Their existence demonstrates growing public concern for the future course of Taiwan's development. Some of these organizations, such as the Consumers' Foundation, have done quite well, but they usually focus on specific problems within a narrow range of issues—and very few deal with public policy studies.

"Because of the deep-rooted authoritarian tradition in China, many such organizations in the past tended to study issues from the government's viewpoint and therefore failed to win credibility,"

Kau says. Given these historical tendencies, the 21st Century Foundation is very much in the public spotlight because many people consider it the first private and well-funded think tank on public policy studies to be established in Taiwan.

The foundation consists of six R&D committees that focus their analytic efforts on political, legal, economic, social, cultural, and educational areas. These are broad areas, and the foundation is currently setting more specific priorities based upon its identification of the issues that most concern the public. The foundation's overall goal, well in the mainstream of think tanks in other countries, is to act as a catalyst in the process of public policymaking by integrating the scholarly community with the business and governmental sectors.

So far, the foundation's priorities range from issues concerning parliamentary restructuring, mainland policy, the development of party politics, and the rise of social movements, to financial liberalization, university law, and even the year-end bonus disputes between management and labor. It is obviously a large platter of concerns, and the organizational approach to addressing these issues is still quite fluid.

The foundation has no in-house research fellows. Instead, each R&D committee is headed by two coordinators and is staffed by five to nine scholars and experts who engage in research on either an individual or collective basis. Illustrating the foundation's international perspective, one of the coordinators is based in Taiwan, the other overseas. The foundation also invites leading specialists, entrepreneurs, scholars, and government officials to serve as advisors.

"Of the government employees who join us as advisors, most are drawn from research institutes or are serving as presidents of national universities," Kau says. "Also we have close affiliation with



Michael Ying-mao Kau—
“The rise of private think tanks illustrates that Taiwan is becoming mature enough to allow dissident voices in public policymaking.”
Below, an unsolved issue—traffic.

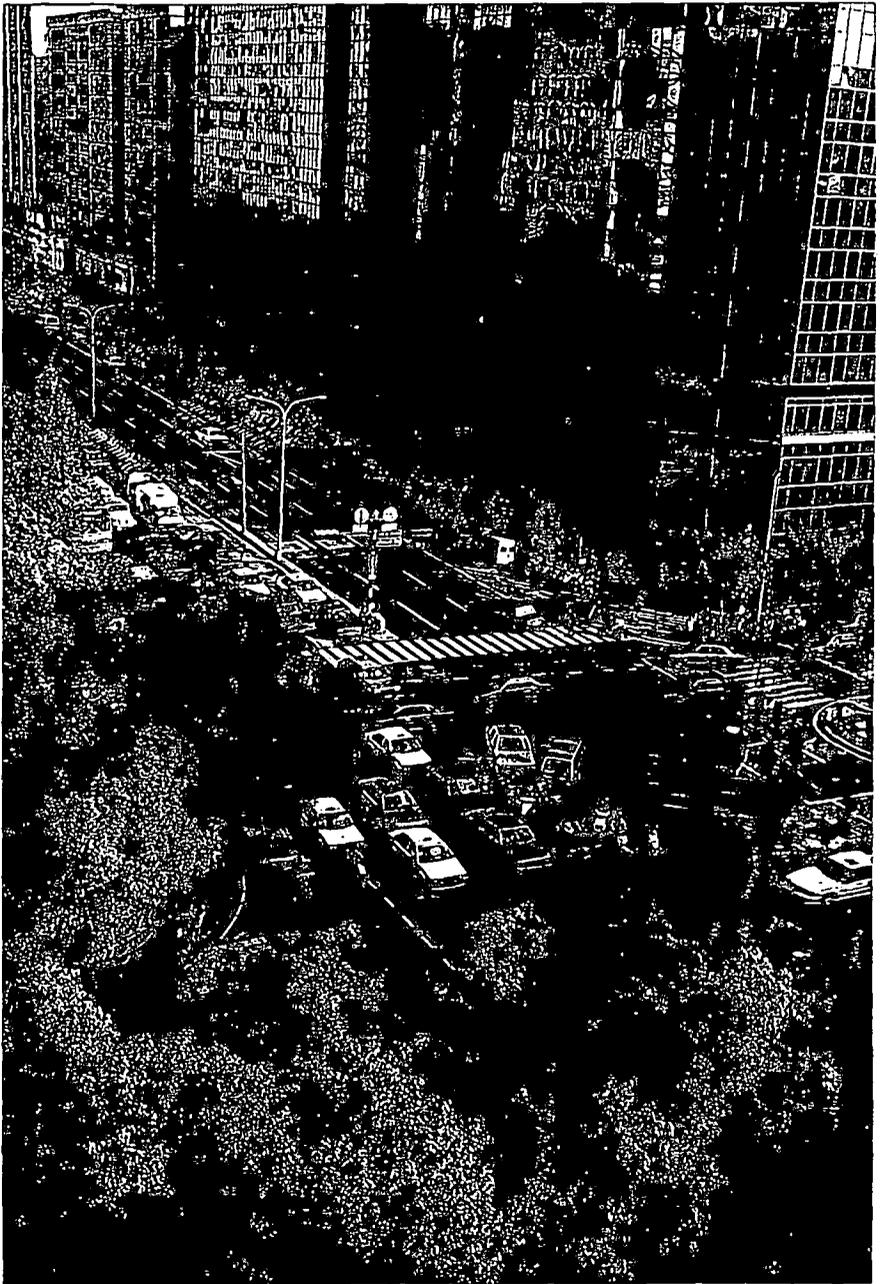
the American academic sector. Many well-known American specialists in Asian affairs, such as Professors Jonathan Pollack [of the Rand Corporation] and Andrew Nathan [at Columbia University] are included in our team as advisors.”

The fruits of the foundation’s research efforts will be disseminated to the policymaking community and concerned public through publications, conferences, policy hearings, and the mass media. “In addition to irregular publications, we plan to publish a scholarly journal—*Public Policy Quarterly*—as soon as we are better staffed and funded,” Kau says. “To have our research findings more publicized, the heads of the three local TV stations and leading newspapers have also been invited to serve as advisors.”

The Sunday public TV program “Issues and Policies” produced by the foundation since last September is another part of its efforts in the area of public education. The program has covered issues like deteriorating public security, skyrocketing housing prices, extension of compulsory education, and the ethics of elections.

The foundation is supported mainly by contributions from about 30 private enterprises, with an initial start-up fund of about US\$2 million. Joint projects with other institutions and research contracts with government agencies provide additional support. Nevertheless, the foundation is still confronting some financial and personnel difficulties, despite its star cast of advisors and researchers. Its office on Taipei’s Chungking South Road is not much larger than a college classroom, and it has only a skeleton staff of only six administrators. As a result, all the research projects are commissioned to scholars outside the foundation.

“Government contracts represent only a small part of the whole. We hope



to diversify the sources of our funding to keep the foundation free of personal influence and maintain autonomy and neutrality," Kau says. "We aim to represent the main, enlightened voice in society, so extreme conservatives or liberals are not on our R&D committees."

But support from the business sector can also raise questions of institutional independence, and Kau is well aware of the problem: "Those who contribute to us haven't attempted to influence our operations, and we haven't had any pressure from other sectors either. I'm happy to say that Taiwan's society is maturing in this regard. Moreover, the integrity and credibility of our committee members will guarantee our independence and autonomy." Thus far, the foundation has been successful in conveying an image of being "moderate" in the political spectrum.

According to Kau, the positive public reception of the 21st Century Foundation indicates some broader trends emerging in society: "The rise of private think tanks illustrates that the economic and political environment in Taiwan is becoming mature enough to allow dissident voices in public policymaking. Moreover, there is growing recognition in all segments of society that social and political issues have become so complex that there is a greater need for studies generated by think tanks. Transportation issues, for example, are becoming nightmarish problems for the government, and their resolution requires sophisticated planning, technological expertise, and even a grasp of sociological dimensions. Oftentimes bureaucrats do not have this sort of in-house expertise, which leaves an opening for assistance from think tanks.

"The private sector is becoming more willing to contribute to public policy analyses. While it's still too early to evaluate what influence the private think tanks have actually had on public policymaking, at least it's clear that the political sector is more responsive to these voices," Kau says.

A second think tank that has recently begun cultivating the intellectual marketplace calls itself "the private Academia

Sinica." The Institute for National Policy Research (INPR), set up in January 1989, is funded by the Chang Yung-fa Foundation (張榮發基金會), established by its namesake, who is chairman of the Evergreen Line and Taiwan's wealthiest shipping magnate. The INPR, which is housed in five floors of a building provided by the Evergreen Line, had a start-up funding of about US\$4 million, and its annual operating budget for personnel alone is approximately US\$1.2 million.

Raymond Chang (張瑞廷), President of INPR, says that Taiwan badly needs the services of private think tanks. Chang, who received his Ph.D. in economics from Columbia University and was previously a research fellow at the Chung-Hua Institution for Economic Research, had this viewpoint strengthened during a three-month research visit last year at the Heritage Foundation in Washington, D.C. The experience gave him a firsthand look at the roles played by public policy organizations.

"In many countries the government provides research staff for lawmakers," Chang says. "The U.S. budgets millions of dollars for this, and in addition there are hundreds of private organizations in Washington alone that are trying to influence policy." In comparison, the ROC Legislative Yuan established its own research arm—the Legislative Consultation Center—only in 1989.

But a change in thinking is well underway. "In the past, scholars studied China, but not Taiwan; we studied history, but not current public policy," says Tsai Tun-ming (蔡墩銘), INPR chairman and a law professor at National Taiwan University. "But society reached a transition stage in 1987, on the eve of the lifting of the martial law. A number of professors thought that public policy needed to be deliberated and adjusted at that juncture, so a management committee was set up to design a research institute on public policy studies, and INPR was born."

The institute is divided into two departments, administration and research. The latter has five sections: international affairs, law and politics, finance and economy, society, and culture. "Those issues the government fails to deal with

well are our main target of concern," Chang says. "Three domestic issues are top priorities: the full implementation of the ROC Constitution; environment and ecology, including topics such as land rezoning; and fundamental issues concerning culture and ethics." Institute projects also cover global and regional issues, such as Taiwan's economic status in the world and its integration into the political and economic community of Southeast Asia.

Because the INPR staff thought the government's annual National Development Seminar regularly sidesteps sensitive issues in the area of politics, diplomacy, and defense, the institute held its own "National Policy Seminar" in late December 1989. The seminar invited about 200 local and overseas Chinese participants from the academic and business sectors, the government, and the media. They discussed key issues, such as judicial reform, rezoning of land, and defense spending priorities.

INPR generally hosts lower-cost seminars or press conferences to publicize its research findings, but both Tsai and Chang say that publicity campaigns are not their style. "Honesty is our principle," Chang says. "We only say as much as we've done." The institute makes its research findings known through three publication efforts: the *National Policy Backgrounder* geared for policymakers; a *Think Tank Book Series* for the academic sector; and *National Policy Quarterly* for the general public.

The institute initiates all its research projects and at present does not accept commissioned projects, including those offered by the government. "It may harm our independence," Chang says. "Society needs neutral groups, so we will take such projects only after we have contributed more to solving current issues and have developed more public confidence in our work."

Although Chang emphasizes the institute's autonomy, some people have wondered if this is possible because of its total support by the Evergreen Line's Chang Yung-fa Foundation. But Raymond Chang shrugs off the worry: "People who try to do something for the public are often criticized for harboring ulterior motives," he says. "But even

the well-known Consumers' Foundation, which is obviously concerned with helping everybody's welfare, gains very little financial support from the public. How could we expect to get enough public funding?"

Since the institute has rejected government projects for the time being, Chang says the business sector is a natural alternative. "There was no other alternative but seek support from among reputable entrepreneurs," he says. Evergreen Line has provided that support, and three of the seven members of INPR's management committee are representatives of the company. "But our sponsor never interferes with our operations, and none of our publications concerns any business of the enterprise," Chang says.

INPR has about 25 full-time research fellows, and a number of consultants who are well-known senior scholars and opinion leaders in Taiwan. But recent M.A. and Ph.D. graduates are preferred for the work at the institute. Chang says these young and enthusiastic scholars are not as set in their ways as some senior scholars, and they tend to have no preconceived political stands. Time is also a factor. The senior scholars in Taiwan are often overloaded, and what can be completed in three months by INPR's young research teams might take twice as long if done by outside professors.

Competition for personnel between the public and private sector and among think tanks themselves is becoming stiffer. "Not many qualified young men are concerned enough about social justice issues," Chang says. "Moreover, very little public policy analysis has actually been utilized by the government so far, even though a few public and private research organizations appeared long before INPR."

"Lots of Chinese abroad apply to us for research fellowships; but we take only those who demonstrate deep concern about ROC issues and public policy—and there aren't very many of these," Chang complains. In an unusually sagacious bit of long-term planning, INPR is building its research staff by awarding thesis grants for M.A. and Ph.D. candidates who may later join the



Raymond Chang—
"Those issues the government fails to deal with well are our main target of concern."
Below, a discussion at INPR's National Policy Seminar.



institute.

In another long-range commitment, the INPR is building a large collection of research materials. It has already invested US\$320,000 in stocking its research library. "In addition to our specialized book collection of 7,000 volumes, we subscribe to about 25 newspapers and 700 periodicals," Tsai says. "These are available for public use, and last year 16,000 people used our library, including graduate students, professors, legislative assistants, and media people."

While INPR is too young an organization to expect major results, Chang says they have already had some impact on government decision-making. "The government has adopted some standpoints from our research findings concerning the ROC's application for membership to GATT [the General Agreement on Tariffs and Trade]," Tsai says. "And our draft study on the relations between the peoples of both sides of the Taiwan Straits has accelerated the government's pace to draft a study of its own."

Tsai is upbeat about the development of private think tanks in the ROC, but warns that they should take care in selecting their areas of specialization. "There's no doubt that more and more private think tanks will appear, but instead of being too similar and competing with each other, these organizations should develop their own characteristics," he says. "For instance, they may emphasize statistical analyses, studies on domestic issues, or international work."

In addition to having a division of labor evolving among private think tanks, Chang expects them to hold differing political stances as well. "The more pluralistic society becomes, the more different ideologies there will be," he says. "In the future, decision-makers in the private sector and in the government will probably seek assistance from think tanks that have the same ideology as theirs. But the long-term goal of INPR is to become a nonpartisan research institute. We want to help improve politics through upgrading the policymaking process. We hope one day INPR will be the first choice whenever society needs solutions to pressing issues."

Unlike the 21st Century Foundation and INPR, the Asia and World Institute (AWI) is no newcomer to the think tank scene. Although it prefers to maintain a low profile, it has been active in advising the highest levels of government since 1976.

"Because the ROC was still isolated internationally during the 1970s, the institute was founded to help integrate scholars at home and abroad in order to work on issues of key importance to the ROC," says Dr. Phillip M. Chen (陳明), Director of AWI and a professor of political science at Tamkang University.

The institute divides its work on international affairs into four areas: North America, Asia-Pacific, Europe, and the international economy. Specific studies emphasize the areas of business and management, economics, social environment, trade negotiations, foreign policy, and international affairs.

Most of the institute's projects are under government contract. These are referred to a staff of 25 research fellows chosen from the ROC's leading educational and research institutions. Despite the AWI's ties with the government and its use of office space rented from the military sector, Dr. Chen says there is no problem with maintaining an independent stance.

"Think tanks can take any commissioned project, even from the opposition. Otherwise they are labeling themselves," he argues. "Our aim is to provide clients with objective and comprehensive policy analyses on critical world issues." Major AWI clients have included the Ministry of Foreign Affairs, the Ministry of Economic Affairs, and the Overseas Chinese Affairs Commission.

Over the past thirteen years, AWI has sponsored over 100 regional and international conferences covering such topics as Asian and Pacific affairs, Sino-American relations, European and Asian relations, and international trade. Programs last year focused on the ROC's new "flexible diplomacy." The ADB annual meeting in Peking, and Peking's "one country, two systems" proposal. More than 800 foreign and Chinese scholars and specialists have participated in these activities.

Current AWI projects include analyses of economic cooperation in the Asia-Pacific region, the application of the Taiwan experience in the Third World, economic reform of Communist China, and the interactions among Communist China, Hong Kong, and Taiwan.

Some of the institute's research has limited circulation, making it difficult for the public to understand the scope of its work. "Many of our projects are commissioned by the government and aren't allowed to be made public according to the contracts," Chen says. "Actually it doesn't really matter if the findings are published or not, because many people, perhaps including some of the academic and business sectors, just don't care about it. They may be interested in materials about the stock market, but not in publications like ours."

But Chen indicates that the situation is changing. "People now are more willing to seek information of this sort." They can find it in AWI's various publications: the *AWI Monograph Series*, *AWI Lectures and Essays Series*, *AWI Digest* (in Chinese), and *AWI Library Series* (in Chinese).

"The most reputable think tanks in Taiwan are non-profit organizations. I personally think it's right and proper for them to make profits for self-support," Chen says. "Our own funds come mainly from a private endowment by the textile industry, in addition to our contracted projects." Like the 21st Century Foundation and INPR, Chen is looking for even stronger support from the business sector. AWI faces no serious financial difficulties, but it does have some personnel problems because of more competitive salaries elsewhere. Most of its 16 full-time staff members, including administrators and research associates, have recently graduated from universities or graduate schools.

Chen emphasizes honesty and objectivity when he discusses AWI's research approach. "Every coin has two sides. I don't think research institutes should be labeled conservatives or liberals, even though people like to do so," Chen says. AWI has tried to establish a balance between conservative and liberal orientations.

"In addition to the Heritage Founda-

tion, the Hoover Institution, and the American Enterprise Institute, which are regarded as conservative, we were one of the first institutes in Taiwan to associate with liberal American think tanks such as the Brookings Institution—even though the ROC government preferred conservatives at the time,” Chen says. He adds that both KMT and DPP members are invited to the conferences they host or sponsor, as are people from the media who are considered pro-government and anti-government.

“AWI didn’t start out as a think tank, but it has evolved into one,” Chen says. “We’re said to be somewhat like the Institute of International Relations, but AWI is less official. During the past four years, we’ve broadened our approach from foreign policy analyses and now cover domestic political, economic, and trade issues.” For instance, Chen adds, not long after AWI began submitting a weekly report to the Executive Yuan on the deterioration of public order, the Executive Yuan began drafting a stiff revision of criminal penalties.

Chen thinks the number of think tanks will increase, but there is a limit on how many can operate effectively. “Think tanks demand a large supply of highly-educated and well-trained personnel,” he says. “The educated populace in Taiwan isn’t small, but the number who specialize in policy analysis is. And unlike our counterparts in Japan, think tanks here aren’t able to make enough profit to support themselves. There just isn’t the market demand.”

But Taiwan’s rapid-paced political and economic change may help the market grow in coming years. There are positive indications of this already. “The government used to be very reluctant to listen to think tanks, but it’s changing slowly,” Chen says. “The traditional thinking that ‘the higher one’s position, the more learned he must be’ is now obsolete. When people don’t know, they should ask those who do—or who can find out.” ■



Phillip M. Chen—
“When people don’t know,
they should ask those who do—
or who can find out.”
Below, a question—what kind of
contacts are acceptable between the
two sides of the Taiwan Straits?



High-Visibility Analysis

The Institute of International Relations (IIR) is more than a think tank with outstanding intellectuals banded together to churn out think pieces for government policymakers. It is also the home of active university professors, a host for high-powered international conferences, a publisher with a respected English-language monthly, and many other things.

But its most essential quality today is not as tangible: the IIR offers its thinkers all the institutional advantages but does not impose an institutional will on them. They are free to innovate, create, explore, criticize, break taboos, venture along new courses of action, and generally bridge the gap between the way the establishment sees the world and the way academics perceive the latest international trends.

Although it is a part of National Chengchi University, the IIR compound is apart from the main campus, nestled instead in a small valley ringed with green hills in the Taipei suburb of Mucha. It is common for researchers and staff to gather in the cafeteria at lunchtime, and the professional banter during the meal is reminiscent of the kind of interchange that goes on in the lunchroom at Harvard's East Asian Research Center. The IIR's global perspective is reinforced by the educational training of its staff. About half of the researchers have advanced degrees from the U.S., Japan, Australia, or European universities.

IIR specialists start out with the premise that change is the rule not the exception in international affairs, and turnabouts in the ROC's international status are neither impossible nor unlikely. With confidence in politics as the art of the possible, they search for ways in which the nation can improve its position

on the international stage. It is then up to the practitioners to transform them into new foreign relations realities.

"International politics must always reflect the influence of realistic calculations," says Dr. Chang King-yuh (張京育), President of National Chengchi University and concurrently Director of the IIR. "The rapid growth in national strength through substantial economic and political development in the last few years are the backup for the ROC's advances on the chessboard of international politics. It's just natural for people who need friendship and help to come to you."

Chang adds that the ROC government has recently taken a more active and positive approach to foreign relations. For example, decisions about establishing or resuming bilateral or multilateral relations with other countries are now being based more on reciprocal interests and mutual respect. These objective conditions have become more important in determining external relations than the history of the ROC's previous relations with any particular country.

In mid-1989, the ROC began to score a series of successes in its foreign relations: diplomatic relations were established with Grenada and Belize, and diplomatic ties were resumed with Liberia. IIR scholars had indirect but tangible contributions to these successes. The outlook for continued strengthening of international relations is bright because of the ROC's economic progress and political stability in the midst of rapid change.

"More and more countries will look to the ROC on Taiwan for friendship, and new bilateral relationships with other nations are quite possible," Chang says.

Out of the 183 staff members at the

IIR, about 100 of them are active in producing reports on foreign affairs, many of which are published in various IIR periodicals or other media. These publications are in line with the IIR's practice of offering counsel on foreign affairs—a tradition that has matured through several organizational transformations over the years.

The predecessor of the IIR was the Association of International Relations, established in 1953. The association was registered as a civic organization, but its job was to advise the government on mainland China and international issues. In addition, it began the practice of developing substantial interchanges with overseas scholars, which is still a key contribution to the IIR's work.

In the early years, researchers placed the greatest emphasis on Soviet studies, the priority of the ROC's policymakers of the time. Analytical reports were directed to President Chiang Kai-shek and various government departments for their reference. This research orientation shifted somewhat by the time the Association of International Relations was reorganized into the IIR, which became a formal academic institution in 1961 and was attached to National Chengchi University in 1975.

"The analysis of the more remote communist countries began to claim less attention than mainland China, especially beginning with the Cultural Revolution," says Dr. Pi Ying-hsien (畢英賢), an IIR research fellow and convener of the International Communist Affairs Department.

IIR Director Chang King-yuh recounts the changes in the IIR's responsibilities: "In the early stage, a rather high percentage of IIR studies were devoted to providing information for the reference of specific government departments and giving opinions to policymakers as

requested. Gradually, the IIR developed a character of its own."

Despite a limited budget and less than one-fifth of the staffing available to Academia Sinica, the IIR has placed its priorities on producing long-term, in-depth academic studies of both national and international affairs. Researchers work in one of four departments: International Affairs, Chinese Communist Affairs, International Communist Affairs, and Economic Affairs.

Professor Pi, who is a Russian-speaking Soviet area specialist, says that Soviet studies are now integrated with the study of international communist affairs. There are eight full-time research fellows in his department. "The findings of the International Communist Affairs Department do not necessarily have a direct influence on the policy process," he says. "But this does not mean that the department has reduced its research efforts in any way."

While some outsiders might think the outlook for the IIR's International Communist Affairs Department is rather dismal because the communist regimes in Eastern Europe are falling by the wayside one after another, the precise reverse of this pessimistic prognosis has occurred.

In fact, the stunning success of Solidarity in Poland, the dismantling of the Berlin Wall, the dramatic ending of the 41-year communist domination in Czechoslovakia, and other equally momentous events have given ROC policymakers deskloads of new options. They urgently need to re-evaluate the international political system and make fresh appraisals of the nature and implications of the great changes in global political and economic development—and determine



Joseph Chen

**IIR Director Chang King-yuh—
"International politics must
always reflect the influence
of realistic calculations."
Below, Taiwan takes advantage
of the changes in Eastern Europe
by exhibiting textiles in Hungary.**



Courtesy of Crown International Inc.



Chung Yung-ho

Pi Ying-hsien—preparing studies on international communist affairs based on “firsthand materials from the region.”

the ROC's role in these incredibly fluid times.

A growing number of people in Taiwan are already exhibiting an interest in visiting Eastern Europe for the purpose of doing business. As a result, there is a sudden increase in the need for information and analysis about the region. Even reporters from local newspapers are coming to Professor Pi's department for information and opinions.

Recently, the Research, Development and Evaluation Commission of the Executive Yuan (Cabinet) asked the department to produce a report on general changes in Eastern Europe and a re-evaluation of ROC policy on the region, an illustration of how top level government offices turn to the IIR as an authority on strategic analysis.

Professor Pi has been with the IIR for two decades and is proud of the independent and objective standpoint of the International Communist Affairs Department. “Although we study the viewpoints of overseas researchers for our reference, we usually ground our analyses on firsthand materials from the region,” he says.

The department's regional studies tend to be “holistic and longitudinal,” that is, comprehensive and covering a span of years. But this scholarly perspective does not always meet the needs of enterprising businessmen, who are interested in immediate returns from trade with Eastern Europe. They are not so eager to know about abstract or general forms and directions of political and

economic developments in the region. Although the IIR department is willing to provide them with information, Pi's eight-man team is fully occupied with academic research and cannot spare much time meeting immediate business needs for detailed information and services.

In contrast to Eastern Europe's practical progress in the search for liberty during 1989, the mainland China regime resorted to heavy-handed actions to crush dissent and sweep aside its promises of limited reform. Many experts in China studies were frustrated by their miscalculations about what to expect from Peking, despite years of study about the nature of the Chinese Communist regime. Many were puzzled at the seemingly irrational and unnecessarily brutal suppression of unarmed demonstrators.

“The logic of the Chinese Communists is different. To them, there is always an alternative to using peaceful means, but the judgment call of ‘being necessary’ was in the hands of Teng Hsiao-ping. In accordance with his personality, this alternative was necessary,” says Professor Yeh Po-tang (葉伯棠), convener of the Chinese Communist Affairs Department.

Yeh's department has a team of 24 researchers, one of the two larger departments in the IIR (the other is the International Affairs Department), and they are the main contributors to the Chinese-language monthly magazine *Mainland China Studies*. Their work has high visibility, for mainland China remains a

highly controversial topic that interests scholars around the world.

The IIR hosts frequent international conferences on mainland China, and its monthly magazine on mainland China studies is recognized as an authoritative voice in mainland discussions. Foreign scholars are frequent contributors. Following the Tienanmen incident, the academic world has been paying even more attention to the findings published in the magazine.

The Chinese Communist Affairs Department covers all subjects concerning mainland society except economics, which is the responsibility of the IIR's Economic Affairs Department. Literature from mainland China is used to gain an understanding of the general mentality of the population and their opinions about their surroundings. When there are changes in the Peking political scene, such as the elite power struggle during and after the June crackdown, the department produces opinions on the subject for government reference.

Some important mainland China issues currently under consideration include the following: What effect will the tightening up of controls over foreign relations after the June 4 massacre have on the increasing contact between the two sides of the Taiwan Straits? What steps might the communist regime take against the challenge to its power and legitimacy from the overseas democracy movement organized by mainland students? How do changes in diplomatic strategy interact with domestic politics?

Answers to these questions will be presented in reports that will be widely circulated among ROC government agencies. But not only the government is focusing on these issues, the public has also become more interested in the government's policy toward the mainland.

For some time after the ROC's initiation of a more open policy toward the mainland, local businessmen have frequently pressed for the approval of direct trade with the mainland and have criticized the government for having an incomplete mainland policy. But Professor Yeh rejects the contention that indirect trade obstructs the smooth sailing in

trade relations between both sides of the Taiwan Straits. "Our government has an overall policy direction," Yeh says. "And if it had the power to pursue a more comprehensive mainland policy, it would not hesitate to do so."

Because of the hostile political situation existing between the two sides of the Taiwan Straits, some people have wondered if the IIR research findings on mainland China were biased. "Independence in academic studies has always been a key principle for the IIR," Yeh insists. "No ideological pressures are allowed to twist real objectivity out of shape." A good example of this attitude was demonstrated earlier last year when the IIR and Harvard jointly sponsored a seminar on democratization in the ROC [see *FCR*, March 1989].

Yeh adds that such objective discussions are essential. The goal of a think tank is not to propagandize the policies of the government, but to present valid analysis that will help government policymakers formulate and implement policies.

Various departments at the IIR coordinate their research efforts in order to produce more comprehensive reports. For example, the Economic Affairs Department, headed by Ricky Tung (董瑞麒), works closely with the Chinese Communist Affairs Department. Tung and his colleagues focus on global economic developments as well as mainland China's economic environment. Because of the ROC's rapid diversification of trade in recent years, including expanded indirect trade across the Straits and broader cultivation of both East and West European markets, the department has a heavy work load.

At least there is some division of labor among Taiwan's think tanks. "We spend a smaller proportion of our time on local economic studies," Tung says, "because there are other institutes that specialize in this area, such as the Chung-Hua Institution for Economic Research and the Taiwan Institute of Economic Research."

The IIR's International Affairs



Chung Yung-shu

Yeh Po-tang— "If the government had the power to pursue a more comprehensive mainland policy, it would not hesitate to do so." Below, the mainland could benefit from the "Taiwan experience."



Taiwanese



Chung Aung-shan

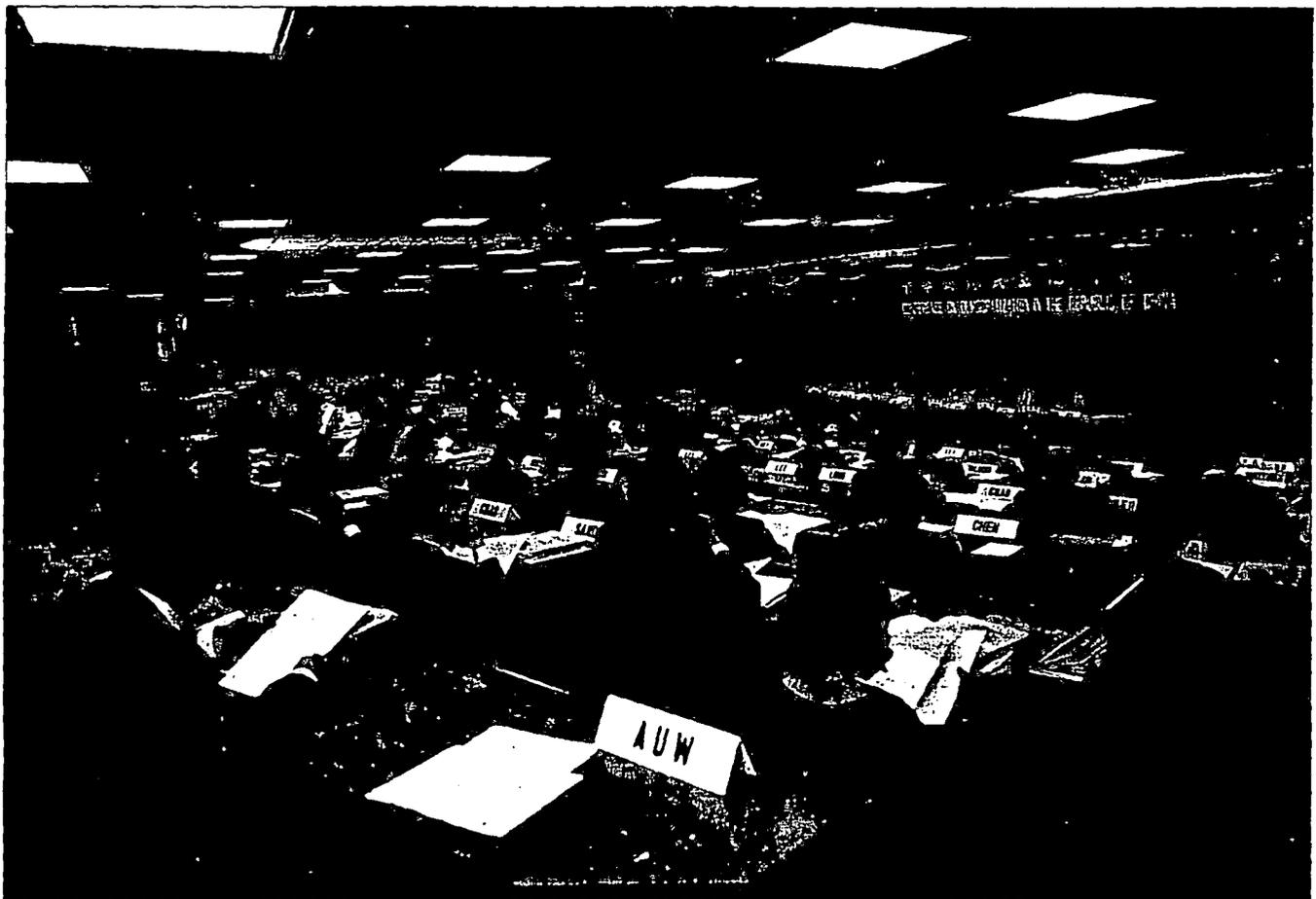
Ricky Tung—keeping an eye on mainland China's economic development while coordinating research work with other departments. Below, the January 1989 IIR-Harvard conference on democratization in Taiwan.

Department is also feeling the pressure of the ROC's higher profile in diplomatic and economic affairs. "A high priority of our department is to coordinate research activities with the central tasks of national diplomacy," says Sophia Su (蘇秀法), the head of the International Affairs Department. She adds that the department is frequently asked to give expert opinion on international issues to government policymakers.

The department has to be the "specialist in all affairs," which means the staff of 18 research fellows is spread fairly thin even though it is the second largest at the IIR. Nevertheless, specific issues of concern to the ROC government are placed in global context, and the department frequently presents policy options to decision makers.

"For example, the ROC must participate in more global and regional organizations in order to strengthen its international role," Su says. As a result, department researchers are paying close attention to the economic plans now well underway for a united European Community in 1992. The new structure will have far-reaching consequences on how the ROC conducts trade with the region.

The department, like others at the IIR, conducts research commissioned by the Ministry of Foreign Affairs, the Government Information Office, and other government offices. Its researchers are also regular contributors to the IIR's monthly journals and periodicals: *Issues & Studies* (in five languages), and *Mainland China Studies*, *East Asia Quarterly*, and *America Monthly* (all in Chinese).



Chun Ming-jung

There is a Chinese saying that "to maintain soldiers for 1,000 days is to be always ready for the moment." In many ways, this is relevant to one of the primary missions of the IIR—to be always ready to support the needs of the government with sophisticated analysis of international issues. Unfortunately, the role is an expensive one.

"There is no short cut to academic development," says IIR Director Chang King-yuh. "It takes 10 years for a tree to grow, while a sound academic program may require much more time before it takes root. Investment in education is long-term, and there is no guarantee of instant benefits."

Whether the issue is the quality of public education or the level of research sophistication in the country's premier institutions, funding is always a key underlying concern. IIR researchers and staff are finding that the ROC's expanding international role is driving their workloads into realms of near impossibility. The research infrastructure is in need of an overhaul.

Professor Pi says that more funding means more staff, which would allow researchers to specialize more and sort out the complexities of specific fields. "We want to be specialists instead of generalists," he says.

"If budget and staff can't be increased," Chang says, "the only thing the IIR can do is raise the pace of productivity. As a result, the nature of the institute probably won't change very much in the near future. The IIR's influence on policymaking will remain conceptual, and the job of evaluation will still fall on the 'users'—people in the Ministry of Foreign Affairs and other government offices." Clearly, the quiet setting in suburban Mucha is destined to remain one of the centers of intellectual action in Taiwan. ■



Chang King-yuh

Sophia Su—coordinating work in the International Affairs Department with "the central tasks of national diplomacy." Below, the Institute of International Relations' library and conference hall.



Joseph Chuan

Cutting-Edge Institution

What do you say to people at a dinner party whose research fields are combinatorics, topology, or pseudo differential operators? For whom is the article "Asymptotic properties, convergence rate and ergodicity for certain stochastic processes" recommended reading? These are the things that quicken the pulses of mathematicians, physicists, and computer specialists, but they mystify the layman—and outside the hallowed halls of Academia Sinica, the ROC's premier intellectual institution, most people are laymen.

On a quiet, lush campus in the Taipei suburb of Nankang, scholars in 15 different institutes (and four "preparatory" institutes in the early stages of formation) are producing some of the most sophisticated research in the country. The institution, first formed in Nanking in 1928, combines the roles of research academy, think tank, conference center, and model for all the academic institutions in the country.

Dr. Wu Ta-you (吳大猷), an 83-year-old physicist who left his position at New York University six years ago to become Academia Sinica's sixth president, is singularly upbeat about the role the institution plays in the ROC's intellectual environment. The accent, he says, is on being "a completely independent international research academy." Through President Wu's untiring efforts, the three key terms in his statement carry extra weight: "independent," "international," and "research academy."

Even though Academia Sinica is legally a governmental institution subordinate to the Office of the President of the ROC, and even though it receives most of its budget from the central government, it is virtually free of government control. This autonomy not only guarantees academic freedom to its researchers, it reinforces the institution's impact as a leader and model in the local academic scene.

Its independence is reinforced by its structure. The guiding body of Academia Sinica is its Assembly of Members, elected from among the country's most distinguished scientists and scholars (some of whom spend much of their time on the faculties of universities overseas). The primary duties of the members are to formulate national research policies, undertake specific research projects at the request of the government, elect

new members, and organize the Council of Academia Sinica. The Council has about 30 to 50 members elected by members and their principal functions are to decide research priorities and promote scientific cooperation within the ROC and with foreign countries. These structural arrangements guarantee institutional freedom while ensuring the maintenance of high academic standards and accountability.

Academia Sinica determines its own agenda of research, and whether it is directed toward theoretical or practical issues, the work is done in line with the highest international standards of research. Cooperation with foreign scholars and institutions has increased during Wu's tenure as president. Academia Sinica researchers now have more funding for participation in international conferences and, perhaps even more importantly, the institution has embraced the information revolution. Researchers routinely tie into the computer and information science networks that put them in touch with colleagues and data bases around the world.

These links have paid off in a number of ways. One of the most significant is the increased exposure its scholars has to international standards of research. The quest for quality is unceasing, and there is ample evidence that Academia Sinica is pursuing this end on both the personal and institutional level in order to enhance its reputation as a model research academy.

An illustration of changes in the latter area is Academia Sinica's willingness to add on institutes—after a period of preparatory study—so that it can better handle new areas of intellectual inquiry. Well over a decade ago, for example, the institution began setting up its Institute of Information Science.

In 1971, the Institute of Mathematics began exploratory studies in computer



Academia Sinica President
Wu Ta-you— active leadership
for “a completely independent,
international research academy.”
Below, a lush and secluded campus
for some of the ROC's best minds.



software development, including the area of developing a Chinese character input-output system using phonetic symbols. Eventually a section of computer science was incorporated in the Institute of Mathematics, and in 1973 it sponsored its first International Computer Symposium, where more than 300 computer scientists participated and presented close to 100 papers. Soon afterwards, a preparatory office for a new Institute of Information Science was set up, and by 1982 it had become a fully-recognized institute.



Researchers in the Institute of Biological Chemistry — maintaining high visibility in both theoretical and practical fields.

Kuo Yue-sun (郭譽申), Acting Director of the Institute of Information Science, says: "Basically, the research staff here can freely decide on their own study projects. Neither Academia Sinica nor the government set any specific direction for us. Researchers can conduct any study in their field. They are expected only to demonstrate excellence in their research results by publishing in well-regarded journals abroad."

There are problems, however. Despite the free environment for research, the institute has quite a large turnover in personnel. Information science experts are in great demand in the job market, and Academia Sinica researchers still receive salaries set in comparison to those of government civil servants. As a

result, their pay is considerably lower than the terms offered by local private firms or research institutes abroad.

Although President Wu is disappointed about the turnover, he does not blame the younger generation. "It is difficult to expect those who focus so much on material rewards to devote themselves heart and soul to academic research," Wu says. "When people can't be contented with the existing situation, it is no use to fight for them to stay."

At least the researchers who remain are far from being isolated. There are various channels of cooperation between the Institute and some private organizations in the field. Kuo says: "We don't sell our research directly. If local industrialists or places such as the Institute for

Information Industry or the Industrial Technology Research Institute find our research papers useful after they are published and presented, they come to us to ask for the right to use them. Usually these people develop our research into software for the market," he says. "With an increase in the number of our staff, I wouldn't rule out the possibility of even more cooperation with local industrialists in the future. This is a faster way to repay society despite the fact that we have to fulfill more long-term goals."

Despite these concerns about staffing, salary levels, and research focus, the process of institution-building continues. Today, Academia Sinica has four preparatory institutes, in Biomedical Sciences, Atomic and Molecular Sciences, Molecular Biology, and Literature and Philosophy. These will eventually join the 15 institutes already in place. These are the Institutes of Mathematics, Physics, Chemistry, Earth Sciences, Information Science, Statistical Science, Botany, Zoology, Biological Chemistry, History and Philology, Modern History, Ethnology, Economics, American Culture, and Three Principles of the People. (The last of these, formed in 1987, focuses on the academic study of the *Three Principles of the People* by Dr. Sun Yat-sen, the Founding Father of the Republic of China, and incorporates his general principles into social sciences such as politics, economics, sociology, and law.)

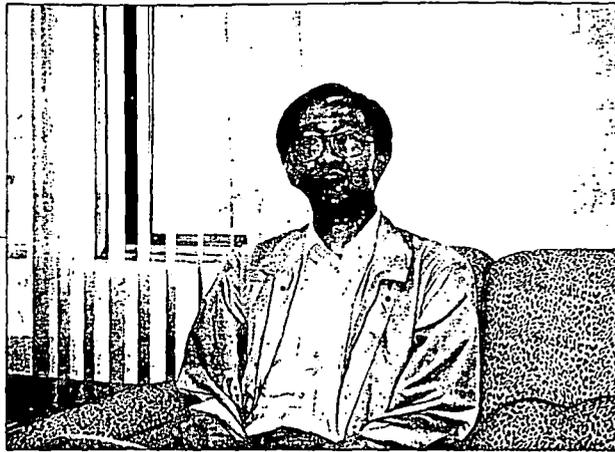
As the names of these institutes indicate, Academia Sinica is a different style of "think tank." While research in some of its institutes may have relevance to foreign policy issues or to current decision-making processes in the areas of society, politics, or economics, the major thrust of most its research is long-term. And the emphasis is generally on the theoretical rather than on studies for immediate use by government bureaucrats. Because of this orientation, the work at Academia Sinica forms a creatively effective complement to the sort of work done at the Institute of International Relations at National Chengchi University, the Chung-Hua Institution for Economic Research, or other think tanks in the public or private sectors.

Academia Sinica's unique role in the ROC intellectual community is based upon a long and sometimes turbulent history. Through it all, it has compiled a rich history of intellectual service to the ROC. When the institution was founded at Nanking in 1928, it owed its birth in large part to Dr. Sun Yat-sen, who had strongly advocated the establishment of a national academy in overall charge of the promotion of science.

The number of research institutes at Academia Sinica had increased to 10 prior to the outbreak of the Sino-Japanese War in 1937, and during the war years, it continued to function in the interior provinces of Szechwan, Kweichow, and Kwangsi. In 1945, after the war was over, Academia Sinica moved back to Nanking then to Shanghai, and it expanded to 13 institutes. But the institution lost most of its personnel and equipment when it evacuated to Taiwan in 1949 when the Communist Chinese took over the mainland. Only two institutes—the Institute of Mathematics and the Institute of History and Philology—were moved intact to Taiwan.

Even though many local universities now have their own graduate schools and research institutes, Academia Sinica continues to be a major player in the intellectual development of the ROC, especially because the institution follows its original course of offering a uniquely strong supporting environment for pure study. Moreover, it is always seeking new talent that can be trained as the top professionals in their academic fields. The institution also carries out many large-scale research projects that cannot be handled by universities because of insufficient funding or inadequate staff and facilities. Research in economics presents one example.

"Unlike the Chung-Hua Institution for Economic Research and the Taiwan Institute of Economic Research, whose research work is directed to immediate practical concerns in Taiwan's economic reform and development, the Economics Institute of the Academia Sinica takes up a broader scope of works," Wu says. "Aside from economic problems, it also



Andy Lu

Dr. Kuo Yue-sun—“The research staff here can freely decide on their own study projects.” Below, world-class research support from the computer center.



conducts studies" on pure economic theory and on the development of economic history in Chinese society."

Wu emphasizes the division of academic labor in the ROC, and says that Academia Sinica is not in the business of "raiding" other academic institutions: "We have no intention of monopolizing the nation's academics. We just hope to develop an especially unique and free research environment. In fact, we already cooperate extensively with Taiwan's universities. For instance, our researchers act as thesis advisers for graduate students, give special lectures, and participate in cooperative research work."

Academia Sinica is staffed with 551 researchers, classified as research fellows, associate research fellows, assistant research fellows, and assistants. Each of the institutes and the preparatory offices is headed by a Director appointed by the President of Academia Sinica from among the senior research fellows.

Despite the reputation of his institution, Wu complains that it is becoming more difficult to find enough talented young people to enter the realms of "pure science." The general values held by the public have begun to influence the sort of choices made by the best and brightest in colleges and universities when they select their major fields of study.

About 20 years ago, the best students went into the basic sciences. But their priorities have changed. Better salaries and more rapid promotion are now available in the fields of medical science, electronics, mechanics, international trade, and even chemistry. The unequal distribution of academic manpower has caused shortages in various specialized fields, which in turn has seriously influenced the development of basic research in the ROC.

These pressures have already been felt by Academia Sinica, and some researchers complain that the government's allocation of a larger budget for institutions that focus on research in applied science, such as the Industrial Technology Research Institute, further encourages this phenomenon.

Nevertheless, Academia Sinica has successfully met much more serious challenges in the past, and there is no

shortage of optimism about its immediate future—and the importance of its work. A good example of this optimism is Liu Pin-hsiung (劉斌雄), who has been a researcher in the Institute of Ethnology for more than 30 years.

"When Academia Sinica first moved here from the mainland, the researchers were amazed at how many different aborigine peoples there were on this small island. As a result, it was considered a very favorable environment for ethnological studies. Now that even more changes and transitions are taking place in Taiwan, more researchers in sociology and anthropology are needed to keep up with the pace of change throughout society. Indeed, this is a golden period for them to do research, for never before have such remarkable changes taken place before in Taiwan."

Since 1964, Liu's own research has focused on mathematical anthropology, kinship, and cross-cultural studies. He was once the director of the Institute of Ethnology, but he finds it much more interesting to be a researcher.

"I remember in the old days we didn't have enough budget to do long-term research projects. Researchers had to do one thing for a while and then transfer to another project. Of course, researchers in all institutions must fight for budgetary support. Fortunately, Academia Sinica always supports us and grants us the freedom to determine our own research topics."

Liu holds up his most recent published work, a monograph entitled *Foundations of Kinship Mathematics*, which has already been favorably reviewed in four foreign journals. "This is the ideal kind of academy, and one that I think researchers long to work in. We are given every opportunity. Of course, it also depends on how we grasp our opportunities, and how we concentrate our thoughts and collect materials. But on the whole, without the Academia Sinica, I couldn't have finished this monograph."

While such work is not the grist for making foreign policy decisions, other work at Academia Sinica is being directed more precisely to immediate government needs. Nevertheless, the research is of a more technical nature—and more

often relevant to domestic policy.

For example, Academia Sinica's work in the areas of engineering and applied science have long enjoyed a solid reputation, and there are other high visibility projects as well. For example, President Wu points out the work done in the areas of developing new rice strains, eradication and control of fruit flies, monitoring of radon in ground water (in conjunction with the ROC's nuclear power plants), and earthquake research.

All of these have had major impact

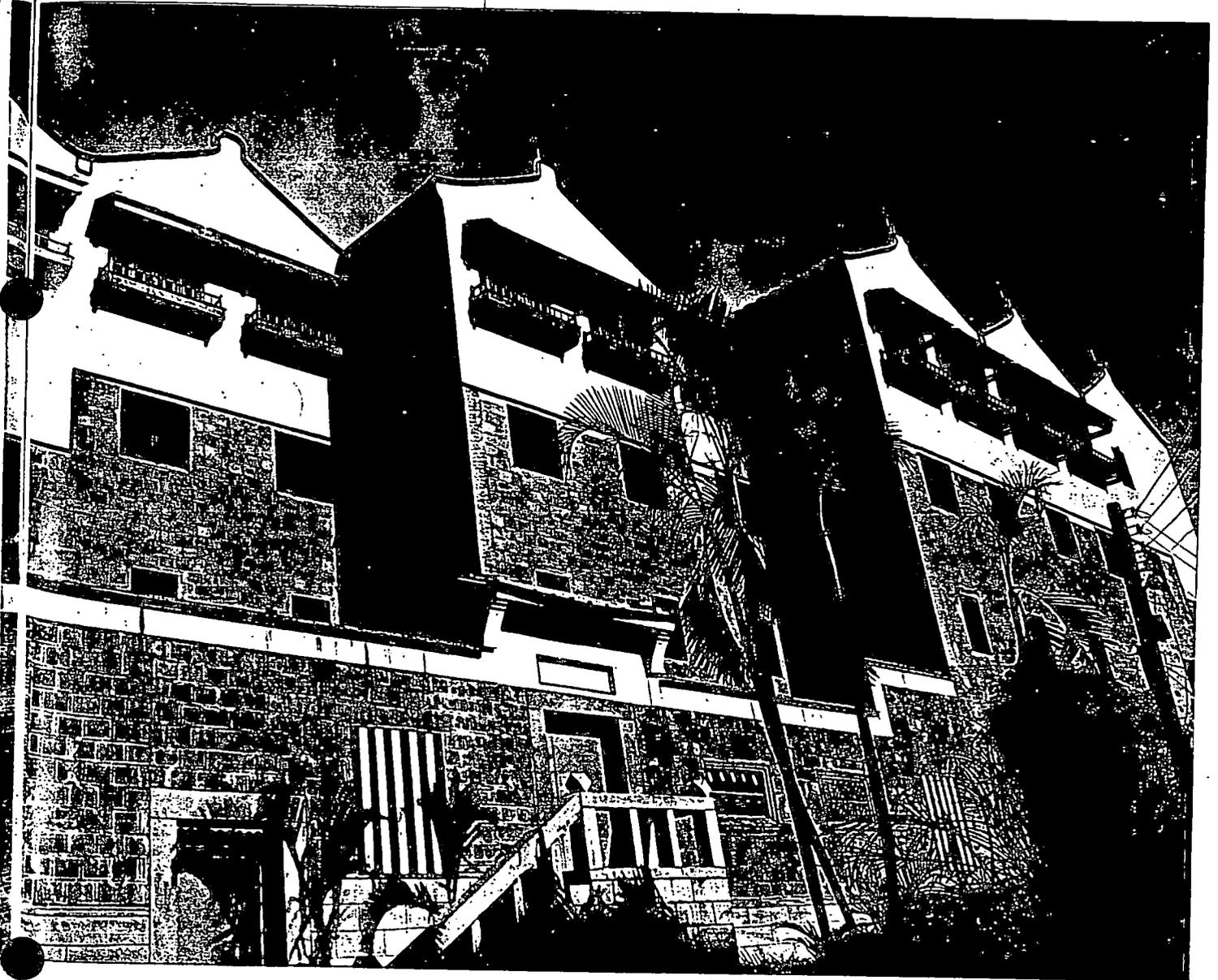


on the life of citizens in the ROC—even though the details of the research may be as incomprehensible to non-experts as articles written on the “Performance evaluation of a finite queue with random routing.” Yet this is one mark of the success of Academia Sinica, despite a certain mysteriousness of the place to laymen. For whether it is viewed as a research academy, think tank, or an intellectual guide and model by academics and government officials, in all cases it is on the cutting-edge of knowledge. ■



Amy Lu

Dr. Liu Pin-hsiung—entering “a golden period” for social scientists to conduct research in Taiwan. Below, the Institute of Ethnology’s modern-yet-traditional architecture.



Economics In Depth

"The Taiwan Institute of Economic Research (TIER) and the Chung-Hua Institution for Economic Research have played very important roles in helping promote the quality of the ROC's economic policy," says Wang Chien-shien (王建煊), Administrative Vice Minister of the Ministry of Economic Affairs.

Both institutions have served in government advisory roles for over a decade, and they have established solid reputations for producing timely and useful studies for policymakers. Even though their missions overlap somewhat, the following story by staff writer Chen Yi-ming indicates that TIER and Chung-Hua have evolved into quite different institutions with distinct styles of their own.

The Taiwan Institute of Economic Research was established in September 1976 under the sponsorship of the Taiwan Economic Research Foundation, presided over by Dr. Koo Chen-fu (辜振甫), Chairman of both the Taiwan Cement Corporation and the Chinese National Association of Industry and Commerce. TIER's formation was prompted in part by the energy crisis caused by the sudden worldwide increase in the price of oil. The foundation, a private nonprofit corporate body, had been founded earlier by Dr. Koo, and received its major support from the Taiwan Cement Corporation and the China Trust and Investment Corporation.

TIER was designed to serve the needs of local businesses, academic institutions, and the government for up-to-date economic information. "The institute copied the Japanese model of combining the resources of business, government, and academia in finding answers to national economic problems," says Dr. Liu Tai-ying (劉泰英), the director of TIER.

In 1985, when the Ministry of Economic Affairs proposed setting up the Industrial Development Advisory Council (IDAC) to help restructure Taiwan's industrial sector, TIER became a chartered research institute of the government and was delegated all the research work of the new council.

From its inception, the institute studied pragmatic domestic and international economic affairs, with special emphasis on industrial economics. "Not that we can't do research on general economics and theoretical issues," Liu says, "but we like to stick close to the basics and try to help local industries through immediate difficulties. Besides, there are several other institutions looking at the broader issues."

The institute rapidly expanded its op-

erations to meet the requirements of various economic sectors in Taiwan, and it had established a solid track record by the time it was entrusted with the research work for the IDAC. In order to have a greater grasp of international trends in industrial economics, the institute established branch offices in Tokyo in 1985, and in Paris in 1988.

Over 200 people work at TIER, half of them research fellows. Unlike the Chung-Hua Institution for Economic Research, the institute's research fellows are not completely directed by the head of the institute. Instead, the assignments are handled by the heads of its seven research divisions. TIER has adopted a diffused responsibility system, which allows the research divisions to work as independent units. Each unit shares half the profits of its work with the institute.

"At first, everyone objected to this arrangement," Liu says. "But now people see that it has financial rewards. It saves costs—and last year researchers in every division received a two-month bonus. The system encourages you to make use of everyone's strong points."

The relative autonomy extends to hiring. Each division has the liberty to recruit its own researchers, subject only to approval by the TIER director. This flexibility helps facilitate the accomplishment of the research work on hand, and it upgrades the competence of the whole institute by encouraging its divisions to compete with each other.

Liu is quick to point out that this sense of competition is primarily internal. TIER is not trying to take work away from other local think tanks. "Our research fellows come primarily from local universities," Liu explains. "We try not to draw from Chung-Hua's research fellows, but we do cooperate because we all know each other very well and are friends." This working relationship is made even easier because Dr. Tsiang



TIER's Liu Tai-ying —
"We like to stick close to
the basics and try to help
local industries through
immediate difficulties."
Below, building better
business with computers.

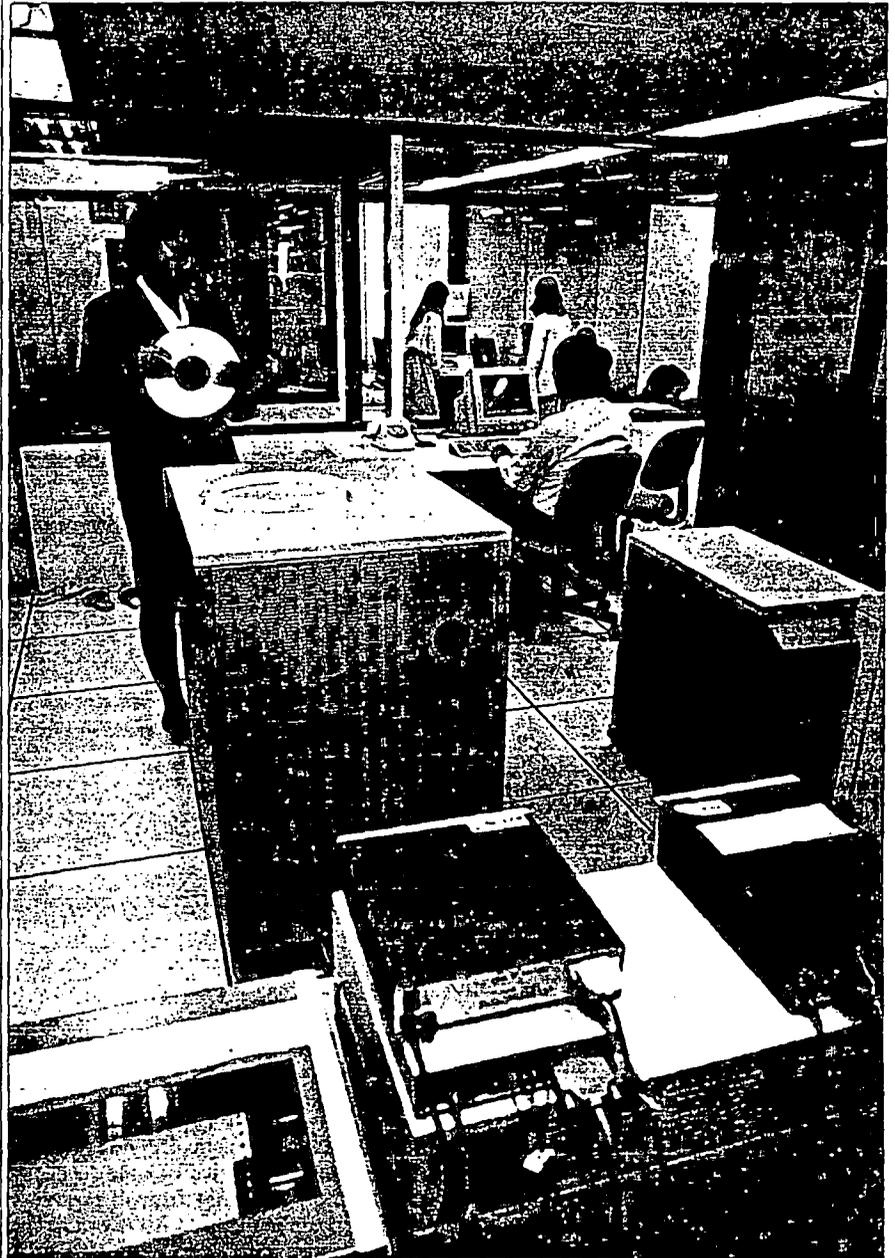
Sho-chieh (蔣頌傑), the president of Chung-Hua, was previously the director of TIER. Moreover, Chung-Hua's vice president, Dr. Yu Tzong-shian, was the classmate of Director Liu of TIER.

TIER's research work is divided into two types: those that flow from the specific interests of individual researchers, and those that are in response to outside requests. They all deal with various practical topics. Examples: "A feasibility study on the enforcement of crop insurance in Taiwan," "An input-output model for projecting future demand for steel in Taiwan," "On problems of liberalizing the import of apples," and "Establishment and development of the Pacific Basin Economic Council." The institute's publications list is lengthy, and invariably illustrates the highly practical nature of the institute's research. In many respects, the reports are what one would expect from a large U.S. consulting firm.

And like a consulting firm, TIER's existence depends upon the fees it collects from clients. "Quite in contrast with Chung-Hua," Liu says, "we rely completely on income from our research projects." TIER's annual income is slightly over US\$6 million, with almost all of it coming from payments for research work.

Like Chung-Hua, TIER has found the private sector reluctant to fund research. "Almost from the beginning," Liu says, "most of our requests for studies have come from the government." Some researchers complain that the private sector has long enjoyed "a free lunch" from local think tanks. "For example, stock investors will blame us for a drop in the stock market," Liu says, "but they won't donate a penny to us while they are making a fortune out of the market."

Nevertheless, Liu says that TIER is still actively cultivating the private sec-



Chung-Hua's
Tsiang Sho-chieh—
we act "as
an advisory
body to the
government."



Dr. Hsueh Li-min—
"policies should be
discussed openly before
decisions are made."

tor. It has organized a club which gives advice to private entrepreneurs, and passes on statistical data and other forms of economic information to members. There are more than 500 members in the club, which accepts company memberships instead of individuals. Liu himself presides over a meeting once a year to report on economic trends. The club has great long-term potential for TIER, especially if the private sector develops a clearer idea of the benefits that informed research can provide their own business planning.

“We were originally set up as an advisory body to the government,” says President Tsiang Sho-chieh of the Chung-Hua Institution for Economic Research. The government was prompted to establish an independent economic research institute after the break in formal diplomatic ties between the ROC and the U.S. in January 1979. The institute was designed to promote stability and growth in the ROC's economy in the face of the uncertain new relationship with an old and trusted friend. After 17 months of planning, Chung-Hua was formally established in July 1981 as a nonprofit and autonomous research institution.

Besides the break in diplomatic relations, Taiwan's restructuring economy also indicated that the government needed to strengthen the intellectual backing for its economic policy decisions. Taiwan's industrial entrepreneurs were in dire need of expertise as the challenges of changing international trade patterns and the specter of protectionism threatened to leave the ROC in a backwater of economic development. Moreover, the entry of mainland China into labor-intensive, low-value products

was a direct threat to one of Taiwan's primary areas of export products.

In response to these challenges, the Executive Yuan directed the Council for Economic Planning and Development to prepare plans for establishing an economic research organization. The institution, at first called the Overseas Institute, focused on the economic affairs of mainland China. But the name was soon changed to the Chung-Hua Institution for Economic Research, and its scope of work was broadened to include the study of both national and international economic affairs.

“The economic reforms in mainland China encouraged the government to promote research on the mainland economy, but it became evident that changes in the international economy were even more important,” Tsiang explains.

Funding grew in proportion with Chung-Hua's expanded responsibilities, doubling from a budget of US\$15 million to US\$38.5 million, of which roughly US\$35 million came from the ROC government and the Sino-American Fund for Economic and Social Development. The rest was donated by private enterprises.

The attempt to establish Chung-Hua at first caused a series of heated debates in the Legislative Yuan. Legislators were worried about whether it was proper for the government to fund a corporate institution that would act independent of government control. Officials from the Executive Yuan argued in defense of the idea, saying that the institution, as a separate corporation, would avoid many of the bureaucratic restrictions inherent in government agencies. The government would therefore be able to derive more timely response from the researchers, and the institution itself would also be in a better position to recruit qualified

people from the academic community.

Chung-Hua, unlike TIER, was from the outset given the task of undertaking macroeconomic studies and other theoretical work. “One of the major differences between Chung-Hua and TIER is that we study general economic issues, while they focus on local economic affairs,” Tsiang says.

Dr. Hsueh Li-min (薛立敏), vice director of Chung-Hua's Third Institute, which studies the economy of Taiwan, explains Chung-Hua's research orientation: “We study broader issues partially because of the kind of experts we recruit, and also because there is a kind of tacit mutual understanding between us and TIER on research focus.” The differing emphases also make it easier for both institutions to find research staff in a rather limited market of available local talent. Chung-Hua's First Institute focuses on the Economy of Mainland China, the Second Institute on the International economy.

Chung-Hua has a full-time staff of more than 100. Of these, over 80 are researchers, divided into senior, associate, and assistant research fellows. The 50 scholars at the associate research fellow level and above all hold Ph.D. degrees, while the rest have M.A. degrees. Many of the latter are working on their doctorates. The institution is careful to cultivate its in-house talent even further. “In order to help scholars deepen their economic knowledge and keep it up-to-date, research fellows with only M.A. degrees are offered ample opportunities for advanced study,” Tsiang says.

Chung-Hua draws many of its staff members from overseas sources. “Every year we put ads in foreign academic journals urging Chinese scholars abroad to consider returning to Taiwan and conduct their research here,” Tsiang says. “We avoid recruiting profes-



Dr. Lee Hua-hsia—
studying the immediate and
long-term impact of mainland
economic issues on Taiwan.
Below, shoppers look for
bargains in mainland China.



sors who are already working in local universities because it would be unfair and would not help upgrade Taiwan's research community."

Researchers in Chung-Hua's three institutes have considerable liberty to choose the research work of their own interest unless they are aligned with a specific project that has been accepted from a government agency. The First Institute, which studies the economy of mainland China and its impact on



Cross-fertilization—participants at an international conference hosted by Chung-Hua discuss issues relevant to the ROC's economic development.

Taiwan, is generally agreed to have enjoyed the most important role in the institution since its founding. "Chung-Hua was initially established to study mainland economic issues," says Dr. Lee Hua-hsia (李華夏), the vice-director of the First Institute, "so this emphasis in our research work is not surprising."

Nevertheless, the spotlight is gradually shifting to the Third Institute, which analyzes Taiwan's economy. "Although the government puts high value on our study of mainland economic affairs, the research work on the mainland's economic status is actually relatively limited in Taiwan," Lee says. The shift in emphasis is also due to the larger number of government projects now given to Chung-Hua concerning local economic affairs.

Institution researchers are also more inclined to work on local issues since most of the research done on mainland economic affairs have been classified or limited-circulation studies. Because of these publication restrictions, many younger scholars were reluctant to jeopardize their careers by having such low academic profiles.

Even though the former restrictions on publishing work concerning mainland China have been greatly relaxed, scholars are still more inclined to focus their efforts on Taiwan's economic develop-

ment, especially since the so-called "Taiwan miracle" is rapidly moving into an even more complex stage.

Although the Third Institute is far busier than before, its research fellows face a number of difficulties. One of the most troublesome is the government's tendency to restrict the circulation of research results. "The government considers research studies secret time and again, especially when it is not satisfied with them," Hsueh Li-min says. "It seems as though the government hasn't yet realized that policies should be discussed openly before decisions are made."

To circumvent some of these difficulties, Chung-Hua has expanded its services to the intellectual community by hosting various forums and conferences. It also has increased the number of its open publications. "With the exception of the research work done for the government, all research results are open to the public," Tsiang says. "But we are still terribly misunderstood—too many people think that we serve only the government."

Tsiang complains that the private sector has not yet cultivated the habit of farming out research to private institutions, but when it does, Chung-Hua will be pleased to accommodate their needs for in-depth economic analysis.

"To serve government is to serve society in indirect manner," says Liu Tai-ying of TIER. But sometimes it is a long time before the work bears fruit. Both TIER and Chung-Hua have similar frustrations when dealing with the government: there is too much time wasted between the production of a study and the implementation of its recommendations.

"A long time ago, we advocated economic internationalization and liberalization," says Chung-Hua's Tsiang, "but the government only recently has taken the necessary steps. In the long-term view, the government is finally catching up with our recommendations."

The same is often true of work done by TIER. "We have provided information and research results to the government through various channels, and around 80 percent of our recommendations are accepted," Liu says. "But it takes a long time for things to be implemented. We suggested many of the government's recent policies a long time ago."

One excellent example of an institute recommendation, that has worked very well is TIER's suggestion that shrimp be cultivated in Taiwan and sold to Japan as a replacement for declining farm product exports. Today, Taiwan is known as the "kingdom of shrimp cultivation."

Even when policies are finally adopted, it is often difficult for either TIER or Chung-Hua to identify the specific parts with roots in their own recommendations. But this is a common fact of life in the interaction between think tanks and governments. The positive side of the picture is that recommendations are actually useful and often are adopted. And as think tank researchers admit, it is the attractiveness of playing a role in policymaking that makes the effort seem worth it all. ■

A Taipei department store gets into the spirit of Christmas, and shows that the government has accepted think tank recommendations about opening up the economy.

APPENDIX III

ARRANGEMENTS FOR DAVID LYSNE'S VISIT, APRIL 3-6, 1990

The purpose of the trip is threefold: to gather information about universities and research institutes in Taiwan; to make initial contacts with leading Taiwanese academics as well as Canadians in Taipei with an enduring interest in educational and scholarly exchange; and to begin discussions on the most effective ways of both promoting Canadian studies at top ranking universities in Taiwan and attracting more Taiwanese students to Canadian post-secondary institutions.

The individuals noted below have already been contacted and asked if they would be willing to meet Mr. Lysne for quiet and informal conversations. They have been informed of his position at DEA but also told that he will be travelling in an unofficial capacity. The Canadian Trade Office in Taipei will be coordinating the schedule. Not all of the appointments have yet been confirmed.

Information on the history and structure of Taiwanese universities and research institutes is included in Appendix II.

CANADIANS IN TAIPEI

John Clayden, Director, Canadian Trade Office in Taipei.

Francois Mong. Works for the CTOT. Considerable insight into the local political and social scene. Member of the Executive Board of the Canadian Society responsible for educational affairs. It would be worthwhile to sound out his opinions on how more Taiwanese students can be attracted to Canada and what might be the fund raising potential of the Canadian Society for a scholarship and seminar/lecture program on Canada.

Michael Craddock. Director, B.C. Trade Office in Taiwan. Fax: 781-2289. His office has expanded to include Ms Stacy Lee, in a new post as Educational Information Officer. Useful to ask both about the function of the new post as well as ways in which a national organization such as OSCEE could be coordinated or integrated with existing and anticipated provincial offices. Should John Clayden and Michael Craddock recommend it, a conversation with the new director of the Alberta Trade Office might be in order.

Pierre Loisel. Vice-President, MITAC Inc. Telephone: 501-8231. Fax: 509-0979. The doyen of Canadian residents and, among other accomplishments, the driving force in the formation of the Canadian Society in Taiwan. Exceptionally well informed about local politics, government, and education.

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Professor John Geddes, Tamkang University. Telephone: 831-0043. A Presbyterian missionary, he is also a historian of missionary activities and author of a valuable study of George Leslie MacKay. He is familiar with student thinking, the Canadian Society, and the operation of the university and college system.

CHINESE ACADEMICS

Dr. Bernard T.K. Joei (pronounced "ray" or "jway"). Director, Center for Area Studies, Tamkang University. Telephone: 341-1408. Fax: 735-0498. French Ph.D. Fluent in several languages including French and English. Chairman, Taipei Council for Canadian Affairs, a key organizer in two earlier scholarly conferences on Canada (one in Taipei and another in Toronto), and a regular visitor to Canada. A former ROC diplomat, he has been very active in establishing academic and business contacts in Canada and, more recently, in Vietnam. Source of ideas on promoting Canadian studies at Tamkang and elsewhere. The Taipei Council is still alive but less active than it was two years ago. Its membership includes some very prominent Chinese business and political people.

Dr. Sun Chen (surname Sun). President of National Taiwan University, has been informed about the visit. NTU is the pre-eminent university in the country. He has never been to Canada but has been particularly helpful to occasional Canadian scholars and is interested in promoting further cooperation. Economist trained in the U.S..

Dr. Bertrand Tsai Cheng-wen (surname Tsai). Chairman, Department of Political Science, National Taiwan University. Heads a vigorous department. Trained in Belgium. Fluent in French as well as English. Interested in student and faculty exchange programs. A very strong candidate for a Faculty Enrichment grant, if he can spare the time. Useful sounding board for ideas about promoting Canadian studies, especially a visiting speakers and seminar series.

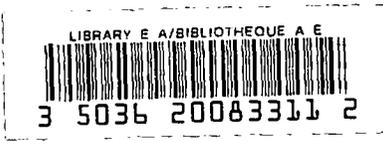
It is possible that he will introduce you to Dr. Lu Ya-li, a professor in his department specializing in Taiwan politics (especially the opposition parties) and, currently, PRC-ROC relations. He was a member of the September 1988 delegation to Canada and impressed everyone. Less the bureaucrat and more the scholar, also an ideal person to spend time in Canada but also very much in demand. In same category is Dr. Schive Chi (surname pronounced "shway"), first-rate economist, alumnus of the 1988 trip, but likely out of the country.

Dr. Boniface Lin. Dean, Medical Studies, National Taiwan University. Telephone: 312-3456, Ex. 2203). Recommended by Pierre Loisel. Heads the top medical institution in the country and is a member of the Canadian Society. Perhaps has Canadian citizenship. Might be helpful in area of student exchanges. Some the Taiwanese students currently in Canada are in medicine. Why?

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Dr. Chang King-yuh (surname Chang). President of National Chengchi University. Telephone: 939-4921. Led the September 1988 delegation while at the time Director of the Institute of International Relations (see Appendix II). Received his Ph.D. from Columbia. Former head of Government Information Office. He is likely to arrange an appointment with Dr. Chi Su (surname Su), also a political scientist, also alumnus of September 1988 delegation. National Chengchi University and the IIR operate numerous international scholarly exchanges, principally with American institutions but more recently with European and Australian as well. Potential interest in expanding Canadian studies.

If time permits, it would be useful also to see a faculty member at a leading institution in the area of business management. One possibility would be Cheng Yuan Christian University which is linked with the University of Calgary. Other areas that should be covered are the natural sciences and engineering. Pierre Loisel might have recommendations. About 30% of the Taiwanese students abroad are studying engineering.



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