

行政院所屬各機關出國報告
(出國類別：國際合作協商)

出席
「國際氣候預測研究院第二屆全體理事會議」
報告

服務機關：交通部中央氣象局
出國人：職 稱：副局長、主任
姓 名：紀水上、鄭明典
出國地點：美國
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國際合作協商----出席國際氣候預測研究院理事會年會，協商合作事宜。

主辦機關:

交通部中央氣象局

聯絡人/電話:

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出國人員:

紀水上 交通部中央氣象局 副局長
鄭明典 交通部中央氣象局 氣象科技中心 主任

出國類別: 考察

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關鍵詞: 氣候預測

內容摘要: 國際氣候預測研究院的前院長Dr. Moura於2002年十月一日辭職，而推薦新院長是理事會的主要任務之一。其次，本局也因為立法院的附帶決議，自2004年起不得再編列參與國際氣候預測研究院的經費，相關的後續安排需要儘早與國際氣候預測研究院相關決策人士協商。因此，此行有兩個主要目的：其一，出席國際氣候預測研究院第二次全體理事會，參與國際氣候預測研究院新院長人選徵詢程序和候選條件的討論，這是台灣身為理事會成員的權力也是義務；其二，氣象局也需要利用全體理事會議的機會，預先和相關人士溝通，以爭取氣象局未來在國際氣候預測研究院運作上最有利的安排，盡可能地維護氣象局最高的利益。

本文電子檔已上傳至出國報告資訊網

摘 要

國際氣候預測研究院的前院長 Dr. Moura 於 2002 年十月一日辭職，而推薦新院長是理事會的主要任務之一。其次，本局也因為立法院的附帶決議，自 2004 年起不得再編列參與國際氣候預測研究院的經費，相關的後續安排需要儘早與國際氣候預測研究院相關決策人士協商。因此，此行有兩個主要目的：其一，出席國際氣候預測研究院第二次全體理事會，參與國際氣候預測研究院新院長人選徵詢程序和候選條件的討論，這是台灣身為理事會成員的權力也是義務；其二，氣象局也需要利用全體理事會議的機會，預先和相關人士溝通，以爭取氣象局未來在國際氣候預測研究院運作上最有利的安排，盡可能地維護氣象局最高的利益。

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一、目的

為了本報告的完整性，有關國際氣候預測研究院的背景資訊簡單整理如下：

國際氣候預測研究院成立的宗旨，在於提升社會整體了解、預期與管理季節氣候變異衝擊的能力，以增進全民福祉並保護自然環境。其發展策略是以應用研究、教育訓練、應變體系的建立為基礎，提供強調實用性與可驗證的預報資訊，建立全球夥伴以實現科技回饋社會的理想。

成立一個國際氣候預測研究院的理想，最早是由美國前總統布希親自於 1992 年里約全球高峰會上揭示，因此初期經費主要來自美國國家海洋暨大氣總署，外加部分來自美國國際發展事務部門。在初期五年國際氣候預測研究院的草創期中，在紐約的哥倫比亞大學著力很深，我中央氣象局於草創期結束之當年，即公元 2000 年十一月正式加入此研究院，而與美國國家海洋暨大氣總署之全球計畫辦公室和哥倫比亞大學，共同成為國際氣候預測研究院的創始會員。

2001 年十月國際氣候預測研究院在台北召開第一次常任理事會，理事主席 Michael McElroy 首次說明推薦與聘請國際氣候預測研究院理事的大原則，希望理事會成員能具有國際組織運作經驗、具國際聲望、並包含廣泛專長背景。因為現階段國際氣候預測研究院組織的發展，重點在於建立此研究院永續經營的資源供給架構，持續推動全球永續發展理念，藉由極小化非預期氣候變異衝擊的實際行動，拓展並建立國際夥伴，將此研究院轉化成實質的國際合作單位。對國際氣候預測研究院來說，國際化還有很多障礙，但是國際化確是其組織本身永續發展必走的道路。以氣象局的立場來看，我們也希望國際氣候

預測研究院能健全發展擴大其影響力，一方面以國際氣候預測研究院為氣象局參與國際社會的管道，將我們的氣象建設成果回饋國際社會；另一方面，也把國際氣候預測研究院當成技術發展資源獲取的管道，提升氣象局短期氣候預測能力。

2002年六月，國際氣候預測研究院第一屆全體理事會議於紐約召開，中央氣象局謝局長以理事的身份親自與會。該次會議以組織發展策略的討論為主軸，理事會成員傾向於支持國際氣候預測研究院往永續發展議題方向延伸其影響力，並具體建議應該主動和相關的國際組織與團體接觸。其次，理事會成員也同意，國際氣候預測研究院要獲得先進國家的經費支持並不容易，因此應該先把重點放在「有需求」的地區或國家，爭取包括中國大陸和俄羅斯的支持，以擴大國際參與的層面，然後再進一步整合相關的國際資源。

推動成立國際氣候預測研究院最關鍵的三個人是 M. Hall, M. Crow 和 A. D. Moura，在長期的合作夥伴關係上，本局和這三位關鍵人士已經建立起良好的互信基礎與有效率的溝通管道，對於本局運用國際氣候預測研究院的資源，進行有利於本局業務發展的合作案非常有幫助。然而，其中 Dr. Hall 於一年前首先以健康因素淡出相關事務的推動工作，Dr. Crow 也於 2002 年七月接任亞利桑那州立大學校長一職而離開，到了十月，Dr. Moura 繼之以家庭因素決定回巴西定居。這三位關鍵人士在短時間內相繼離開國際氣候預測研究院，短期內並不會對本局相關合作案的推動造成影響，長期而言則必然是本局拓展國際關係努力上的一大損失。因應之道除了由制度面爭取本局在理事會中應有的法律地位之外，本局也應積極與國際氣候預測研究院相關接任的決策人士建立互助合作的溝通機制和互信的默契。

本局在經過多次的會商之後，和國際氣候預測研究院達成推動多項合作項目的具體共識，包括：(一)資料與電腦資源共享；(二)國際氣候預測研究院氣候資料館的鏡像資料庫；(三)影響東亞颱風可預測度與長期預報；(四)水資源規畫應用之季節至年際氣候變異預測；(五)合辦國際氣候預測研討會；(六)太平洋遠洋漁業與氣候變異研究等。雙方也同意定期舉行氣候預測會商，主題選定為春雨、梅雨、颱風、和冬季溫度。不過，正當國際氣候預測研究院人力達到初步穩定運作的規模，而我們正要開展實質合作關係時，立法院卻在此時堅持中央氣象局不得再編列參與國際組織的預算，此舉勢必影響相關合作案的進行，令人覺得殊為可惜。在尊重立法院的前提下，如何維持本局和國際氣候預測研究院的良性互動關係，也因此成了一個有待雙方進一步協商的課題。

因此，此行有兩個主要目的，一是出席國際氣候預測研究院第二次全體理事會，參與國際氣候預測研究院新院長人選徵詢程序和候選條件的討論，這是台灣身為理事會成員國的權利也是義務，同時也要利用理事會議的機會，讓未參與創始過程的理事會成員，也能了解中央氣象局在國際氣候預測研究院創始階段的貢獻，進而尊重本局在理事會中的合法席次；其次，氣象局也需要利用全體理事會議的機會，預先和相關人士溝通，以爭取氣象局未來在國際氣候預測研究院運作上最有利的安排，在本局經費受到限制的情況下，儘可能地維護本局參與國際氣候預測研究院運作中最高的利益。為了充分達成參加會議的目的，謝局長特別指派紀副局長代表他個人與會，並由科技中心鄭主任全程陪同提供必要之會議相關資訊。

二、過程

紀副局長和鄭主任於一月十九日由中正國際機場出境，由洛杉磯入境美國，於當日下午八時抵達丹佛。

二十日是馬丁路德·金恩博士紀念日，在美國是個假日。因此當日只有和部份聯繫到的華人科學家見面，因為行程單純，拜會的人並不多，反而能比較深入的交換研究心得，並由技術人員層面了解美國方面主要研究計畫的推動現況。

二十一和二十二日出席國際氣候預測研究院第二屆全體理事會議，會議地點 IBM Center，位於國際氣候預測研究院總部附近。由於這是第二屆全體理事會議，理事們對理事會的角色與功能已有所認識，因此會議中的討論相當的具體直接，發言很踴躍，議程進行的也很順利。列席的科技指導委員會主席 Dr. Sarachik 便形容理事會的發言「直接而深入，令人信賴」，可見理事會將可發揮具體而實質的功能，確實值得我們的重視與積極參與。

國際氣候預測研究院第二屆理事會的議程摘錄如下：

INTRODUCTORY ITEMS

1. Opening Remarks by Board Chair and Introduction of Board Members
2. Welcome by Host Institution (Columbia University)
3. Approval of Agenda
4. Role of the Board

PROGRESS TO DATE

5. Research Progress to Date (“Show and Tell” by selected IRI staff with introduction by Director General)

6. Report of Director General
7. Report of Executive Director of the Secretariat
8. Report of Board Chair

THE WAY AHEAD – VISION THROUGH 2010

9. A New Strategy for IRI
10. Science Based Global Partnership to Support Developing Countries

IMPLEMENTATION

11. Work Plans and Budget for FY 2002-2003

CONCLUDING ITEMS

12. Operating Procedures for the Board
13. Date and Venue for Next Board Meeting

Any Other Business

會議於二十二日下午四時結束，會後還有一簡短的閉門討論，內容主要是關於國際氣候預測研究院的內部人事問題。

二十三日上午離開紐約，紀副局長前往北卡羅來納州，鄭主任則經洛杉磯回台北。

三、理事會成員背景分析

國際氣候預測研究院(以下簡稱 IRI)理事會於 2002 年六月始正式成立，而推動 IRI 組織的進一步國際化是此理事會最重要的任務之一，而 IRI 國際化的發展正可以拓展本局國際參與的層面，完全符合本局的利益，因此謝局長相當重視理事會的運作情形。在第一屆和第二屆理事會議之間，理事會成員並沒有明顯更動，僅有 Dr. Crow 的正式退出，以及由 Dr. S. Zebiak 取代 Dr. A. D. Moura 的席位。但是在未來運作上，理事會成員的背景攸關 IRI 未來發展的方向與規模，因此我們將相關資料摘錄如附錄一。

就區域分布來看，理事會成員有一位來自非洲、兩位來自亞洲、兩位來自歐洲、三位來自拉丁美洲、四位來自北美洲、一位來自紐西蘭(大洋洲)。就現職分析(部分具多重身分)，四位來自學術界、五位為政府官員、五位為國際組織行政代表、一位為非政府組織代表。就專長而言(部分兼多樣專長背景)，六位具氣候專長背景、三位具國際開發事務背景、六位具環境保護事務背景、十一位具決策者身分、七位具自然科學背景。整體而言，不論就區域、身分或專長背景分析，理事會成員的代表性都相當均衡。值得注意的是，包括理事會主席及另兩位理事具有中國大陸科技顧問的身分，未來 IRI 有可能會更積極的邀請中國大陸的代表參加理事會的運作。

四、理事會會議紀要

秘書單位整理的會議出席名單收錄於附錄二，會議記錄英文稿則收錄於附錄三。

依照議程，理事會議開始係由主席 Dr. McElroy 介紹出席的理事和列席的代表，正式名單收錄於附錄三。在理事成員中，世界氣象組織秘書長 Dr. Obasi 雖然仍未親自出席會議，然而其指定代理人，副秘書長 Dr. Michael Jarroud，是世界氣象組織僅次於秘書長的第二資深行政主管，可見該組織對 IRI 的重視。

代表哥倫比亞大學的是 Dr. Jeffrey Sachs，他在 2002 年七月一日正式接任哥倫比亞大學地球學院院長，這是他首度代表哥倫比亞大學說明學校對於 IRI 的基本立場。他強調哥倫比亞大學的地球學院的特殊地位，他們是全世界最早結合科學與決策以嘗試解決永續發展問題的學術機構，他們尤其重視解決全球的貧窮問題。在其地球學院的整合之下，共有約八百位地球科學家、生命學家、社會學家和工程師緊密合作，期望為全球普遍性的貧窮、飢餓、疾病、和環境品質惡化的問題找出根本解決的辦法。

Dr. Sachs 鼓吹的個人觀點是「任何國家的發展策略都必須結合科技的力量」，因為追求一個國家的永續發展必得面對一系列的問題，包括能源和能源輸送、氣候變異、災難風險、公共衛生與疾病管制、以及市場和科技快速全球化的問題，這些問題的本質和解決之道都是科學與技術的議題。現階段哥倫比亞大學決心為地球永續的未來尋找答案，而其地球科學院正好就是要證明結合不同領域的系統科學可以解決永續發展所面臨的問題，IRI 則屬於地球科學院應用領域中極其重要的一環。

IRI 過去的應用計劃重點在南美和非洲地區，Dr. Sachs 認

為亞洲也是個不可忽視的地方，以 IRI 有限的資源，結合其他國際組織的力量是得以推動計畫的關鍵，然而計畫的選取和優先性還是要有個客觀準則，以避免有限的資源被過度的消耗，因此他建議 IRI 應該先定義全球氣候敏感地區的熱點，再由這些熱點相對的主客觀條件決定 IRI 投入計畫資源的時機，以使 IRI 計畫的推動能更具說服力。

過去 IRI 相當強調核心機構的重要，那是在資源有限又想快速建立基本能量與特色的考慮下，所必須採取的策略。但是集中的資源也造成氣候領域中的強勢競爭印象，使得部分氣候研究中心對 IRI 的成立充滿疑慮，造成合作上的障礙。然而，與外界合作一直是 IRI 實現其理想，以科技造福民眾所必須採取的策略，因此 IRI 資源的分配與共享仍是首先引起深入討論的議題。

基本上，IRI 內部和所有理事都同意，IRI 現有的人力與設施規模距離理想還有一段距離，然而資源越龐大維持的困難度就越高，長期經營的風險就越大，因此在穩定性和功能建立的考慮之間就必須有所折衷，平衡點應該就在現有規模附近，也就是說 IRI 核心機構的規模似乎不適宜再大幅成長。為了拓展 IRI 的功能與影響層面，理事們同意成立 IRI 區域中心確有其必要性，但是區域中心的功能與定位必須很明確，不應該造成到處都有區域中心的虛浮假象。在討論中部分理事具體要求 IRI 應該提出未來五年核心組織的發展規劃，包括深入評估後之合理規模與時程，相關的問題並應在下一次會議中討論。

在上一次全體理事會議中，部分理事要求 IRI 提供一份簡短的說帖，明確指出 IRI 值得受到重視與支持的特點，方便理事們在各自參與的國際機構中宣揚 IRI 的理念。IRI 準備的說帖有以下重點：

世人越來越能體會氣候變異對人類生活的深遠影響，尤其是一些非預期的氣候變異事件，不論由經濟或人員傷亡方面來評估，這些事件對社會的衝擊更是劇烈。基本上，不論基本氣候狀態如何轉變，氣候變異的極端事件，如乾旱或洪災才是真正影響人類社會的因素，所以學習並尋找調適這些氣候變異極端事件的辦法，對社會發展具有崇高的價值，對於氣候敏感地區更是必須直接面對的挑戰。

近年來科學家對氣候變異的了解，證實科學方法有能力提供數月至年際尺度的氣候預報技術，這個預報能力的提升提供了調適氣候變異的新機會。科學上對氣候變異的理解提供氣候預報的基礎，而氣候預報的成效也被嚴謹的檢驗，檢驗的結果則告訴我們氣候預報的應用已有實質的效益，這就是成立 IRI 的動機，而發揮氣候預測應用的實質效益也正是 IRI 的理想。

在設計上 IRI 的功能相當廣泛，由氣候研究、監測、模擬、預報，以至於各類氣候敏感行業的氣候衝擊評估、決策分析、及決策支援工具等，牽涉的領域包含農業、水資源、漁業、公共衛生與流行疾病管制、及天然災害防救等。具體的措施規劃包括建立實際氣候預測應用所需的對應專長、聯繫管道、合作模式、雛形系統和投資策略等。IRI 探討的氣候問題包含所有的時間尺度，然而現階段的研究重點在於強調一至多個季節間的氣候變異的預報與資訊應用。

在氣候預測領域，目前沒有任何類似機構專注在季節至年際變化時間尺度的氣候預報，這是 IRI 獨特的優勢，這個獨特而專一的特長足可使 IRI 在國際上居於技術領先的有力位置。例如，現在被國際氣象作業單位普遍使用的季節預報資訊的標準表達方式便是 IRI 的創舉之一。不過，IRI 的真正特點還是在於同時整合不同學門的研究與應用計畫，並在氣候敏感地區實

際應用，而經由實際的應用，IRI 更建立不同領域與區域專家的堅實聯繫網絡，這是一般作業單位無可比擬的特色。這個特色使得 IRI 可以：(1) 直接從事跨領域以解決實際問題為核心的計畫；(2) 建立氣候資訊產出和使用者之間的雙向溝通機制，達到資訊充分而有效利用的目標，並對社會提供氣候資訊應用的實質效益。

為了進一步說明 IRI 的特點和近年來的工作成效，IRI 安排了六個專題報告。首先由代理主管 Dr. Zebiak 提供 IRI 研究概況，其次由預測部門主任 Dr. Barnston 報告最新聖嬰現象監測情形與氣候預測結果，再來是由 Dr. Seth 報告聖嬰現象對印度和非洲的衝擊，接著由 Dr. Dilley 報告北非洲的區域氣候預測和衝擊調適策略，Dr. Thomas 報告西非疾病管制與氣候關聯性的研究，最後由 Dr. Someshwar 報告氣候預測資訊用於東南亞區域防災作業的情形。事實上 IRI 的所有應用計畫所使用的經費都相當有限，因此部分理事馬上以此為例，強調並具體建議 IRI 應該可以推動更多類似的計畫，而不是把心思全部放在增加核心組織的規模上。

哥倫比亞大學地球學院信任院長 Dr. Sachs 本身在永續發展相關國際組織相當活躍，他曾擔任許多國家的經濟顧問，因此他明確表達他個人對更長期氣候變遷問題的興趣，而事實上氣候變遷議題在國際政治與經濟關係上是個資源分配上的決定性辯論議題，所以相對的資源比較充裕，IRI 也沒有自外於氣候變遷研究領域的道理，因為氣候變遷研究和短期氣候預測所使用的資料和模式工具，兩者的重疊性相當的高。在 2002 年十一月召開的執行理事會議便曾討論過這個議題，Dr. Sachs 當時還詢問台灣的立場，而蔡政務委員和中央大學劉校長都對此提議持正面肯定的看法。

IRI 人事的變動也反映在發展策略規劃之中，代理院長 Dr. Zebiak 在會議中提出一份大幅修改的策略規劃，之前的規劃書比較理想化，是一種全方位的思考。而新的規劃方案比較簡明、直接、具體和務實，更加強調 IRI 的特點，將 IRI 的任務充分回歸其最初倡導成立的動機，也就是「促進社會瞭解、預期、與管理季節性氣候變異衝擊的能力，以提升貧窮地區人民保障其生命財產和保護其環境品質的能力」，而所有推動的計畫都是為了減低氣候變異對人類社會的衝擊。IRI 採取的策略係以科學氣候預報為基礎，針對區域性社會和環境的問題提供異於傳統反應的選擇機會。

過去 IRI 的發展策略強調核心組織量能建立的重要性，Dr. Zebiak 則強調夥伴拓展的重要性，這是融入區域氣候應用運作和 IRI 功能的延伸最有效率的辦法，也是發覺問題並尋求解答的合理步驟。由於利用氣候資訊是推動 IRI 計畫的關鍵，因此氣候預測產品、應用領域需求分析和通訊網絡的健全是必要的基礎建設，IRI 與區域相關機構的合作就應該由這幾個方向切入，具體的說包括提升：氣候監測、模擬與預報能力、農業生產與糧食供應的穩定、水和天然資源的管理、公共衛生和疾病管制能力、天然災害防救與風險管理的能力、生活環境的永續經營潛力等。在這些方向上，未來十年 IRI 應該在開發中國家或地區更有系統而全面的推動其計畫，使 IRI 在降低氣候衝擊與推動永續發展的領域中，成為一股主要的力量。

這次會議的主要議題是 IRI 院長人選的徵詢程序和資格條件，理事會同意將此職位之責任說明簡化，包含三個主要任務，包括：推動 IRI 的任務達成、指導帶領 IRI 並運行有效的計畫管理、和代表 IRI 並提升 IRI 的國際地位。通過的院長職位說明書收錄於附錄四。

理事會同意 IRI 院長徵詢工作由地球學院負責，包括成立評選委員會及刊登徵人通報。部分理事則將協助推薦人選，並將徵人消息告知相關的單位或個人。原則上候選名單希望在六月中確定，最慢在下次理事會召開前確定，然後交由地球學院進行校內提名作業程序，最快新任院長應該可以在九月上任。如果徵詢程序受到延遲，最後的期限希望是在 2004 年六月之前上任，以便 IRI 能順利持續發揮功能。

在最後一節討論，理事會相當肯定執行秘書處的辦事效率和舉辦理事會的相關議事協調功能，尤其肯定 Dr. Lanton 的國際組織運作經驗，理事會運作的順暢基本上是執行秘書處大力協助的功勞。由於執行秘書處業務繁重，理事會的運作又相當依賴執行秘書處的支援，因此理事會同意幾項相關的組織功能調整，包括將執行秘書處的功能更明確定位在協助理事會的運作方面，部分原來的任務則轉交至 IRI 院長辦公室，相對的運作經費也被要求一併轉移，避免增加 IRI 運作上的負擔，此項決議也獲得地球學院的完全支持。理事會也同意重組 IRI 之「國際科技指導委員會(ISTAG)」，並同意由 Dr. Sarachik 和 Dr. Weber 繼續擔任共同召集人。Dr. Sarachik 本人也將他對「國際科技指導委員會」角色功能的看法提出與理事會交換意見，理事會同意科技指導委員會應該同時對理事會和 IRI 院長負責，提供技術顧問與技術諮詢的功能。理事會指派部分理事成立一個監督小組，協助「國際科技指導委員會」的重組工作，包括檢討現有成員的專長功能和建議額外專長需求，必要時亦得協助推薦人選。

為了增強理事會的功能，理事會也同意增加具有區域或族群代表性的理事成員，包括增加女性代表、非洲、印度和中國的理事成員等，理事長並表示部分被徵詢的人選已表達高度的興趣，包括來自中國大陸的可能人選。但是部分理事認為理事

會也不宜過度膨脹，以免議事效率受到影響，因此實際邀請的程序將會謹慎進行，整個徵詢過程將會充分知會所有理事。理事會同意未來的會議應該盡量在 IRI 總部舉行，以增加理事會和 IRI 總部工作同仁的互動機會，使理事會的政策決議能切合實際的運作模式。下一次會議時間則暫定於六月 25 至 26 日，細節由秘書處再協調。

最後討論離職院長 Dr. Moura 未來可能的角色，哥倫比亞大學建議成立南美洲 IRI 區域中心，由 Dr. Moura 利用其個人的地緣關係，協助 IRI 拓展區域合作計畫。部分理事則認為區域中心的定位不明確，區域中心的構想也並未經過充分討論，執行面上可能衍發的後續管理問題必須慎重考慮，避免造成 IRI 未來組織發展上的障礙，或甚至成為 IRI 資源分配的負擔。不過，最後的結論是認為 Dr. Moura 是推動 IRI 成立的主要個人，其對 IRI 運作和理想均有相當深入的認識與體會，應該不會對 IRI 的運作造成困擾。理事會於是同意 IRI 進行相關安排，但是要求相關安排必須公開透明並隨進度隨時知會理事會。

理事會於一月二十二日下午四時正圓滿閉幕。

五、CWB 與 IRI 合作協商

IRI 總部雖然人力並不充裕，但是為了遂行 IRI 的任務，IRI 總部的資料來源和氣候資料庫的基礎建設卻建設的很有系統，這是我們認為 IRI 值得開發的優點之一。其次，IRI 座落於哥倫比亞大學，這個學校之前並沒有氣候研究相關的系所，但是這個學校有很充裕的研究資源，在學術上也有不錯的聲望，近年來在永續發展議題的創立上更居世界領導地位，因此在哥倫比亞大學的支持與監督之下，IRI 總部所聘用的科學家再配合哥倫比亞大學原有的教授群，這裡提供一個提升技術人員專業程度的良好環境，因此教育訓練的潛力也是本局看重 IRI 的原因。最後一層的考慮是國際參與，因為我國不是世界氣象組織的成員，因此無法正式參加聯合國所支持的各項氣候計畫，而氣象無國界，台灣的研究人力與資源又相當有限，這個國際現實對本局發展氣候預測技術是個嚴重的限制，經由參與 IRI 的運作，我們也期望能開展本局國際氣象科技交流合作的參與層次與廣度。

氣象局參加 IRI 的合作協議於 2000 年底生效，基本上 IRI 總部的核心組織就是在本局正式加入的當年才達到比較完整的規模，在那之前 IRI 總部僅有 17 位技術人員，主要任務為提供穩定而具說服力的季節氣候預測產品，除此之外實在沒有太多的能力去推動新的計畫。目前 IRI 總部已有六十多位技術人員，分成預報、模式研究、氣候監測與資訊傳播、及應用研究四大部門，可以說正是 IRI 要開始全力推動其任務與理想的時候，立法院在此時間點要求中央氣象局自 93 年度起不得再編列參與 IRI 之預算，這對本局運用 IRI 資源來提升本局作業水準的規劃相當不利。

在過去兩年的協商中，氣象局和國際氣候預測研究院的合

作初步規劃有六個大方向，包括：(一)資料與電腦資源共享；(二)國際氣候預測研究院氣候資料館的鏡像資料庫；(三)影響東亞颱風可預測度與長期預報；(四)水資源規劃應用之季節至年際氣候變異預測；(五)合辦國際氣候預測研討會；(六)太平洋遠洋漁業與氣候變異研究。上一次會議時謝局長更建議雙方定期舉辦氣候預測，主題可以是：(一)春雨預報，約在每年元月中旬，提供農業是否採行休耕的決策參考；(二)梅雨預報，每年四月底進行，梅雨期為台灣主要降水季，為水資源規劃重要資訊；(三)颱風季預報，每年六月底或七月初，提供水資源規劃與防災整備作業之參考；(四)冬、夏季極端溫度預測，於冬、夏季期間不定期進行，提供夏季尖峰用電預估、冷氣及相關產品之市場調節參考，提供冬季冷凍食品和成衣等之市場調節參考。

目前雙方合作案推動最有實效的除了定期氣候預測會商之外，IRI 也獲得美國國家海洋暨大氣總署的正式授權，即時傳送 NOAA-port 線上所有氣象資料至中央氣象局，內容包括數量豐富之氣象觀測資料和預報產品。NOAA-port 即時資料在逐日天氣預報作業上提供相當豐富的資料，尤其在一周以上的系集預報，在 2002 年缺水期間提供相當關鍵的資訊。氣象局建立 IRI 資料庫鏡像資料站也初具規模，該資料站提供許多特殊氣候資料和很方便的資料查詢介面，對未來氣象局四期計畫建立氣候資料庫的執行有很正面的助益。IRI 不定期提供本局技術人員訓練課程，也和本局及台灣學術單位合作舉辦研討會，IRI 具體的提供相當實用的技術轉移功能，目前在本局長期天氣預報作業上都有應用 IRI 技術的實例。

本局與 IRI 的合作協商會議在二十二日上午八時舉行，IRI 代理院長 Dr. Zebiak 和科學管理部 Dr. Carolyn Mutter 親自出席。Dr. Zebiak 首先表達對中央氣象局長期支持 IRI 的感謝，並且主動說明台灣對 IRI 的支持有三個意義：(一)台灣經費的支持

在 IRI 成長階段具有不可忽視的貢獻，(二)台灣的參與鼓勵 IRI 國際化的推動策略，在關鍵時刻具有影響決策的關鍵地位，(三)台灣的參與拓展 IRI 的國際合作範圍。鄭主任則代表中央氣象局表達本局贊同 IRI「科技回饋社會」理念的立場，本局也認為 IRI 在氣候預測與應用領域有很大的發展潛力，IRI 在 2002 年台灣發生乾旱期間適時提供氣候診斷說明與季節預測資訊，對於 IRI 技術人員該段時間表現出的服務熱誠與高度專業，本局局長和工作同仁均深表肯定。最近中央氣象局在其發表的氣象白皮書中說明，氣象作業的目標是「提供科技所能及的優質氣象資訊，提升人民生活水準、減輕自然災害的衝擊、並創造實質經濟效益」，這是全體中央氣象局同仁努力工作的理想。此理想與 IRI 的目標一致，因此我們對 IRI 的支持是居於理念的認同，以「夥伴」的關係提供必要的協助。

對於預算面臨的困難，我們並未直接說明立法院的決議，而是先討論如何論定「合理預算額度」，我們以國科會為例強調整個台灣氣象界的年度研究經費大約是美金兩百五十萬元，要提供 IRI 每年約一百萬的支持經費相當不容易也不合理。而如果連台灣提供 IRI 運作經費都是如此的困難，IRI 如何可能獲得更多的經費支持？因此 IRI 有必要重新檢討其未來爭取運作經費的策略。Dr. Zebiak 同意爭取美國之外的經費有現實面的困難，其本人傾向於結合特定計畫與經費的運作模式，或許可稱為計畫認養策略，而 IRI 與主要經費提供單位之間的合作也應該更緊密，可能必須以制度化的形式有系統的來推動。不論未來發展如何，Dr. Zebiak 表示 IRI 感謝也同時珍惜台灣這位夥伴，畢竟台灣幾乎由 IRI 觀念初成型時便一直堅定的支持這個構想，他認為雙方在具有類似理想與目標的前提下，IRI 與台灣的持續合作必能為雙方創造出更多的發展機會。

其次我們說明立法院附帶決議的文字內容，立法院的決議

等同法律，雖然文字內容很簡單，法律上也可能存在不同的解釋空間，但是中央氣象局必須充分尊重立法院，因此決定 93 年度將不會編列參與 IRI 的相關經費，中央氣象局不會也不宜即刻以任何替代方案實質支持 IRI 運作經費。我們強調中央氣象局並未放棄參與 IRI 運作的初衷，但是在國內民主的制度下，如果中央氣象局無法提供足夠的資訊，證明參與 IRI 運作對台灣有利並有對等於經費額度的實質效益，台灣的經費支持本來就難以穩定，這種情形對雙方都不好。因此，如果 IRI 也並未放棄台灣這位夥伴，當務之急應該是考慮 IRI 如何協助台灣推動務實可行的合作計畫，將 IRI 與台灣的關係落實到計畫層面，而不是由台灣無條件的提供經費，以實際成績來爭取未來合理而穩定經費挹注的可行性。

Dr. Zebiak 則回應說，IRI 並不是一個以技術服務換取或賺取經費的單位，IRI 的經費是用來降低氣候敏感地區貧窮國家受到短期氣候變異的衝擊，他了解台灣對 IRI 的經費支援一直都沒有附帶條件，表示台灣了解也支持 IRI 的基本立場，對於台灣方面經費編列的困難他深表遺憾但是可以理解，他希望台灣能持續以國際宏觀的視野看待 IRI 的運作。然而他也同意，以台灣特殊的地理位置和面臨的區域氣候問題，IRI 有足夠的動機和台灣建立長期而密切的合作關係，只是過去 IRI 本身資源相當困窘，也因為美國支援 IRI 單位的歷史背景，IRI 的計畫發展範圍比較以南美洲和非洲為核心，這個不平衡現象必須儘早調整過來，IRI 應該擴展東南亞地區的相關氣候預測與應用計畫，而台灣的中央氣象局可以是個理想的區域合作夥伴。我們贊同 Dr. Zebiak 的分析，並期待雙方進一步的合作能夠順利的開展。

在台灣支持 IRI 運作的經費終止之後，最直接的衝擊有兩項：(一)台灣的理事會會員資格，和(二)台灣和 IRI 資料即時連

線的後續維護問題。這兩方面的討論都很簡短，因為雙方有很高的共識。我們雙方都認為理事會會員資格是理事會的權限，IRI 必須在正式收到台灣終止合作協議的書面聲明後，才能將此議題送交理事會議決。在此之前，台灣成為理事會成員的任何權利義務完全不受影響，IRI 和中央氣象局的合作議案也不會受影響，合作案的未來發展則視個別合作案進行情形與 IRI 內部資源分配的限制而定。資料連線牽涉機器維護與操作人力的問題，IRI 無法提供長期的無償服務，但是 IRI 政策上也不提供商業服務，因此必須有特殊安排。雙方建議由各自負責資料傳輸的單位直接協商，將資料即時連線與台灣參與 IRI 兩件事完全區隔開來，以避免不必要的困擾。這樣的安排對 IRI 並沒有顯而易見的好處，然而台灣可以將 IRI 提供的特殊資料視為參加 IRI 的效益之一，即時資料連線的持續有助於提升未來台灣參與 IRI 區域合作計畫的動機，原則上 IRI 同意在資料連線協商期間提供主動正面的技術協助與進行必要的配合動作，後續運作經費也將以實際成本為唯一考慮。

在充分交換意見後，雙方都同意未來持續推動互助互利的合作案，此次會商歷時一個小時整結束。

六、結論與建議

國際氣候預測研究院必須國際化才有發展空間，這個方向符合台灣的利益。然而在此關鍵時刻，氣象局因為經費的問題可能被迫終止參與 IRI 的合作協議，殊為遺憾。不過我們仍應盡可能維護我們的權益，而最高優先應是維護本局的理事資格，因為以理事會為 IRI 決策核心的運作模式已經成型，而且 IRI 國際化的步驟顯然就是由理事會開始，尤其世界氣象組織和中國代表已確定加入理事會運作行列，如果台灣退出理事會的話，那幾乎等同宣告台灣退出 IRI，那麼我們過去幾年努力的成果就將為中國大陸所接收。

由於這是第二次全體理事會議，理事會的運作已能深入問題核心，集體決策的運作模式將使 IRI 的發展方向將趨於明確而穩定，這個發展趨勢將是利弊互見。在兩天的討論中，我們可以發現 IRI 部分參與國際永續發展研究的趨勢幾乎已成共識，將來應是不迴避、甚至更要主動接觸環境保護的議題，尤其是和相關組織與團體的主動接觸。這個趨勢必須很謹慎的運作，雖然有助於 IRI 開拓經費來源與運作範圍，但是也可能分散 IRI 的資源，使 IRI 在眾多國際永續發展推動組織的複雜關係中逐漸失去特色。其次，IRI 的計畫將會更重視地域的平衡性，而地域的平衡可解釋為 IRI 的運作模式將「聯合國化」。IRI 成立之初，NOAA 曾希望主導 IRI 的運作，目的便是避免 IRI 陷入單純「資源平均分配」的聯合國式平等的邏輯中，只是現在 NOAA 主要的推動者已經淡出，NOAA 正失去主導 IRI 發展的企圖與動機，這項發展在政治層面可能造成排除「台灣」的現象，在技術面則可能對 IRI 的發展產生長期的傷害。如果台灣仍然可以保留理事的席次，這個趨勢將是我們必須嘗試去努力導正的重點。

綜合此次出國的見聞，我們歸納下列幾點建議：

1. 國際氣候預測研究院的決策機制已經完全落實到理事會，為了維護台灣在此組織中的權益，中央氣象局應該積極參與理事會的運作，並加強與個別理事的溝通，爭取理事會對中央氣象局過去貢獻的肯定，進而維持台灣的理事資格。
2. 中央氣象局應該善用國際氣候預測研究院的專長，進行有利業務發展的合作案，尤其在即時資料收集與短期氣候預報資訊整合與應用上持續密切合作，共同提升氣候資訊的可用性，開發氣象資訊應用的實質經濟效益。
3. 國際氣候預測研究院有許多值得開發的資源，由於該單位的專長涵蓋層面極廣，中央氣象局有必要結合國內學術單位的力量，和國際氣候預測研究院維持緊密的合作關係，確立雙方夥伴的關係，以期在執行立法院「不得再編列」參與 IRI 相關預算的附帶決議後，雙方仍能保持互助互利的合作關係。

附錄一

理事個人資料

Biographical Sketches of Each Board Member

Second IRI Board of Overseers Meeting

Lamont Hall, Palisades, NY

January 21-22, 2003

1. Background on Chairman of the Board

Michael McElroy

McElroy is the Gilbert Butler Professor of environmental studies, founding chair of the Department of Earth and Planetary Sciences and current Director of the Center for the Environment at Harvard University. His research is directed at studies of the wide-ranging effects of human activities on the global environment. In addition to his position at Harvard, McElroy has served on numerous committees of the National Academy of Sciences, the US congress and various agencies of the US Government including the Office of the Vice-President. He is a Member of the China International Council for Sustainable Development.

2. Background on Members-at-large

Nay Htun

Htun is currently the Director for Asia of the University of Peace. Dr. Htun has served as the Assistant Administrator and Regional Director of the Bureau for Asia and the Pacific at the United Nations Development Programme (UNDP) since 1994, with the rank of UN

Assistant Secretary-General. For sixteen years he was Deputy Executive Director with the United Nations Environment Programme (UNEP). From May 1990 to August 1992 he was seconded to the United Nations Conference on Environment and Development (UNCED) Secretariat in Geneva, Switzerland, where he served as Director of Programme and Special Advisor and helped organize the Earth Summit. His responsibilities included liaising with business and industry, and in particular, with the Business Council for Sustainable Development (BCSD); the International Chamber of Commerce (ICC); and international industrial associations.

Tasso Ribeiro Jereissati

Jereissati was the Governor of Ceara, Brazil until Mid-April 2002. He was elected Governor for three terms. In 1991, he was selected among the five most important business leaders of Nordeste. He has received awards for the High Order of the Brazilian Congress; medals from the governments of Japan, France, Lebanon, and several from the Brazilian Air force and Joint Military Chief of Staff. Jereissati is a close friend and personal advisor to President Cardoso of Brazil. He is a member of the main political party in Brazil (the PSDB), and served as PSDB's president from 1991-1994.

Julia Marton-Lefevre

Marton-Lefevre is the executive Director of LEAD International and serves as Secretary to the LEAD Board of Directors Since 1997. Prior to her joining LEAD, Dr. Marton-Lefevre was the Executive Director of the International Council of Science (ICSU) in Paris, France. She serves on boards of numerous international organizations, including the China Council for International Cooperation in Environment and Development; the Board of the World Resources Institute, of which she

is a Vice-Chair; the ICSU Committee on Science and Technology for Development; and the Oxford Commission on Sustainable Consumption. She was a member of the UN Secretary General's Task Force on Environment and Human Settlements and has been involved in a number of international bodies concerned with environment and development issues, such as Earthwatch, the Earth Council, the Center for Our Common Future, and the World Conservation Union. Before joining ICSU, she was a Program Specialist at UNESCO in Paris, working on issues related to environmental education. Dr. Marton-Lefevre also worked as a US Peace Corps university teacher in Thailand. She has degrees in history, ecology, and environmental policy. She was born in Hungary and has both France and U.S. citizenships.

Godwin Olu Patrick Obasi

Obasi has been the Secretary-General of the World Meteorological Organization since 1 January 1984. He holds a B.S. Honors degree (1959) in Mathematics and Physics from McGill University, Montreal (Canada); an M.S. degree with distinction (1960) and Ph.D. (1963) in meteorology both from the Massachusetts Institute of Technology. He won the Carl Rossby Award for the best doctoral degree thesis. After graduation, Professor Obasi served the Nigerian Government in several capacities including that of an Adviser to the Federal Government of Nigeria in meteorological research and training. From 1967 to 1976, he was Professor of Meteorology, Chairman of the Department of Meteorology and Dean of the Faculty of Science at the University of Nairobi, Kenya. In 1978, he joined the WMO Secretariat as the Director of the Education and Training Department. Before that, he was Vice-President of the WMO Commission for Atmospheric Sciences. Professor Obasi has been associated with various scientific activities at

national and international levels, including the West African Monsoon Experiment and the First GARP Global Experiment. As Chairman of the WMO working Group in Tropical Meteorology in 1965-1967, he was instrumental in the initial planning of the GARP Atlantic Tropical Experiment (1974). Professor Obasi has received a number of honors and awards for his contribution in meteorology, hydrology and general environment matters.

Sir Crispin Tickell

Sir Crispin is the Chancellor of Kent University. In September 1990 Sir Crispin assumed the Chairmanship of the Climate Institute following his retirement from the British diplomatic service where he had held such posts as United Kingdom Permanent Representative to the United Nations, British Ambassador to Mexico and Permanent Secretary of the Overseas Development Administration. Sir Crispin serves as Convener of the British Government Panel on Sustainable Development and is a member of the China Council for International Cooperation on Environment and Development. He is the author of a book, *Climate Change and World Affair*, which two decades ago pointed to the possibility that climate change could affect international stability.

Simon Upton

Upton is currently the Chairman of the OECD Round Table on Sustainable Development. Prior to this, he chaired the 7th session of the Council on Sustainable Development in 1999. Mr. Upton also held position in New Zealand's Parliament. From 1990-93 he served as Minister of Health; from 1990-91 he served as Minister for the Environment and was re-appointed from 1993-1999; and Minister of Research Science and Technology from 1990-1996. He received a Rhodes Scholarship to Oxford University.

3. Background on Institutional Nominees

Kenneth Mooney

Mooney is the Acting Director of the National Oceanic and Atmospheric Administration's (NOAA) Office of Global Programs in the U.S. Department of Commerce. From 1990-1994 Mooney served as Director of the U.S. TOGA Project Office and Program Manager from 1983-1990. Prior to this, Mooney was an Oceanographer for NOAA's Engineering Support Office and the U.S. Coast Guard Oceanographic Unit. Mooney received a B.S. in Physics from Rensselaer Polytechnic Institute, an M.S. in Physics from the University of Maryland, and a Ph.D. in Oceanography from the University of Rhode Island.

Jeffrey Sachs

Sachs is Galen L. Stone Professor of International Trade, Faculty of Arts and Sciences, and Director of the Center for International Development at Harvard University. Effective July 1, 2002 he will be the Director of the Earth Institute at Columbia University. Sachs's research interests include the links of health and development, economic geography, globalization, emerging markets, global competitiveness, transitions to market economies, international financial markets and macroeconomic policy coordination, and macroeconomic policies in developing and developed countries. He serves as economic adviser to governments in Latin America, Eastern Europe, the former Soviet Union, Asia, and Africa. His publications include *Macroeconomics in the Global Economy* (co-authored with Felipe Larrain) and *Poland's Jump to the Market Economy*. Sachs is a member of the Harvard Society of Fellows, the Fellows of the World

Econometrics Society, World Economic Forum's Global Leaders for Tomorrow, the American Academy of Arts and Sciences, and the Brookings Panel of Economists and he is Research Associate of the National Bureau of Economic Research. Sachs received his B.A., M.A., and Ph.D. degrees from Harvard University and joined the Harvard faculty in 1980.

Shinn Liang Shieh

Shieh is Director General of Taiwan's Central Weather Bureau. Prior to becoming Director General in 1994, Shieh served as the Deputy Director General from 1991-1994 and Secretary General from 1990-1991. He received a B.S. in Atmospheric Science from the University of Washington.

4. Background on Ex-Officio Members

Roberto Lenton

Lenton is the executive Director of the Secretariat for International Affairs and Development of the IRI. Prior to joining the IRI, Dr. Lenton was Director of the Sustainable Energy and Environment Division (SEED) at the United Nations Development Programme in New York, from 1995 to end-2000. From 1987 to 1994 he was Director General of the International Water Management Institute (IWMI), a member center of the Consultative Group on International Agricultural Research (CGIAR). From 1977 to 1986, Lenton was engaged in international development assistant activities with the Ford Foundation—first in the Foundation's New Delhi office, and later at its New York headquarters. He received a Civil Engineering degree from the University of Buenos Aires and Masters and Ph.D. degrees in Water Resources Systems from the Massachusetts Institute of Technology (MIT). Lenton was a member

of MIS's Civil Engineering Faculty from 1974 to 1977, and is a co-author of *Applied Water Resources Systems*, as well as the author or coauthor of over 50 professional papers on scientific, technical and policy subjects.

Stephen Zebiak

Zebiak is currently interim Director General of the IRI and Director of Modeling and Prediction of the IRI. He has worked in the area of ocean-atmosphere interaction and climate variability since completing his Ph.D. at the Massachusetts Institute of Technology in 1984. He and Dr. Mark Cane were the authors of the first dynamical model used to predict El Niño successfully. He has served on numerous advisory committees, including those for the US TOGA Program, the Atlantic Climate Change Program, the Pan American Climate Studies Program, the AMS Committee on Climate Variations, and the Center for the Study of Science and Religion (CSSR). Zebiak is currently chair of the International CLIVAR Working Group on Seasonal-to-Interannual Prediction, co-chair of the US CLIVAR Seasonal-to-Interannual Modeling and Prediction Panel and member of the advisory board of the Canadian CLIVAR Resear Network. He is a member of the APEC Climate Network (APCN) Steering Committee, and is an associate editor of the *Journal of Climate*.

附錄二

出席人員名單

List of Participants

Members of the Board of Overseers:

Nay Htun, Executive Director East Asia Program, University of Peace

Julia Marton-Lefevre, Executive Director, LEAD International

Michael McElroy, Chairman of the Board

Ken Mooney, Acting Director, Office of Global Programs, NOAA

Jeffrey Sachs, Director, Earth Institute, Columbia University

Sir Crispin Tickell, Chancellor, Kent University

Simon Upton, Chairman, OECD Roundtable on Sustainable Development

Roberto Lenton, Executive Director, IRI Secretariat (ex officio)

Steve Zebiak, Interim Director General, IRI (ex officio)

Tasso Ribeiro Jereissati, Former Governor, Ceara, Brazil (*regrets*)

G.O.P. Obasi, Secretary General, World Meteorological Organization
(*regrets*)

Shinn-Liang Shieh, Director General, Central Weather Bureau (*regrets*)

Others Participants:

Anjuli Bamzei, Program Manager, NOAA-OGP

James Buizer, Assistant Director, NOAA-OGP

Ming-Dean Cheng, Director of Research, Central Weather Bureau, Taiwan

Shui- Shang Chi, Deputy Director General, Central Weather Bureau, Taiwan

Michel Jarroud, Deputy Director General, WMO

Katie Mastriani, Director for Programs, Earth Institute, Columbia University

Carolyn Mutter, Assistant Director for Science Management, IRI

John Mutter, Deputy Director, Earth Institute, Columbia University

Ed Sarachik, Professor, University of Washington

Alissa Schmeltz, Special Advisor, IRI Secretariat

Christie Walkuski, Administrative Assistant, IRI Secretariat

IRI Staff Participants (Day 1 only):

Tony Barnston, Head of Forecast Development, IRI

Reid Basher, Director for Applications, IRI

Steve Connor, Senior Staff Associate, IRI

David Dewitt, Associate Research Scientist, IRI

Maxx Dilley, Research Scientist, IRI

Simon Mason, Research Scientist, IRI

Andrew Robertson, Associate Research Scientist, IRI

Chet Ropelewski, Director Monitoring and Dissemination, IRI

Pedro Sanchez, Senior Research Fellow, IRI

Anji Seth, Research Scientist, IRI

Shiv Someshwar, Research Scientist, IRI

Madeleine Thomson, Research Scientist, IRI

Neil Ward, Head Forecast Development, IRI

附錄三

會議記錄英文稿

Minutes
Second IRI Board of Overseers Meeting
Lamont Hall and IBM Conference Center, Palisades, NY
January 22-23, 2003

INTRODUCTORY ITEMS

1. Opening Remarks by Board Chair and Introduction of Board Members (Document BD 2-01)

The Chair welcomed the Board Members and other participants at the meeting. Regrets were received from Board members Tasso Ribeiro Jereissati, G.O.P. Obasi, and Shinn-Liang Shieh. A full list of attendees is attached as Annex I.

The Chair introduced and provided a brief description of the background of each Board Member. He also introduced the other participants in the meeting, including Anjuli Bamzai, Shui-Shang Chi, Michel Jarraud and Ed Sarachik, who had not been present at the first meeting.

The Interim Director General provided a brief overview of the IRI and highlighted IRI's strategic plan, noting that a full discussion on this topic will occur in agenda item 7.

(The documents for the meeting, listed in Annex II, were circulated prior to the meeting. A full set of the documents was distributed at the meeting's start. They are referred to in these minutes by their document number, from BD 2-01 to BD2-14.)

2. Welcome by Host Institution (Columbia University)

The Director of the Earth Institute at Columbia University, Professor Jeffrey Sachs, welcomed the Board Members on behalf of the University and provided an overview of the Earth Institute and how IRI fits in to the work of the Institute as a whole. He

reiterated the President of Columbia University's dedication to sustainable development and the administration's commitment to expand the Earth Institute over the next ten years. He noted that the Earth Institute is built on five core clusters of complementary academic departments and research institutes. IRI is a part of the "applications" cluster, which is at the center of the five clusters. A brochure describing the Earth Institute was distributed to all participants in the meeting.

Sachs highlighted his vision for the IRI, suggesting that IRI should now be taken to the next level in its development – one that include the creation of a worldwide system of expertise and applications. Noting that he had recently returned from a visit to Sri Lanka, where he had been impressed by how much IRI had achieved with relatively little resources, he suggested that IRI could partner with twenty-five to fifty countries around the world on modest scale projects similar to the one in Sri Lanka. Given the intensity of the problems facing Africa, efforts needed to be increased in this region. Sachs also highlighted the need to bring climate information to the attention of policymakers and help them understand the need for the relationship between climate and development to become part of their purview.

A Board Member noted that IRI should not neglect Asia, since many of the problems that Africa is encountering are also prevalent in Asia. Some projects in Asia that IRI may consider are related to the Asian brown cloud and the bursting and melting of glacial lakes. Board members also agreed that climate information needs to be brought to the attention of policymakers and become part of their purview, but noted that this was a challenging task. One Board Member suggested that it would be an important to map areas or "hot spots" that are significantly impacted by climate and on which IRI should focus its efforts. IRI has already started such an exercise. Once hot spots are identified, it will be easier to determine where the Board can provide assistance to help get IRI projects off the ground.

3. Approval of Agenda (Document BD 2-02)

The proposed agenda, which is attached as Annex III, was approved. It was agreed that some matters arising from the First Board of Overseers meeting would be addressed as part of agenda item 7 on IRI's Strategic Plan, Implementation Plan, and Resource Mobilization Plan.

4. Approval of Minutes of First IRI Board of Overseers Meeting (Document: BD 2-03)

The Minutes were approved without change.

5. Matters Arising from First IRI Board of Overseers Meeting (Document: BD 2-04)

The Board discussed and reviewed matters that arose from the First IRI Board of Overseers Meeting.

Questions were raised on the quarterly financial statement. The Director General alerted the Board that they plan to hire a budgeting person and will have the statements available soon.

Specific documents that were requested by the Board at the First IRI Board of Overseers Meeting are listed below. Documents requested by the Board at its first meeting that related to strategy and resource mobilization were reviewed in conjunction with Agenda item 7 on IRI's Strategic Plan, Implementation Plan, and Resource Mobilization Plan.

- Board of Overseers Terms of Reference: The Board approved the revised Board of Overseers Terms of Reference.
- IRI's Differentiated Edge: The Board pointed out the importance of the last paragraph and suggested that it should be expanded. The Board also suggested that information should be added on the Earth Institute.
- Defining IRI's Membership: Sponsors, Supporters, and Partners: This document was noted without comment.
- Defining IRI Core: The Board raised many questions on what constitutes the core and whether the core is currently sufficient to support IRI's overall program. The Interim Director General noted that IRI still needs additional talent in certain areas of expertise. He also noted that currently resources are limited and as such IRI should grow incrementally. A Board Member cautioned that the core should not become too large or it will be difficult to maintain. Other questions were raised as to whether the IRI core could expand offsite, with general consensus that some parts of the core could be located offsite, but that IRI needs to be careful not to "have little IRI's all over the world". The Board requested a document that demonstrates how IRI leverages its core capabilities for its projects and where IRI sees its core capabilities in five years.

- Prospectus Identifying IRI's International Character: This document was noted without comment.
- Memo on Agencies Approached to Date: This document was noted without comment.
- Revision of Roles and Responsibilities of the Executive Committee: The Board approved the revised Roles and Responsibilities of the Executive Committee without comment.

6. Research Highlights

The Board received a comprehensive briefing on IRI's research activities to date. The briefing began with remarks from the Interim Director General, who provided an overview of IRI's research progress to date. He then introduced speakers Tony Barnston, Anji Seth, Maxx Dille, Madeleine Thomas, and Shiv Someshwar. Each speaker gave a short presentation on a specific topic – the climate forecast system at IRI and El Nino; effects of El Nino in India and Southern Africa; regional climate prediction and risk reduction in the Greater Horn of Africa; program in West Africa for health and climate; and climate forecast applications for disaster mitigation in SE Asia.

Following the presentations, there was a period of questions and discussion between Board members and IRI staff. Much of the discussion focused on the way in which IRI put together programs and projects in developing countries. The Board offered its assistance in identifying new donor and research partners to support projects. The Board placed on record its appreciation of the opportunity to meet the staff and found this session very informative.

PROGRAM MATTERS

7. IRI's Strategic Plan, Implementation Plan and Resource Mobilization Plan (Document: BD 2-05, BD 2-06, and BD 2-07)

IRI and Long Term Climate Change

As a follow-up to a discussion at the Executive Committee Meeting in November, IRI had prepared a short document on IRI and Long Term Climate Change. The Director of the Earth Institute noted that the IRI and the Board should consider what role IRI should

play with longer-term climate change. The Board generally endorsed the role proposed by the IRI in its note.

IRI's Strategic Plan and Implementation Plan

The Interim Director General presented IRI's Strategic Plan and Implementation Plan, noting that the Strategic Plan was very different from the last version that the Board had seen. To produce the plans, IRI went through a rigorous process to consider what it wants as its primary thrusts and what will always be important to the Institute. The conclusion was a range of critical underpinning activities that constitute IRI's core.

The Board was supportive of the approach taken in the Strategic Plan and suggested that there should be specific language in the plan to reflect IRI's "core" capabilities. The Board noted that this is particularly important when approaching partners and donors to demonstrate that it is the "core" that IRI leverages and brings to the table to get support for projects. The Board recommended that the section of the Strategic Plan that outlines IRI's priorities should also include a reference to resource conservation, macroeconomics, networking, capacity building, and the Master's program in climate and development.

There was significant discussion of the proposed matrix approach that it is embodied in the plans. Many of the Board Members shared their experiences with the matrix management approach. There was general consensus that this was a good idea. However, the Board cautioned that this approach could be difficult to manage and should be kept as simple and flexible as possible. Some of the meeting participants suggested IRI look at specific management plans of NOAA and New Zealand's National Institute of Water and Atmospheric Research.

The Board agreed to place on record the excellent work of the Interim Director General and the Assistant Director in the process of preparing the revised Strategic Plan and Implementation Plan.

IRI's Resource Mobilization Plan

The Executive Director of the Secretariat presented an update on IRI's plans to mobilize the resources needed for IRI's strategic and implementation plans, stressing that it is fundamental for IRI to integrate mobilizing resources as a key component into each of its programs. He noted that there is a strong need for IRI to increase its capability to package programs for resource mobilization, emphasizing the progress that IRI had made

in moving in this direction.

There was discussion as to how projects can be used to leverage core. It was noted that IRI's project in the Greater Horn of Africa is exactly the type of project that should be leveraged for external funding. The Board Chair requested that IRI prepare a note for the Executive Committee outlining how funds are currently being utilized for this purpose.

The Executive Director of the Secretariat said that it would be important for IRI to work closely with the Earth Institute's recently initiated fund raising campaign to increase resources for underpinning activities and programs. The Deputy Director of the Earth Institute underscored this point, and said that the President of the University is committed to mobilizing resources for the Earth Institute, including for the IRI which is one their flagship programs, and plans to hire a person to solely focus on the Earth Institute. The Board agreed that it is important for IRI to complement these University-wide efforts. The Interim Director General noted that the availability of totally unrestricted funds, such as those that could be generated from an endowment, would help ensure that NOAA funding is fully utilized (since at present these funds also act as a reserve). He requested the Board's assistance to develop an endowment.

The Executive Director of the Secretariat indicated that there were promising opportunities for a funding relationship with Japan, and suggested that the Interim Director say a word on the subject. The Interim Director provided an update of this potential opportunity, noting that IRI has been engaged with the Japan Meteorological Agency to help them develop a regional climate center. IRI is in a good position and could offer to help them build an internal capacity for regional centers, e.g. networking and partnering, and could help them identify projects that have a truly regional dimension. A Board Member suggested that it might be useful to inform and/or engage key Japanese political figures into the process. Another Board Member noted that IRI should be careful and not get locked into building capacity for a domestic governmental institute.

The Board suggested that it might be useful to target the private sector to support some of IRI's needs activities such as establishing a fellowship program.

A Board Member asked what IRI's policy is on whether IRI scientists compete for competitive awards. The Interim Director General explained that in the past IRI scientists did not seek competitive awards. However, IRI is now moving toward an approach where base funds would cover core activities and everything else would require

external funding. To ensure that these activities are compatible with IRI interests, IRI will establish an internal review process.

8. Institute Work Plans and Budget for FY 2003-2004 (Document: BD 2-08 and BD 2-09)

The Interim Director General presented the “Income and Expenditures Report for FY 2002-2003” and “IRI Work Plans and Budget for FY 2003-2004” documents. He noted that, based on the new matrix approach, the IRI plans to undergo a rigorous process over the next year to determine how funds should be allocated amongst underpinning activities and programs and how IRI will go about utilizing internal resources for priority areas.

LEADERSHIP MATTERS

9. Executive Committee Meeting Report (Document: BD 2-10)

The Board Chair presented an overview of the Executive Committee Meeting, which had been called to discuss actions needed as a result of the recent resignation of Antonio Moura as Director General of IRI. He noted that at its meeting the Committee had asked that a document be produced that outlined the proposed terms of reference for the Director General position and the search process, which would be discussed in agenda item 10. The Executive Committee had also discussed the role of the Secretariat, and agreed that the Secretariat’s current external partnership development and fund raising functions should be included in the responsibilities of the future Director General. This overall topic would be discussed in agenda item 11.

10. Search Process for Director General: Position Description, Search Management, and Timetable (Document: BD 2-11 and BD 2-12)

Position Description

The Board reviewed the draft Terms of Reference for the Director General and agreed it should be simplified to reflect the following three primary responsibilities of the Director General: to ensure the achievement of the mission of the IRI; to give strong leadership to the IRI staff and effectively manage its programs; and to represent the Institute worldwide and promote it within the global community.

The position description was revised by the Board to reflect the above. The revised

draft can be found in Annex IV.

Search Management

The Board agreed that the Earth Institute Directorate would organize the search process for the Director General. The Earth Institute agreed to appoint a specific individual to serve as point person for this activity. The Board agreed to send their nominations to the Earth Institute for consideration, and requested that they be sent a final position announcement and the name of the person to whom nominations should be sent as soon as possible.

Once the Earth Institute had prepared a short list of candidates, either the Board or a subset of the Board would meet with these individuals.

Timetable

The Director of the Earth Institute set a goal to nominate the Director General by June 2003 so that he or she may take over the position in conjunction with the academic year, in September 2003. If this proves to be an impossible deadline, then the individual should take office no later than January 1, 2004. The Board agreed in principle with this overall timetable, noting the difficulties inherent in deciding on a final candidate by June.

11. New Organizational Arrangements for Secretariat Functions (Document BD 2-13) (Discussed in closed session)

The Board reviewed the proposed new organizational arrangements for the Secretariat functions outlined in Document BD 2-13. The Board expressed its strong appreciation for the work of Roberto Lenton and his colleagues Alissa Schmeltz and Christie Walkuski, while recognizing the need to transfer the functions of the Secretariat for partnership development and resource mobilization to the office of the IRI Director General, as proposed by the Executive Director and agreed at the Executive Committee meeting in November.

The Board noted the proposed new arrangements for the current Secretariat staff outlined in the Board Document, including a continuing association on a part-time basis by Roberto Lenton, recognizing that as of August 2003 Lenton would commence a new appointment with the Global Water Partnership (based at the Earth Institute) that, together with his work with the UN Millennium Project Task Force on Water and

Sanitation, would occupy a substantial proportion of his time. The Board welcomed such a continuing association, and authorized the Chair to represent the Board in working out an appropriate arrangement with Roberto Lenton, the Earth Institute and the Interim Director General of the IRI. This arrangement would be reviewed and revised if necessary by January 2004.

It was noted that funding is currently allocated for the Secretariat and for support of Board functions by NOAA and the Earth Institute at Columbia University. With the proposed transfer of Secretariat functions to the IRI, it is understood that funding to support these activities are transferred to IRI. The Earth Institute representative noted that the Institute would like a say in how future funds are allocated. The Board Chair, the Interim Director General and the Earth Institute agreed to work together to develop satisfactory financial arrangements for the future.

BOARD MATTERS

12. The Board's Scientific Advisory Committee (Document BD 2-14)

The Board approved the simple terms of reference for the International Science and Technical Advisory Committee (ISTAC), subject to the addition of a proviso to the effect that the Committee not only provides advice to the Board, but also to the Director General.

The Board discussed the membership of ISTAC and agreed that a subcommittee should be established to review the current membership and make recommendations for the future. The Board agreed the subcommittee should include Julia Marton Leferve, Michael McElroy, Steve Zebiak, Roberto Lenton, and the Chair or the Co-Chairs of ISTAC. The Chair requested that the Secretariat coordinate this effort.

The Board agreed to invite co-chairs Ed Sarachik and Elke Weber to serve as co-chairs for a further term of three years. The Board Chair agreed to meet with Dr. Weber to determine whether she would be in a position to accept this invitation. The Board also

agreed that the ISTAC Co-Chairs should be invited to participate as observers in all future Board meetings.

13. Nominations to the Board

The Chair noted that at the First IRI Board of Overseers Meeting, the Board had agreed that there was a need to expand the Board, in particular to include women, people from small island states and Russia, specialists in vector borne diseases and representatives of grass roots organizations. Board members had been invited to send suggestions of possible candidates, and several nominations had been received in response.

The Board agreed to proceed with plans for a modest expansion in the Board. The Board agreed that new candidates should also be considered from Sub-Saharan Francophone Africa, China and India. The Board requested the Secretariat to send Board members all the nominations received to date, so that they make additional suggestions in light of this information.

14. Venues for Board Meetings

The Board expressed appreciation for the logistical arrangements made by the Secretariat for this meeting and confirmed its view that future meetings should be held in the New York City area facilitating interactions with the IRI staff.

15. Date and Venue for Next Board Meeting

The Board provisionally agreed to convene the next meeting on June 25-26, 2003. The Secretariat will send an email to all Board Members to confirm their availability.

16. Any Other Business

The Board was informed of continuing discussions concerning the future role of the former Director General, Dr. Antonio Moura, in the conduct of IRI's programs in Latin America. The Board expressed the wish to be informed as the arrangements come to fruition.

The Chair closed the meeting at 4:00 pm on January 23, thanking all participants.

附錄四

IRI 院長職務說明書

Director General Position International Research Institute for Climate Prediction (IRI)

Headquartered in Palisades, NY, the IRI (see <http://iri.columbia.edu/>) is part of the Earth Institute at Columbia University. IRI's mission is to enhance society's capability to understand, anticipate and manage the impacts of seasonal to interannual climate fluctuations in order to improve human welfare and the environment, especially in developing countries. The IRI seeks to develop collaborative applied research programs that address climate-related problems in the areas of disaster risk management, food and livelihood security, water resource management, public health and rural poverty in a holistic and comprehensive manner in developing countries. The IRI works through partnerships with national, regional and international institutions and networks to apply climate information and seasonal to interannual forecasts in parts of the world where climate is highly variable, where predictability and vulnerability are high and where there is significant potential to use climate information to improve societal well-being.

RESPONSIBILITIES

The Director General has the following three main responsibilities:

1. To ensure the achievement of the mission of the IRI
2. To give strong leadership to the IRI staff and effectively manage its programs
3. To represent the Institute worldwide, and promote it within the global community

Within this framework, specific duties will include:

- Management of operations
- Responsibility for strategies and work plans in collaboration with senior staff

- Management of the IRI budget
- Ability to attract and manage staff of high quality
- Superintendence of research
- Enhancement of the IRI's role as a leader in climate prediction and its applications
- Cooperation with the Earth Institute and the broader Columbia University community on research and education
- Reporting to the Board of Overseers on budget and major issues of policy
- Expansion of the IRI as an international institution

MINIMUM QUALIFICATIONS

The incumbent should have:

- PhD or appropriate qualification in a relevant discipline
- Broad understanding of sustainable development and its relationship with climate variability and change
- At least 10 years experience in national, regional, or international research programs.
- Proven relevant senior management experience, preferably in a multicultural, international research or academic environment
- Excellent skill in resource mobilization, management, and communication with the scientific, policy and donor communities
- Outstanding communication and interpersonal skills
- Fluency in English, both oral and written
- Willingness to travel

Experience of living or working in developing countries and fluency in a language relevant to IRI's work other than English would be considered helpful.

OTHER

The Director General is an employee of Columbia University and is subject to University rules, regulations, and discipline in the discharge of his or her function. He or she is appointed by the President of the University upon nomination by the IRI Board of Overseers and serves, *ex officio*, on the Board of Overseers and its Executive Committee. The Director General

reports to the Board of Overseers and carries out the policies and mandates established by the Board.

The Director General position is located at IRI Headquarters in Palisades, New York.