第四屆台印科技聯合會議
印度新德里

服務機關：　行政院國家科學委員會
姓名職稱：　張副主委文昌
李處長清庭
張處長慶瑞
郭處長明良
陳禹銘博士

出國期間：100 年 01 月 22 日至 100 年 01 月 26 日
報告日期：100 年 02 月 11 日

2011

目錄

壹、 目的 3

貳、 過程 3

貳.1 拜會行程規劃 3
貳.1.1 印度代表處翁文祺代表 3
貳.1.2 印度在台協會大使 3
貳.1.3 地球科學部次長 Dr. Shailesh Nayak 4
貳.1.4 全印醫學研究中心主任 Prof. Ramesh Chandra Deka .. 4
貳.1.5 印度科技部次長 Dr. Ramasami (主管科技署 DST) .. 5
貳.1.6 德里大學校長 6

參、 台印雙邊科技交流時間表 7

肆、 台印雙邊科技交流簡述 9

伍、 台印人員交流互訪資料 9

伍.1 印度科技人士訪台 9
伍.2 台灣科技人士訪印 10

陸、 航班行程 10

陸.1 張副主委行程 10
陸.2 張處長慶瑞行程 11
陸.3 工程處及生物處長行程 11
陸.4 行程表 12

柒、 第四屆台印科技會議議程 13

捌、 相關行程照片摘錄 14

玖、 心得與建議 15

壹、 目的

繼第三屆台印科技聯合會議於民國 99 年 1 月於國科會舉辦，協議第四屆台印科技聯合會議將於民國 99 年 12 月於印度新德里辦理，惟因印度科技部之人員異動故延遲科技聯合會議之時間至本(100)年 1 月 24 日，由印度科技部(Department of Science of Technology)於印度新德里舉辦。 我方張副主委文昌受邀率團與會，團員中包含國合處張處長慶瑞、工程處李處長清庭、生物處郭處長明良、及國合承辦人陳博士禹銘。

本會與印度科技部協議輪流舉辦雙邊科技聯合會議之目的除擬定新年度台印科技交流之領域、方向，同時也藉由這個年度的對話平台審視上年度台印交流之狀況及效益。

貳、 過程

貳.1 拜會行程規劃

貳.1.1 印度代表處翁文祺代表

翁文祺代表

貳.1.2 印度在台協會大使

Director General of ITA
印度駐台代表

Mr. Pradeep Kumar Rawat
羅國棟先生

貳.1.3 地球科學部次長 Dr. Shailesh Nayak

SHAILESH NAYAK

Dr. Shailesh Nayak (born August 21, 1953) has been Secretary, Ministry of Earth Sciences since August 2008. Dr. Nayak, a PhD in Geology from M. S. University of Baroda is a versatile person with a distinguished career and proven track record of 29 years at Indian Space Research Organisation(1977-2006) and Indian National Centre for Ocean Information Services (May, 2006-August, 2008).

He was awarded the National Mineral Award for the year 2005 and the Indian National Remote Sensing Award for the year 1994. He is recognized as Ph.D. Guide by five universities and currently five students are carrying out research under his guidance. He was Member of the editorial board of the Indian Journal of Marine Science and currently one of the editors of Geospatial Today.

He is the President, Indian Society of Remote Sensing, Dehradun. He was the President, International Society of Photogrammetric and Remote Sensing (ISPRS), Technical Commission (TC) IV on 'Geo-databases and Digital Mapping' for the term 2004-08. He has represented ISRO at the International Ocean Colour Coordinating Group and International Global Observation Strategy-Coastal theme. He has published about 80 papers in International and National journals and atlases.

貳.1.4 全印醫學研究中心主任 Prof. Ramesh Chandra Deka

RAMESH CHANDRA DEKA

Prof. Ramesh Chandra Deka, (born 15 October 1931) Director, All India Institute of Medical Sciences is a renowned ENT specialist. He was holding the position of Dean from May 2006 to March 2009. He has been heading the Department of Otorhinolaryngology since 1995 and still continues to Head the department.

Dr. Deka joined the faculty position in AIIMS in 1981. By virtue of his long exposure and functional requirement as the Dean and Head of the Department, Prof. Deka has vast administrative experience and knowledge of Rules and Regulation of AIIMS. Prof. Deka has earned a unique reputation as a faculty, surgeon, conscientious researcher. In the field of otorhinolaryngology and medical education, he is considered among the best in the country. He is also known as an educator and motivational expert in education.

Prof. Deka has received two national Gold Medals for his outstanding research in Cancer (1975) and Neurotology (1984) from Association of Otolaryngologists of Indian and Neurotological Society of India respectively.

Prof. Deka is a Fellow American Academy of Otolaryngology (FAAO) since 2004, as Fellow, International Medical Sciences Academy (FIMSA) since 2007.

He is an expert in endoscopic sinus and laryngeal/voice surgery. Dr. Deka has published more than 200 research papers in national and international journals. He has also contributed chapters in several Indian and foreign books. Seven books, including three leading text books, published abroad, contain citation of Dr. Deka'a works in the field of otology, audiology, facial palsy, evoked potential, neurotology, rhinology and laryngeal cancer.

貳.1.5 印度科技部次長 Dr. Ramasami (主管科技署 DST)

Dr. Ramasami

Dr T Ramasami, currently Secretary to the Government of India, Department of Science and Technology, holds a Master's degree in Leather Technology from the University of Madras, India and PhD in Chemistry from the University of Leeds, UK. He has also worked on energy research in Ames Laboratory Iowa, USA and on electron transport phenomena in the Wayne State University, USA prior to returning to India for undertaking his scientific career. He joined the Central Leather Research Institute, Chennai as a scientist in 1984 and served as its Director for more than 10 years during the period up to May 2006. He is known among the scientific establishments in the country for his leadership to the Central Leather Research Institute. The institution earned a global leadership status during his tenure as its Director as evidenced by the 30% global share of publications, >7% share of global patents, positions in fashion forecasting and the level of public-private partnership built in leather research.

Dr Ramasami has assumed the role of Secretary S&T in the Government of India since May 2006. He is currently engaged in the development of policies and programs for attraction of talents for study and careers with science, rejuvenation of research in universities, stepping up of international S&T cooperation, development of public-private partnerships in R&D sector and accountability of public funded research, development and demonstration. The Department of Science and Technology is aggressively engaged in the development of new models and mechanisms for enhancing the role of public funded institutions in innovations and research and development.

Dr Ramasami has a large number of publications in highly peer-valued journals and significant number of patents, which are under commercial exploitation. His research experience spans over several fields and areas in both basic and applied sciences. He has made some important contributions in the fields of inorganic chemistry as well as chemical and leather related technologies. His contributions to the understanding of the chemistry and applications of chromium as well as leather science and environment related technologies have earned him several professional recognitions in both India and abroad. These include Shanti Swarup Bhatnagar Prize for chemical sciences in 1993, election to all major science academies as a fellow as well the Third World Academy of Sciences and the National civilian award Padma Sri in 2001.

貳.1.6 德里大學校長

Dinesh Singh

Prof. Dinesh Singh has been the Vice Chancellor of Delhi University since October 2010. He is Ph.D. (Maths), Imperial College of Science, Technology and Medicine, London, in 1981 and M.Phil (Maths), University of Delhi in 1978.

He was awarded Career Award in Mathematics of the University Grants Commission in 1994 and the AMU Prize of the Indian Mathematical Society in 1989. He also got Mukherji-Ram Behari Mathematics Prize of St. Stephen's College for the Best Pass in M.A in 1977 and the Inlaks Scholarship to pursue the Ph.D. degree at the Imperial College, 1978.

He was the Head of the Department of Mathematics, University of Delhi (2004-2005).He has served as the Director, University of Delhi South Campus, University of Delhi(2005-2010) and officiated as Pro Vice Chancellor, University of Delhi (August to October, 2010).

He has published Singh, Dinesh, (with K B Sinha, Rajeeva Karandikar, Aloke Day and S.Pattanaik), 2000. Understanding Mathematics. Hyderabad: University Press. His most recent research publications are Singh, Dinesh (with M Raghupathi). Function Theory in Real Hardy Spaces, Mathematische Nachrichten and Singh, Dinesh, (with Sane Lata and M Mittal), A Finite Multiplicity Helson-Lowdenslager-de Branges Theorem in L2. Studia Mathematica and Singh, Dinesh, (with K Davidson, V I Paulsen and M Raghupathi), 2009. A Constrained Nevanlina-Pick Interpolation Problem. Indiana University Mathematics Journal. 58(2): 709-732. His most popular publication is in Hindi on the life of Evariste Galois: Ganitagya Evariste Galois: Hairatnak Zindagi Aur Maut Ki Kahani. Naya Path. June 2009, 35-40.

參、 台印雙邊科技交流時間表

時間	事宜
2005-2006	台印功能性基因體會議(Functional Genomic Workshop)：2005 年 10 月於印度德里舉行；2006 年 3 月於台北舉行；我方主辦人為陽明大學生資所楊永正教授。

2006	台印奈米科技研討會(Nanotechnology Symposium)：2006 年 3 月於印度新德里舉行，我方主辦人為中央研究院原分所陳貴賢研究員。
2007 年 1 月	台印「有機化學」研討會(Organic Chemistry Conference)：2007 年 1 月於新竹舉行，我方主辦人為清大化學系汪炳鈞教授。
2007 年 4 月 18 日	台印科技合作備忘錄(Memorandum of Understanding between the Taipei Economic and Cultural Center in New Delhi and India-Taipei Association on Scientific and Technological Cooperation)：2007 年 4 月 18 日簽訂。由雙邊代表處名義簽訂，國科會與印度科技部(Department of Science and Technology)為執行單位。
2007 年 12 月 19 日	第一屆台印聯合科技委員會：2007 年 12 月 19 日於國科會舉辦。駐處夏立言代表及本組張和中組長返國與會。 台印雙邊研發專案合作計畫時程 3 年 合作科學領域: Earthquake related science and engineering 、 Organic chemistry including supra-molecular chemistry and drug discovery、Structural biology and functional genomics、Nanotechnology including advanced materials。
2008 年 11 月	台印太陽能及燃料電池研討會：2008 年 11 月於新德里舉行)，我方主辦人為中央大學機械系陳志臣教授。
2009 年 2 月 19 日	第二屆台印聯合科技委員會：2009 年 2 月 19 日於印度舉辦。我方由國科會張文昌副主委領團。
2009 年 11 月	台印「智慧晶片設計」研討會：2009 年 11 月於清華大學舉行，我方主辦人為清大電資學學院院長徐爵民教授。
2009 年 11 月	台印「熱帶及傳染疾病」研討會：2009 年 11 月於班加落舉行，我方主辦人為成大微生物暨免疫醫學研究所教授。
2010 年 1 月 14 日	第三屆台印聯合科技委員會：2010 年 1 月 14 日於國科會舉辦，駐處翁文棋代表見證會議紀錄簽署儀式。
2010 年 9 月 24 日	台印「微/奈米電機及嵌入式系統」研討會：2010 年 9 月 24-25 日於印度 Pilani (位於 Rajasthan 省)舉行。我方主辦人為台灣大學電機系教授劉致為。

2010 年 11 月 11 日	台印「竹林開花及鼠患防治」研討會：2010 年 11 月 11-13 日於印度 Shillong (位於 Meghalaya)省舉行，我方主辦人為農委會林業試驗所陳財輝研究員。
2010 年 11 月 28 日	台印「能源儲存裝置」研討會：2010 年 11 月 28-30 日於中央大學召開。我方主辦人為中央大學工學院院長陳志臣教授。
2011 年 1 月 10 日	台印「地球科學」研討會(首次由國科會與印度地球科學部共同補助之雙邊會議)：訂於 2011 年初於台大舉行，我方承辦人為台大地質系吳逸民教授。
2011 年 1 月 24 日	第四屆台印聯合科技委員會：預計 2011 年 1 月 24 日於印度舉辦。我方將由國科會張文昌副主委率團與會。
2011 年 x 月	台印「古董藝品與建築之保存及修復科技」研討會：擬於 2011 年初於台灣召開，我方召集人為雲科大副校長邱上嘉教授。

肆、 台印雙邊科技交流簡述

本會與印度科技部(Department of Science and Technology)透過雙邊協議下主要合作領域為微/奈米電機及嵌入系統、能源儲存裝置、古董藝品與建築之保存及修復科技、熱帶疾病、地震科學及工程、有機化學、結構生物學等。

規模：每件台印計畫最長為期三年，每一件計畫之規模每約四萬美元由台印雙方共同補助，既一件計畫一邊約一年補助新台幣陸拾萬元。

- 2009 年： 核定通過 11 件台印雙邊計畫，自 2009 年 3 月 15 日開始執行，為期三年。

- 2010 年： 核定通過 12 件台印雙邊計畫，自 2010 年 1 月起執行，為期三年。

伍、 台印人員交流互訪資料

伍.1 印度科技人士訪台

印度科技部次長 Prof. V.S. Ramamurthy (2004 年 4 月)
印度總理科技顧問委員會主席 Prof. C. N. R. Rao(2006 年 3 月)
印度科技部科學家考察團 (2006 年 5 月、7 月)
印度國家科學院副院長 Prof. M. Vijayan、Prof. Tej Singh (2007年11月)
印度科技部次長 Dr. Thirumalachari Ramasami、國際合作處處長 Y. P.

Kumar (2007 年 12 月)
印度科技部科學家考察團(2008 年 8-9 月)
印度國家科學院院長 Prof. M. Vijayan(2009 年 12 月)
印度科技部國合處處長 Dr. A. K. Sood (2010 年 1 月)
印度科技部科學家考察團(2010 年 5-6 月)

伍.2 台灣科技人士訪印

中央研究院李遠哲院長(2004 年 9 月、2009 年 12 月、2010 年 7 月)
元智大學校長彭宗平教授(2005 年 12 月)
國立雲林科技大學校長林聰明教授、朝陽科技大學校長鍾任琴教授、龍華科技大學校長嚴文方教授、建國科技大學校長黃燕飛教授、正修科技大學校長龔瑞璋教授(2007 年 1 月)
國立成功大學校長賴明詔院士(2007 年 6 月、2009 年 11 月)
國立屏東科技大學校長古源光教授(2007 年 8 月)
國立台灣科技大學副校長陳金蓮教授(2007 年 9 月)
國科會副主任委員黃文雄教授(2007 年 10 月)
國立政治大學副校長林碧炤教授(2007 年 11 月)
國立台灣大學聯合系統校長曾志朗教授(2007 年 12 月)
中央研究院翁啟惠院長(2008 年 2 月)
輔仁大學校長黎建球教授(2008 年 4 月)
國科會前主任委員(中央研究院院士、基因體研究中心特聘研究員)陳建仁教授(2008 年 9 月)
國科會副主任委員張文昌教授、國際合作處處長張慶瑞教授、科教處處長胡志偉教授(2008 年 12 月)
清華大學陳文村校長(2009 年 3 月)
中華民國醫師公會全國聯合會理事長李明濱理事長(2009 年 10 月)
台北大學侯崇文校長(2010 年 12 月)

陸、 航班行程

陸.1 張副主委行程

日期	時間 航班	其他資訊
01 月 18 日(二)	中華航空(CI 791) 0825 出發：台北桃園(TPE) 台北桃園 1035 抵達：河內(HAN) 河內(HAN)	商務艙(C) 機位(第一航站) 3 小時 10 分鐘/直飛

01 月 22 日(六)	泰國航空(TG 561) 1040 出發：河內(HAN) 河內(HAN) 1230 抵達：曼谷(BKK) 曼谷素汪那普國際機場	01 小時 50 分鐘
01 月 22 日(六)	泰國航空(TG 315) 2045 出發：曼谷(BKK) 曼谷素汪那普國際機場(BKK) 2340 抵達：新德里(DEL) 新德里(DEL)	04 小時 25 分鐘
01 月 26 日(三) 直飛	中華航空(CI 72) 1210 出發：新德里(DEL) 新德里(DEL) 2020 抵達：台北桃園(TPE) 台北桃園	5 小時 40 分鐘

陸.2 張處長慶瑞行程

日期	時間 航班	其他資訊
01 月 18 日(二)	中華航空(CI 791) 0825 出發：台北桃園(TPE) 台北桃園 1035 抵達：河內(HAN) 河內(HAN)	商務艙(C) 機位(第一航站)3 小時 10 分鐘/直飛
01 月 22 日(六)	泰國航空(TG 561) 1040 出發：河內(HAN) 河內(HAN) 1230 抵達：曼谷(BKK) 曼谷素汪那普國際機場	01 小時 50 分鐘
01 月 22 日(六)	泰國航空(TG 315) 2045 出發：曼谷(BKK) 曼谷素汪那普國際機場(BKK) 2340 抵達：新德里(DEL) 新德里(DEL)	04 小時 25 分鐘
01 月 24 日(一) 01 月 25 日	國泰航空(CX 694) 2215 出發：新德里(DEL) 新德里(DEL) 0525 抵達：香港(HKG) 香港國際機場(HKG)	04 小時 40 分鐘
01 月 25 日(二)	中華航空(CI 2928) 0915 出發：香港(HKG) 香港國際機場 1050 抵達：台北桃園(TPE) 台北桃園	01 小時 35 分鐘

陸.3 工程處及生物處長行程

日期	時間 航班	其他資訊
01 月 22 日(六) 直飛	中華航空(CI 71) 0825 出發：台北桃園(TPE) 台北桃園 1310 抵達：新德里(DEL) 新德里(DEL)	商務艙(C)/機位(第一航站) 7 小時 15 分鐘
01 月 26 日(三)	中華航空(CI 72)	5 小時 40 分鐘

直飛	1210 出發：新德里(DEL) 新德里(DEL) 2020 抵達：台北桃園(TPE) 台北桃園	

陸.4 行程表

日期	時間	事項	
本(100)年 01月22日 星期六	13:10	李處長清庭、郭處長明良及 Louis 搭乘中華航空 CI 71 抵新德里機場 (科技組接機後赴旅館)	
	14:00	Hotel Checking-In Jaypee Vasant Continental Vasant Vihar, New Delhi – 110057	
	14:30-16:00	參觀 Qutab Minar	
	科技組便餐		
	23:40	張副主委文昌及張處長慶瑞 搭乘泰航 TG315 抵達新德里機場 (科技組接機後赴旅館)	
本(100)年 01月23日 星期日	09:10	自旅館出發	張副主委文昌及張處長慶瑞行程
	10:00-12:00	參觀 Akshardham	
	12:30-14:00	便餐	
	19:00	駐印度代表處翁文祺代表晚宴 (China Kitchen, Hyatt Regency Hotel)	
本(100)年 01月24日 星期一			
	09:00	自旅館出發	張副主委參訪行程
	09:30-10:30	拜會地球科學部，會晤地球科學部次長 Dr. Shailesh Nayak	
	11:00-12:30	拜會全印醫學研究中心 (All India Institute of Medical Sciences, AIIMS)，會晤主任 Prof. Ramesh Chandra Deka	
	13:00-14:30	便餐	
	09:30	自旅館出發	印度科技部主辦第四屆台印科技聯合會議
	10:00-12:00	第四屆台印科技委員會	
	13:00-14:30	科技部午餐	

	共通行程	
	15:00-16:00	拜會印度科學暨工業研究委員會(CSIR)
	16:30-18:00	參觀 Yashwant Place/ Anoki
	19:00	印度科技部次長 Dr. T. Ramasami 晚宴/簽署會議記錄 (地點待確認)
	19:30	張處長慶瑞赴機場(搭乘國泰航空(CX 694)經香港返台)
本(100)年01月25日星期二	09:45-10:15	參觀印度門 (Indian Gate)
	11:00-12:00	拜會德里大學，會晤校長 Prof. Dinesh Singh
	12:00-14:00	德里大學午宴
	14:30-16:00	參觀 Central Cottage Industries Emporium、Hyatt Regency
	19:00	代表處晚宴
本(100)年01月26日星期三	09:30	離開旅館赴機場
	12:10	搭乘中華航空 CI 72 返台
	20:20	返抵桃園機場

柒、 第四屆台印科技會議議程

本屆由印度科技部主辦，詳細議程以印度科技部為主

4th Meeting of the
India-Taiwan Joint Committee on Cooperation in Science & Technology
New Delhi

24 January 2011

10:00-10:15	Opening Remarks and Introduction of Delegations by Co-Chairpersons.
10:15-10:45	Review of On-going Activities (by NSC and DST)
10:45-11:30	Discussions for new activities ❖ Joint Research Projects (identification of areas) ❖ Joint Workshops (identification of topics and venue) ❖ Access to Research Facility
11:30-11:50	Tea break

11:50-12:50	❖ Exploratory Missions ❖ Training / Internship programme (connect INSPIRE of DST) ❖ Any other item (faculty, student exchanges, academy-industry link, Institutional partnerships etc) Schedule and venue for the year 2012 meeting
12:50	❖ Concluding Remarks by Co-Chairpersons
13:00	Lunch
14:30-17:30	Preparation of Minutes
19:30	Signing of Minutes followed by Dinner Hosted by Secretary DST (venue to be decided)

捌、 相關行程照片摘錄

玖、 心得與建議

台印協議中鼓勵學者互訪、惟執行上有教授反應互訪協議中(2 visits/year) 印方所認之定義為一年兩人次(僅兩人可以訪印)， 由於每次互訪之旅費依台印協議皆由台印雙方共同補助，故有一些計畫主持人反應出執行上之困難。另外，必須清楚定義互訪人員可以包含博士後。 此議題於會議中提出討論並與印方達成協議將各別審理有增加互訪人次需求之個案。

本屆台印科技聯合會議從 21 件台印雙邊計畫申請案經由雙邊審查及比對後核定共 9 件台印雙邊計畫，並擴大交流預計將於本(100)年度舉辦 6 場次之台印雙邊研討會，同時台印雙邊也將組成一個小組討論台印機構對機構間合作之可行性。

本(100)年約 5 月本會與印度科技部將共同公開徵求 2012 年度之台印雙邊計畫，並於 10 月前完成審查，第 5 屆台印科技聯合會議將由國科會於台灣主辦，目前暫定於民國 101 年 1 月。

本屆會議紀錄草本檢附如下:

4th Meeting of
India-Taiwan Joint Committee on Cooperation in Science & Technology

Co-Chairs:

Prof T P Singh, Distinguished Biotechnology, Research Professor, All India Institute of Medical Sciences, New Delhi.

Prof. Ching-Ray Chang, Professor, Department of Physics, National Taiwan University and Director General, Department of International Cooperation, National Science Council (NSC) Taiwan.

The complete list of delegation members is at **Annexure-I**
The adopted agenda of the meeting is attached at **Annexure-II**

1. Opening Remarks and Introduction

Prof Singh welcomed the Taiwanese delegation and mentioned that he is very impressed with the scientific and technological achievements of Taiwan during the last few years. Prof Singh further stressed while looking at cooperation between the two sides, we should focus more and more on technology in addition to pure science.

Prof. Ching-Ray Chang thanked the Indian side for the warm hospitality extended during the stay of Taiwanese delegation in India. Prof Chang stressed that we should extend our cooperation to additional areas and new funding mechanisms.

2. Review of On-going Activities

Shri R K Sharma, International Division DST presented a detailed overview of the on-going S&T Cooperation between DST and NSC.

3. Discussions and decisions:

3.1 Joint Research Projects:

i) Out of the total 21 new proposals received by DST and NSC against the 3rd joint call for proposals, the Committee recommended 9 (nine) joint research projects

(Annexure-III) to be implemented w.e.f 1st March 2011 for a duration of 3 years with 2 visits per year from each side with up to 30 days duration per year for Sr scientists and up to 60 days for Ph.D students from each side per year. However, it was further agreed that any additional visits required to be performed by the project team, will be considered by DST and NSC respectively on case to case basis on the same financial support norms. The project implementation would be through Global Innovation & Technology Alliance (GITA) from Indian side and NSC from the Taiwan side.

ii) New areas identified for cooperation: The new areas of cooperation identified are-

- ❖ Earthquake related science & engineering and disaster management
- ❖ Nano-technology including advanced materials
- ❖ Tropical and infectious diseases
- ❖ Chemistry including supra-molecular chemistry and drug discovery, Green chemistry etc
- ❖ Structural biology including drug discovery and pharmaceuticals;
- ❖ functional genomics and development biology,
- ❖ ICT with focus on embedded systems,
- ❖ Energy focusing on solar, fuel cell and storage devices
- ❖ Micro/nano-electronics and Embedded systems
- ❖ Natural products

iii) Both sides agreed to launch the 4th Joint call for proposal as per details and time frame given below:

- ❖ Announcement: May 2011
- ❖ Deadline for application: 30th August, 2011
- ❖ Peer Review: 30th November, 2011
- ❖ Grading A to C, where "A" is to be considered, "B" maybe considered and "C" rejected.
- ❖ Number of projects to be supported: roughly 10
- ❖ Implementation of the approved projects starts from: 1st of March, 2012.

3.2 Joint Workshops:

The Joint Committee decided to organize following 6 joint workshops during 2011-

In India:

i. Discreet and applied mathematics
ii. Functional genomics and nutritional food (influence by climate change)
iii. Drug development (particularly Cancer and infectious disease)

In Taiwan:

i. Technology for preservation and restoration of heritage artifacts and architectural design;
ii. Biosensors and applied embedded systems
iii. Bamboo flowering and biodiversity including application of bamboo products

DST and NSC shall identify respective coordinators for these workshops within next 3 months in order to organize the workshops before December 2011.

3.3 Exploratory & Training/internship Programmes:

(a) It was agreed that both sides shall encourage and support short-term visit programs; access to research facility; promote exploratory missions of scientists and experts in all areas of science and technology including in the area of science education.

(b) Dr. A Mukhopadhyay gave a detail presentation on the INSPIRE program of DST, both sides discussed the possible mechanisms to initiate scheme to support summer internship asters students from both sides. Both sides agreed that a group of 15 Masters Students from each side shall be supported for the duration of up to 15 days. It was further agreed that both sides will finalize the exact financial and execution mechanisms within the next 3 months.

(c) It was agreed that both sides shall encourage and support short-term visit programs; access to research facilities; promote exploratory missions of scientists and experts in all areas of science & technology including in the area of science education.

3.4 New initiative

Both sides discussed in detail about possibility of initiating a scheme for promoting Institutional partnerships in mutually identified specific areas. Both sides agreed to constitute a Working Group to discuss Institute to Institute cooperation mechanisms. To start with, the areas of such cooperation could be Engineering (smart electronics) and Biosciences. The recommendations made by this Working Group would be discussed in the 5th Joint Committee Meeting. Both sides shall nominate 2 experts (one in each area) within next 6 months.

4. Funding arrangement:

Both sides agreed to support the exchange of scientists as per the following norms. The sending side shall bear the International air-travel cost including overseas medical insurance, visa and airport fees etc while the receiving side provides the local hospitality (per-diem, accommodation and airport transfers etc) as per the existing norms of the each side, which are currently as below-

a) Indian scientists visiting Taiwan-

Furnished accommodation in Hotel/ guest house plus per-diem @ 1000 NTD per day for visits up to 30 days and 700 NTD per day for each additional day beyond 30 days towards boarding and out of pocket expenses.

b) Taiwanese scientist visiting India-

Furnished accommodation in Hotel/ guest house plus per-diem @ Rs 1000/- per day for visits up to 30 days and Rs 700/- per day for each additional day beyond 30 days towards boarding and out of pocket expenses.

5. The 5th India-Taiwan Joint Committee Meeting on Cooperation in Science and

Technology will be held in January 2012 in Taiwan.

Signed in New Delhi on 24th January 2011 in two original copies in English language

Annexure I

List of delegation members

Indian side

1. Prof T P Singh, Distinguished Biotechnology, All India Institute of Medical Sciences, New Delhi
2. Dr Rajiv Sharma, Adviser & Head (International Division) DST
3. Shri Pradeep Kumar Rawat, DG, ITA, Teipei
4. Dr. A Mukhopadhyay, INSPIRE DST, New Delhi
5. Prof J P Khurana, University of Delhi, New Delhi
6. Dr R K Sharma, INMAS (DRDO), New Delhi
7. Shri R K Sharma, International Division DST

Taiwanese side

1. **Dr. Ching-Ray Chang,** Professor,
   Department of Physics, National Taiwan University, and Director General, Department of International Cooperation, National Science Council, Taiwan
2. **Dr. Ching-Ting Lee**
   Professor, Department of Electrical Engineering of the National
   Cheng Kung University, and Director General, Department of Engineering & Applied Sciences, National Science Council
3. **Dr. Min-Liang Kuo**
   Professor, Institute of Toxicology College of Medicine, National Taiwan University, and Director General, Department of Life Sciences, National Science Council
4. **Dr. Louis Chen**
   Program Director, Department of International Cooperation
   National Science Council

Annexure-II

List of proposals recommended by the Joint Committee:

Ref No.	Project title	Indian PI	Taiwanese PI
GITA/DST/TW/R-02/2011	Fuel cell and redox flow battery for energy storage	Suddhasatwa Basu, Professor, Indian Institute of Technology Delhi,	Kan-Lin Hsueh, National United University/Taiwan #1 Miaoli

		New Delhi	city, Taiwan
GITA/DST/TW/R-04/2011	Synthesis and application of room temperature ionic liquids as quasi electrolytes for DSSCs	Suryanarayanan Vembu, Central Electrochemical Research Institute (CSIR), Karaikudi	Kuo-Chuan Ho, Professor, National Taiwan University (NTU), 10617, Taiwan
GITA/DST/TW/R-08/2011	Bulky amines and their application in catalysis	Rajender Reddy Kallu, Scientist C, Indian Institute of Chemical Technology, Hyderabad -500 607,	Shiuh-Tzung Liu, Professor, National Taiwan University, Taipei, Taiwan
GITA/DST/TW/R-10/2011	Characterization and applications of bio-mimetric vesicular structures assembled from mixed cationic/ anionic surfactant systems	Amiya Kumar Panda, Associate Professor, Department of Chemistry, University of North Bengal, Darjeeling-734 013	Chien-Hsiang Chang, Professor of Chemical Engineering, Department of Chemical Engineering, National Cheng Kung University, Tainan 70101
GITA/DST/TW/R-13/2011	Synthesis and characterization of vanadium based cathode materials for lithium ion secondary batteries	Sivakumar Marimuthu, Assistant Professor, Alagappapuram, Karaikudi-630 003	Wang Fu Ming, Assistant Professor, , National Taiwan University of Science and Technology, Taipei
GITA/DST/TW/R-14/2011	Development of Macroporous Chitosan Biofunctionalized membrane and its Application for Reversible Enzyme Immobilization	G. Annadurai, Dr., Associate Professor, Manonmaniam Sundaranar University, Alwarkurichi- 627 412	Prof. Jiunn -FWU Lee, National Central University, Jhongli City, Taoyuan County 32001, Taiwan
GITA/DST/TW/R-15/2011	The role of microRNA in metabolic syndrome	V K S Bhaskar Lakkakula, Assistant Professor, Sri Ramachandra University, Chennai- 600116	Juo Suh-Hang, Professor, Kaohsiung Medical University, Kaohsiung, Taipei 115, Taiwan

GITA/DST/TW/R-17/2011	Chemoselective hydrogenation of nitrostyrene using supported gold catalysts	Sasirekha Natarajan, Anna University of Technology, Tiruchirappalli	Yu-Wen Chen, Professor, National Central University, Chung-li City, Taoyuan
GITA/DST/TW/R-18/2010	Inverted-structure low-band gap polymer solar cells	Satish Patil, Dr., Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore	