

行政院及所屬各機關出國報告
(出國類別：其他)

參加亞洲開發銀行「亞洲及太平洋區域供給
與使用表 (SUTs) 發展會議」實錄

服務機關：行政院主計總處

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摘 要

供給與使用表 (Supply and Use Tables, SUTs) 為聯合國國民經濟會計制度 (SNA) 建議編算的重要帳表之一，可完整陳示整個經濟體系中，各種商品與服務的來源與流向，為建構各國或國際投入產出表 (Input-Output Table, IOT) 之基礎。亞洲開發銀行 (Asian Development Bank, ADB) 鑑於會員經濟體中，目前僅少數採行聯合國最新規範 2008SNA 編製 SUTs，爰仿 2008 年推動之「協助開發中國家依 1993SNA 編製 SUTs」計畫，於前 (2015) 年提出「協助開發中國家更新及建構供給與使用表計畫」(R-CDTA 8838: Updating and Constructing the Supply and Use Tables for Selected Developing Member Economies)，預計於 2018 年底前，協助各參與國完成依據 2008SNA 規範，更新或建構基準年 SUTs，並回溯修正 SUTs 時間數列資料，以提升各國統計品質，再據以建構亞洲地區國際 IOT，以利整合跨國投入產出統計，瞭解國際間附加價值貿易 (Trade in Value-added, TiVA) 狀況，為全球價值鏈 (Global Value Chain, GVC) 分工模式下的重要決策參據。

本次召開之「亞洲及太平洋區域供給與使用表 (SUTs) 發展會議」，於 106 年 1 月 9 日至 1 月 14 日假越南河內舉行，會議內容主要分為兩個部分，第一部分是請 20 個參與本次計畫中的 4 個國家 (包括馬來西亞、蒙古、我國及斯里蘭卡) 針對下一階段需提交之時間數列 SUTs，簡報分享該國的編製方法，並請各國與會代表於工作坊中選擇一個年度 (我國挑選 2012 年) 進行實際編製；第二部分則是各國針對本次提交 ADB 之基準年 SUTs 簡報發表最終成果。

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壹、參加緣由

國民所得帳是以經濟量數陳示一國經濟活動總成果，聯合國為協助各國統計編算，並便於國際比較，於 1953 年研訂第一套國民經濟會計制度（System of National Accounts, SNA），簡稱 53SNA，期間隨著經濟情勢的迅速變動，於 1968 及 1993 年依最新經濟理論發展及各國實際需要，分別修訂 SNA，而最新修訂的 2008SNA 版本，已於 2009 年推出並建議各國積極採行。

供給與使用表（Supply and Use Tables, SUTs）為聯合國國民經濟會計制度（SNA）建議編算的重要帳表之一，可完整陳示整個經濟體系中，各種商品與服務的來源與流向，為建構各國或國際投入產出表（Input-Output Tables, IOTs）之基礎。亞洲開發銀行（Asian Development Bank, ADB）鑑於會員經濟體中，目前僅少數採行聯合國最新規範 2008SNA 編製 SUTs，爰仿 2008 年推動之「協助開發中國家依 1993SNA 編製 SUTs」計畫，於前（2015）年提出「協助開發中國家更新及建構供給與使用表計畫」（R-CDTA 8838: Updating and Constructing the Supply and Use Tables for Selected Developing Member Economies），預計於 2018 年底前，協助各參與國完成依據最新的 2008SNA 規範，更新基準年 SUTs，以及回溯修正 SUTs 時間數列資料，以提升各國統計品質，俾利國民所得帳之編算能符合新的發展，以及滿足持續增加的資料使用者之需求，並進一步用以建構亞洲地區國際 IOTs，以利整合跨國投入產出統計，瞭解國際間附加價值貿易（Trade in Value-added, TiVA）狀況，為全球價值鏈（Global Value Chain, GVC）分工模式下的重要決策參據。

本次計畫係以上次推動的「協助開發中國家依 1993SNA 編製 SUTs」計畫參與國為邀請對象，除我國外，還包括香港、泰國、馬來西亞及中國大陸等計 20 個國家或地區參與。

貳、出席會議經過

本次會議由ADB主辦，於越南河內舉行，共有 20 個國家（或地區）¹與會，會議期間自 106 年 1 月 9 日至 1 月 14 日，為期 6 天（議程詳附錄一）。會議主要分為兩個部分，第一部分是請 20 個參與本次計畫國家（地區）中的 4 個國家（包括馬來西亞、蒙古、我國及斯里蘭卡）針對下一階段需提交之時間數列SUTs，簡報分享該國的編製方法，並請各國與會代表於工作坊中自行選擇一個年度進行實際編製；第二部分則是各國針對本次提交ADB之基準年SUTs簡報發表最終成果。

1 月 9 日上午完成報到後，由各國與會代表先行簡單自我介紹，接著由 ADB 工作人員 Mr. Mahinthan Joseph Mariasingham（Statistician and Project Officer）擔任會議主持人介紹接下來幾天的流程。會議全程共計 6 天，前 3 天（1 月 9 日至 11 日）是針對下一階段工作重點時間數列 SUTs，挑選部分國家（包含我國）分享其編製方法及編製過程所遇到的困難，並請所有與會國於會中選擇一個年度（我國挑選 2012 年）進行時間數列 SUTs 的實際編製作業，編製過程若遇到問題或困難即提出討論，共商解決方式。我國已有編製 2012 年的 IOTs，但我國 IOTs 的分類依據是中華民國行業標準分類(第 9 次修訂)，而本次計畫為利國際比較，ADB 規定之分類依據為聯合國行業標準分類(ISIC4.0)及標準產品分類(CPC2.0)，故我國於會中的作業方式為將原 IOTs 重新歸類，編製符合 ADB 規定之 SUTs 格式。

1 月 12 至 13 日則是針對各國本次提交 ADB 之基準年 SUTs 進行最終成果發表，由越南統計局（General Statistics Office, GSO）副局長 Mr. Vu Thanh Liem 致歡迎詞，歡迎各國與會代表蒞臨越南，同時感謝各國參加此計畫，並強調編製 SUTs 對於產製高品質經濟統計數據的重要性，期待此次會議能圓滿完成，隨後由各國代表及國際組織的專家逐一自我介紹。此外，本次與會的主要兩位外聘顧問分別為 Mr. ERICH STRASSNER（Associate Director for Industry Economic, BEA）及 Mr. Paul Roberts（Australian Bureau of Statistics, ABS）亦分別期勉各參

¹本次會議參與國家或地區分別為孟加拉、不丹、汶萊、柬埔寨、中國大陸、斐濟、香港、印度、印尼、寮國、馬來西亞、馬爾地夫、蒙古、緬甸、尼泊爾、巴基斯坦、斯里蘭卡、泰國、越南及我國。

與國，藉此計畫提升各國編製國民所得統計能量。

2 天的發表會共依 4 個子區分組進行簡報，分別是東南亞地區（包括蒙古、中國、印尼、馬來西亞、斐濟）、湄公河地區（包括柬埔寨、泰國、越南、寮國）、高所得地區（包括汶萊、香港、我國）（我國基準年 SUTs 簡報如附錄二）以及南亞地區（包括印度、孟加拉、尼泊爾、緬甸、不丹、馬爾地夫、巴基斯坦、斯里蘭卡），簡報內容主要為該國 SUTs 的編製過程（包含資料來源、編算方法及供需平衡過程）及簡要結果分析。一個子區內的所有國家（地區）報告結束後，再由 ADB 安排的專家顧問給予各國（地區）建議及提問，最後開放所有與會人員討論。

1 月 14 日由 ADB 針對前 5 日會議內容進行總結，並說明此次計畫未來的期程，ADB 將於今年第 1 季公布基準年編製報告撰擬架構，再綜整各國編製報告後，於第 3 季發布基準年 SUTs 編製結果；下一階段工作重點為編製時間數列 SUTs，預計明（107）年第 1 季前完成。最後，ADB 預告 8 月份將召開時間數列 SUTs 檢核會議，結束此次會議。

參、會議重點

本次會議主要目的係進行基準年 SUTs 的成果發表，以及討論編製時間數列 SUTs 所需之資料與方法，相關重點摘錄如下。

一、高所得區基準年 SUTs

高所得子區域包含 3 個國家（地區）：汶萊、香港及我國，基準年 SUTs 編製年汶萊為 2010 年、我國及香港為 2011 年，皆採 2008SNA 規範編製，其中，僅我國達供需平衡（三面等價），且與國民所得（NI）發布數據一致，而香港及汶萊則以支出面 GDP 為主，另汶萊為首次編製所得面 GDP。

（一）生產面附加價值

由表 1 觀察生產面附加價值，香港因其服務導向的經濟型態，服務業占比高達 9 成，以批發零售及金融保險為主，工業僅占 7%；汶萊工業占比超過 6 成，以石油及天然氣為大宗，服務業約占 32%，農業則不到 1%；我國服務業約占 6 成，工業 3 成，主要產業為製造業、批發及零售業、不動產業及國防及公共行政。

表 1.高所得區各國生產面附加價值

Industry	台灣 (NTD\$ 百萬)	香港 (HK\$ 十億)	汶萊 (BND\$ 百萬)
Agriculture, forestry, fishing	245,783	1	137.0
Mining and quarrying	17,174		9,574.5
Manufacturing	4,102,225	29	2,786.2
Electricity, gas and water supply, and waste management	222,956	33	131.7
Construction	383,053	63	338.8
Wholesale and retail trades	2,443,613	479	754.6
Transportation and storage	398,441	116	291.6
Accommodation and food services activities	329,048	65	149.2
Information and communications	461,781	61	254.1

Industry	台灣 (NTD\$ 百萬)	香港 (HK\$ 十億)	汶萊 (BND\$ 百萬)
Financial and insurance activities	915,039	297	759.6
Real estate activities	1,211,679	408	619.8
Professional, scientific and technical activities (*)	314,750		353.3
Public administration	1,054,319	311	1,993.0
Other services	1,785,434		899.4
Gross Value-Added at producer's price	13,885,295		
Tax less subsidies on products	426,905		
GDP on production side	14,312,200	1,865	19,042.2

註*：香港行業分類為“Real estate, professional, business services and ownership of premises”，汶萊為“Business service”。

(二) 支出面附加價值

由表 2 可觀察支出面附加價值，高所得區的 3 個國家（地區）都以出口占比最大，汶萊有大宗石油出口；我國則以電子零組件、化學材料製品為多；香港亦以商品輸出為主，而服務輸出則以水上運輸最多，其次為金融中介服務及空中運輸。其餘項目香港及我國都以民間消費次之，汶萊則為政府消費及資本形成。

表 2. 高所得區各國支出面附加價值

Expenditure Items	台灣 (NTD\$ 百萬)	香港 (HK\$ 十億)	汶萊 (BND\$ 百萬)
Household consumption	7,798,976	1,146	2,749.8
NPISH		78	-
Government consumption	2,167,595	169	4,140.1
Gross Fixed Capital Formation	3,346,945	455	4,398.1
Valuables and Changes in Inventories	35,921	12	29.6
Exports of Goods and Services	10,419,700	4,117	12,598.4
Less Imports of Goods and Services	9,456,937	4,044	5,226.2
GDP on expenditure side	14,312,200	1,933	18,689.8

(三) 所得面附加價值

由表 3 可觀察所得面附加價值，汶萊由於給予石油煉製品及電力大額的補貼，該國在編算 SUTs 時將補貼計入營業盈餘中，造成營業盈餘占比最大，超過 7 成；香港及我國則是受僱報酬及營業盈餘(含固定資本消耗)比重相當，各占附加價值 4-5 成左右。

表 3.高所得區各國所得面附加價值

Value Added Components	台灣 (NTD\$ 百萬)	香港 (HK\$ 十億)	汶萊 (BND\$ 百萬)
Compensation of Employees	6,463,779	961	4,643.8
Taxes less subsidies on production	348,208	28	
Consumption of fixed capital	7,073,308	876	792.6
Gross operating surplus			13,606.6
Gross Value-Added	13,885,295		
Tax less subsidies on products	426,905		
GDP on income side	14,312,200	1,865	19,043.0

二、時間數列 SUTs 編製方法

SUTs 及 IOTs 可用於了解國內經濟結構變化，用以進行影響分析 (impact analysis)、了解全球價值鏈之變化，並可作為計算國民所得帳之投入及產出平減物價之基礎架構。基準年因為擁有最詳細的經濟普查，同時輔以其他公務統計或相關資料，因此可編製出較為細緻的 SUTs 及 IOTs。然而，為利觀察經濟體間的結構變化，以及利於國際比較，進而分析全球價值鏈，時間數列 SUTs 的編製，也是相當重要的。本次會議除進行基準年 SUTs 的成果發表外，另一項重點即是討論編製時間數列 SUTs 所需之資料及方法，我國因為有較為豐富的 IOTs 編製經驗，故受邀於會中簡報分享我國的經驗及編算流程(我國簡報如附錄三)，簡報大綱主要說明我國 IOTs 編製概況、資料來源、編算方法及如何將現有之 IOTs 轉換成符合 ADB 要求的 SUTs 格式，重點摘述如后：

(一) 我國 IOTs 編製概況

我國於 2009 年首次發布參考年為 2006 年的 CxI (Commodity by industry) IOTs，分類標準為中華民國行業標準分類（第 8 次修訂），編算原則係依據 1993SNA，其後依此基準年架構編算 2007~2010 年 IOTs 年表；另於 2014 年發布參考年為 2011 年的 CxI IOTs，分類標準為中華民國行業標準分類（第 9 次修訂），編算原則係依據 2008SNA，此外我國所發布的 CxI IOTs 部門數為 52x63，細部工作的部門數為 166x166。（我國 IOTs 編製概況如表 4）

表 4.我國 IOTs 編製概況

Year	Table Size (Product x Industry)	Benchmark (B) or Updates (U)	Data Available at the detailed level	Note
2006	52 x 63	B	166 x 166	1.The Classification is following Taiwan's SICS Rev 8. 2.Based on the 1993 SNA.
2007 2010	52 x 63	U	166x 166	
2011	52 x 63	B	166 x 166	1.The Classification is following Taiwan's SICS Rev 9) . 2.Consisted with new figures of National Accounts on the basis of the 2008 SNA.
2012 2015	52 x 63	U	166 x 166	

(二) 資料來源

相較於基準年有詳細的工業及服務業普查資料，非普查年的資料銜接，僅能採現有的調查或公務統計資料輔佐，而我國在 IOTs 年表的資料來源分述如下，

1. 生產及中間消費：經濟部工廠校正及營運調查、批發零售及餐飲業經營實況調查、交通部運輸及倉儲業產值調查、農委會農業統計年報、財政部營利事業所得稅申報資料等。
2. 輸出入：海關進出口統計、中央銀行國際收支帳等。

3. 運費及商業差距：批發零售及餐飲業經營實況調查、汽車貨運調查等。

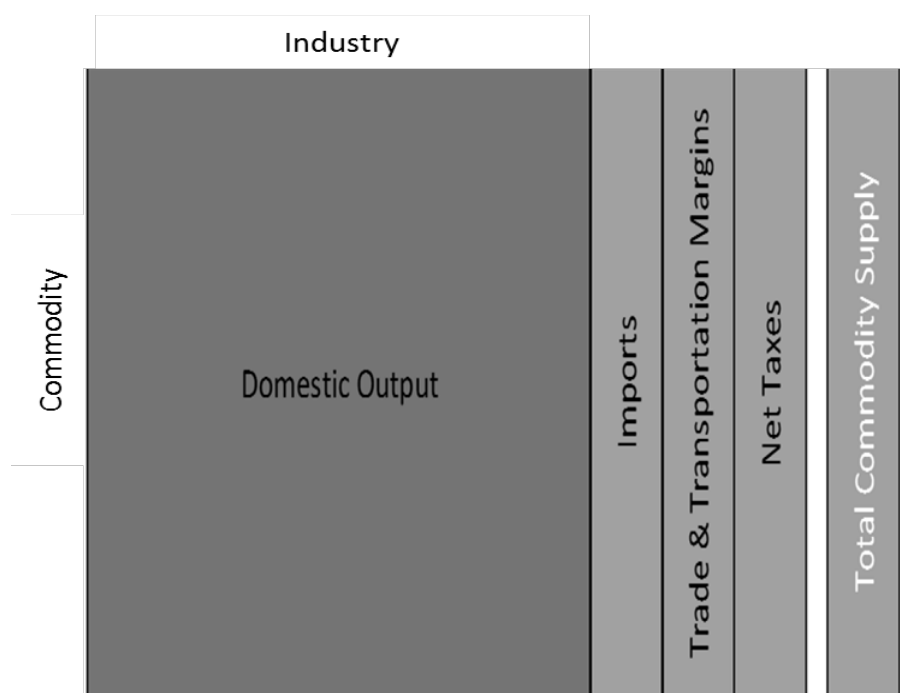
(三) 編算方法

由於與會的國家（地區）多未像我國有編製 IOTs”年”表，故各國對於我國的編算方法甚感興趣，ADB 也於會前希望我國可以在編算方法的部分多加描述，以下針對供給表、使用表及供需平衡過程分別說明：

1. 供給表

關於供給表(如圖一)的編算，首先先說明 CxI 的國內生產矩陣(Domestic Output)編算過程。此矩陣先由前述各資料來源決定橫向各產品(Commodity)的初始產值，各產品再透過最近一年的市場占有率(Market share)分配到直向各個產業(Industry)，而加總各產業所生產的所有產品，便可以得到各產業所生產的產品組合以及原始總產出，但如此加總出來的原始總產出並不會等於國民所得帳生產面的各產業產出，因此，需要再透過適當的產值調整，讓兩者一致。

圖一、供給表

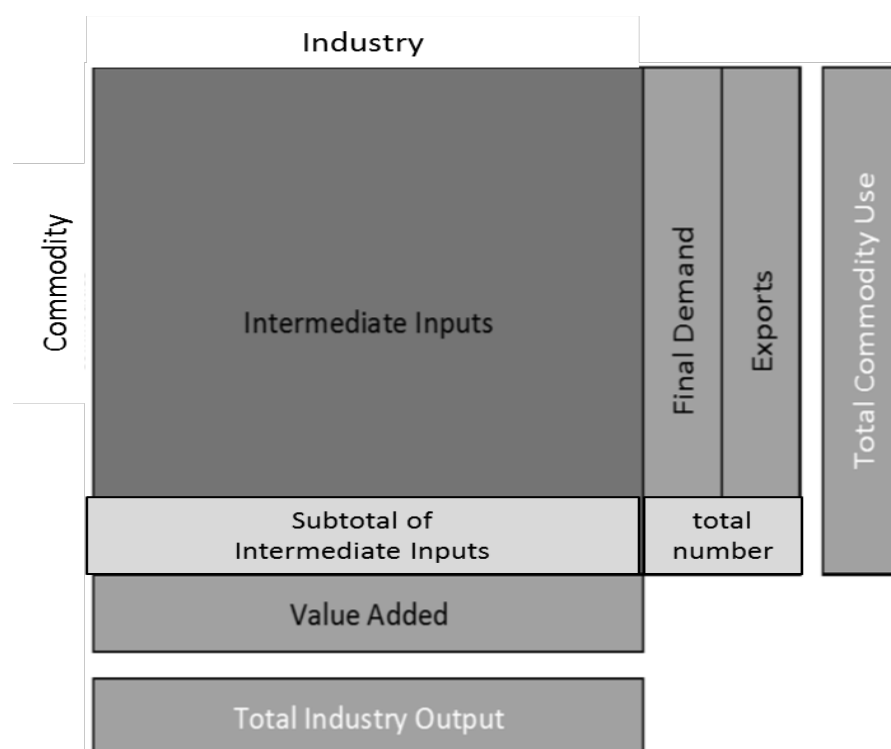


進口 (Imports) 部分區分為商品進口及服務進口，商品進口的資料來源是海關進出口統計，但由於海關進出口統計所使用的分類是國際商品統一分類代碼 (Harmonized Commodity Description and Coding System, HS)，故需重新歸類至 IOTs 所使用的部門分類，服務進口則是採用國際收支帳的用途別；商業差距 (Trade margin) 部分，參考最近一次基準年的商業加價率，再將國內生產所決定的批發及零售業產值分攤到各業；運費差距 (Transportation margin) 部分，則是利用汽車貨運調查報告中各產品的運費估算而得。經由上述編算過程，可以得到各產品部門消費者價格下的總供給 (Total Commodity Supply)。

2. 使用表

關於使用表 (如圖二) 的編算，首先，我們先利用國民所得帳生產面數字控制部分總數資料，例如各產業的中間投入總值 (Subtotal of Intermediate Input)、附加價值 (Value Added) 以及最終需求 (Final Demand) 等。

圖二、使用表



接著決定 CxI 的中間投入矩陣 (Intermediate Inputs)，由於非普查年缺乏中間投入結構的資料，因此我們利用指數法 (Index Method)，也就是使用最近一年的投入結構，再考慮物價變動情形，並適當的調整讓總投入的數字與國民所得帳一致。而最終需求 (Final Demand) 的各產業組成結構，則是利用家計調查、政府預決算書、海關進出口統計等資料估算而得。

3. 供需平衡

當供給及需求表都初步決定後，再利用人工的方式，平衡供給及需求兩面的數字，為簡化作業流程，未來的供需平衡作業，我們將朝向人工及自動化平衡搭配的方式進行。

(四) IOTs 轉換至 SUTs

由於我國於非基準年間，有按年編製以中華民國行業標準分類為歸類依據的 IOTs 年表，而本次計畫為利國際比較，ADB 要求之分類依據為聯合國行業標準分類 (ISIC) 及國際產品分類 (CPC)，故我國的處理方式是先將我國之行業標準分類對照至 ISIC 及 CPC (歸類對照如附錄四) 後，再調整至符合 ADB 規定之 SUTs 格式。

肆、結論與心得

我國前（104）年受邀參加 ADB 所提出「協助開發中國家更新及編製供給與使用表」計畫，並依 ADB 規劃，分別於前年 10 月、去（105）年 6 月及今（106）年 1 月出席參加會議。各國代表於本次會議除報告 SUTs 編製情形及未來計畫外，亦分享編製過程中所遭遇到的問題及解決方式，而對於無法克服之困難，亦在會場中與各國代表和專家學者們進行討論，透過此一交流機會，不但對於各國編製 SUTs 有所了解，同時對各國經濟特色及統計趨勢也有更多的認識。

藉由此次的會議發現，雖然部分國家起步較晚，缺乏完整的經濟普查、調查數據，甚至有部分國家是借用鄰近國家的結構來推估 SUTs（例如寮國借用越南的結構），但各國皆在有限的資源下不斷精進產業關聯（IO）統計工作，期望能提供更即時且精確度高的 IO 資料，可見 IO 對於分析國際經濟情勢及提供決策的重要性。而相較於其他參與國，我國在 IOTs 的編製經驗算是相當豐富，所需的各項統計資料亦是相對齊全，除了在基準年編製完整的投入產出表外，在非基準年間亦按年編製 IOTs 年表，這在各參與國中，更是少見。惟我國 2006 年至 2010 年 IOTs 年表尚未採 2008SNA 規範，此部分尚須回溯修正處理，方能符合 ADB 需求。

附錄一、會議議程



Supply and Use Tables

R-CDTA 8838: Updating and Constructing the Supply and Use Tables for Selected Developing Member Economies



Development of the System of National Accounts in Asia and the Pacific Events

09-14 January 2017, Intercontinental Hanoi Westlake, Hanoi, Viet Nam

TENTATIVE PROGRAM

WORKSHOP ON TIME SERIES SUT ESTIMATION	
Day 1 (09 January 2017)	
Session 1.	<i>Selected Economies Presentation: Country Experiences in Updating SUT</i>
	<i>Department of Statistics, Malaysia</i>
	<i>National Statistics Office, Mongolia</i>
	<i>Directorate General of Budget Accounting and Statistics, Taipei, China</i>
	<i>Department of Census and Statistics, Sri Lanka</i>
Session 2.	<i>Annual Supply and Use Table Estimation</i>
Session 3.	<i>Presentation of Data Requirements and Methodology</i>
Session 4.	<i>Hands-on Compilation of Non-Benchmark SUT (1 year)</i>
Day 2 (10 January 2017)	
Session 4.	<i>Actual Compilation of Non-Benchmark SUT (1 year)</i>
WRITESHOP/WORKSHOP: COMPENDIUM OF SUT IN ASIA	
Day 3 (11 January 2017)	
Session 1.	<i>Report Writing</i>
Session 2.	<i>Table and Charts</i>
SECOND CONFERENCE ON THE DEVELOPMENT OF SUPPLY AND USE TABLE IN ASIA	
Day 4 (12 January 2017)	
09:00 - 09:20	<i>Welcome Remarks, Mr. Vu Thanh Liem, Deputy Director General, GSO</i>
09:20 - 09:30	<i>Opening Remarks, Dr. Rana Hasan, Director, ERDI</i>
09:30 - 09:40	<i>Introduction of participants</i>
Session 1.	<i>Country Report :Compiling the Supply and Use Table for Asia and the Pacific - South East Asia Region</i> <i>Moderator: Abdul Abiad, Economic Advisor, ERCD, ADB and Alick Nvasulu, Statistician-Lecturer, SIAP</i>
09:40 - 09:45	<i>Introductory remarks</i>
09:45 - 10:00	<i>Paper presentation, National Statistics Office, Mongolia</i>
10:00 - 10:15	<i>Paper presentation, National Bureau of Statistics of China</i>
10:15 - 10:30	<i>Paper presentation, Badan Pusat Statistik, Indonesia</i>
10:30 - 10:45	<i>Coffee Break</i>
10:45 - 11:00	<i>Paper presentation, Department of Statistics, Malaysia</i>
11:00 - 11:15	<i>Paper presentation, Bureau of Statistics, Fiji</i>
11:15 - 11:30	<i>Analysis of Sub-Regional Results: South East Asia Region,</i>
11:30 - 12:00	<i>Open Forum</i>
Session 2.	<i>Country Report :Compiling the Supply and Use Table for Asia and the Pacific - Mekong Region</i> <i>Moderator: Eileen Capilit, Economics and Statistics Officer, ERDI, ADB</i>
12:00 - 12:05	<i>Introductory remarks</i>
12:05 - 12:20	<i>Paper presentation, National Institute of Statistics, Cambodia</i>
12:20 - 12:35	<i>Paper presentation, National Economic and Social Development Board, Thailand</i>
12:35 - 02:00	<i>Lunch Break</i>
02:00 - 02:15	<i>Paper presentation, General Statistics Office, Viet Nam</i>
02:15 - 02:30	<i>Paper presentation, Lao Statistics Bureau</i>
02:30 - 02:45	<i>Analysis of Sub-Regional Results: Mekong Region</i>
02:45 - 03:15	<i>Open Forum</i>
Session 3.	<i>Country Report :Compiling the Supply and Use Table for Asia and the Pacific - High Income</i> <i>Moderator: Paul Roberts, Acting Program Manager, National Accounts Branch</i>
03:15 - 03:20	<i>Introductory remarks</i>
03:20 - 03:35	<i>Paper presentation, Census and Statistics Department, Hona Kona, China</i>
03:35 - 03:50	<i>Paper presentation, Directorate General of Budget Accounting and Statistics, Taipei, China</i>
03:50 - 04:10	<i>Coffee Break</i>
04:10 - 04:15	<i>Paper presentation, Economic Planning and Development Department, Brunei Darussalam</i>
04:15 - 04:30	<i>Analysis of Sub-Regional Results: High Income</i>
04:30 - 05:00	<i>Open Forum</i>

Development of the System of National Accounts in Asia and the Pacific Events

09-14 January 2017, Intercontinental Hanoi Westlake, Hanoi, Viet Nam

TENTATIVE PROGRAM

Day 5 (13 January 2017)	
Session 4.	<i>Country Report :Compiling the Supply and Use Table for Asia and the Pacific - South Asia Region</i> Moderator: Kaushal Joshi, Princiaal Statistician and Mahinthan Joseoh Mariosinaham, Statistician, ERDI, ADB
09:00 - 09:05	Introductory remarks
09:05 - 09:20	Paper presentation, <i>Central Statistics Office, India</i>
09:20 - 09:35	Paper presentation, <i>Bangladesh Bureau of Statistics</i>
09:35 - 09:50	Paper presentation, <i>Central Bureau of Statistics, Nepal</i>
09:50 - 10:10	Paper presentation, <i>Planninq Department, Ministry of National Planning and Economic Development, Myanmar</i>
10:10 - 10:30	<i>Coffee Break</i>
10:30 - 10:50	Paper presentation, <i>National Statistical Office, Bhutan</i>
11:15 - 11:30	Paper presentation, <i>National Bureau of Statistics, Maldives</i>
11:30 - 11:45	Paper presentation, <i>Pakistan Bureau of Statistics</i>
11:45 - 12:00	Paper presentation, <i>Department of Census and Statistics, Sri Lanka</i>
12:00 - 12:20	Analysis of Sub-Regional Results: South Asia
12:20 - 02:00	<i>Lunch Break</i>
Session 5.	<i>Uses and Applications of Supply and Use Tables and Input-Output Tables</i>
02:00 - 02:30	Economic Diversification in Bangladesh with Preliminary Applications to Indonesia and Kazakhstan <i>Valerie Anne Mercer-Blackman, Senior Economist, EREA, ADB</i>
02:30 - 03:00	Using Multi-Country Input-Output Tables to Examine Spillovers from External Shocks: The Case of China's Slowdown. ⁶ <i>Abdul Abiad, Economic Advisor, EROD, ADB</i>
03:00 -03:30	ERDI Initiatives on Economic Policy <i>Rana Hasan, Director, ERDI, ADB</i>
03:30 - 03:45	<i>Coffee Break</i>
04:15- 04:30	Open Forum
04:30- 05:00	Closing Remarks:
WRITESHOP/WORKSHOP: COMPENDIUM OF SUT IN ASIA	
Day 6 (14 January 2017)	
Session 1.	<i>Finalization of the Report</i>
Session 2.	<i>Closing</i>

附錄二、我國基準年 SUTs 簡報

ADB **Supply and Use Tables**
R-CDTA 8838: Updating and Constructing the Supply and Use Tables for Selected Developing Member Economies

2nd CONFERENCE ON THE DEVELOPMENT OF SUPPLY AND USE TABLES IN ASIA AND THE PACIFIC
12-13 January 2017, Hanoi, Viet Nam

Supply and Use Table: 2011
TAIWAN

Huang, Yu-Ling
Industry Input-Output Sector, Department of Statistics
Directorate General of Budget, Accounting and Statistics (DGBAS),
Executive Yuan

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Outline of the Presentation

- The Current System of National Accounts
- SUT at current prices
 - General Description
 - Breaking up the industries
 - Data Sources and Methodology
- Main Results and Findings
- Conclusion and Way Forward

2

Current SNA Approach-1

- Base on 2008 SNA
 - Quarterly estimation
 - Advance estimation : approximately one month after the end of the reference quarter
 - Preliminary estimation : seven to eight weeks after the end of the reference
 - Annual revision:
 - The revisions for the latest two years will be released in November.
 - Quinquennial revision :
 - Comprehensive revision is carried out every five years, including changing the reference-year of chained-dollars and retracing all the time series (the present reference year is 2011)

3

Current SNA Approach-2

- scope and coverage;
 - The geographic coverage: The whole nationwide territory
- base year :2011
- classification and level of details;
 - Economic activities: Based on the Standard Industrial Classification System of Republic of China (a derivative of the ISIC, Rev.4)
 - 63 levels of disaggregation
 - Final Consumption Expenditure of Households: COICOP
 - 12 levels of disaggregation
 - Government Final Consumption Expenditure: COFOG
 - 10 levels of disaggregation

4

Current SNA Approach-3

- type of compilation approaches;

Approach	Periodicity	Value
Production(P)	Quarterly, Annual	Nominal, Real
Expenditure(E)	Quarterly, Annual	Nominal, Real
Income(I)	Annual	Nominal

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Current SNA Approach-4

- scope of accounts and tables compiled

Num. of NAQ	MRDS (The Minimum Requirement Data Set)	Annual	Quarterly
1.1	Expenditures of the GDP, current prices	V	V
1.2	Expenditures of the GDP, chained dollars	V	V
2.1	Value added and GDP by industry, current prices	V	V
2.2	Value added and GDP by industry, chained dollars	V	V
2.3	Value added components by industry, current prices Employment by industry	V	
1.3/ 4.1	Accounts for the total economy (until net lending)	V	
4.2	Rest of the World Accounts (until net lending)	V	

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Current SNA Approach-5

- compliance with the 2008 SNA recommendations
 - Capitalization of R&D expenditure
 - Social Security Funds are classified into the government sector
 - The output of insurance service is estimated by “cost approach”, and reinsurance is treated as direct insurance.

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BENCHMARK SUT-1

- Current Supply and Use Table
 - Derived from Benchmark Input-Output Table 2011 (Cx1)
 - 51 products by 36 industries
 - Concordance with international Classification of industries and products ISIC 4.0, CPC 2.0

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BENCHMARK SUT-2

- SOURCES AND METODOLOGY
 - Supply Table
 - Domestic Production by Industry
 - Data sources : Industry and Service Census
 - Methodology:
 1. Market value: at producer's price
 2. Trade margins: wholesale and retail (sales receipts minus the cost of goods sold)
 3. Sum cost of production: NPISH, Public administration services
 4. Imputation: FISIM, Owner occupied dwelling services
 - Imports of Goods and Services
 - Data sources : Custom statistics, Balance of Payments
 - Methodology:
 - Reclassify HS into the classification of IOT to estimate the import goods at C.I.F prices
 - CIF/FOB adjustment on imports
 - Data sources : Balance of Payments
 - Methodology:
 - The freight and insurance service provided by non-residents are subtracted from the import of service.

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BENCHMARK SUT

- SOURCES AND METHODS
 - Use Table
 - Intermediate Consumption by Industry
 - Data sources : Industry and Service Census
 - Methodology: All the materials, supplies and services used in the process of production
 - Final Demand by main expenditure items (HFCE, NPISH, GFCE, GFCF, Valuables, Inventories)
 - Data sources : Industry and Service Census, Family Income and Expenditure Survey, Government's annual budget and final accounting reports, National Science and Technology Survey
 - Methodology:
 1. Commodity Flow Approach
 2. adjusted by inventory valuation adjustment (IVA) procedure to estimate the inventory changes
 - Exports of Goods and Services
 - Data sources : Custom Statistics, Balance of Payments
 - Methodology:
 - Reclassify HS into the classification of IOT to estimate the export goods at F.O.B prices

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BENCHMARK SUT-4

- SOURCES AND METHODS
 - Other adjustments: Purchases of abroad by residents and Nonresidents in domestic market
 - Survey of Visitors Expenditure and Trends in Taiwan, Survey of Travel by Citizens and Balance of Payments.
 - Use of Value Added
 - Compensation: Industry and Service Census, Earnings and Productivity Statistics
 - Other taxes on production net of subsidies: related taxes statistics
 - Fixed capital consumption : perpetual inventory method (PIM).
 - Operating surplus: usually a balancing item in the IOT framework, but still need to take refer to Industry and Service Census
 - and other related data from various agencies to check whether it is reasonable
 - Balancing method—Manual
 - Cross checking with National Accounts
 - Adjusted until the use side and supply side are balanced.

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Main Results and Findings - 1

- Overview of the results
 - [Composition of Total Supply](#)
 - [Composition of Total Uses](#)
 - [Gross Value Added and Intermediate Consumption Ratio to Gross Output](#)
 - [Comparison of SUT and Published NA Levels](#) by production, expenditure and income approach

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Main Results and Findings 2

Composition of Total Supply of Goods and Services	
Industry	Share (%)
Domestic production (at producer's price)	78.0
Agriculture, forestry and fishery	1.3
Industry	46.8
Services	29.9
Imports	21.1
Taxes less subsidies	1.0
Total supply (at purchaser's price)	100.0
44.9 trillion NT	

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Results and Findings - 3

Composition of Total Uses of Goods and Services	
Industry	Share (%)
Inter-industry use (intermediate consumption)	47.0
Agriculture, Forestry and Fishery	0.7
Industry	36.3
Services	10.1
Household consumption	17.4
NPISH	-
Government consumption	4.8
Gross Fixed Capital Formation	7.5
Changes in Inventories	0.1
Exports of Goods and Services	23.2
Total Uses	100.0

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Main Results and Findings -4

Gross Value Added and Intermediate Consumption Ratio to Gross Output		
Industry	GVAR	IC
Agriculture, forestry and fishing	43.8	56.2
Mining and quarrying	58.2	41.8
Manufacturing	21.9	78.1
Electricity, gas, steam and air conditioning supply	19.6	80.4
Water supply, sewerage, waste management and remediation activities	46.3	53.7
Construction	27.7	72.3
Wholesale and retail trade	70.2	29.8
Transportation and storage	36.5	63.5
Accommodation and food service activities	50.3	49.7
Information and communication	53.8	46.2
Financial and insurance activities	69.1	30.9
Real estate activities	79.1	20.9
Professional, scientific and technical activities	57.4	42.6
Administrative and support service activities	70.3	29.7
Public administration and defence; compulsory social security	75.2	24.8
Education	81.9	18.1
Human health and social work activities	61.2	38.8
Arts, entertainment and recreation	63.6	36.4
Other service activities	66.8	33.2
TOTAL	39.7	60.3

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Main Results and Findings - 5

Comparison of SUT and Published NA Levels: Production Approach			Units: million NT	
INDUSTRY	SUT	Published NA	Ratio or Percent Difference	
Agriculture, forestry and fishing	245,783	245,783	0	
Mining and quarrying	17,174	17,174	0	
Manufacturing	4,102,225	4,102,225	0	
Electricity, gas, steam and air conditioning supply	126,015	126,015	0	
Water supply, sewerage, waste management, and remediation activities	96,943	96,943	0	
Construction	383,053	383,053	0	
Wholesale and retail trade	2,443,613	2,443,613	0	
Transportation and storage	398,441	398,441	0	
Accommodation and food service activities	329,048	329,048	0	
Information and communication	461,781	461,781	0	
Financial and insurance activities	915,039	915,039	0	
Real estate activities	1,211,679	1,211,679	0	
Professional, scientific and technical activities	314,750	314,750	0	
Administrative and support service activities	204,890	204,890	0	
Public administration and defence; compulsory social security	1,054,319	1,054,319	0	
Education	667,152	667,152	0	
Human health and social work activities	410,855	410,855	0	
Arts, entertainment and recreation	133,269	133,269	0	
Other service activities	379,268	379,268	0	
Gross Value-Added at producer's price	13,885,295	13,885,295	0	
Tax less subsidies on products	426,905	426,905	0	
GDP	14,312,200	14,312,200	0	

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Main Results and Findings - 6

Comparison of SUT and Published NA Levels: Expenditure and Income Approach			Unit: million NT
	SUT	Published NA	Ratio or Percent Difference
Expenditure Approach			
Expenditure Items			
Household consumption expenditure (include NPSH)	7,798,976	7,798,976	0
Government consumption expenditure	2,167,595	2,167,595	0
Gross Fixed Capital Formation	3,546,945	3,546,945	0
Changes in Inventories	35,921	35,921	0
Exports of Goods and Services	10,419,700	10,419,700	0
Less Imports of Goods and Services	9,456,937	9,456,937	0
GDP	14,312,200	14,312,200	0
Income Approach			
Value Added Components			
Compensation	6,463,779	6,463,779	0
Taxes less subsidies on production	348,208	348,208	0
Gross operating surplus	7,073,308	7,073,308	0
Gross Value-Added	13,885,295	13,885,295	0
Tax less subsidies on products	426,905	426,905	0
GDP	14,312,200	14,312,200	0

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Conclusion and Way Forward

- In 2016, the updated annual CxI IOTs for 2014~2015 were produced and reconciled with the new GDP on the basis of the 2008SNA.
- SUT annual estimation plans
 - Plan to publish annual
- SUT Constant price estimation
 - No plan for constant price estimation

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Thank you


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For more details, visit our pages at:

<http://ena.stat.gov.tw/mp.asp?mp=5>

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附錄三、我國時間數列 SUTs 簡報



Supply and Use Tables
R-CDTA 8838: Updating and Constructing the Supply and Use Tables for Selected Developing Member Economies

Training and Writeshop for the
ANNUAL SUPPLY AND USE TABLES ESTIMATION
12-13 January 2017, Hanoi, Viet Nam

Annual Supply and Use Table Estimation
TAIWAN

Huang, Yu-Ling
Industry Input-Output Sector, Department of Statistics,
Directorate General of Budget, Accounting and Statistics (DGBAS),
Executive Yuan

Outline of the Presentation

- Annual SUT available
- Data Sources
- Methodology
- Timetable

Annual SUT: Data Availability

Year	Table Size (Product x Industry)	Benchmark (B) or Updates (U)	Data Available at the detailed level	Notes
2006	52 x 63	B	166 x 166	1. The Classification is following Taiwan's SICs Rev B. 2. Based on the 1993 SNA
2007-2010	52 x 63	U	166x166	
2011	52 x 63	B	166 x 166	1. The Classification is following Taiwan's SICs Rev B) 2. Consisted with new figures of National Accounts on the basis of the 2008 SNA
2012-2015	52 x 63	U	166 x 166	

Data Source -1

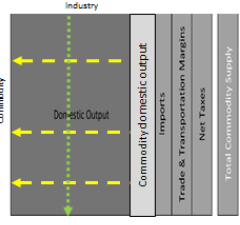
- Production and Intermediate Consumptions
 - Factory Operation Census for Manufacturing Industry (productions by commodity are also available)
 - Trade and Food Services Operations Survey
 - Production Value Survey of Transportation and Storage
 - Agricultural Statistics Yearbook
 - Enterprise Annual Income Tax Return
 - Financial statements

Data Source -2

- Imports and Exports
 - Customs Trade Statistics and Balance of Payments(BOP)
- Trade Margin
 - Trade and Food Services Operations Survey
- Transport Margin
 - Motor vehicle freight traffic Survey (by commodity)
- Expenditure Side data of National Account
 - Private Final Consumption Expenditure
 - Government Consumption
 - Gross Fixed Capital Formation

Methodology-1

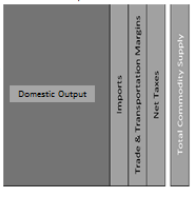
- Supply table



1. Domestic Output matrix:
 - Decide each commodity's total output (totals for each row of the matrix)
 - for each commodity, use market share of most recent year to allocate each cell
 - Get the initial production composition and total output for each industry
 - Refer to the industry output from National Accounts and make appropriate adjustments

Methodology-2

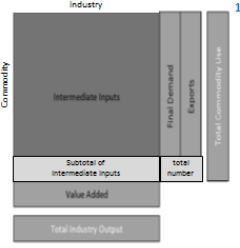
- Supply table



2. Imports
 - a. Goods: Customs Trade Data (HS)
 - reclassified into commodities' classification for SUT
 - b. Services: Balance of Payments
 - based on specific categories of BOP
3. Trade and Transportation Margins
 - a. Trade Margin :
 - refer to margin rates of benchmark table
 - b. Transport Margin :
 - Survey report on motor vehicle freight traffic (by commodity)
4. Net Tax
 - estimated in accordance with related tax statistics

Methodology-3

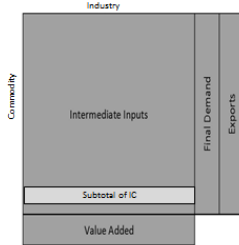
- Use table



1. Control total figures from National Accounts
 - Industry: such as Output, Intermediate Consumption, Compensation of employee, CFC and Operating surplus for each industry
 - Final Demand: such as total number for HFCE, GCE, GFCF, Inventory, Exports

Methodology-4

- Use table



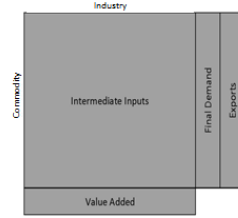
2. Intermediate inputs matrix :

- No survey for input composition
- Use input composition for most recent year and the price index for each commodity in consideration of inflation
- Control totals of intermediate consumption by industry from National Accounts

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Methodology-5

- Use table



3. Composition of

- HFCF
 - Refer to the Survey of Family Income and Expenditure
- GFCF
 - Commodity flows method
- Government consumption:
 - Annual budget and final accounting reports

4. Composition of Exports

- Goods: Customs Trade Data (HS)
 - reclassified into commodities' classification for SUT
- Services: Balance of Payments
 - based on specific categories of BOP

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Methodology-6

- Balancing

- By Manual
 - Balancing was done at the commodity and industry working level of detail
- Proposed method
 - both manual and RAS

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Timetable

- 2011~2015 CxI IOTs on the basis of 2008 SNA are available now, only need to be reclassified into SUT
- 2006~2009 SUTs will be revised and on the basis of 2008 SNA before ADB's deadline(June 2018)

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Thank you

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附錄四、行業及產品標準分類對照

Corresponding table of industries between 2011 IOT and SUT

1digit 19	CODE 36	Industry for SUT	ISIC4.0	IO 2011 (3 digits)
A	1	Crop and animal production, hunting and related service activities	01	001, 002, 003, 004, 005, 006, 007, 008, 009
		Forestry and logging	02	010
		Fishing and aquaculture	03	011
B	4	Mining and quarrying	05~09	012, 013, 014
C	5	Manufacture of food products, beverages and tobacco	10、11、12	015, 016, 017, 018, 019, 020, 021, 022, 023, 024, 025, 026, 027, 028, 029, 030
	6	Manufacture of textiles, wearing apparel, leather and related products	13~15	031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042
	7	Manufacture of products of wood, cork, straw and plaiting materials	16	043, 044, 045
	8	Manufacture of paper and paper products; printing and reproduction of recorded media	17~18	046, 047, 048
	9	Manufacture of rubber and plastics products	22	063, 064
	10	Manufacture of basic metals	24	070, 071, 072, 073
	11	Manufacture of fabricated metal products; electronic components and boards; equipment and apparatus; electrical machinery and apparatus	25~28	074, 075, 076, 077, 078, 079, 080, 081, 082, 083, 084, 085, 086, 087, 088, 089, 090, 091, 092, 093, 094, 095, 096, 097, 098, 099
	12	Manufacture of motor vehicles, trailers and semi-trailers; parts and accessories for vehicle; other transport equipment	29~30	100, 101, 102, 103, 104
	13	Manufacture of coke, refined petroleum products, chemicals and chemical products	19、20、21	049, 050, 051, 052, 053, 054, 055, 056, 057, 058, 059, 060, 061, 062
	14	Manufacture of furniture	31	105, 106
	15	Manufacturing n.e.c.	23,32~33	065, 066, 067, 068, 069, 107, 108, 109
D	16	Electricity, gas, steam and air conditioning supply	35	110, 111

Idigit 19	CODE 36	Industry for SUT	ISIC4.0	IO 2011 (3 digits)
E	17	Collection, treatment and supply of water; sewerage ; collection, treatment and disposal of waste; materials recovery; remediation activities and other waste management services	36~39	112, 113, 114, 115, 116
F	18	Construction	41~43	117, 118, 119, 120
G	19	Wholesale and retail trade(exclude repair of motor vehicles, motorcycles and personal and household goods)	45~47 (exclude 452)	121, 122, 123
H	21	Land transport and transport via pipelines	49	124, 125
	22	Water transport	50	126
	23	Air transport	51	127
	24	Warehousing and support activities for transportation	52	128, 129
	25	Postal and courier activities	53	130
I	20	Accommodation, food and beverage service activities	55~56	131, 132
J	26	Information and communication	58~63	133, 134, 135, 136, 137, 138
K	27	Financial service activities, except insurance and pension funding	64	139
	28	Insurance and pension funding, except compulsory social security; Activities auxiliary to financial intermediation	65~66	140, 141
L	29	Real estate activities	68	142, 143, 144
M	30	Professional, scientific and technical activities	69~75	145, 146, 147, 148, 149, 150
N	31	Renting of machinery and equipment without operator and of personal and household goods; other administrative and support service activities	77~82	151, 152, 153, 154, 155, 156
O	32	Public administration and defence; compulsory social security	84、99	157
P	33	Education	85	158
Q	34	Human health and social work activities	86~88	159, 160
R	35	Arts, entertainment and recreation	90~93	161
S	36	Other Services	94~98 (include 452)	162, 163, 164, 165, 166

Corresponding table of commodities between 2011 IOT and SUT

GROUP 19	CODE 51	Commodity for SUT	CPC 2.0	IO 2011 (3 digits)
1	1	Cereals, oilseeds and oleaginous fruits	011, 014	001, 002
	2	Vegetables, pulses (dried leguminous vegetables)	012, 017	004
	3	Fruit and nuts	013	005
	4	Edible roots and tubers ; stimulant, spice , aromatic and sugar crops	015, 016, 018	003
	5	Forage products, fibres, living plants, cut flowers and flower buds, unmanufactured tobacco, and natural rubber	019	006
	6	Live animals and Other animal products	02	007, 008
	7	Forestry and logging products	03	010
	8	Fish and other fishing products	04	011
2	9	Crude petroleum and natural gas	12	012
	10	Coal and lignite; peat, other Minerals, n.e.c.	11, 13-16	013, 014
3	13	Meat, fish, fruit, vegetables, oils and fats and dairy products	21, 221, 222	015, 016, 017, 018, 019, 020
	14	Grain mill products, starches and starch products; other food products	23, 223	021, 022, 023, 024, 025, 026, 027
	15	Beverages and Tobacco	24, 25	028, 029, 030
	16	Clothing and wearing apparel; leather and leather products	26-29, 88213	031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042
	17	Products of wood, cork, straw and plaiting materials; pulp, paper and paper products, printed matters, and related articles	31-32, 478	043, 044, 045, 046, 047, 048, 133
	18	Basic Chemical , Other Chemicals and man-made fibres	34, 35, 334, 336, 337	051, 052, 053, 054, 055, 056, 057, 058, 059, 060, 061, 062
	19	Rubber and plastics products	36	063, 064
	20	Glass and glass products and other non-metallic products n.e.c.	37	065, 066, 067, 068, 069
	21	Furniture	381	105, 106
	22	Other transportable goods	382-389, 48312, 48313, 48140~48171	107, 108
	23	Basic metals	41, 893	070, 071, 072, 073
24	Fabricated metal products, except machinery and equipment	42 (include 88731, 88732)	074, 075, 076, 077, 078	
25	General and Special Purpose Machinery	43-44, 451	095, 097, 098, 099	
26	Computing machinery and parts and accessories thereof	452, 47550	083, 084, 085	
27	Electrical machinery and apparatus;	46, 48311	091, 092, 093, 094,	

GROUP 19	CODE 51	Commodity for SUT	CPC 2.0	IO 2011 (3 digits)
				096
	28	Radio, television and communication equipment and apparatus	47(exclude 47550, 476, 478), 48315	079, 080, 081, 082, 086, 087, 088
	29	Medical appliances, precision and optical instruments, watches and clocks	48 (exclude 48140~48171, 48311~48313, 48315)	089, 090
	30	Transport equipment	49	100, 101, 102, 103, 104
	31	Coke oven products; refined petroleum products	331~333, 335	049, 050
4	11	Electricity, town gas, steam and hot water	17, 691	110, 111
5	12	Water	18, 692	112
6	32	Construction services	53-54	117, 118, 119, 120
7	33	Wholesale and retail trade services	61-62	121, 122, 123
8	35	Passenger and freight transport services	64-66	124, 125, 126, 127
	36	Supporting transport services	67	128, 129
	37	Postal and courier services	68	130
9	34	Accommodation, food and beverage services	63	131, 132
10	45	Telecommunications, broadcasting and information supply services	84(exclude 845), 8315	135, 136, 138
11	38	Financial intermediation services, investment banking and services of holding financial assets	711-712, 717	139
	39	Insurance and pension services, except compulsory social security services	713-716	140, 141
12	40	Real estate services	72	142, 143, 144
13	42	Research and development services	81	147
	43	Legal and accounting services	82	145
	44	Other professional, technical and business services	83 (exclude 8315)	137, 146, 148, 149, 150
14	41	Leasing or rental services without operator	73	151
	46	Other business and production support services, n.e.c.	85, 861, 87, 945	009, 109, 152, 153, 154, 155, 156, 163, 164
15	47	Public administration and other services to the community as a whole; compulsory social security services	91, 99	157
16	48	Education services	92	158
17	49	Human health and social care services	93	159, 160
18	50	Recreational, cultural and sporting services	96 (include 476, 845)	134, 161
19	51	Other services, n.e.c.	399, 894,	113, 114, 115, 116,

GROUP 19	CODE 51	Commodity for SUT	CPC 2.0	IO 2011 (3 digits)
			94-95(exclude 945), 97-98	162, 165, 166