



The 2004 Mongolia Social Accounting Matrix

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ABBREVIATION AND ACRONYMS

BoP	Balance of Payment
EPRC	Economic Policy Reform and Competitiveness Project
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GNI	Gross National Income
ILO	International Labor Organization
IMF	International Monetary Fund
INA	Integrated National Accounts
IO	Input Output Matrices
ISIC	International Standard Industrial Classification
NNI	Net National Income
NNDI	Net National Disposable Income
NPISHs	Non-profit Institutions Serving Households
NSO	National Statistics Office
ROW	The Rest of the World
SA	Satellite Accounts
SAM	Social Accounting Matrix
SNA93	System of National Accounts 1993
VAT	Value Added tax
USAID	United States Agency for International Development

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SUMMARY

This report is a result of the work initiated in by the EPRC team in spring 2006 and finished in fall 2006 within a joint NSO-EPRC short-term assignment on Macroeconomics and National Accounts, undertaken at the request of the National Statistical Office of Mongolia. The assignment was funded and supported by the USAID/EPRC Project, in accordance with a Memorandum of Understanding between the NSO and EPRC. Doljinsuren Jambal has contributed to this report along with other project's team members: Anna Ansmits, Bayarmaa Baatarsuren, Baasanjav Radnaabazar, and Zoljargal Naranbaatar.

The SAM has been designed as an overarching framework for national statistics. It is a product of efforts in modern social sciences aimed at embracing traditional economics focused on equilibrium and economic growth with the development economics supporting policies in such areas as employment, health and education, income distribution, poverty alleviation, energy and environmental management. In the area of data and statistics its main usefulness is providing help in identifying inconsistencies, distortions and gaps and adjusting/reconciling numbers coming from different sources.

SAM is a compact coherent structure in which data from different statistical systems are incorporated within a square balanced matrix framework. The data are derived from and consistent with three large sources: (1) INA: Integrated National Accounts: transactions, institutions, and rest of the world; (2) I-O: Input-Output Matrices: rectangular matrices and symmetric/square matrices; and (3) SA: Satellite Accounts. Together with INA, I-O, and SA, the SAM is incorporated within the SNA93, the System of National Accounts adopted by the United Nations in 1993.

In the introductory sections of this report the issues related to policies and their data needs are considered in the context of Mongolia's transition economy. The SAM is introduced as a tool for compact presentation of this economy, finding many important applications in statistics, economics, policy analysis, and education. The Mongolia SAM is compiled based on the official data available in the spring 2006. It is presented as a central part of the system of national accounts. An overview of this system, derived from the United Nations publications (SNA93) is provided with an illustrative application to the 2004 Mongolia economy.

In this report, all definitions of SNA93 components have been taken, and edited when needed, from the book: *System of National Accounts 1993*, United Nation: 1993.

SECTION I: MONGOLIA'S TRANSITION

The period from 1990 until the present in Mongolia can be characterized as a time of transition—political transition to democracy and economic transition to a market economy. Having mostly completed this phase, now Mongolia is getting ready to enter a new historic phase—of sustained economic development. Mongolia's challenge is to build institutions and craft policies necessary for creating long-term, sustainable growth and improving living standards while abating poverty and protecting natural environment. Over the next ten-to-twenty years, Mongolia seeks to develop from the initial starting point as a low-income country with a state-run economy to a medium-income country with a competitive market economy, increasingly higher levels of income for the population, declining share of people living in poverty, and thoroughly preserved natural environment and cultural heritage.

Following fundamental systemic transformations in the early 1990s accompanied by painful recession, the economy of Mongolia began growing and remarkable achievements have been accomplished since. Markets have been liberalized and allowed to function; herds and enterprises have been privatized and restructured; and many laws have been adopted and amended that create a legal foundation for a market economy. Compared to a number of other countries in a similar stage of post-socialist transition or to Asian countries with similar levels of GDP per capita the levels of governance attained by Mongolia are respectable

(<http://web.worldbank.org/WBSITE/EXTERNAL/WBI/EXTWBIGOVANTCOR/0,,contentMDK:20771165~menuPK:1866365~pagePK:64168445~piPK:64168309~theSitePK:1740530,00.html>).

SECTION II: GOOD POLICY AS A MAIN DEVELOPMENT FACTOR

Recent international experience demonstrates that good policy is a main factor for development successes while bad policy is the main reason for development failures.

In Mongolia and other emerging market countries, a good policy involves efforts to enforce consistency, transparency and accountability while increasing the foreign aid “absorption capacity”. Continuous improvements in policymaking ought to be supported by critical quantitative analyses that present the advantages and disadvantages (the opportunity cost) of various policy options, taking into consideration economic theory and international best practices. Good economic data turn into a sine qua non for good policies.

The following causal chain emerges as a key to sustainable development:



In Mongolia, most of policymaking in the transition period was based on intuitions and convictions of the political leaders and their advisors. Information available to them was quite limited. Reliable comprehensive economic data was not available. Yet, at this initial stage of transition, quite chaotic and spontaneous, Mongolia lacked the institutional capacity to use the data anyway. Once the economy becomes more complex and operates at a higher level of development, the demand for good detailed economic statistics is rapidly increasing along with a fast increase in the capacity of the Government to process economic data and usefully apply in its policymaking. Among other things, in order to take full advantage of the aid Mongolia continues receiving from international donors along with significant foreign investment and inflows of large amounts of foreign-earned remittances, reliable social and economic data are in great demand and this demand for data will continue growing.

The shift from the transition phase to the sustained development phase involves a move from an “ad-hoc” policymaking practiced during the former phase to a “well informed” policymaking. The latter will be possible only if high quality statistical information becomes available.

TRANSITION PHASE → SUSTAINED DEVELOPMENT PHASE (Ad-hoc policymaking) (Well-informed policymaking)
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SECTION III: OFFICIAL NATIONAL STATISTICS

National statistics encompass a large amount of detailed information, i.e., data at the microeconomic and micro-social levels, where basic units are: people, institutional identities (households, non-financial corporations, financial corporations, governmental agencies, NPISHs, and foreigners) as well as different units of financial and non-financial assets, natural resources, etc. Most published official statistics are produced by means of a “bottom-up” method. The data are collected from the official state administration entities and from direct surveys in either a micro format or as summary data. They are “micro-edited” – analyzed and checked for consistency. At a next stage, the data are integrated into macroeconomic and macro-social aggregates, which in turn are “macro-edited”. At this stage they are reconciled at the national level. Also various procedures are used in order to fill in for important gaps, i.e., the missing pieces of information in the cases when, for some reason, the data are not collected or are unreliable. This is a difficult stage of data processing for several reasons:

1. In economics and other social sciences the “macro’ theory tends to be much weaker than the corresponding “micro” theory. Many concepts are not well defined. The existing statistics standards (including the SNA93) and definitions are often vague and not easily applicable to specific national economies.
2. Adjustments of data received from official governmental units are often difficult for procedural and political reasons.
3. In many cases some complex estimation models are used, which are highly arbitrary and subject to large errors.
4. In some cases the numbers have to be produced by means of expert opinions or simply “informed guesses” and statisticians are reluctant to use such data sources to produce official national statistics.

Therefore, the official statistics tend to be inconsistent, incomplete and more often than not to undercount rather than overcount the particular items. “Zero” is used as a safer estimate than some positive value, produced by a mathematical model or an expert’s guess. As a result of these and other problems, the official statistics are not fully consistent. A missing value in one account does not allow reconciling this account with other accounts and the whole system ends up being a collection of separate data tables rather than one comprehensive cohesive data system.

While the Mongolian official statistics, as compiled and published by the National Statistics Office (NSO), are of relatively good quality (probably one of the best among the countries at a similar stage of development), more efforts are needed in order to improve methods of data collection, processing, and integration as well as their availability, presentation and documentation. A serious drawback is incompleteness of the national accounts. There is a large sector of the economy that, for different reasons, is not adequately covered by the official statistics (e.g., non-monetary incomes, including imputed incomes from owner occupied dwellings, public sector’s capital assets, profits of foreign-owned firms, tax evasion, and illegal activities). The available data often lack detail, are not reconciled, and are not supported by solid documentation that would enable their useful applications. In fact a full coherence of national macro-statistics is not possible, because of the “white spots” in data coverage and idiosyncrasies in data collection and compilation. The NSO is currently working on these issues. Several large projects have been undertaken. A comprehensive bi-lingual glossary (in Mongolian and English) has been compiled. New publications are being prepared, including offering more data on internet. These efforts should improve data documentation and provide more detailed figures needed for different kinds of analyses.

SECTION IV: DEFINITION OF THE NATIONAL ECONOMY

The economy of a country can be defined in many different ways:

- A geographic area with all resources, subdivided into various administrative units and regions, rural and urban areas with their human capital (people) and physical capital
- A set people; organizations, i.e., the so-called institutional sectors (residential and non-residential); laws; and formal and informal rules (culture)
- A set of activities (production, consumption, saving/investment), often subdivided into transactions and transfers, monetary and non-monetary (barter), financial and non-financial
- A set of production factors: value added (labor, capital and government), intermediate, and natural resources
- A set of goods and services (production inputs and outputs)
- The sum of incomes: disposable, domestic, national, formal/informal, etc.
- Domain of social and economic policymaking (demography, employment policy, monetary and fiscal policies, trade policy, industrial policy, agricultural policy, etc.)
- A collection of diverse social and economic indicators

Moreover, there are a large number of basic dichotomies: stocks/flows, productive/nonproductive, official/unofficial, tangible/intangible, observable/non-observable, monetary/non-monetary, public/private, resident/non-resident, etc. The large sectors and categories further disaggregate into smaller units, in accordance with different classifications, such as several systems used by the SNA93, including:

- AF-classification (financial assets and liabilities)
- AN-classification (non-financial assets)
- COFOG (functions of the government)
- COICOP (individual consumption items by purpose)
- COPNI (purposes of the non-profit institutions serving households)
- COPP (outlays of producers by purpose).
- CPC (Central Product Classification)
- D-classification (distributive transactions)
- F-classification (financial instruments)
- ISIC (International Standard Industrial Classification)
- K-classification (physical capital accumulation)
- P-classification (products)
- S-classification (institutional sectors)

While it is probably neither possible nor advisable to incorporate all these various elements and dimensions of a national economy within one framework, an attempt to integrate many of them within one well structured system of internally reconciled data, is a useful exercise which finds many applications. The social accounting matrix, along with the so-called satellite accounts, is a statistical construct that was designed to fulfill this function and for the last several decades it has been widely compiled and used in many countries.

The SAM may be viewed as an attempt to extend the “economic boundary” of national statistics by incorporating different kinds of social data into its domain.

SECTION V: THE SOCIAL ACCOUNTING MATRIX (SAM)

The SAM has been designed as an overarching framework for national statistics. It is a product of efforts in modern social sciences aimed at embracing traditional economics focused on equilibrium and economic growth with the development economics supporting policies in such areas as employment, health and education, income distribution, poverty alleviation, energy and environmental management.

In the area of data and statistics its main usefulness is providing help in identifying inconsistencies, distortions and gaps and adjusting/reconciling numbers coming from different sources.

Its presentation provides a “**big picture**”, a highly aggregated image of the national economy.

It provides a **structure** for organizing economic data within one consistent and transparent system. In its more comprehensive format it enables combining economic data with diverse kinds of demographic, social and environmental data. It could be set up in the “matrioshka’ type structure”, where each cell of an aggregate matrix could become an entry to another matrix or matrices providing more detailed figures, indexes, and indicators.

The aggregate SAM is a balanced square matrix (column sums equal to the corresponding row sums). Each column and each corresponding row provide data for a SAM “sector”: goods and services, activities, production factors, and institutions, which in turn may be subdivided into current flows and capital accounts, real and financial flows and stocks, as well as into domestic/resident and the “rest of the world”. Columns represent buyers/receivers (payments/expenditures) and rows represent sellers/providers (receipts). Typically a transaction between a SAM sector, i , and another SAM sector, j ($i, j, = 1, 2, \dots n$, where n =number of SAM sectors) is located at the crossing of the i th row and j th column of the matrix, denoting a two-way flow: a delivery from i to j and payment for this delivery from j to i . In some cases, the SAM entries are defined as transfers (one-way flows), such as social security payments and donors’ grants. All the entries in the SAM must satisfy the requirements of balance equations. All transactions must satisfy the quadruple entry rule: output i - j from sector i = input i - j to sector j = payment (outlay) i - j by sector j = income (receipt) i - j of sector i . The intersectoral transfers and sectors’ sums must satisfy the double entry rule: transfer i - j received by sector i = transfer i - j made by sector j as well as the sum of inflow to sector i = the sum of outflows from sector i ; the change in assets of sector i = the change in liabilities of this sector (with a minus sign). These rules help in securing consistency for the entire SAM system and its building blocks.

There is no one single pattern for SAM structure. Currently most of countries produce regularly their SAMs in different formats, depending on the countries’ specific features and concrete policy needs. The SAMs are especially widely used in the “emerging market” countries, supporting fledgling national statistics and developmental policies.

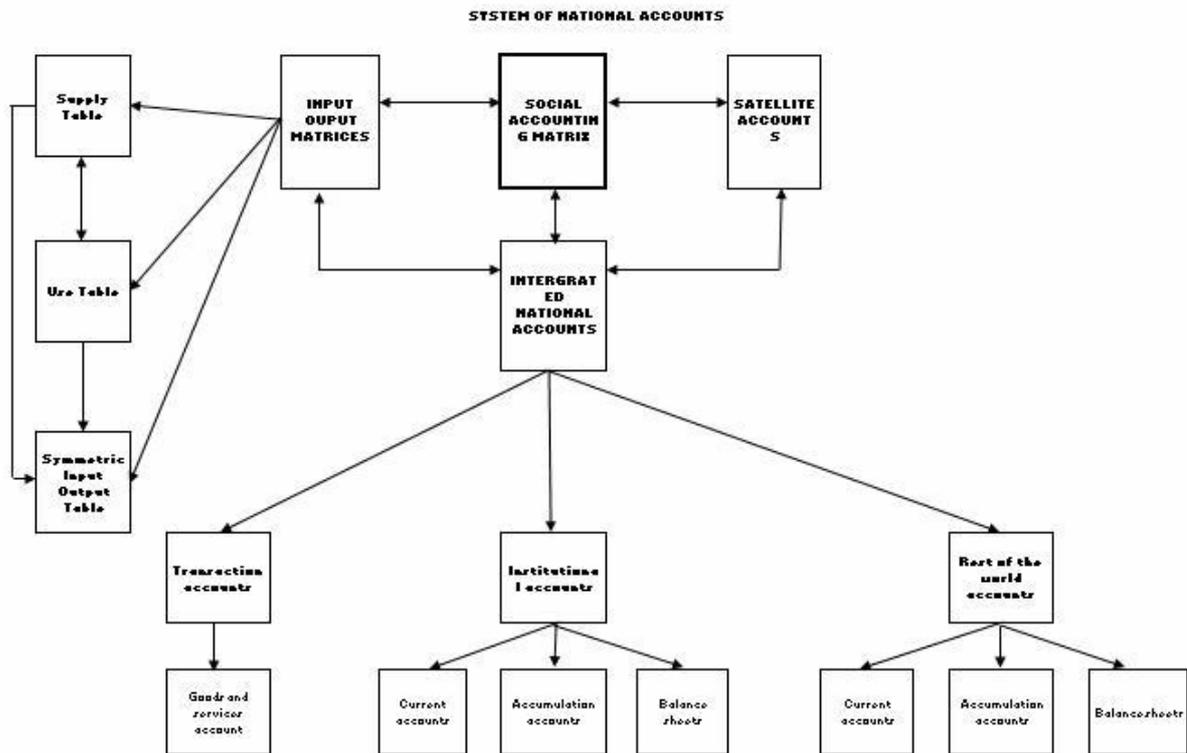
SECTION VI: SAM'S BUILDING BLOCKS

SAM is a compact coherent structure in which data from different statistical systems are incorporated within a square balanced matrix framework.

The data are derived from three large sources (Exhibit 1):

- INA: Integrated National Accounts: transactions, institutions, and rest of the world
- I-O: Input-Output Matrices: rectangular matrices and symmetric/square matrices
- SA: Satellite Accounts

Exhibit 1



Together with INA, I-O, and SA, the SAM is incorporated within the SNA93, the System of National Accounts adopted by the United Nations in 1993.

SNA93 is a collection of coherent, consistent and integrated macroeconomic accounts, balance sheets and matrices based on a set of internationally agreed concepts, definitions, classifications, and accounting rules. It provides a comprehensive accounting framework for compilation, presentation, analysis and policymaking. It enables the presentation in a condense way of a great mass of data organized according to economic principles and perceptions about the working of an economy.

SNA93 was produced by the Statistical Commission of the UN Economic and Social Council. This system followed several earlier versions of the UN national accounts standards: SNA47, SNA53, and SNA68. A major accomplishment of the SNA93 was its harmonization with all other major statistical standards: the IMF's balance of payments and financial statistics, with the ISIC: International Standard Industrial Classification; and with ILO standards (the International Labor Organization). Other important changes introduced by SNA93 include the establishment of separate accounts for revaluation of assets, inclusion of illegal activities into the national statistics, and the rules for compilation of chain price indexes.

The SNA93 has meant a great progress in economic statistics. Yet, there are still many holes in this system, which will be addressed by a new SNA in future, such as the treatments of:

- accounting for consumer subsidies
- clear informal-formal distinction
- environmental accounting
- services produced within households
- accounting of diverse financial activities (e.g., treatment of derivatives)
- education expenditure and human capital

As of now, data standards of the issues that are not covered by the SNA93 must be developed and implemented by the national statistics authorities of each country based on its specificities and needs.

The INA are subdivided into three systems of accounts: the transactions accounts, the institutional accounts (accounts for the resident institutional sectors), and the rest of the world accounts (non-resident subsectors). The I-O matrices are either “rectangular matrices” (the Supply matrix and the Use matrix) or “square” matrices (Product-by product matrix, Industry-by-industry matrix, and mixed I-O matrix). The SA include a variety of data systems covering diverse topics that are not covered by the INA/I-O system. They are sometimes called “functional accounts” for they are focused on certain policy functions, such as tourism or environmental management. The satellite accounts provide flexibility while being linked to and consistent with other elements of the SNA93. A more detailed presentation of the INA, I-O and SA is provided in the appendices. The SAM is designed to integrate all kinds of accounts and data matrices within a comprehensive framework. It is built in a format similar to square I-O matrices while providing an opportunity for comprehensive coverage for the structure of the national economy, including selected non-economic variables (institutional, social, environmental, etc.) being tailored to the specific data and policy needs of each country. The SAM is usually built along institutional divisions, covering both flows and stock changes in the economy and social areas of policies.

SECTION VII: THE 2004 MONGOLIA SAM

Mongolia belongs to those few countries which until recently lacked national SAM accounts. Recently a Mongolian SAM, for the first time, was compiled, for the year 2004. The results of this effort, in the most aggregated format, are presented in **Table 1**.

- In Mongolia's 2004 SAM the economy is broken down into eight sectors (payments/uses for each sector are listed below along with the corresponding SNA93 codes provided in parentheses):
- Five resident "flow" sectors reflecting current transactions in the economy:
 1. Activities: production of market output (P.11), production of output for own use, such as production of food consumed by herder households (P.12) and other non-market output, e.g., education services financed from the Budget (P.13), Taxes less subsidies on products, such as VAT (D.21/D.31); all of which are computed at the establishment level
 2. Commodities: all deliveries of output by resident sectors (P.1) and imports of goods and services (P.7); this is a country's total aggregate demand = total aggregate supply
 3. Value added: Compensation of employees, including social contributions (D.1), Taxes on production and imports (D.2), less Subsidies (D.3), Operating surplus (B.2), and Mixed income on products (D.21/D.31)
 4. General Government: Final consumption expenditure (P.3), Compensation of employees (D.1), Taxes on income and transfers (D.5/D.62/D.7/D.63), Disposable income (B.6/B.7), Fixed capital formation (P.51/K.1), Changes in inventories (P.52), Net lending (B.9)
 5. Rest of the economy: Current taxes on income (D.5), Social contributions, social benefits and other current transfers (D.61/D.62/D.63/D.7), Final consumption expenditure (P.3), Capital formation (P.51/P.52/P.53/K.2), and Net lending (B.9)
- One non-resident flow sector reflecting current transactions between the sectors of the national economy and foreigners
 1. Rest of the world: exports of goods and services (P.6), Taxes and transfers (D.5/D.6/D.7); this sector includes donors' grants and worker remittances
- Two "change in stock" sectors: reflecting changes in saving and capital investments
 1. Savings/investment-domestic: the amounts of incomes of households, firms and government; these incomes are either spent on direct investments into the economy (fixed capital and inventories) or used for financial capital transactions (paying off debt)
 2. Savings/investment-foreign: the amounts invested by foreign residents into the Mongolian economy and those of Mongolian nationals invested abroad, including loans and debt repayments

Each row in the SAM shows the income (receipts) of a given sector. E.g., the second row of the SAM shows all incomes of producers of "Commodities" amounting to payments (expressed in billion Tg) made by other sectors for deliveries of goods and services:

- Establishments ("Activities") paid 2,072 for their intermediate inputs (materials, energy, etc.) that they purchased from other establishments
- General Government paid 313 (final consumption of the General Government sector)

Table 1

Mongolia 2004 SAM Billion Tg		Activities	Commodities	Value added	General government	Rest of economy	Rest of world	Invest/ saving domestic	Invest/ saving foreign	Sum
		1	2	3	4	5	6	7	8	9
1	Activities		3,982							3,982
2	Commodities	2,072			313	1131	1,437	588	110	5,650
3	Value added	1,642								1,642
4	General government	269				422	103		153	947
5	Rest of economy			1,642	448		283		42	2,414
6	Rest of world		1,667			80			75	1,822
7	Invest/saving- domestic				105	671				777
8	Invest/saving- foreign				81	110		189		380
9	Sum	3,982	5,650	1,642	947	2,414	1,822	777	380	

Sources: Estimated based on data provided by the National Statistics Office, the Ministry of Finance, the General Department of National Taxation, the Mongolian Customs General Administration, the State Social Insurance General Office, and the Mongol Bank.

- The Rest of economy (Households) paid 1,131 for consumer goods and services they purchased in 2004
- The Rest of the world paid 1,437 for exports of goods and services
- Resident (domestic) investors paid 588 for the purchase of goods and services needed for their investment projects
- Non-residents (foreign) investors spent 110 for their projects (FDI)

Each column, in turn shows the expenditure of a given sector. Producers of “Commodities” spent 3,982 billion Tg for all inputs from residents (labor, capital, indirect taxes) and 1,667 billion Tg for the purchase of imports. The latter were either needed for production activities of enterprises (intermediate inputs) or were delivered to the “final consumers” (Households, Investors, Government and Exports).

Exhibit 2 shows the SAM as a flow chart displaying payment flows between the SAM sector. For convenience, sectors 1 and 2 as well as sectors 7 and 8 are merged in order to keep the presentation simple. There is one “gate” for the inflows/outflows “over space”, namely the ROW (The Rest of the world) link and one “gate” for the inflows/outflows “over time” – the saving/investment link. Inside the system the payments flows are circulating between different resident institutional sectors (the General government and the Rest of the economy), factors embedded in the value added (labor, capital and government), and activities and the commodities, the latter being inputs and outputs of the latter to/from the former. Everything that is not consumed during a given year ends up being saved/invested and transferred to the next year (in the case of our SAM to the year 2005). Each of the sectors shown in Table 1 could obviously be further disaggregated. E.g., the Rest of the economy is an amalgam of several resident institutional sectors: households, non-financial corporations, financial corporations, and the NPISHs. The Household sector may be divided into urban and rural, several income groups, and so on.

Exhibit 2

Table 2 provides documentation for the data included in the SAM table. Each cell of the SAM matrix is an aggregate of several variables. All data used to produce the Mongolia 2004 SAM are taken or derived (as residuals) from the officially published statistics.

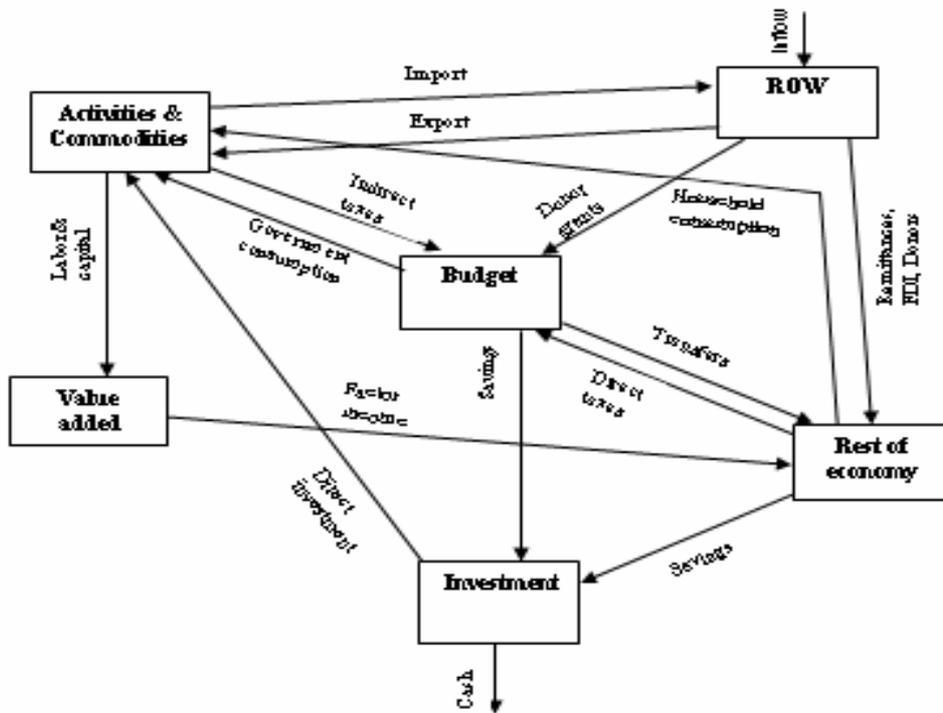


Exhibit 2. SAM flow chart

Table 2

Documentation for the 2004 SAM							
Sectors	SAM cells: rows	Billion Tg	Sources	Sectors	SAM cells: columns	Billion Tg	Sources
1	ACTIVITIES				ACTIVITIES		
	Income (total gross output)	3,982			Spending	3,982	
1-2	Activities	3,982		2-1	Commodities	2,072	
1-2.1	Total gross output	3,982	NSO	2-1.1	Intermediate consumption	2,072	NSO
				3-1	Value added	1,642	
				3-1.1	Value added at prod. prices	1,642	NSO
				4-1	General government	269	
				4-1.1	Indirect taxes	269	NSO
2	COMMODITIES				COMMODITIES		
	Income (final demand expenditure)	5,650			Spending (total aggregate supply)	5,650	
2-1	Activities	2,072		1-2	Activities	3,982	
2-1.1	Intermediate consumption	2,072	NSO	1-2.1	Total output	3,982	NSO
2-4	General government	313		6-2	Rest of world	1,667	
2-4.1	Government consumption	313	NSO	6-2.1	Import	1,667	
2-5	Rest of economy	1,131		6-2.1.1	Goods	1069	BoP
2-5.1	Household consumption	1,131	NSO	6-2.1.2	Services	509	BoP
2-6	Rest of world	1,437					
2-6.1	Export	1,437					
2-6.1.1	Goods	1035	BoP				
2-6.1.2	Services	338	BoP				
2-7	Investment/savings-dom	588					
2-7.1	General government	105	Budg				
2-7.2	Domestic private	483	NSO				
2-8	Investment/savings-for	110					
2-8.1	FDI	110	BoP				
3	VALUE ADDED				VALUE ADDED		
	Income	1,642			Spending	1,642	
3-1	Value added	1,642		5-3	Activities	1,642	
3-1.1	Value added at prod.	1,642	NSO	5-3.1	Value added	1,642	NSO
4	General government				General government		
	Income	947			Spending	947	
4-1	Activities	269		2-4	Commodities	313	
4-1.1	Indirect taxes	269	NSO	2-4.1	Government consumption	313	NSO
4-5	Rest of economy	422		5-4	Rest of economy	448	
4-5.1	Direct taxes	310	Budg	5-4.1	Social transfers	212	Deriv
4-5.2	Non-tax revenue	112	Budg	5-4.2	Non-budget activities	236	BoP
4-6	Rest of world	103		7-4	Investment/savings-dom	105	
4-6.1	Donor grants (TA)	103	BoP	7-4.1	Budget direct investment	105	Budg
4-8	Investment/Saving-for	153		8-4	Investment/savings-for	81	
4-8.1	Donor loans	153	BoP	8-4.1	Debt payment (principal)	81	BoP

5	REST OF ECONOMY				REST OF ECONOMY		
	Income	2,414			Spending	2,414	
5-3	Value added	1,642		2-5	Commodities	1,131	
5-3.1	Value added at prod.	1,642	NSO	2-5.1	Household consumption	1,131	NSO
5-4	General government	448		4-5	General government	422	
5-4.1	Social transfers	212	Budg	4-5.1	Direct taxes	310	Budg
5-4.2	Non-budget (donors, etc.)	236	Budg	4-5.2	Non-tax revenue	112	Budg
5-6	Rest of world	283		6-5	Rest of world	80	
5-6.1	Private remittances	232	BoP	6-5.1	Transfers and inc.	80	BoP
5-6.2	Other transfers	42	BoP	7-5	Investment/savings-dom	671	
5-6.3	Comp. of employees	8	BoP	7-5.1	Direct investment	593	NSO
5-8	Investment/Saving-foreign	42		7-5.2	Savings	78	Deriv
5-8.1	Loans	42	BoP	8-5	Investment/savings-for	110	
				8-5.1	Loan repayment	110	BoP
6	REST OF WORLD				REST OF WORLD		
	Income	1,822			Spending	1,822	
6-2	Commodities	1,667		2-6	Commodities	1,437	
6-2.1	Import	1,667		2-6.1	Export	1,437	
6-2.1.1	Goods	1,069	BoP	2-6.1.1	Goods	1035	BoP
6-2.1.2	Services	509	BoP	2-6.1.2	Services	3	BoP
6-5	Rest of economy	80		4-6	General government	103	
6-5.1	Worker's remittances	58	BoP	4-6.1	Donor grants (TA)	103	BoP
6-5.2	Investment income	22	BoP	5-6	Rest of economy	283	
6-8	Investment/savings-for	75		5-6.1	Private remittances, gross	232	BoP
6-8.1	Decline of RoW assets	75	BoP	5-6.2	Other transfers	42	BoP
				5-6.3	Comp. of employees	8	BoP
7	INVESTMENT/SAVINGS- DOMESTIC				INVESTMENT/SAVINGS- DOMESTIC		
	Income	776			Spending	777	
7-4	General government	105		2-7	Commodities	588	
7-4.1	Budget direct investment	105	Budg	2-7.1	Direct investment	588	NSO
7-5	Rest of economy	671		8-7	Investment/Savings-for	189	
7-5.1	Direct investment	593	NSO	8-7.1	Official reserve	41	BoP
7-5.2	Total savings	78	Deriv	8-7.2	Bank deposits +	142	BoP
				8-7.3	Omission	7	BoP
8	INVESTMENT/SAVINGS- FOREIGN				INVESTMENT/SAVINGS- FOREIGN		
	Income	380			Spending	380	
8-4	General government	81		2-8	Commodities	110	
8-4.1	Debt payment (principal)	81	BoP	2-8.1	FDI	110	BoP
8-5	Rest of economy	110		4-8	General government	153	
8-5.1	Loan repayment	110	BoP	4-8.1	Donor loans	153	BoP
8-7	Investment/Savings-dom	189		5-8	Rest of economy	42	
8-7.1	Official reserve	41	BoP	5-8.1	Other loans	42	BoP
8-7.2	Bank	142	BoP	6-8	Rest of world	75	
8-7.3	Omission	7	BoP	6-8.1	Decline of RoW assets	75	BoP

SECTION VIII: THE SAM/INA MACROECONOMIC BALANCE EQUATIONS

Table 3 presents balance equations consistent with the SAM, which derive the major macroeconomic indicators for Mongolia, including the gross domestic product (GDP), gross national income (GNI), net national income (NNI), net national disposable income (NNDI) and national savings. In 2004 the national savings were a positive value (75 billion Tg), which suggests that the “net worth” of Mongolia vis-à-vis the rest of the world has increased. It was made possible by the increasing receipts from exports of mining products as well as by inflows of private remittances and of donors’ grants.

However, given the methodology of the calculation of the macroeconomic indicators, the official figures do not seem to cover the entire area within the country’s “economic boundary” as defined by the SNA93. The official GDP does not include the shadow economy, especially the “formal shadow” (activities of the formal sector which are not registered with tax authorities and other state agencies due to tax evasion and avoidance of certain rules by the officially registered economic entities) as well as several other variables, such as imputed income from owner-occupied dwellings, the use of capital in the budget sector, and illegal activities. While the GDP is undercounted the GNI seems to be overcounted given the inadequate calculation of foreign factor income (workers remittances, profits generated by foreign-owned companies, etc.).

The SAM should be consistent with a system of national account equations, as presented in Table 3. More data are needed in order to fill all these equations with the actual official 2004 figures.

Table 3

(1)	Gross domestic product (GDP) at market prices = Output + taxes, less subsidies on products - intermediate consumption.	1911=3982-2072
(2)	Gross domestic product (GDP) at market prices = Final consumption expenditure/ actual final consumption + changes in inventories + gross fixed capital formation + acquisitions less disposals of valuables + exports of goods and services - imports of goods and services.	1911
(3)	Gross national income (GNI) at market prices = GDP at market prices + taxes, less subsidies, on production and imports (net, receivable from abroad) + compensation of employees (net, receivable from abroad) + property income (net, receivable from abroad).	2072
(4)	Net national income (NNI) at market prices = GNI at market prices - consumption of fixed capital	1906
(5)	Net national disposable income (NNDI) = NNI at market prices + current taxes on income, wealth, etc. (net, receivable from abroad) + social contributions and benefits and other current transfers (net, receivable from abroad).	2051
(6)	Net national disposable income (NNDI) = Final consumption expenditure/ actual final consumption + adjustment for the change in net equity of households on pension funds (net, receivable from abroad) + saving, net.	2051
(7)	Saving, net + capital transfers (net, receivable from abroad) = Changes in net worth due to saving and capital transfers	

(8)	Saving, net + capital transfers (net, receivable from abroad) = Gross fixed capital formation - consumption of fixed capital + changes in inventories + acquisitions less disposals of valuables + acquisitions less disposals of non-produced non-financial assets + net lending(+)/ net borrowing(-).	
(9)	Net lending(+)/ net borrowing(-) = Net acquisition of financial assets - net incurrence of liabilities	76
(10)	Net lending(+)/ net borrowing(-) = Net acquisition of financial (external) assets - net incurrence of (external) liabilities.	
(11)	Opening assets - opening liabilities = Opening net worth	
(12)	Closing non-financial assets = Opening non-financial assets + gross fixed capital formation - consumption of fixed capital + changes in inventories + acquisitions less disposals of valuables + acquisitions less disposals of non-produced non-financial assets + other changes in volume of non-financial assets + revaluation of non-financial assets.	
(13)	Closing financial assets = Opening financial assets + net acquisition of financial assets + other changes in volume of assets + revaluation of financial assets.	
(14)	Closing liabilities = Opening liabilities + net incurrence of liabilities + other changes in volume of liabilities + revaluation of liabilities.	
(15)	Changes in net worth = Changes in net worth due to saving and capital transfers + changes in net worth due to other changes in volume of assets + changes in net worth due to nominal holding gains/ losses. Closing assets -closing liabilities	
(16)	= Closing net worth	
(17)	Closing net worth = Opening net worth + changes in net worth	
(18)	Exports of goods and services - imports of goods and services + taxes, less subsidies on production and imports (net, receivable from abroad) + compensation of employees (net, receivable from abroad) + property income (net, receivable from abroad) + current taxes on income, wealth, etc. (net, receivable from abroad) + social contributions and benefits and other current transfers (net, receivable from abroad) + capital transfers (net, receivable from abroad) - acquisitions less disposals of non-produced non-financial assets = Net acquisition of financial (external) assets - net incurrence of (external) liabilities.	
(19)	Exports of goods and services - imports of goods and services + taxes, less subsidies on production and imports (net, receivable from abroad) + compensation of employees (net, receivable from abroad) + property income (net, receivable from abroad) + current taxes on income, wealth, etc. (net, receivable from abroad) + social contributions and benefits and other current transfers (net, receivable from abroad) + capital transfers (net, receivable from abroad) - acquisitions less disposals of non-produced non-financial assets = Net lending (+) / net borrowing (-).	
(20)	Net lending(+)/ net borrowing(-) + other changes in volume of financial (external) assets + revaluation of financial (external) assets - other changes in volume of (external) liabilities - revaluation of (external) liabilities = Changes in net external financial position	
(21)	Net lending(+)/ net borrowing(-) + other changes in volume of financial (external) assets + revaluation of financial (external) assets - other changes in volume of (external) liabilities - revaluation of (external) liabilities = [Closing financial (external) assets - closing (external) liabilities] - [opening financial (external) assets - opening (external) liabilities].	

SECTION IX: ZOOMING THE SAM (THE *MATRYOSHKA* STRUCTURE)

The SAM system enables to build *matryoshka* type structures, by treating each SAM cell as a “gate” into another data table or tables that provide a more detailed account for the figure presented in the aggregated SAM. The concept here is similar to that used by the on-line facilities presenting geographic maps which, by consecutive zooming, may be enlarged from the map of the world, to a map of a country, next to a map of specific area in the country, and finally to detailed map of a street block in a town or of a small rural area.

This SAM *matryoshka* provides an opportunity to extend the integrity and consistency of to the whole system of SAM accounts. For presentation and educational needs, an interactive computer application could be built, similar to a mapping computer program described above. By using the capacity of hyperlink-type connections the increasingly detailed figures may be obtained by a user who makes his/her choices by clicking on a selected entry of the aggregated SAM table and its more detailed extensions. Installation of such on-line utility on internet would enable the NSO data users to get access to detailed data (within the confidentiality limits) which would be fully reconciled with the official macroeconomic aggregates.

For illustration, herein a chain of more detailed SAM tables is presented. As an example the entry 4-1 of the aggregated SAM table has been chosen, i.e., the payments of indirect taxes, 269 billion Tg. As shown in Table 4, these payments could be further broken down into different kinds of taxes (VAT, excise, customs, export taxes, and subsidies on products).

Table 4

Indirect taxes, by border/domestic, 2004 billion Tg	Border	Domestic	VAT refunds	Total
VAT	136,9	57,4	-31,3	163,1
Domestic	0,0	57,4		57,4
Largest 1000 payers	0,0	54,6		54,6
Other	0,0	2,8		2,8
Imports	136,9	0,0		136,9
Refunds			-31,3	-31,3
Excise	47,0	23,3		70,3
Customs	40,8	0,0		40,8
Exports	3,9	0,0		3,9
Subsidies on products	0,0	-9,1		-9,1
Total	228,6	71,6	-31,3	269,0

Next, the domestic VAT payments, 57.4 billion Tg, could be presented as a table of payments by economic industry and private/non-private ownership status (**Table 5**).

Table 5

Table 5 Domestic VAT payments, by sector, 2004, billion Tg	Private	Non- private	Total
Sector			
Agriculture	0,2	0,0	0,2
Mining of coal, oil, and gas	1,9	1,1	3,0
Manufacturing	8,9	1,8	10,7
Electricity	0,3	8,3	8,5
Construction	2,4	0,1	2,5
Trade	13,7	0,0	13,7
Hotels and restaurant	2,8	0,0	2,8
Transportation, communication	9,2	0,0	9,2
Financial intermediation	0,7	0,4	1,1
General government	0,3	0,1	0,4
Education services	0,0	0,0	0,0
Health and social services	0,01	0,1	0,1
Other services	2,4	2,7	5,1
Total	43,0	14,4	57,4

Our presentation stops at this level of aggregation, but the procedure could continue. E.g., the domestic VAT payments of the private Trade sector (13,7 billion Tg), could be broken down into different Trade subsectors in accordance with the ISIC system: Sale, maintenance and repair of motor vehicles and retail sale of automotive fuels (ISIC 50), wholesale trade (ISIC 51), and retail trade (ISIC 52), while the private sector could be broken down into several categories, such as: private domestic limited liability companies, foreign owned companies, co-operatives, etc.

ANNEX A: SNA93 INTEGRATED NATIONAL ACCOUNTS (INA)

ANNEX A: SNA93 INTEGRATED NATIONAL ACCOUNTS (INA)

The INA system is built around interconnected flow accounts linked to different types of economic activity taking place within a given period of time, together with balance sheets that record the values of stocks of assets and liabilities held by institutional sectors at the beginning and end of the period.

An account is a tool which records, for a given aspect of economic life, the uses and resources (**flow account**) and the changes in assets and in liabilities or the stock of assets and liabilities existing at a certain time (**stock account**).

A balance sheet is a statement, drawn up at a particular point in time, of the values of assets owned by an institutional unit or sector and of the financial claims (i.e. liabilities) incurred by this unit or sector; for the economy as a whole, the balance sheet shows what is often referred to as “**national wealth**” - the sum of non-financial assets and net claims on the Rest of the world.

Each flow account relates to a particular kind of activity, such as production, or the generation of income. It is balanced by a **balancing item** defined residually as the difference between the total resources and uses recorded on the two sides of the account. The balancing item from one account is carried forward as the first item in the following account, thereby making sequence of accounts a coherent whole. The balancing item typically encapsulates the net result of the activities covered by the accounts in question. There is also link between flow accounts and balance sheets as all the changes occurring over time that affect the assets or liabilities held by institutional units are systematically recorded in flow accounts. The closing balance sheet is determined by the opening balance sheet and the transactions or other flows recorded in the sequence of flow accounts.

The INA includes: the transactions account, the resident institutional accounts, and the rest of the world accounts (Exhibit 3).

Exhibit 3. INA accounts [balancing item]

INA1. Transactions account

0: Goods and services account

INA2. Resident institutional accounts

I: Production account [Net/Gross domestic product]

II: Distribution and use of income accounts

II.1: Primary distribution of income account

II.1.1: Generation of income account [Operating surplus and Mixed income]

II.1.2: Allocation of primary income account [National income]

II.1.2.1: Entrepreneurial income account [Entrepreneurial income]

II.1.2.2: Allocation of other primary income account [National income]

II.2: Secondary distribution of income account [Disposable income]

II.3: Redistribution of income in kind account [Adjusted disposable income]

II.4: Use of income account

II.4.1: Use of disposable income account [Saving]

II.4.2: Use of adjusted disposable income account [Saving]

III: Accumulation accounts

- III.1: Capital account [Net lending / Net borrowing]
- III.2: Financial account [Net lending / Net borrowing]
- III.3: Other changes in assets accounts
 - III.3.1: Other changes in volume of assets account [Changes in net worth due to other changes in volume of assets]
 - III.3.2: Revaluation account [Changes in net worth due to nominal holding gains/losses]
 - III.3.2.1: Neutral holding gains/losses account [Changes in net worth due to neutral holding gains/losses]
 - III.3.2.2: Real holding gains/losses account [Changes in net worth due to real holding gains/losses]

INA3. Resident institutional balance sheets

- IV: Balance sheets
 - IV.1: Opening balance sheet [Net worth]
 - IV.2: Changes in balance sheet [Changes in net worth]
 - IV.3: Closing balance sheet [Net worth]

INA4. Rest of the world accounts

- V.I: External account of goods and services [External balance of goods and services]
- V.II: External account of primary incomes and current transfers [Current external balance]
- V.III: Accumulation accounts
 - V.III.1: Capital account [Net lending / Net borrowing]
 - V.III.2: Financial account [Net lending / Net borrowing]
 - V.III.3: Other changes in assets accounts
 - V.III.3.1: Other changes in volume of assets account [Changes in net worth due to other changes in volume of assets]
 - V.III.3.2: Revaluation account [Changes in net worth due to nominal holding gains/losses]
 - V.III.3.2.1: Neutral holding gains/losses account [Changes in net worth due to nominal holding gains/losses]
 - V.III.3.2.2: Real holding gains/losses account [Changes in net worth due to real holding gains/losses]

INA5. Rest of the world balance sheets

- V.IV: External balance sheets
 - V.IV.1: Opening balance sheet [Net worth]
 - V.IV.2: Changes in balance sheet [Changes in net worth]
 - V.IV.3: Closing balance sheet [Net worth]

INA1. Transactions account (see Exhibit 1)

The transactions account (Goods and services: Account 0) shows the generation and use of goods and services, i.e., the total resources (Gross domestic output (GDP, P.1) and Imports of goods and services (P.7)) and their uses (Intermediate consumption (P.2), Final consumption (P.3/P.4), Gross fixed capital formation (P.51), Changes in inventories (P.52), Net acquisitions of valuables (P.53), and Exports of goods and services (P.6)). This account corresponds to Sector 2 (Commodities) in our SAM (Table 1). It also provides a basis for the compilation of input-output matrices (Exhibit 7).

INA2. Resident institutional accounts (Exhibits 4 and 5)

The resident institutional accounts are structured in three subsets, for current accounts, accumulation accounts, and balance sheets. These accounts are constructed for all main categories of resident institutional units: Households, Government, NPISHs, Non-financial corporations, and financial corporations.

Exhibit 4

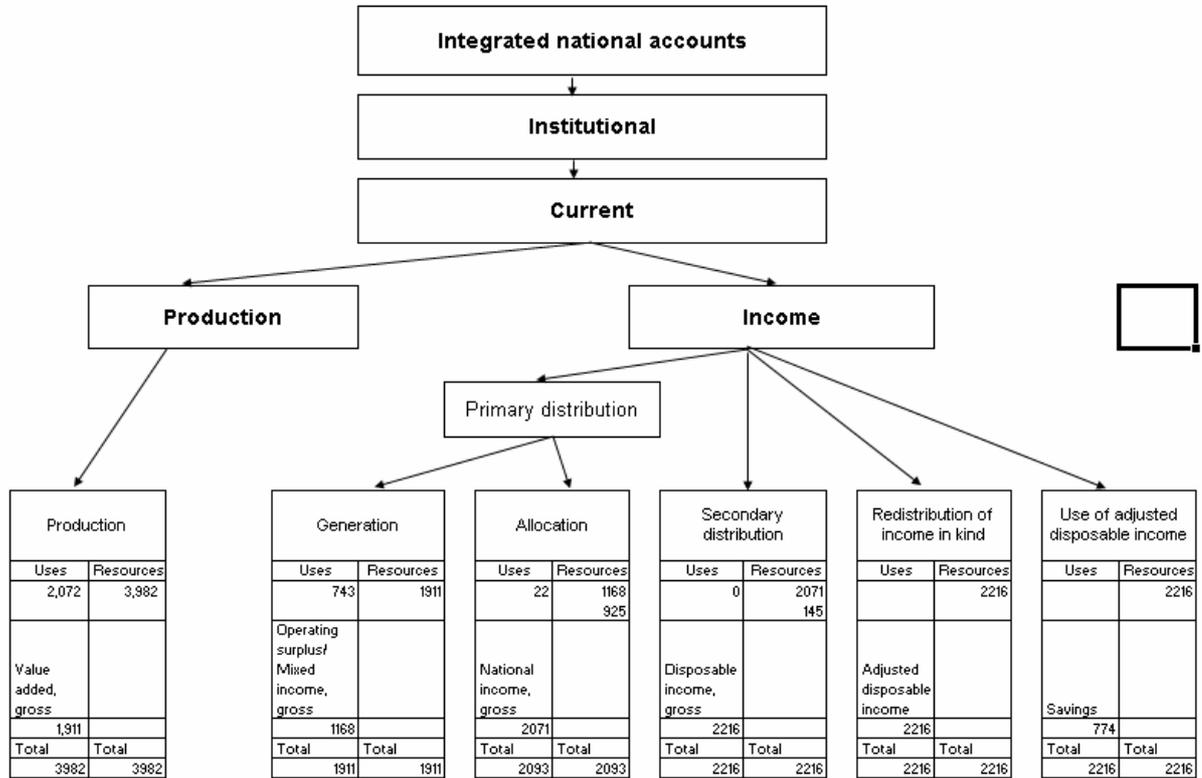
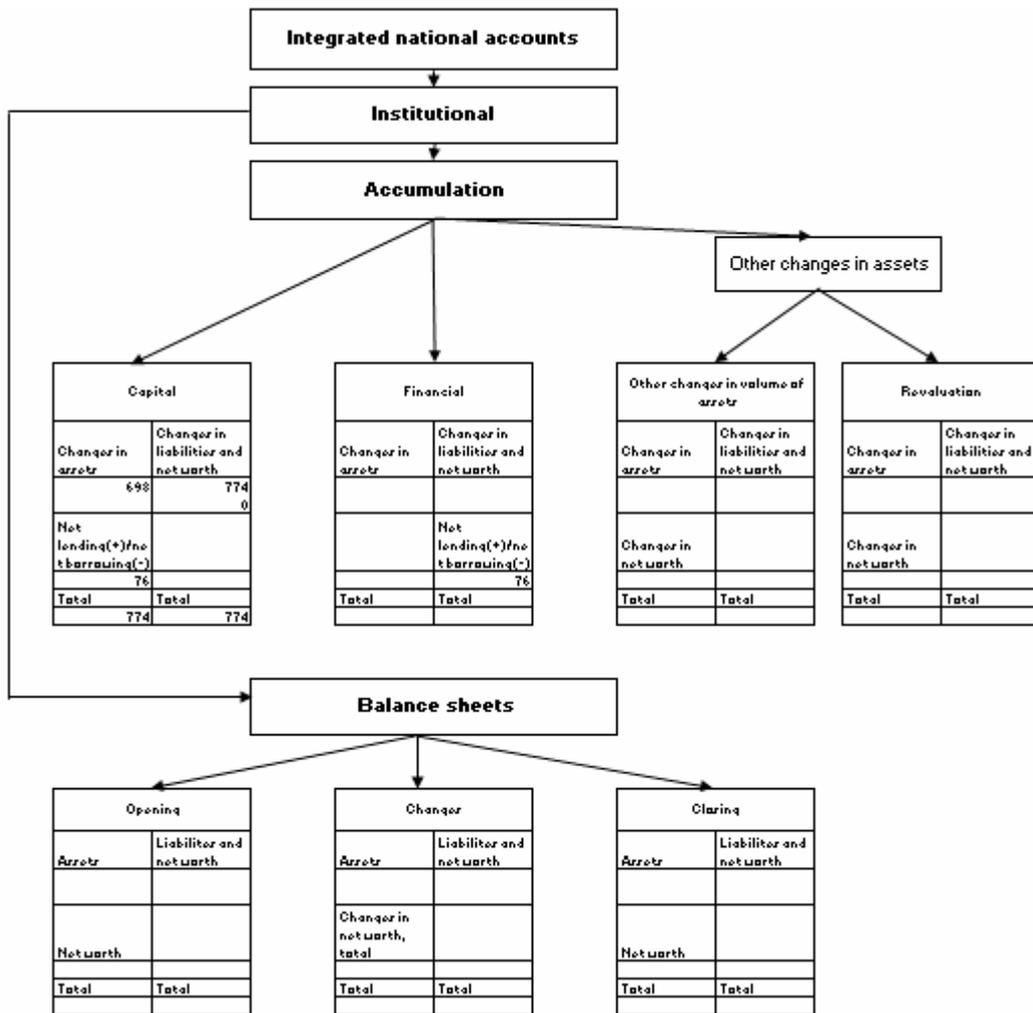


Exhibit 5



The production account (Account I) shows output as resources and intermediate consumption as uses; the balancing item is Gross domestic product/Gross value added (GDP/GVA, B.1g) or Net domestic product/Net value added (NDP/NVA, B.1n), the latter being calculated as a difference between GDP (B.1g) and Consumption of fixed capital (K.1). In Mongolia in 2004 the official GVA was 1,911 billion Tg, while NVA was 1,745. The difference, 166, was Consumption of fixed capital.

The distribution and use of income accounts (Accounts II) cover: Primary distribution, Secondary distribution, Redistribution, and the Use of income.

The primary distribution of income accounts (Accounts II.1) show how the GVA is distributed to factors of labor and capital, government and the flows to and from the rest of the world. It is composed of two sub-accounts covering the generation of income and the allocation of primary income.

The generation of income account (Account II.1.1) records the transactions which are directly linked to the process of production. The resources consist of Value added, either GDP or NDP (B.1); its uses include Compensation of employees (D.1), and Taxes on production and Imports (D.2), less Subsidies (D.4). The balancing item is Operating surplus plus Mixed income (B.2 + B.3), which is relatively high in Mongolia, where, unlike in many other countries, more than a half of labor are employed in the informal sector, mostly in animal husbandry and generate “Mixed income” rather than “Compensation of employees” (Wages

and salaries). Thus the balancing item in the Generation of income account in Mongolia in 2004 was 1,168 billion Tg (61 percent of total Gross value added).

The allocation of primary income account (Account II.1.2) shows the remaining part of the primary distribution of income. It records, for each institutional sector, Property income, receivable and payable (D.4), Compensation of employees (D.1) and Taxes less subsidies, on production and imports (D.2 and D.3). It has Operating surplus/Mixed income (B.2/B.3) as part of resources and GNI (Gross national income, B.5) as a balancing item (2,072 billion Tg in 2004 in Mongolia).

The secondary distribution of income account (II.2) records as resources, the Balance of primary incomes (National income, B.5), Current taxes on income, wealth, etc. (D.5), Social benefits except social transfers in kind (D.62), and Other current transfers (D.7). On the uses side, the same types of transfers are also recorded along with Social contributions (D.61). The balancing item is Disposable income, either net or gross (NDI or GDI, B.6), which is used for final consumption expenditure and saving. Disposable income (DI) is either in cash or in-kind. In Mongolia, in 2004, NDI was 2,051 billion Tg, which was the sum of Net national income (NNI, 1,906 billion tg) and net foreign grants amounting to 145 billion Tg.

The redistribution of income in kind account (Account II.3) records social benefits in kind and transfers of individual non-market goods and services, such as healthcare and education. The balancing item is Adjusted disposable income (ADI, B.7), which at the total economy level is equal to Disposable income (DI, B.6). They differ only at the level of particular relevant sectors, for which the differences between Final consumption expenditure and Actual final consumption are equal to social transfers in kind, provided or received. E.g., for the Households, the ADI equals DI plus Social transfers, while for the Government it equals DI minus Social transfers.

The use of income accounts (Accounts II.4) are: the use of disposable income account (II.4.1) and the use of adjusted disposable income account (II.4.2). On the resources side they have Disposable income (DI, B.6), or the Adjusted disposable income (ADI, B.7), while on the uses side they include the Final consumption expenditures (P.3), or the Actual final consumption expenditure (P.4) with adjustments and Saving as the balancing item, net or gross (B.8). Net saving in Mongolia in 2004 amounted to 608 billion Tg.

The accumulation accounts (Accounts III) show changes in assets, liabilities and net worth. Saving, being the balancing items of all current transactions/accounts is the starting element of accumulation accounts. There are three kinds of accumulation accounts: the capital account, the financial account, and the other changes in assets accounts.

The capital account (Account III.1) records transactions linked to acquisitions of non-financial assets and capital transfers involving the redistribution of wealth. The right side includes net Saving (B.8n), and Capital transfers receivable and payable (D.9) in order to arrive at that part of changes in Net worth due to Saving and Capital transfers (B.10.1). Because Consumption of fixed capital is a negative change in fixed assets, it is recorded, with a negative sign, on the left side of the account. Entering Gross capital formation (P.51) and Consumption of fixed capital (K.1) on this side is equivalent to entering Net capital formation. The balancing item (B.9) is either Net national lending (+) or Net borrowing (-). In Mongolia this was +76 billion Tg (Net lending). By this much the National savings exceeded the National spendings on non-financial net capital formation (Fixed capital and Changes in inventories and valuables).

The financial account (Account III.2) records transactions in financial instruments: Net acquisition of financial assets on the left side or Net incurrence of liabilities on the right

side. The balancing item is again Net lending (+) or net borrowing (-); +76 billion Tg in Mongolia in 2004.

The other changes in assets accounts (Accounts III.3) show changes in assets, liabilities and net worth which are due to factors other than the transactions recorded in the capital account and financial account. This account is subdivided into two sub-accounts: the account for other changes in volume of assets (Account III.3.1) and the revaluation account (Account III.3.2).

The other changes in volume of assets account records those exceptional events which cause the value and the volume of assets and liabilities to vary. In addition to such *force major* related events as the consequences of war or earthquakes, this account also includes some adjustment elements like changes in classification and structure which may or may not have an influence on Net worth (B.10.2).

The revaluation account shows changes in nominal holding gains/losses. This item records change of value due to the change in prices of the various assets or liabilities since the beginning of the accounting period or the time of entry and the time of exit or the end of the accounting period (K.11). For a given unit or group of units, a positive revaluation of its financial liabilities is equivalent to a nominal holding loss; a negative revaluation of its liabilities is equivalent to a nominal holding gain. The balancing item of the account is changes in net worth due to nominal holding gains/losses (B.10.3).

INA3. Resident institutional balance sheets (Exhibit 5)

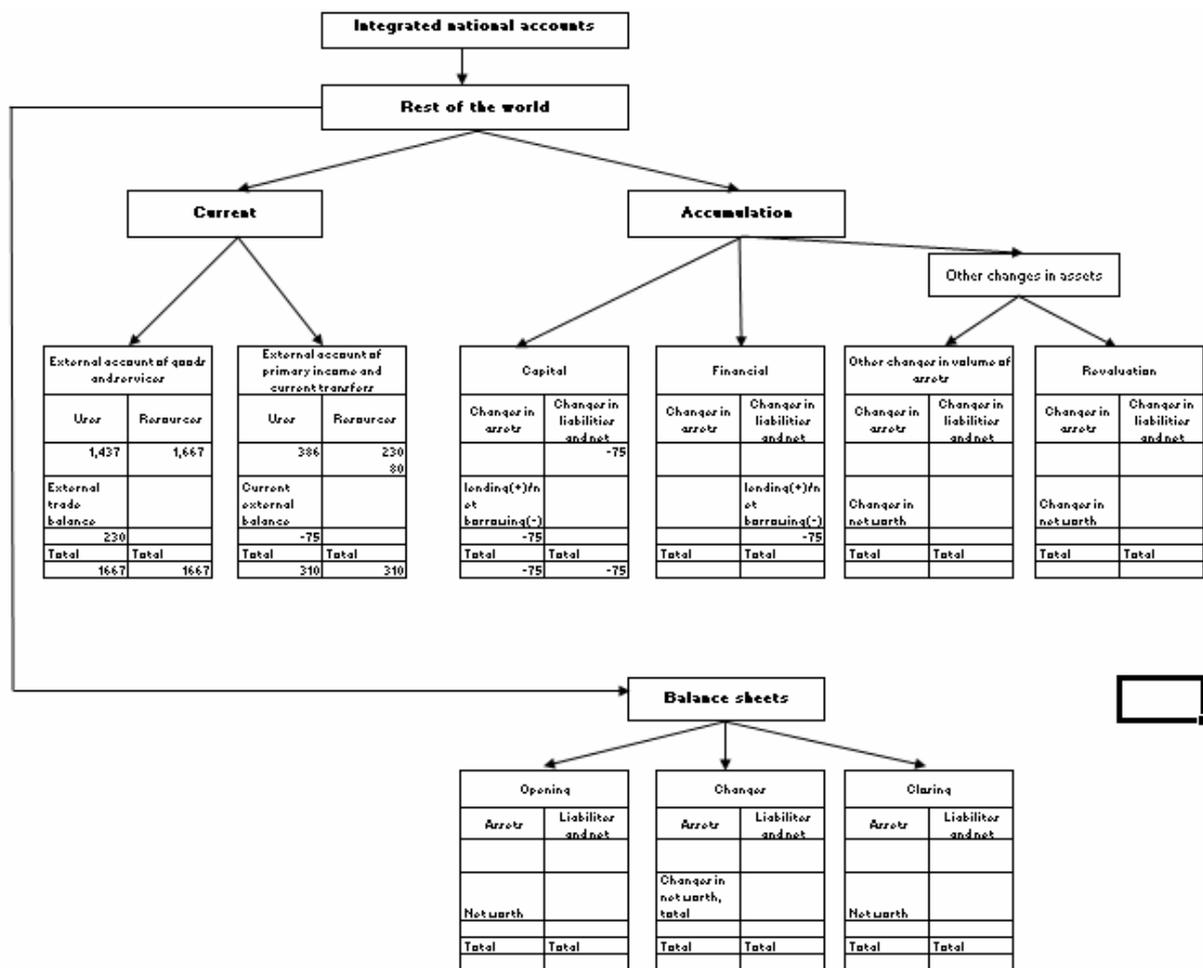
The opening balance sheet (Account IV.1) and closing balance sheet (Account IV.3) display Assets on the left side, Liabilities and Net worth on the right side. Net worth, the difference between Assets and Liabilities, is the balancing item of balance sheets. It is equivalent to the Present value of the stock of economic value a sector holds. In more detailed presentations of balance sheets, the various types of assets and liabilities are shown in accordance with a more detailed classification.

The changes in balance sheet (Account IV.2) recapitulates the content of the accumulation accounts, that is, the total changes in Assets (AN and AF) and in Liabilities (AF) and the changes in Net worth (B.10) by main sources: Saving and Capital transfers (B.10.1), Other changes in volume of assets (B.10.2), and Nominal holding gains/losses due to price changes (B.10.3). Data on the changes in balance sheet are not readily available for Mongolia. More work is needed in order to compile the figures for this section of INA.

INA4. Rest of the world accounts (Exhibit 6)

The rest of the world accounts (Account V) cover transactions between resident and non-resident institutional units and the related stocks of assets and liabilities. A resource for the rest of the world is a use for the nation and vice versa. If a balancing item is positive, it means a surplus for the rest of the world and a deficit for the nation, and vice versa if the balancing item is negative. The rest of the world accounts follow the general accounting structure, but they differ slightly in order to focus on relevant characteristics of external transactions.

Exhibit 6



INA5. Rest of the world balance sheets (Exhibit 6)

The external balance sheets (Accounts V.IV) show the level and composition of the stock of external financial assets and liabilities of the economy that result from the external transactions accounts and accumulation accounts. In contrast to the balance sheets of resident institutional units and sectors which include Non-financial assets, the external assets and liabilities account consists entirely of Financial assets and liabilities. The net result, or figures on the asset side (from the point of view of the rest of the world) may be negative if the balance of accumulated transactions reflects net sales by the rest of the world. An economy's net claims on the rest of the world, or Net international investment position, when summed with the economy's stock of Non-financial assets, comprise the total economy's Net worth.

The SNA93 requires balance sheets to be drawn up at both the beginning and end of the accounting period, which usually covers one year, and requires a full accounting of the changes in value of the financial assets and liabilities between the opening and closing balance sheets. These changes in value may be due to Saving and capital transfers (B.10.1), Other changes in the volume of assets (B.10.2) and/or to Nominal holding gains and losses (B.10.3). The net result of the changes in value is changes in assets less changes in liabilities, which is reflected in the Net worth (B.90) balancing item in the closing balance sheet.

INA disaggregation

All examples provided thus far have remained at a high aggregation level, including only a few summary data in each account or balance sheet. Obviously, the SNA93 operates at many different aggregation levels, from a few summary statistics to a very large number of detailed micro data points. In Table 6, such a disaggregation is presented. The generation of income account (Account II.1.1) provides data allocated among different institutional sectors.

Table 6

Generation of income account

USES						RESOURCES						
Total	Government	Financial	Non-Financial	Government	Households	Households	Government	Non-Financial	Financial	Government	Total	
1,911						TOTAL					1,911	
						B.1g	Value Added, gross	399	157	1,284	71	1,911
						B.1n	Value Added, net	395	157	1,127	66	1,745
473		19	274	157	24	D.1	Compensation of employees					
394		16	233	129	16	D.11	wages and salaries					
79		3	40	28	8	D.12	employers' social contributions					
0			0			D.2	Taxes on production and imports					
						D.21	taxes on products					
			163			D.211	VAT					
			41			D.212	taxes and duties on imports excl.VAT					
			4			D.213	export taxes					
			70			D.214	taxes on products except VAT, import & export taxes					
0			0			D.29	other taxes on production					
						D.3	Subsidies					
1,438		52	1,010	0	375	B.2g	Operating Surplus, gross					
1,272		47	853	0	371	B.2n	Operating Surplus, net					

This table shows how much income was generated by the Financial Corporations, Non-financial sector, Government, and Household sector. In Mongolia in 2004 the Government had a large share in the Compensation of employees (Wages and salaries), about one-third. In the Non-financial sector, almost four-fifths of post-tax incomes were classified as Gross operating

surplus. A further disaggregation of this figure (Ulaanbaatar, other urban, and rural households; high income, low income, below poverty income households, etc.) would be needed in order to understand income allocation in Mongolia and enable a meaningful analysis for the sake of formulation of a poverty reduction policy.

ANNEX B: INPUT-OUTPUT (I-O) MATRICES

ANNEX B: INPUT-OUTPUT (I-O) MATRICES

An input-output (I-O) matrix is a means of presenting detailed data on production and the use of goods and services (products) and the income generated in this production. The concepts and definitions in the I-O matrices are the same as in the rest of the SNA93.

These matrices provide a framework for economic statistics, both conceptually for ensuring the consistency of the definitions and classifications used and as an accounting framework for ensuring the numerical consistency of data, which is obtained from many different kinds of sources, such as industrial surveys, household expenditure inquiries, investment surveys, and foreign trade statistics. This is particularly important for the decomposition of values of products into prices and volumes for the calculation of an integrated set of price and volume measures.

As an analytical tool, I-O data can be easily integrated into economic models in order to analyze the link between final demand and industrial output levels. I-O analysis also serves a number of other analytical applications.

There are two main kinds of I-O matrices:

- rectangular matrices: supply (make) matrix, and use (disposition) matrix
- symmetric (Leontief-type square I-O matrices): industry-by-industry and product-by-product

While supply and use matrices are compiled directly from actual data, the symmetric matrices are calculated from the supply and use matrices, along with some additional data from other sources, and are based on certain analytical assumptions.

Basic units of I-O matrices are the establishments, each of which engages in productive activities (principal, secondary, and ancillary) at a single location, grouped in industries or sectors. As an establishment always belongs to an institutional unit it is possible to link the production activities of industries and institutional sectors. Output of an institutional unit is equal to the sum of the outputs of the individual establishments of which the institutional unit is composed, thus it includes deliveries between establishments within the institutional unit (i.e., inter-establishment flows).

The SNA93 uses the International Standard Industrial Classification (ISIC) for industries and the Central Product Classification (CPC) for products. ISIC is the United Nations classification of all economic activities. The CPC is a classification based on the physical characteristics of goods or on the nature of the services rendered; each type of good or service distinguished in the CPC is defined in such a way that it is normally produced by only one industry (one activity) as defined in ISIC.

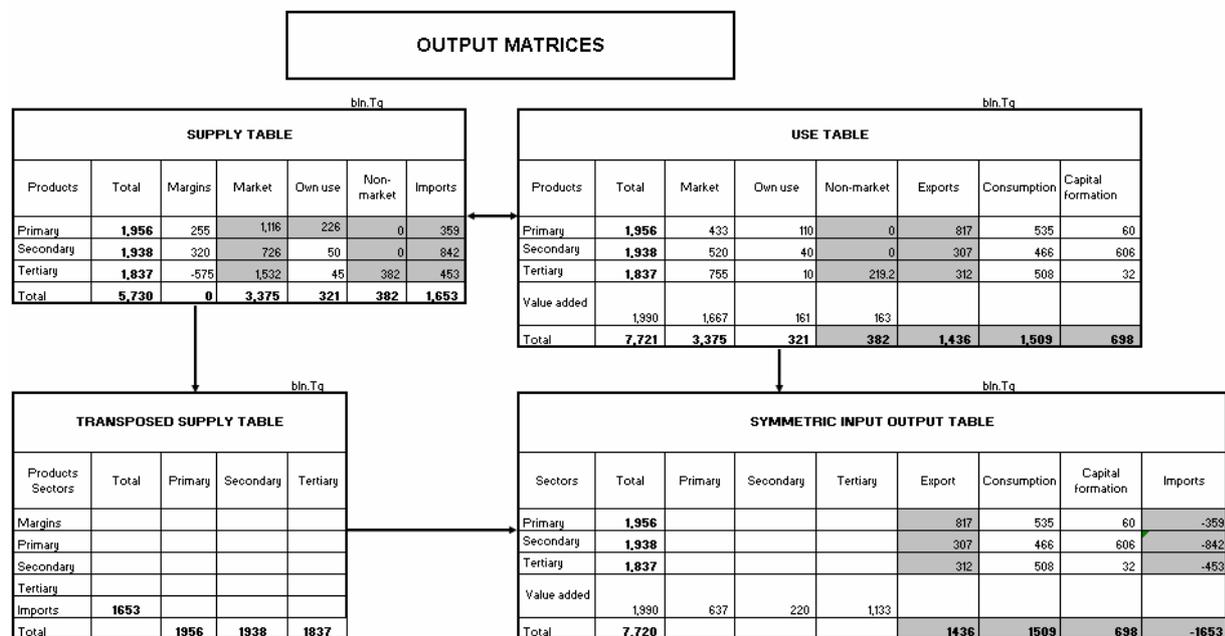
The level of disaggregation of I-O matrices, for both products and industries, should be relatively high to enable detailed data work and analytical applications.

In Exhibit 7, a flow chart is presented which describes the relationships between the three I-O matrices: the supply matrix, the use matrix, and the symmetric matrix. The matrices are presented in a highly aggregated format in order to illustrate the structure of the I-O statistical system. They include two “kinds” of cells:

- dark cells which display the respective figures for Mongolia for 2004, as published by the official statistics, and

- white cells which denote “white spots”, the data which are currently not available from the published statistics; in some cases for illustration purposes some rough estimates have been entered into these cells

Exhibit 7



Rectangular matrices: The supply matrix

The supply matrix is compiled in a commodity-by-industry format. It shows which products are generated by which industries (activities/sectors), in base prices. It also provides figures on taxes and subsidies on products, trade and transport margins, and import supplies.

Rows (outputs):

- [SR1] Products (goods and services): agricultural products, mining products, etc.
- [SR2] Adjustments: CIF/FOB adjustments for imports and direct purchases abroad by residents
- Columns (producers of outputs):
- [SC1] Trade and transport margins
- [SC2] Taxes on products minus subsidies on products
- [SC3] Market industries (producers of goods and services): Agriculture, Mining, ...
- [SC4] Non-market activities – producers of own final use outputs: Agriculture, Construction, and Housing
- [SC5] Other non-market activities: Education, Health, Public administration, ...
- [SC6] Imports (Goods, Services, CIF/FOB adjustment)

The sums of rows show total output of products in purchasers’ prices (the margins + net taxes on products + output from market industries + output from non-market activities + import deliveries). Sums of columns show total margins, total net taxes, total outputs from domestic sectors (in base prices), and total imports.

The outputs of market industries are expressed in current market base prices (producers’ prices), net of taxes on products (such as VAT) and net of trade and transportation margins.

The goods and services produced for own final use are valued at the basic prices at which they could be sold if offered for sale on the market. When reliable market prices cannot be obtained, the values of these products are calculated as the sums of the costs of their production. Services of owner-occupied dwellings (including imputed rents) are valued in the prices of the same kinds of services sold on the market. The valuation of output of own-account construction is based on costs. For services produced when households employ paid domestic staff, output is valued by the compensation of employees effectively paid.

By convention, the value which is assigned to the output from non-market production of government units and NPISHs (non-profit institutions serving households) is equal to the sum of costs incurred in producing this output.

In the supply matrix the imports are valued f.o.b. To reconcile the c.i.f. valuation often used by imports statistics, a c.i.f./f.o.b. adjustment is needed.

Mongolia's official total gross output in 2004 was 5,731 billion Tg:

- Primary sector's output (agriculture and mining): 1,956 billion Tg
- Secondary sector's output (utilities, manufacturing, and construction): 1,938 billion Tg
- Tertiary sector's output (services): 1,837 billion Tg

About one-sixth of the value of products delivered to intermediate and final consumers, 575 billion Tg, were transportation and trade margins and net indirect taxes.

Market deliveries of domestic goods (in base prices) were 3,376 billion Tg. The goods and services produced for own use were 321, including unofficial estimates of 50 for construction of own houses and 45 for household income imputed for owner occupied dwellings. The provision of non-market services from the public sector was 382. Total imports, adjusted for the spendings of Mongolian residents abroad were 1,653 (f.o.b.).

Rectangular matrices: The use matrix

The use matrix is also compiled in a commodity-by-industry format. It shows the use of products, domestic and foreign, in purchasers' prices (base prices plus trade and transport margins plus net indirect taxes). The products are delivered to their purchasers/recipients/users. The matrix is composed of four submatrices (quadrants): (I) The intermediate use quadrant; (II) The final use quadrant; (III) The value added quadrant, (IV) Empty (null) quadrant.

Rows (inputs):

- [UR1] Goods and services used by producers and consumers: agricultural products, mining products, etc.
- [UR2] Adjustments: Goods and services purchased by residents abroad; and goods and services purchased by foreigners in the country
- [UR3] Value added inputs (Labor, Capital, Indirect taxes)
- Columns (users of inputs):
- [UC1] Market industries (purchasers/users of goods and services): Agriculture, Mining, ...
- [UC2] Non-market activities – users of self-produced outputs: Agriculture, Construction, and Housing
- [UC3] Other non-market activities: Education, Health, Public administration, ...
- [UC4] Foreigners: Exports of goods and services
- [UC5] Domestic final consumers: Households, NPISHs, and General Government (collective consumption and individual consumption)

- [UC6] Investors: fixed capital formation, changes in inventories and valuables

The sums of rows show total use of products in purchasers' prices (intermediate inputs + final demand inputs). Sums of columns show total inputs/outlays to/by intermediate industries and sums of deliveries to final demand categories (exports, household consumption, etc.)

Total outputs of commodities (sums of rows of the supply matrix, [SR1]), are to the corresponding total inputs (sums of rows of the use matrix, UR1) are equal. Total outputs of industries (sums of columns of the supply matrix, [SC3], [SC4], and [SC5]) are equal to the corresponding total inputs to industries (sums of columns of the use matrix, [UC1], [UC2], and [UC3]).

Gross capital formation is calculated as the sum of gross fixed capital formation, changes in inventories and changes in valuables.

The gross fixed capital formation is calculated as the difference between acquisitions and disposals of both tangible and intangible fixed assets:

- Tangible fixed assets: dwellings, other buildings and structures, machinery and equipment, and cultivated fixed assets (livestock for breeding, dairy, draught, etc., and vineyards, orchards and other plantations of trees yielding repeat products)
- Intangible fixed assets: mineral exploration, computer software, entertainment, literary or artistic originals, and other intangible fixed assets.

Changes in inventories are changes in inventories of materials and supplies, of finished goods, of goods for resale, and work-in-progress.

The third category, valuables, consists of precious stones and metals (gold, diamonds, etc.), jewellery, paintings, sculptures, etc. recognized as works of art, that are acquired as "stores of value" and not for production or consumption.

The uses of value added "deliveries" are the following:

- Labor inputs: compensation of employees
- Government charges: taxes less subsidies on production and imports broken down into taxes on products, subsidies on products and other taxes less subsidies on production
- Capital inputs: consumption of fixed capital
- Mixed inputs: net mixed income and net operating surplus

In Exhibit 7 the primary, secondary and tertiary inputs are defined in the use matrix in the same way as in the supply matrix. They are delivered to market industries (intermediate inputs), 3,375 billion Tg in 2004; to final users of own-produced goods and services, 321; to other non-market recipients (budget-financed education, health care social services and other public sector's deliveries), 382; to exports (including purchases of goods and services by foreign visitors in Mongolia), 1,436; to domestic final consumers (households and government), 1,509; and to investors (incl. domestic and foreign direct investment), 698.

Symmetric matrices

The supply and use matrices represent an intermediate stage between the basic statistics and the symmetric matrices, which are used as a tool for various analytical purposes related to production. In order to compile the symmetric matrix, many adjustments to the data provided by the supply and use matrices are needed, in particular with respect to valuation, treatment of imported products and classification for rows and columns. The mathematical methods used when transferring outputs and associated inputs hinge on different technology assumptions:

- Industry (producer) technology, assuming that all products produced by an industry are produced with the same input structure
- Product (commodity) technology, assuming that a product has the same input structure in whichever industry it is produced
- Mixed technology, a combination of the above two assumptions

The importance of the role played by the assumptions depends on the extent of secondary production, which depends not only on how production is organized in the economy, but also on the statistical units and the industry breakdown in the matrices. More secondary production will appear with institutional units than with establishments, and more secondary production will inevitably be found in more detailed matrices.

Symmetric means having the same dimensions, either product-by-product (based on the product technology assumption) or industry-by-industry (based on the industry technology assumption). The product-by-product matrix shows which products are used in the production of which other products; the industry-by-industry matrix shows which industry uses the output of which other industry.

In Exhibit 7, the 2004 Mongolia industry-by-industry matrix is presented. This matrix is similar to the rectangular use matrix. The upper-left part (quadrant I: intermediate transactions) is a square matrix incorporating deliveries/payments of/for goods and services from/to the primary, secondary, and tertiary sectors. The deliveries are from row industries to column industries and payments for these deliveries are made by column industries to row industries. The total amount of these deliveries/payments was 5,730 billion Tg.

The upper-right part (quadrant II: final demands) and the lower-left part (quadrant III: value added) have formats similar to the corresponding parts of the use matrix, extended by imports included as negative final demand: 359 billion Tg of primary sector's output (mostly fuels and other mineral products), 842 of secondary sector's output (processed food, textiles, metals, machinery and other manufactures), and 509 of tertiary sector's output (transport, trade and other services).

ANNEX C: SATELLITE ACCOUNTS (SA)

ANNEX C: SATELLITE ACCOUNTS (SA)

The satellite accounts provide a framework within SNA93 (Exhibit 1) for the analysis of certain areas or functions of economic and social life, such as the environment, tourism, and unpaid household work. They enable expanding the analytical capacity of national accounting in a flexible manner, without overburdening or disrupting the INA and I-O systems.

On the one hand, satellite accounts are linked to the main body of integrated economic statistics. On the other hand, they are also linked to the information system specific to a given field or topic. They are aimed at better integration of monetary and physical data. Because they preserve close connections with the INA and I-O systems, they facilitate analyses of specific fields in the context of macroeconomic accounts and analyses. Satellite accounts in various fields may, in addition, help to connect analyses between some of those fields. Satellite accounts are thus able to play a dual role, as tools for analyses and for statistical coordination.

There are two types of SA. One type involves some rearrangement of classifications and the introduction of some complementary elements without drastically diverging from the concepts on which INA/I-O framework is built. This type of analysis mostly covers accounts specific to given fields such as education, tourism and environmental protection. The second type of satellite accounts is based on concepts that are alternatives to the INA/I-O framework. A different production boundary or enlarged concepts of consumption and capital formation may be introduced; the links between income and wealth may be put in the context of a broader concept of wealth, including natural assets, etc. Often a number of alternative concepts are used at the same time. Using those alternative concepts may give rise to partial complementary aggregates the purpose of which is to supplement the INA/I-O system. This type of accounts experiments with new concepts and methodologies, with a much wider margin of freedom than in the INA/I-O framework. The SNA93 does not make standardized recommendations as to this type of work, which by definition must remain open.

The SA enable the following:

- The provision of additional information on particular social concerns of a functional or cross-sector nature, such as employment, poverty, culture, education, health, social protection, tourism, environmental protection, research and development (R&D), development aid, transportation, information technology (the IT sector), housing and communications, financial intermediation, small business, competitiveness, and governance
- The use of complementary or alternative concepts, including the use of complementary and alternative classifications and accounting frameworks, when needed to introduce additional dimensions to the conceptual framework of national accounts
- Extended coverage of costs and benefits of human activities, e.g., the energy sector, mining, and foreign trade
- Further analysis of data by means of relevant indicators and aggregates, such as Gini coefficients, labor productivity, and energy intensity
- Linkage of physical data sources and analysis to the monetary accounting system
- Depending on the field, the design of a given satellite account will emphasize:
- The detailed analysis of the production and uses of the specific goods and services (e.g., R&D or transportation)
- The detailed analysis of transfers (e.g., social protection)
- Both production/uses and transfers equally (e.g., education and health)

- Uses as such (e.g., tourism, environmental protection)

A satellite account in a given field covers the analysis of uses or benefits out of the national expenditure, production and its factors, transfers and other ways of financing the uses, both in value terms and, when relevant, in physical quantities. An SA allows for the linkage of physical data to the monetary accounting system.

As output is studied in much more detail than in the central framework, even when it includes a detailed supply and use/input-output table, it is generally possible to show meaningful data on the number of units produced or used: physician consultations by kind of physician, hotel-nights of various types, student-years in various levels of education, etc. The labor force may be presented in detail: number of people employed in various categories, according to skill and sex, number of hours worked or equivalent person years, number of people in training, etc. Data on existing assets in physical terms are especially interesting in such fields as education, culture, health or housing. In conjunction with labor force data, they constitute well-known social indicators such as number of teachers, of hospital beds or of physicians per ten thousand inhabitants.

Physical data are not to be considered a secondary part of a SA. They are essential components, both for the information they provide directly and in order to make the monetary data fully meaningful.

**ANNEX D: THE SYSTEM OF NATIONAL ACCOUNTS 1993 (SNA93): DATA
CONSISTENCY**

ANNEX D: THE SYSTEM OF NATIONAL ACCOUNTS 1993 (SNA93): DATA CONSISTENCY

It should be re-emphasized that a main virtue, and the very *raison-d'être*, for the SNA93 is its internal coherence and consistency. After the entire system is established and reconciled, a given data point or economic indicator must be defined in the same way in all components of the SNA, in accordance with the standards, and when derived from different SNA parts and structures, it must provide the same results. As examples, three indicators and four different components/presentations of the SNA were selected: Value added, Gross capital formation, and Exports of goods and services (Table 7).

Table 7

SAM		Balance equations		Integrated national accounts		Input Output matrices	
Activities				Production account		Use table	
Value added less indirect taxes	1,642	Output, producer prices	3,713	Output, purchaser prices	3,982	Market	637
Indirect taxes less subsidies	269	Indirect taxes less subsidies	269	Intermediate consumption	-2,072	Own use	221
		Intermediate consumption	-2,072			Non-market	973
						Corrections	80
Value added	1,911	Value added	1,911	Value added	1,911	Value added	1,911

SAM		Balance equations		Integrated national accounts		Input Output matrices	
Investment/Savings				Capital account		Symmetric IO table	
Domestic direct investment	588			Gross fixed capital formation	617	Primary sector	60
Foreign direct investment	110			Changes in inventories	83	Secondary sector	606
				Acquisitions less disposals of valuable	-2	Tertiary sector	32
Gross capital formation	698	Gross capital formation	698	Gross capital formation	698	Gross capital formation	698

SAM		Balance equations		Rest of the world accounts		Input Output matrices	
Rest of World				External account of goods and services		Symmetric IO table	
Export of goods and services	1,437			Export of goods	1,035	Primary sector	817
				Export of services	402	Secondary sector	307
						Tertiary sector	313
Export of goods and services	1,437	Export of goods and services	1,437	Export of goods and services	1,437	Export of goods and services	1,437

Value added (1,911 billion Tg):

- SAM: Value added net of indirect taxes (cell 3-1) plus Indirect taxes less subsidies (cell 4-1)
- Balance equations: Gross output expressed in producer prices plus Indirect taxes less subsidies minus Intermediate consumption
- INA production account: Output in consumer prices minus Intermediate consumption
- I-O Use table: sum of values added generated in (1) Market sector, (2) Own use sector and (3) Non-market sector plus (4) Corrections

Gross capital formation (698 billion Tg):

- SAM: Domestic direct investment (cell 2-7) plus Foreign direct investment (cell 2-8)
- Balance equations: Gross capital formation (derived from Eq. 8)
- INA capital account: Gross fixed capital formation plus Changes in inventories plus/minus Acquisitions less disposables of valuables
- I-O Symmetric table: Sum of Gross capital formation in (1) Primary sector, (2) Secondary sector, and (3) Tertiary Sector

Export of goods and services:

- SAM: Export of goods and services (cell 2-6)

- Balance equations: Export of goods and services (Eq. 2)
- INA Rest of the world accounts/External account of goods and services: Export of goods plus Export of services
- I-O Symmetric table: Sum of exports from (1) Primary sector, (2) Secondary sector, and (3) Tertiary Sector

Thus, e.g., the capital formation appears in the SNA as:

- sum of investments in different institutional sectors
- an item in the saving/lending/borrowing balance equation
- sum of fixed capital investment and changes in inventories
- sum of capital investments in different economic sectors
- etc.

This illustrates the complexity of the SNA, in which the same item could be treated and calculated in many different ways, but all of them have to deliver the same result. If the different parts of the SNA are compiled independently as stand-alone pieces then in most cases they fail to deliver consistent results.

In the current data collection of the NSO the SNA is still not fully established. As a result different inconsistencies emerge. The capital investment figures are a good example of this problem. Data on capital investment in different sections of the Annual Statistics book are compiled based on different definitions, derived from different sources, and provide different values. Incorporation of all of them within a complete SNA would help removing (or at least reducing) all kinds of gaps and inconsistencies.