

A Collaborative Research
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An Inventory of Available Databases for the Study Countries

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Table of Contents

	Page
PREFACE	II
1. DATASETS IN INDONESIA.....	1
2. GHANA DATASETS	5
3. NIGERIA DATASETS.....	6
4. ETHIOPIA DATASETS	8
5. KENYA DATASETS.....	11
Early Warning Information for Food Security	13
Other Institutions Collecting Food and Agriculture Statistics	13
Limitations in the agriculture surveys	13

Preface

Since its re-emergence, HPAI H5N1 has attracted considerable public and media attention because the viruses involved have been shown to be capable of producing fatal disease in humans. While there is fear that the virus may mutate into a strain capable of sustained human-to-human transmission, the greatest impact to date has been on the highly diverse poultry industries in affected countries. In response to this, HPAI control measures have so far focused on implementing prevention and eradication measures in poultry populations, with more than 175 million birds culled in Southeast Asia alone.

Until now, significantly less emphasis has been placed on assessing the efficacy of risk reduction measures, including their effects on the livelihoods of smallholder farmers and their families. In order to improve local and global capacity for evidence-based decision making on the control of HPAI (and other diseases with epidemic potential), which inevitably has major social and economic impacts, the UK Department for International Development (DFID) has agreed to fund a collaborative, multidisciplinary HPAI research project for Southeast Asia and Africa.

The specific purpose of the project is to aid decision makers in developing evidence-based, pro-poor HPAI control measures at national and international levels. These control measures should not only be cost-effective and efficient in reducing disease risk, but also protect and enhance livelihoods, particularly those of smallholder producers in developing countries, who are and will remain the majority of livestock producers in these countries for some time to come.

To facilitate the development of evidence based pro-poor HPAI control measures the project is designed so that there are five work streams: disease risk, livelihood impact, institutional mechanisms, risk communication, and synthesis analysis. Project teams are allocating and collecting various types of data from study countries and employing novel methodologies from several disciplines within each of these work streams. So that efforts aren't duplicated and the outputs of one type of analysis feeds into another the methodologies in each work stream will be applied in a cohesive framework to gain complementarities between them based on uniformity of baselines and assumptions so that policy makers can have consistent policy recommendations.

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The views expressed in this report are those of the author(s) and are not necessarily endorsed by or representative of IFPRI, or of the cosponsoring or supporting organizations. This report is intended for discussion. It has not yet undergone editing.

More information

For more information about the project please refer to www.hpai-research.net.

1. Datasets in Indonesia

Survei Sosial Ekonomi Nasional (SUSENAS)- National Socio-Economic Household Survey (Susenas is proprietary and needs to be purchased) Details about Susenas is available at http://www.rand.org/labor/bps.data/webdocs/susenas/susenas_main.htm.

The National Socioeconomic Survey (SUSENAS) is a series of large-scale multi-purpose socio-economic surveys initiated in 1963-1964 and fielded every year or two since then. Since 1993, SUSENAS surveys cover a nationally representative sample typically composed of 200,000 households. Each survey contains a core questionnaire which consists of a household roster listing the sex, age, marital status, and educational attainment of all household members, supplemented by modules covering about 60,000 households that are rotated over time to collect additional information such as health care and nutrition, household income and expenditure, and labor force experience.

There are three types of Susenas (i) Core which is bigger dataset but a smaller set of questions (ii) Modules that have more detailed questions but contain only 60,000 households. (iii) panel Susenas that exist beginning 2005.

The modules have more aggregated consumption categories as meat and not poultry per se. The modules in Susenas is has more disaggregated consumption categories and does contain poultry meat consumption as separate category. It is actually quite disaggregated and contains items like duck egg, chicken egg etc. In the production module they do ask questions about poultry husbandry as an occupation with questions on production, marketable surplus, production costs, average income from poultry etc.

Since Susenas is a nationally representative sample its modules can have useful information on poultry in household economy and in consumption baskets.

For each year the availability of information on Susenas datasets can be accessed at http://www.rand.org/labor/bps.data/webdocs/susenas/susenas_main.htm

Indonesia Family Life Survey (IFLS) – (Available free at <http://www.rand.org/labor/FLS/IFLS/>)

The IFLS is a longitudinal survey, and so the sampling scheme for the first wave is the primary determinant of the sample in subsequent waves. The IFLS1 sampling scheme stratified on provinces, then randomly sampled within provinces. Provinces were selected to maximize representation of the population but is not nationally representative (usually covers around 83% of population). The problem with IFLS is that it is weak on eastern Indonesia, the poorest part in the country. The other problem with IFLS is that it is only till 2000. There is IFLS done in 2007 but is not yet out. Jed Friedman had suggested some questions related to Avian Flu in that round but is not sure whether they were included or not.

The merit of IFLS is that it offers a panel of households. It has extensive set of questions on household economy which Thus, in IFLS2, 94% of IFLS1 households were relocated and re-interviewed. The IFLS also provides a big set of information on household well being and including the community facility data (for example access to services). (All the data in stata format, I have downloaded).

Relevant questions on household economy - The household economy questions focused on the revenue, expenses, and value of assets of household-owned agricultural and non-agricultural businesses. It also recorded the labor income for all individuals age 10 and above who were not selected for detail interview, as well as household-level aggregate amounts of non-labor income. The dataset provides information on household income resulting from market-wage income, self-employment income, family businesses, informal-sector activities, and unearned income. The dataset also includes information on current value of household non-business assets (e.g., land, livestock, jewelry), as well as asset sales and purchases in the last year. Information on asset ownership and ownership shares was also recorded where relevant. Another module collected information about economic shocks experienced by the household in the last five years, and the household's response to the shock. There are also modules on household expenditures that could include food expenditure including poultry. Further, the HH questionnaires include data on health status including Anthropometric measures.

Podes (Potensi Desa or Village Potential Statistics)

The Village Potential Statistics (PODES) provide information about village/desa characteristics for all of Indonesia, with a sample of +/- 65,000. It is surveyed in the context of the periodic censuses (Agriculture, Economy, Population). It has useful information on village characteristics including the main sources of income. It is not disaggregated at the level of poultry but at the level of livestock/husbandry. The questionnaire is available at www.rand.org/labor/bps.data/datadocpdf/podes/podes96eco.pdf.

Central Bureau of Statistics has collected village-level data since 1980. Podes activity has always been conducted in line with the implementations of Population Census, Agriculture Census and Economic Census. Therefore, Podes data collection is carried out three times within one decade. The latest version is in 2006 which was attached to the 2000 Economic Census Activity.

The Podes survey covers all villages within the Indonesian archipelago. As a part of Agriculture Census 2003, village-level data was collected completely in August 2002. The scope of the survey is entire villages in Indonesia including Transmigration Resettlement Unit (UPT) and Remote Ethnic Resettlement

(PMT). Total villages covered were 68,816.

The questionnaire used basically can be divided into two parts: core data, which is collected in every census and module data that is collected only in the implementation of agriculture census. Types of data collected for the 2006 Podes for example are:

Agriculture-related data items collected in village-level survey include:

1. Population and Labor Force

Main economic activities of population, if agriculture, which agriculturesub-sector (food crops, horticulture, plantation, fishery, livestock, forestry)

2. Housing and Environment

Whether there is pollution (water, land, air, noise) during one year ago, if yes, whether the pollution is reported to village head.

Whether there is natural disasters (earthquake, land sliding, flood) during three years ago, if yes, how many times

Whether the community is prone to natural disasters (earthquake, land sliding, flood), if yes, how many households living in the area. Whether there are families living in forest conservation area, if yes, how many families.

3. Socio-culture

Whether there are farmer's association (food crop, fishery, livestock)

Whether there is irrigation scheme. Existence of agricultural extension workers

4. Land use

Total area of village

Area of wetland (irrigated, non-irrigated, land temporarily fallow)

Area of dry land (plantation, forestry, housing, office, industry, etc)

Conversion of wetland area into dry land, housing, industry, office, and other purposes during the last three years

Conversion of dry land area into wetland, housing, industry, office, and other purposes during the last three years

5. Economy

Number of agricultural firms such as plantation, livestock, fishery/fishpond, forestry and etc.

Number of trade facility, hotel and banking by province

Number of villages having production marketing facility by province and type of facility

Number of villages having economic activity by province and type of economic activity

Number of villages having no shopping centre by province and the nearest distance to shopping complexes

Number of villages having no permanent market/non-permanent market by province and the nearest distance to market

Number of small scale industry by province and the nearest distance to market

Information that were available in Podes 2003 but was omitted in Podes 2006 are:

1. Agriculture

Number of food crops establishments by type of crops, cultivated area and production

Number of plantation establishments by type of crops, cultivated area and production

Number of livestock/poultry establishments by type of crops and number of livestock

Number of forestry establishments by type of crops and area

Number of fishery establishment by type of culture

Number of households engaging in aqua culture and fish capture

2. Agriculture Machinery

Number of tractor, sprayer, duster, blower, etc

Number of rice huller, rice milling unit, etc

Number of machine to process corn, cassava, sugarcane

Number of smoked house, remilling, crumb rubber

Number of ship/ boat

Number of cold storage

3. Trade and Industries

Whether there is permanent food market, if not, the distance to the nearest market

The availability of livestock market, slaughter house, fish landing port, fish auction place

Whether there is rural bank providing credit service by type of credit

Whether there is Village Unit Cooperative or other cooperatives

Household data for Java collected by World Bank (Jed Friedman)

This is a dataset comprising 10,000 household and a subset of that is a panel that is directed specifically at assessing the impact of HPAI. It has questions more or less on all the outcome variables that we could be interested in our livelihood impact analysis. The merit is that it is available and ready to use (it is expected to be cleaned as well by now). The demerit is that it is not nationally representative and focuses on a localized region. We have the questionnaire that Jed Friedman has given to us.

Indonesia Social Accounting Matrix (by IFPRI)

The 1995 SAM for Indonesia is a 57x57 matrix with accounts for 17 sectors (separate activities and commodities), 6 factors, 7 households, 1 enterprise, the government, the rest-of-the-world, 2 tax types, and aggregate institutional savings-investments. The SAM is an aggregation of a 22 sector SAM produced by the Indonesia statistical authority with a revised treatment of trade and transportation costs (disaggregation across imports, exports and domestic sales on the basis of value shares).

The SAM that IFPRI has for Indonesia for 1995 has 17 activities that includes livestock but not poultry separately.

Indonesian Social Accounting Matrix for Distributional Analysis in the CGE Modeling Framework.

The most disaggregated SAM for Indonesia seems to be constructed by Arief Anshory Yousouf in the paper "Constructing". This should contain poultry as a separate sector. He constructs the Indonesian SAM for the year 2003, with 181 industries, 181 commodities, and 200 households (100 urban and 100 rural households grouped by expenditure per capita centiles). The SAM (with the size of 768x768 accounts) constitutes the most disaggregated SAM for Indonesia at both the sectoral and household level.

2. Ghana Datasets:

Core Welfare Indicators Questionnaire (CWIQ) Survey 2003

The 2003 Core Welfare Indicators Questionnaire (CWIQ) Survey is a nationwide sample survey, designed to provide indicators for monitoring poverty and living standards in the country, at national, regional and district levels. It is a district-based probability sample that covered a total of 49,003 households nationwide, with 405 households drawn from each district, except for the metropolitan areas, which had samples of households as follows: Accra, 2,430; Kumasi, 1,620; and Shama/Ahanta East, 1,215; as well as the Tema Municipal Area, 810.

Ghana Demographic and Health Survey 2003

The 2003 Ghana Demographic and Health Survey (2003 GDHS) is a nationally representative survey of 5,691 women age 15-49 and 5,015 men age 15-59 from 6,251 households covering 412 sample points (clusters) throughout Ghana. This survey is the fourth in a series of national level population and health survey conducted as part of the global Demographic and Health Surveys (DHS) program and is designed to provide data to monitor the population and health situation in Ghana as a follow-up of the 1988, 1993 and 1998 GDHS surveys. The survey utilised a two-stage sample based on the 2000 Population and Housing Census and was designed to produce separate estimates for key indicators for each of the ten regions in Ghana. Data collection took place over a three-month period, from late July to late October 2003. The survey obtained detailed information on fertility levels, marriage, sexual activity, fertility preferences, awareness and use of family planning methods, breastfeeding practices, nutritional status of women and young children, childhood mortality, maternal and child health, awareness and behaviour regarding HIV/AIDS, and other sexually transmitted infections (STIs). In addition, the 2003 GDHS collected information on malaria and use of mosquito nets, and carried out anaemia testing in children and women and HIV testing in adults.

Ghana Living Standard Survey (GLSS) 1998/9 and 2005

The GLSS provide data on different aspects of household economic and social activities. Data collection is at three levels – household, individual and community. Household data covers income, expenditure, housing, assets and businesses. Individual data covers demographic characteristics of all household members as well as data on education, health, employment and migration for relevant age groups. Community level information covers public services such as education, health communication, transportation and religion; as well as food and commodity prices. These data are solicited by means of three questionnaires – Household (administered to a sample of 6,000 HH), Community and Price Questionnaires. The last two questionnaires are administered at the enumeration area level. Now GLSS 2005 is available.

Social Accounting Matrix (available at IFPRI)

The 2005 Ghana Social Accounting Matrix (SAM) is a consistent data framework that captures the information contained in the national income and product accounts and the input-output table, as well as the monetary flows between institutions. The SAM estimates the structure of the Ghanaian economy in 2005 and includes detailed information on 56 production sectors, six factors of production, income and expenditures of rural and urban households, the government budget, and

the balance of payments. A regionally disaggregated version of the SAM is available from the authors. (Xinshen et al have details about the level of disaggregation).

3. Nigeria Datasets:

Nigeria Living Standard Survey (NLSS) 2003/4

The Nigeria Living Standard (NLSS) 2003/4 is an extensive survey and detailed in its average of various topics: Poverty statistics and equality measures, Demography, education, health, migration, housing, ownership of farmland/livestock, total household and expenditures, social capital and community participation, gender and poverty, etc. The survey provides a good basis for in-depth analysis of living standards in the country and equally lends itself to monitoring, evaluation and analysis of poverty in its various verifications. The survey provides current and credible statistics and indicators on poverty and other sectoral issues to support strategies and policies. The survey is nationally representative and provides good and reasonable estimates at national and State Levels, sampling 22,200 households. The data set can be accessed at: <http://www.nigerianstat.gov.ng/nlss/2006/index.html>

The Core Welfare Indicator Questionnaire (CWIQ) Survey 2006

The 2006 Core Welfare Indicator Questionnaire (CWIQ) survey was a nationwide sample survey conducted by the National Bureau of Statistics to produce welfare indicators for the population at national and sub-national levels, particularly Zones, States and Senatorial Districts. The Survey complements 2004 Nigerian Living Standards Survey (NLSS) by NBS which profiled poverty in the country. Both surveys succinctly provide information for evidence-based policy actions as well as monitoring and evaluation of poverty alleviation projects along the dictates of the MDGs.

The CWIQ is designed to collect the minimum amount of information needed to identify and classify target groups and provide basic welfare indicators for monitoring poverty alleviation programs. A representative sample of urban and rural, was selected in each of the 36 States and Federal Capital Territory (FCT). A total of 7,740 Enumeration Areas (EAs) were selected with an estimated 77,400 housing units (HU) nationwide, making it the largest CWIQ worldwide. The contents of this flyer form a national summary of the key findings of the survey.

The data set can be accessed at: <http://www.nigerianstat.gov.ng/cwiq/2006/survey0/index.html>

Nigeria Demographic and Health Survey (NDHS) 2003

The 2003 Nigeria Demographic and Health Survey (2003 NDHS) is the third national Demographic and Health Survey (DHS) in a series under the worldwide Demographic and Health Surveys programme. Funding for the 2003 NDHS survey was provided by the U.S. Agency for International Development (USAID/Nigeria), while technical assistance was provided by ORC Macro. The United Nations Population Fund (UNFPA) and United Nations Children's Fund (UNICEF) also provided logistical support. Fieldwork for the survey took place between March and September 2003 in selected clusters nationwide, sample of over 7,000 households. All women age 15-49 in these households and all men age 15-59 in a subsample of 1/3 of the households were individually interviewed. The major objective of the 2003 NDHS, which is a follow-up to the 1999 NDHS, is to obtain and provide

information on fertility levels and preferences, use and knowledge of family planning methods, maternal and childhood health, maternal and childhood mortality, breastfeeding practices, nutrition, knowledge of HIV/AIDS, and other health issues. In addition to the scope of the 1999 NDHS, the 2003 NDHS includes a module on malaria and another on testing for salt. Data of the 2003 NDHS are geo-referenced to allow for more detailed geographical analysis and there were concurrent processing of data even as fieldwork was ongoing in order to facilitate field checks for errors and hasten the process of data entry and analysis.

Nigeria Food Consumption and Nutrition Survey 2001-2003

The 2001 FCNS was a national survey from which data on the nature and extent of food security, food and nutrient intakes, and anthropometric and biochemical parameters were collected and used to determine the nutritional status of women and children in rural and urban populations in Nigeria. The survey design targeted the entire federation of Nigeria. Because of the obvious and documented relationships between (a) the agroecological zone (AEZ) and type of farming systems; (b) crops grown and foods consumed; and (c) type of food consumed (intake) and micronutrient deficiencies, the federation of Nigeria was initially stratified according to major AEZ and predominant food crops within AEZ.

Twelve states, representing a third of the states of the federation were randomly selected. A total of 72 LGAs, 216 enumeration areas (EA), and 30 households from each EA were selected from the selected states, making a total of 6480 households. A subsample of 1080 pregnant women was also included.

The survey was conducted by the International Institute of Tropical Agriculture (IITA), Ibadan in collaboration with the National Planning Commission (NPC), the Federal Ministry of Health, national institutes, and universities. Technical assistance was provided by the United States Department of Agriculture–Agricultural Research Services, Beltsville Human Nutrition Research Center–The Community Nutrition Research Group (CNRG). The field data was collected between August and October 2001. The laboratory analysis for biochemical indices were compiled in 2002, data analysis and report writing was completed in September 2003. Additional information on the Nigeria survey may be obtained from the Federal Ministry of Health, Nutrition Division, Federal Secretariat, Shehu Shagari Way, Maitama, Abuja; the National Planning Commission, Agriculture and Industry Department, National Committee on Food and Nutrition, Wuse Zone 1 Annex, Plot 409, Nouakchott St., Abuja; and the International Institute of Tropical Agriculture, PMB 5320, Oyo Road, Ibadan, Oyo State, Nigeria (Telephone 02 241 2626; Fax 02 241 2221; email: iita@cgiar.org).

Nigerian Statistical Fact Sheets on Economic and Social Development 2006

This statistical factsheet produced by the National Bureau of Statistics is a compendium of statistical tables covering important areas such as Macro-economic aggregates, Manufacturing, Transportation, Agriculture, Trade, Health, Education, Productivity, development indicators on Employment Generation, Wages, Adult Literacy, Household Security, Medical, Difficulty in satisfying Household needs, Welfare, Household Infrastructure and Ownership of IT/Telecommunication, and others. Available at: <http://www.nigerianstat.gov.ng/index.php>

Price Statistics and Social Statistics

Monthly prices of several commodities including chicken meat are available at : <http://www.nigerianstat.gov.ng/index.php>. In the same link, a compendium of the contemporary social situations –education, health, housing conditions, public safety, communication facilities, etc. – can be found.

Social Accounting Matrix

The social accounting matrix that Paul Dorosh and others did at IFPRI has a base year of 1987. Nwafor et al have the SAM for the base year 1997. Both these datasets are quite aggregated and do not contain poultry as a separate sector.

4. Ethiopia datasets

HICES- Household income consumption expenditure survey three rounds 1995, 2000, 2005.

It is nationally and sub-regionally representative and is done by Central Statistical Authority of Ethiopia. The HICES is a nationwide household survey which covers all administrative regions, including urban and rural. However, non sedentary population is not covered. The overall sample was relatively large for example in 1995, 11687 at the national level, of which 6569 rural households and 4379 urban households. The data was collected using a multi-stage stratified random sampling. The country was divided into 21 rural and 11 urban domains. A total number of 943 enumeration areas (EAs) were identified in the administrative regions and 929 were surveyed. Using systematic random sampling, 15 households were sampled from urban EAs, and 12 households were sampled from each rural EA.

Expenditure data. The HICES was an income expenditure type survey which collects information on most households expenditure items, including food and nonfood consumption. Food expenditure include 200 items, both purchased and home produced. The total expenditure variable was calculated by aggregating all estimates of expenditure items extrapolated to the annual value. Prices deflators were not used to account for regional and spatial differences.

Specific objectives of the HICES dataset are:

- To provide data used to determine poverty line;
- To assess income/expenditure levels, pattern and distribution;
- To estimate calorie intake based on consumption data;
- Determination of basket of goods and services and expenditure weights for the construction of consumer price Indices (CPI);
- Estimation of consumption expenditure in National Accounts Statistics;
- Helps to formulate, monitor and evaluate economic policies and thereby assess the impact of these policies on households'/individuals' living standard.

Welfare monitoring survey

WMS aims at providing socioeconomic data that reflect the non-income dimension of poverty. These include health, education, nutrition, access to the utilization and satisfaction of basic facilities/services and related non-income aspects of poverty. This is done for the same years as HICE i.e. 1995, 2000, 2005, both nationally representative and done by CSA.

Specific objectives of the WMS survey are

To assess the level and distribution of non-income dimensions of poverty;

Helps to assess the quality of life of households/individuals;

To design, monitor and evaluate the impact of socioeconomic policies and programs on households/individuals living standard;

- Provide indicators on households' and individuals' living standard with respect to basic needs such as education, health, child nutrition, access and utilization of basic facilities/services, water and sanitation, energy, housing etc.

Price surveys and CPI

Price surveys have been conducted on difference scales since 1963 and the coverage of which was limited to the capital city, Addis Ababa. Since 1980/81 the survey has been expanded to cover all parts of the country. Currently the survey constitutes monthly retail price survey and monthly producers' price survey of agricultural products. The reports of the survey provide average prices for the various goods and services selected for the survey.

The CPI has been produced for the capital city since 1963. Following the 1995/96 HICE survey, CPIs were additionally constructed at rural and urban level and for the total country. In 1999/2000 when the second HICE survey was conducted the base year has been changed to December 2000 and the CPI has also been broadened to cover all regions.

IFPRI ERHS

The Ethiopia Rural Household Survey (ERHS) is a longitudinal household data set covering households in a number of villages in rural Ethiopia. In 1989, IFPRI conducted a survey in seven Peasant Associations located in the regions Amhara, Oromiya and the Southern Ethiopian People's Association. Civil conflict prevented survey work from being undertaken in Tigray. The study collected consumption, asset and income data on about 450 households. In 1994, the survey was expanded to cover 15 villages across the country. An additional round was conducted in late 1994, with further rounds in 1995 and 1997. The fourth round of the survey also included a community level survey which part of this dataset. The nine new villages led the sample to grow to 1477 households. The nine additional communities were selected to account for the diversity in the farming systems in the country, including the grain-plough areas of the Northern and Central highlands, the enset-growing areas and the sorghum-hoe areas. Topics addressed in the survey include household characteristics, agriculture and livestock information, food consumption, health, women's activities, as well as community level data on electricity and water, sewage and toilet facilities, health services, education, NGO activity, migration, wages, and production and marketing.

Annual Agriculture Sample Survey (Ethiopia)

The AASS includes:

- Area identification and characteristics of agricultural holder's. This included household's geographic locations, holder's age, holder's sex and educational status.
- List of fields and agricultural practices for pure stand and mixed crops.
- List of permanent crops and number of trees.
- Records of quantity of improved seed, fertilizers and information on crop protection.
- Records of results of area measurements.

The dataset includes data from 1995-2004 and is a repeated cross-section. In addition CSA has implemented Livestock and Livestock characteristics survey in 2003 and 2004.

National Labor force survey exists for two years 1999 and 2004 comprising approximately 54,000 households.

The Ethiopian Smallholders Commercialization Survey (ESCS)

ESCS was jointly designed by the International Food Policy Research Institute (IFPRI), the Ethiopian Development Research Institute, and the Central Statistical Agency of Ethiopia. Data were collected during June and July 2005 from 7,186 households randomly drawn from 293 *kebeles*. The sample is considered statistically representative at the national level and regional level for four regions: Amhara, Oromia, Tigray, and the Southern Nations, Nationalities, and Peoples regional state (SNNP).

At the community level, the ESCS collected information on population, infrastructure, markets prices, institutions, and development programs. At the household level, the ESCS covered many variables, including demographics, human capital, employment, land production and input use, crop and livestock production and sales over the previous 24 months, marketing channels and contractual arrangements, physical assets, social capital and participation in cooperatives, as well as primary information on the cooperative itself. Note, however, that the ESCS did not collect information on household consumption and expenditure.

The rural investment climate survey for Ethiopia by World Bank that asks questions to entrepreneurs about the factors affecting their decision to invest and profitability.

Social Accounting Matrix

1999/2000 SAM - The 1999/2000 Ethiopian SAM is a 40x40 matrix and contains an account each for fifteen production activities, four factors of production, eight commodities, transactions costs, eight institutions, public investment, savings/investments of institutions other than the government, food aid, and the rest of the world (net of food aid).

The classification of activities reflects a combination of differences in type, location, scale, and ownership structure of production. Accordingly, activities are disaggregated into five agricultural activities (peasant farming - highland, peasant farming - lowland, peasant livestock production, private commercial farming, and public commercial farming), seven industrial activities (cottage/handicraft and small scale industry, large/medium scale agro-manufacturing - public, large/medium scale agro-manufacturing - private, large/medium scale other manufacturing - public, large/medium scale other manufacturing - private, other industry - public, and other industry -

private), two service activities (services - public and services - private), and a food-for-work activity. It is aggregated at the livestock products level and not at poultry level.

There is SAM by IFPRI for the year 2001 for Ethiopia but seems very aggregated with 10 production sectors, 10 commodities, 4 factors of production and 3 household categories.

5. Kenya datasets

The **Kenya 2001 Social Accounting Matrix (SAM)** is the base for a dynamic computable general equilibrium (CGE) model of Kenya, which is an extension of the standard CGE modelling framework developed at IFPRI. The SAM disaggregates the entire Kenyan economy into 33 production sectors, of which 15 are agricultural sectors. Several structural and annual data sources such as national accounts, government accounts balance of payments and foreign trade data, as well as the most recent IO table, SAMs for earlier base years and the 1997 Welfare Monitoring Survey for Kenya were used for the construction of the SAM.

Tegemeo has a rural household panel data for the years 1996/1997, 1997/1998, 1999/2000, and 2001/2002 crop years.

Kenya Integrated Household Budget Survey (KIHBS), 2004/05. This is a nationally representative survey and contains important details regarding the household's budgets by activities. It does contain significant details regarding poultry activity by households. The dataset has information on education, health, labor time allocation, child health, housing and several details related to economic activities.

National Health Accounts – has a completed survey of 9000 households in Kenya.

Kenya Agricultural Productivity Project by the World Bank - Household Baseline Survey

Methodology: The baseline household survey will exploit both the before-after and with– without project scenarios to establish project impact and evaluate pilot extension activities. The survey will build upon an existing panel of household level data that was drawn from a nationally representative sample of 1982 and provides a very useful historical perspective on agricultural and farming conditions from across the country. The 600 household sample from across the country includes detailed household level data for 1997 from a survey specifically designed to collect information on agricultural enterprises, household demographics, and technology adoption and extension service delivery. These households were part of a panel with observations from 1982 and 1990.

This sample of 600 households will be expanded to include another 1000-1200 households, drawn from the current household sampling frame (from CBS using the latest 1999 census) to provide a nationally representative picture. This combination survey design provides the unique benefits from the panel households survey data as well as a nationally representative sample.

Kenya Demographic and Health Survey - The 2003 Kenya Demographic and Health Survey (KDHS) was carried out by Central Bureau of Statistics (CBS) from mid-April to mid-September 2003 using a nationally representative sample of almost 9,000 households. All women aged 15-49 years in these households and all men aged 15-54 years in a sub-sample of one-half of the households were eligible

to be individually interviewed. In addition to the data collected through interviews from women and men, blood samples were collected from women aged 15-49 years and men aged 15-54 years in the sub-sample of households selected for the male survey. The blood samples were tested for the Human Immunodeficiency Virus (HIV) at the Kenya Medical Research Institute (KEMRI) laboratory.

The 2003 KDHS was designed to provide data to monitor the population and health situation in Kenya. Thus, most of the information collected in the survey represents updated estimates of basic demographic and health indicators covered in the 1989, 1993 and 1998 KDHS surveys. Specifically, the 2003 KDHS collected information on fertility levels, marriage, sexual activity, fertility preferences, awareness and use of family planning methods, breastfeeding practices, **nutritional status of women and young children**, childhood and maternal mortality, maternal and child health, awareness and behavior regarding HIV/AIDS and other sexually transmitted infections. New features of the 2003 KDHS include the collection of information on malaria and use of mosquito nets, domestic violence, and the HIV testing. The survey covered the arid region of North Eastern province and other ASAL districts for the first time.

Agricultural and rural survey by Central Bureau of Statistics in 2005/2006 - The Central Bureau of Statistics

Types of data collected include:-

Market Price Statistics: Entails collection of data on prices prevailing in all major markets countrywide. The crops covered in this survey include cereals such as maize, sorghum and millet. Beans, cabbages, bananas, tomatoes, potatoes and sukuma wiki (KALE) are also included. The prices are collected on daily or weekly basis depending on the market day. Data collection entails actual visits to the markets and recording the prices at various times of the day.

The survey results are presented in the monthly leading economic indicators and the annual economic survey. The survey suffers from poor response rate and delays in data entry

Agricultural Commodity Statistics: Involves data collection on a quarterly basis from about 200 establishments dealing with agricultural output or inputs for eventual computation of the agricultural gross domestic product. Agricultural output data includes maize, wheat, rice, sugar cane, pulses, horticulture, tobacco, cotton, coffee, tea, sisal, pyrethrum, livestock slaughtered, dairy production, hides and skins. Inputs data includes seeds, crop chemicals, livestock drugs and medicines, manufactured feeds, fuel, power, bags and other material inputs. The establishments are mainly located in the major towns of Kenya. The data is used for GDP computation and feature in the economic survey and the statistical abstract.

Agricultural Household Surveys

Sample Survey Data Collection: The first attempt to collect comprehensive household agricultural data was made in 1974/75 within the National Integrated Sample Survey Program (NISSP) master frame. Under the Integrated Rural Survey (IRS), four core surveys covering the agricultural sector were completed by 1978/79. After the 1979 population census, NISSP was replaced by the National Sample Survey and Evaluation program (NASSEP). Several modules dealing with agricultural statistics were incorporated. These included the Crop forecast/Area Surveys that have become dormant recently, agricultural production Survey (APS) in 1986/87 and the Rural Household

Budget Survey (RHBS) in 1988. Recently, CBS has carried out a number of household based surveys related to agriculture. These include Welfare Monitoring Surveys series (WMSI, WMSII & WMSIII) in December 1992, July 1994 and March 1997 respectively. In August 1997, the department conducted a comprehensive agriculture module in the third round of the National Welfare Monitoring Surveys series.

In the year 2000, the department conducted a national Agricultural Survey countrywide in conjunction with the Multiple Indicator Cluster Survey (MICS). The Agriculture Survey 2000 was not as detailed as the 1997 WMS (Agriculture module). The coverage of these two surveys (WMSIII and Agriculture survey-2000) has been national.

Sample Frame: The sampling frame covers all districts in the country. The current frame (NASSEP III) created after the 1989 population census covers a total of 1,048 rural clusters and 329 urban clusters. The department is in the process of preparing a new frame (NASSEP IV) from the 1999 housing and population census.

Cluster Size: Clusters have on average 150 households. For most of the surveys, a 10 per cent sample of households is usually selected for regular interviews. The allocation of clusters by district is made proportionate to population size in such a way that for districts with 500,000 or more, 36 clusters are selected; for districts with population ranging from 250,000-499,999, 24 clusters are selected; those with population ranging from 100,000-249,999, 16 clusters are selected while 12 clusters are selected in districts with under 100,000 individuals.

Early Warning Information for Food Security

There exists discrete information on early warning in various government departments and private institutions in Kenya. Some of these include the Kenya Meteorological Department (KMD), CBS, Ministry of Agriculture and Rural Development (MoARD), department of Resource Surveys and Remote Sensing (DRSRS), USAID Famine Early Warning System (FEWS) and the FAO global information and early warning system on food and agriculture. The DRSRS has over time undertaken aerial surveys of areas under maize – a staple food crop. The MoARD through their field extension staff collect data on crops and livestock.

Other Institutions Collecting Food and Agriculture Statistics

A variety of institutions also undertake collection of agricultural statistics. These include the Ministry of Agriculture and Rural Development; marketing organizations such as the Coffee Board of Kenya (CBK), Tea Board of Kenya (TBK), Sisal Board of Kenya, Kenya sugar Authority (KSA), Horticultural Crops Development Authority (HCDA). Universities and Research institutions such as Nairobi and Egerton universities, Kenya Agricultural Research (KARI), International Livestock Research Institute (ILRI).

Limitations in the agriculture surveys

The frequency of conducting surveys is quite low, such that changes in structure. In between agricultural census years are not factored in during intra-census data analysis. The dynamism in agriculture, especially over the economic liberalization era and after has triggered tremendous changes in the basic agriculture resource structure. Changing profitability performance precipitated by market liberalism has led to radical substitution between crop and livestock enterprises, away

from the less profitable to the more remunerative. Case examples include areas/acreage allocated to cotton, coffee, dairy pastures etc. (i.e. land re-allocation). Population dynamics have also impacted on land previously classified under forests (deforestation for arable farming and settlement), subdivision of large farms and even small ones, urbanization etc. The structure of the tenure systems is also changing rapidly, with subdivision and adjudication of former community owned land.

Therefore past crop livestock estimates (using incremental methods) and which often assume invariance of the basic resource ownership and use structure rapidly get invalidated by dynamism in the elements of the basic structure itself (land, population, tenure etc.).