FOOD AND
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ORGANIZACION
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UNIDAS PARA
LA AGRICULTURA
Y LA ALIMENTACION

RAF/AFCAS/05-6.5 E

AFRICAN COMMISSION ON AGRICULTURAL STATISTICS
Nineteenth Session
Maputo, Mozambique 24 – 27 October 2005
Report on the implementation of CountrySTAT in pilot countries

Executive Summary

CountrySTAT is an integrated national food and agriculture statistical information system ensuring harmonization of national data and metadata collections for analysis and policy making. The webbased system uses PX-Web is currently being tested in the statistical offices of Kyrgyz Republic, Kenya, and Ghana during 2005. Technical, methodological and outreach related achievements, experiences gained, lessons learned in these pilot studies is described and explained in this paper.

Background on CountrySTAT

Knowledge management is vital for effective decision-making. It involves the acquisition, synthesis and sharing of insight and experience, and their systematic integration with factual statistical information and analysis. In a world of glocalization[1], users of agricultural statistical information in all countries need progressively better access to integrated **high quality and relevant data**, across and within sub-sectors.

Member Nations have requested FAO's assistance in establishing or further developing their own **statistical information systems**. FAO Statistics Division has decided to respond to that request with CountrySTAT[2]. An informal international expert consultation meeting on CountrySTAT enriched the principle response with concrete features in July 2003[3].

CountrySTAT is a customized version of FAOSTAT available to implement in a modular fashion. CountrySTAT is providing tools for transferring experience and knowledge to countries, as a basis for agricultural policy development and decision-making. CountrySTAT is assisting countries in developing a statistical information system containing available data and metadata relevant to agricultural policy, together with data from other extra-national sources and FAO data relevant to the purpose.

CountrySTAT took shape in May 2004 with the establishment of the CountrySTAT Team and design of the concrete project to pilot the CountrySTAT as a system and approach. CountrySTAT aims at contributing national capacity building and policy analysis through the development of an agricultural statistical framework and resource, in order to achieve greater efficiencies in national statistical systems through inter-linking and data exchange between databases in FAO, other international offices and with national offices.

FAO Council is explaining under major programme "Food and Agriculture Policy and Development" that "It is expected that the modernized FAOSTAT will come into operation in the next biennium, with revised

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[1] Thinking Globally, Acting Locally: The Rome-Kigali Model.
http://www.fao.org/English/newsroom/news/2003/18043-en.html

[2] FAO Programme Committee (87th Session): Modernization of FAOSTAT – An update. Rome, 6-10 May 2002.
http://www.fao.org/DOCREP/MEETING/004/Y6298e.HTM

[3] Final Report- Informal Expert Consultation on CountrySTAT, Rome, July 2003.
http://www.fao.org/es/ESS/meetings/fin_rep.asp

methodologies, domains, model parameters, and dissemination tools. It is also expected that CountrySTAT (the country version of FAOSTAT) will successfully pass the pilot phases and be ready for full operation." [4]

By definition, the two entities FAOSTAT and CountrySTAT evolve together in complete synchronization of their principles on data and metadata classification and organization. The following report shall give an overview of the achievements, plans, conclusions made during piloting CountrySTAT.

Main Deliverables

CountrySTAT project is providing the following deliverables: **User Requirements**: Systematization of functional and analytic user needs for national statistical information concerning food and agriculture; **Methodological Framework**: Development of an information model for food and agriculture related statistical data and metadata and elaborate criteria for basic container structure and core analytical approach; **Outreach to Pilot Countries:** Selection of candidate countries for participation in CountrySTAT pilot; Implementation of a structured and populated core and analytical framework for pilot countries; regional and national capacity building. **Evaluation** of the FAOSTAT2 CountrySTAT **statistical framework and analytical methodologies** for the pilot countries; and the e**valuation** of the FAOSTAT2 CountrySTAT **information technology solution** used in the pilot studies. In the following sections, the achievements shall be explained and discussed as far as the experiences in the pilots allow.

The User Requirements and Suggested Solution

User and administrator requirements for an internet based CountrySTAT System were determined on needs of the selected end-users of the system, including FAOSTAT.

Data selection and manipulation: Dynamic tables; various pivoting functions; grouping functions; sorting functions; various renderings of data and metadata. **Data visualization:** Charting; maps. **Data download:** Automatic generation of reports in MS Word and/or Excel and/or OpenOffice calc; download functions in different formats: Excel, CSV, Lotus, TXT, XML, GESMES/TS, etc; possibility to select different data formatting (decimal, thousands); possibility to download data and/or metadata. **Data input:** Data acceptance from different sources (CSV, MS Excel, MS Access, and SQL Databases); plausibility checks (qualitative, quantitative). **Data organization:** Matrix calculations: indicator generation based on algorithms; differentiated handling of shades of zeros; footnotes feature on data sets and data-cells level, last not least ability to handle codes and classifications. **Scalability:** The system should be able to respond to current and especially future needs of national statistical offices in handling large scaled, multidimensional matrixes (more than half a million records in a single matrix, more than ten dimensions in a single table) in large, complex structures (more than 2 000 tables in a system, distributed over hierarchical thematic folders) **Sustainability:** User and administrator friendly system operated under limited information technology conditions. **Licensing:** Eventual license costs for the system must be realistically payable by developing countries. **Long-term support:** The system shall have been tested. Likewise, sufficient expertise will need to be available outside FAO to solve efficiently any potential technical problems.

After having considered various available promising packages[5], the 'PC-Axis Software Family' including PX-Web seemed to be the most appropriate solution for the hardship pilot countries. The option for hosting CountrySTAT has been **chosen** as feasible and suitable for the purposes of the CountrySTAT prototypes. This set of key turn ready IT solution uses technically feasible options, it requires no expertise in relational database management skills, and it requires approximately five days of training for the non-proprietary application which uses human readable ASCII data files to be able to setup storage and programme the organization and dissemination data and indicators efficiently and sustainability[6] in the pilot countries. Support on the storage and the dissemination on this **freely downloadable** software[7] can be given among others directly by the Nordic Countries Statistical Offices as well as by members of a **consortium of PC-Axis Reference Group**[8] as part of South-South cooperation. As the software supports connection to SQL databases, any **data scalability** issue can

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[4] FAO Council (128th Session): Summary Programme of Work and Budget 2006-07. Rome, 20 - 25 June 2005. http://www.fao.org/docrep/meeting/009/j4754e/j4754e10.htm

[5] Following solutions have been considered for the principal solution:

- MS SQL or Oracle and Beyond 20/20 with a Laptop/Workstation/Server http://www.beyond2020.com;

- MS SQL and ASPX with a Laptop/Workstation/Server;

- MS Excel with PC-Axis Software Family with a Laptop/Workstation/Server.

[6] http://www.unece.org/stats/documents/ces/ac.71/2004/16.e.ppt

[7] http://www.pc-axis.scb.se/pcaxis.htm

[8] Norway, Sweden, Finland, and Denmark support the technical and contextual help requests from their members as part of the license. Also additional training is given on demand. PC-Axis-Reference Group consists of 25 national statistical offices (12 of which are in developing countries) and UN ECE in Geneva are currently using this software application for statistical information organization and dissemination.

be addressed by definition. The concurrent access of users is only limited by the capacities of the web-server. MS Internet Information Server for which sufficient expertise in developing countries can be expected can host the application. Nonetheless with Chili!Soft ASP Engine its compatibility with an additional variety of web-hosting environments[9] including open source web-hosting solutions[10] is given. The PC-Axis was developed for the 1990 Population census in Sweden. Today more than 25 different statistical offices over the world use it [11] [12].

The PC-Axis family software is leaning on the thesis of Professor Bo Sundgren on Output databases using many dimensional matrices, also called cubicles or boxes[13]. PX-Web is a web application written in ASP 3.0 that disseminates statistical data and metadata.[14] The software is written and owned by Statistics Sweden. The application uses a few DLLs that handle the core functionality of it. In addition, the internet account on the web server (I_USR) must have a writing permission in the application's folder structure.

The Methodological Framework

Figure 1 illustrates the scope of the CountrySTAT framework that encompasses the quantitative, economic, agro-environmental, and social as well as food-security aspects of the primary sector in the partner countries. CountrySTAT shares the analytical framework of FAOSTAT accounts as a basis for its core data sets.
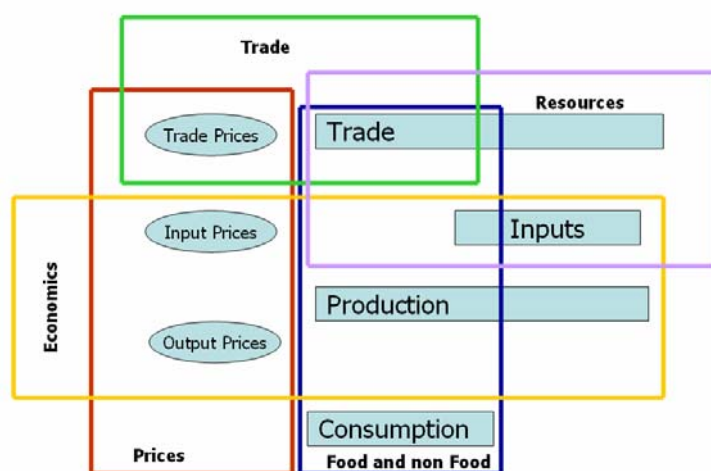
Figure 1: Core CountrySTAT Framework

The core framework finds its manifestation in the webbased graphical user interface of the CountrySTAT System under section "CountrySTAT Core". In CountrySTAT Core national level, statistical matrixes are organized under logical themes and their sub-themes. It is important to note that in all CountrySTAT participating offices, each CountrySTAT System is structured in the same way, thus once a user has familiarized himself with CountrySTAT Core Structure he will be able to navigate immediately in any other CountrySTAT system (See Figure 2) and also be familiar with the Core Structure of FAOSTAT.

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[9] IBM AIX, Sun Solaris, Cobalt, or HP-UX

[10] Linux, Apache Server

[11] National Statistical Office using PX-Web http://www.pc-axis.scb.se/PXwebsites.asp

[12] PC-Axis is metadata driven using the very meta data rich file format. PC-Axis main module can be used for dissemination of statistics on CD-ROM or via Internet. PX-Web is a web version of PC-Axis where functions are available for transposing tables, download in several file formats, suppress zeroes lines, making sum on a variable and have alternative layouts of a table. PX-Map is a program making Thematic Maps from a PC-Axis file. PX-Make can produce PC-Axis files from MS-Excel spread sheets or MS-Access registers. The PC-Axis family software can be used for dissemination statistics with a licensed by Statistics Sweden. PC-Axis International Reference Group meets annually.

[13] Statistics Sweden (SCB): PX-Web 2003 – User Manual. Stockholm 2004.

[14] http://www.unece.org/stats/sis/r04.c02.doc.0001.htm

Figure 2: Online presentation of CountrySTAT Structure

Further to the Core, countries are flexibly organizing their matrixes with extended levels of statistical data in their way of looking at the subjects under "CountrySTAT – Details". These satellite modules with detailed, specialized data collections are visualized correspondingly to the Core into folders that can be customized to requirements of the country. It is worth to mention that each matrix can be associated to more than one thematic folder, within as well as across the core and detailed thematic modules.

The described organization of the data collections in the CountrySTAT system corresponds to the analytical framework of core and satellite modules that is also commonly shared by CountrySTAT and FAOSTAT approaches (see Figure 3) and builds the semantic link between FAOSTAT and CountrySTAT data and metadata collections.
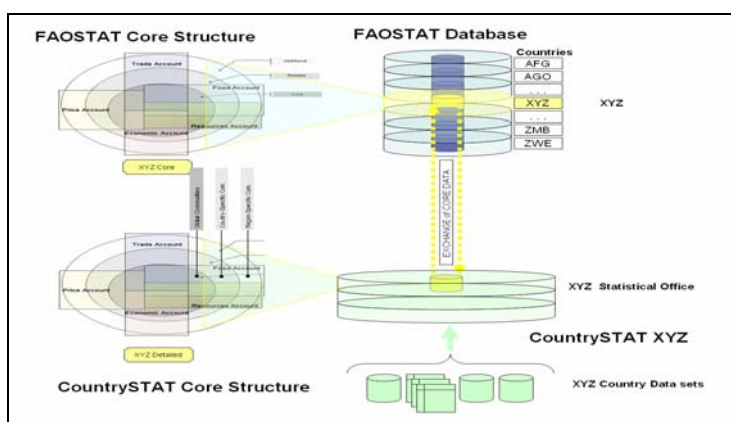
Figure 3: Relation between CountrySTAT and FAOSTAT

CountrySTAT - The operational features

Dynamic Generation of Matrixes

The user can choose the relevant matrix from a thematic folder. A **query dialogue window** opens (See Figure 4) where the user can select within each variable the relevant values and execute a query to the database, which is actually a human readable structured ASCII file. The queries result are handled by PX-Web the underlaying engine of CountrySTAT System and send back via the interface as **tabulated data sets** which can be rendered according to the analytic needs of the user using layout templates, structured and free transposition of variable vectors (See Figure 5).

The system also offers **quasi-fix tables** where the user select among a ready ideally tables by predefined the system administrators. These **summary tables** (see Figure 6) offer the user to jump to the fully interactive query dialogue window (see Figure 4) allowing HIM to perform specialized investigations from the matrix. An important feature is the same table can be associated to more than one folder.

Figure 4: Interactive query in CountrySTAT

Figure 5: Interactive transposing of resulting tables in CountrySTAT

Figure 6: Predefined summary tables in CountrySTAT

Analytical charts

The resulting tables can be subject to displayed using the build in **charting function**. The charting options include bar, horizontal bar, lines, areas, points, pyramids, radar, histogram, stacked bars, horizontal stacked bars. (See below Figure 7). Each chart can be resized and reused in regular office software.
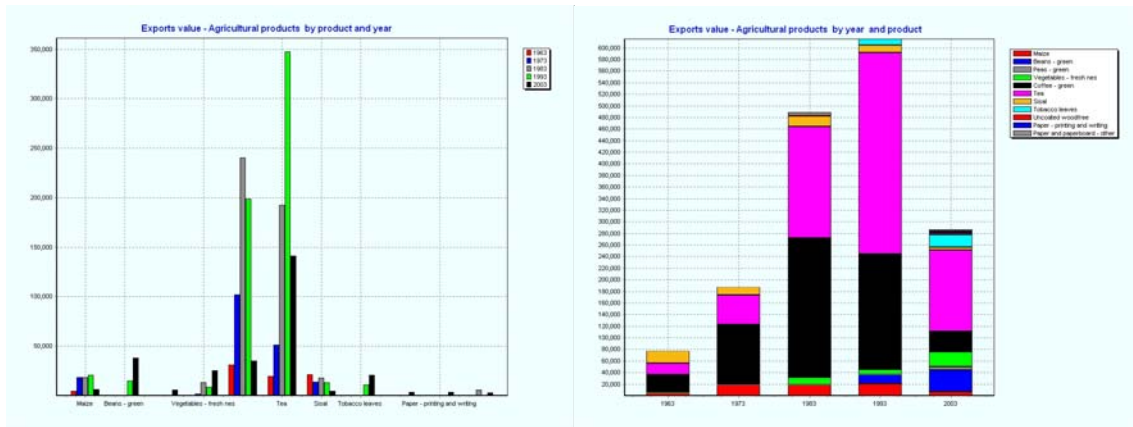
Figure 7: Chart samples from CountrySTAT

Analytical maps

In cases where data have been associated with geographically distinct areas like regions, provinces, districts of a country, the resulting tables can be displayed on scaleable maps (based on ESRI shape files). These options work for the range of single layered map visualizations: Quantile as well as equal interval corophleth maps and circle symbol maps. (See below Figure 8). Each map can be resized and reused in regular office software.
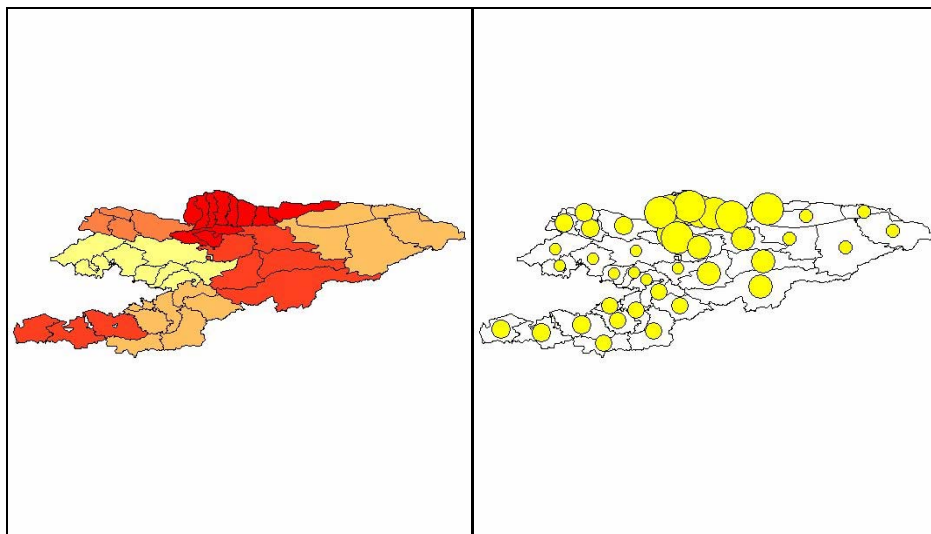

Figure 8: Map samples from CountrySTAT

Data and Metadata Exchange

The **resulting (tailored) tables** are generated in HTML format; however, all can be changed into common as well as specific exchange formats, i.e. **MS Excel, CSV, and PC-Axis** formats. The tables that are downloaded contain the exact selected vectors and their ordination, which is a big help for restructuring large scaled multi-dimensional tables, especially if a statistical office decides to explore the maximum range of 16 variables per matrix. All exchange formats contain the full information on data and metadata.

The **underlaying (entire) matrix** can be harvested entirely by using XML/SDMX format which is a static file prepared by system operators when data are updated by the underlaying engine PX-Edit applying an SDMX

variant. SDMX is a XML file validated against the DTD (data type definition) as defined by the Statistical Data and Metadata Exchange initiative.[15]

For hardship realities of the developing parts of the world – where information and communication costs are considerably high) matrixes can be downloaded as sets of compresses (XML/SDMX and CSV) files.

Figure 9: Data and Metadata Exchange using in MS Excel format

Figure 10: Data and Metadata Exchange using CSV format

Figure 11: Data Exchange using XML/SDMX format

Integrated and Referenced Metadata

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[15] SDMX is an initiative sponsored by BIS, ECB, Eurostat, IMF, OECD, UN and the World Bank to foster standards for the exchange of statistical information: http://www.sdmx.org/

CountrySTAT System utilizes the PC-Axis format using many-dimensional matrices, also called cubicles or boxes[16]. Metadata are integral part of the matrixes: Values of the commodity variables utilize the classification and coding system as applied by FAOSTAT[17].

Thus labeling variable values in local languages as well as aggregations can be operated safely. Values of the regional variables utilize the GAUL classification, where this is not applicable yet the national classifications are utilized and will be consistent with those in FAOSTAT. [18]

Figure 12: Integrated Metadata

Free-text footnotes are applicable on the levels of tables, variables, variable values, and individual cells. The system can also handle up-to eight types of predefined flags that are useful for managing shadows of zeros. Further to this metadata, references (See Figure 13) are given to an external set of concepts and definitions as used commonly by FAOSTAT and CountrySTAT.

Figure 13: Referenced Metadata

System Scalability

The CountrySTAT project tested scalability in two levels: **Scalability of a single matrix**: A table simulating trade data of 184 countries over 40 years for 120 commodities (883 200 records, each with 8 digits) was generated and handled within parts of a second on a laptop. The performance on a real server should be expected to be faster. The limiting factor in the display was the generation of a table structure by the internet browser. **Scalability of matrix structures**: 2 000 full-scaled tables with simulated data were generated and placed into

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[16] Statistics Sweden (SCB): PX-Web 2003 – User Manual. Stockholm 2004.

[17] FAOSTAT Classifications: http://www.fao.org/es/ess/faostat/f_classifications_en.asp

[18] Global Administrative Unit Layers (GAUL) initiative of FAO is aimed at developing standard Geographic Information System maps for the boundaries of administrative units.

different folders. The navigation structure through and across these matrixes was created within less then a minute by the systems operator. The regular end-user does not see any performance difference making selections and getting responses. This test on a laptop gave confidence to continue especially as the national statistical offices shall have powerful servers with higher performance. The underlaying server software, in our case it was Internet Information Server 5.0, limits the number of concurrent users.

Developing Partnerships for Piloting CountrySTAT

The CountrySTAT statistical system is aiming to match the needs of policy makers and researchers on the national level based on the FAOSTAT statistical methodologies. FAO has set up prototypes of CountrySTAT systems in partnership with national statistical offices of Kyrgyz Republic, Kenya, and Ghana. These pilot studies are representing typical conditions of countries in which the primary sector is of major importance for the food security as well as the development of the country.

All pilot studies are utilizing the core CountrySTAT framework and have a series of key domain alias thematic folders related to the food and agriculture sector. For example, the core framework includes price and quantity modules based on primary production of crops and livestock.

Final evaluations of the pilot studies will focus on the underlying statistical framework and analytical methodologies employed as well the information technology solutions employed to meet the needs of the countries as well as for the semantic and formal needs of regional and international agricultural statistical data exchanges. The CountrySTAT project will give specific recommendations on how to proceed with the CountrySTAT approach in order to optimize efforts on national, regional, and international level for national agricultural statistical information systems as a decision support tool.

The commonalities to the current CountrySTAT pilot projects in Kyrgyz Republic, Kenya, and Ghana have been described above; therefore, only country specific aspects of the projects shall be highlighted for each of the country in the following next sections.

Experiences in CountrySTAT in Kyrgyz Republic:
Joint FAO-NSC Pilot Project

Formally, the first pilot country for CountrySTAT was Kyrgyz Republic. FAO's Agricultural Bulletin Board on Data Collection, Dissemination, and Quality of Statistics shows very good data and metadata contributions for Kyrgyz Republic[19]. Within Kyrgyz Republic the governmental body, that has the institutional mandate to gather all food and agriculture related data is the National Statistical Committee.

FAO Statistics Division and the National Statistical Committee of The Kyrgyz Republic (NSC) have established a partnership for a piloting study to develop CountrySTAT in March 2005.

National level statistical data and metadata covering all areas of production, consumption, resources, prices, and trade have been extracted from FAOSTAT database for 1992-2003 and prepared for web publication. The above-mentioned system and extracted information has been published using a local web-server on a workstation and has been handed-over to NSC for testing and enhancing purposes. The homepage of the delivered webbased statistical information system of CountrySTAT Kyrgyzstan is illustrated in Figure 14.
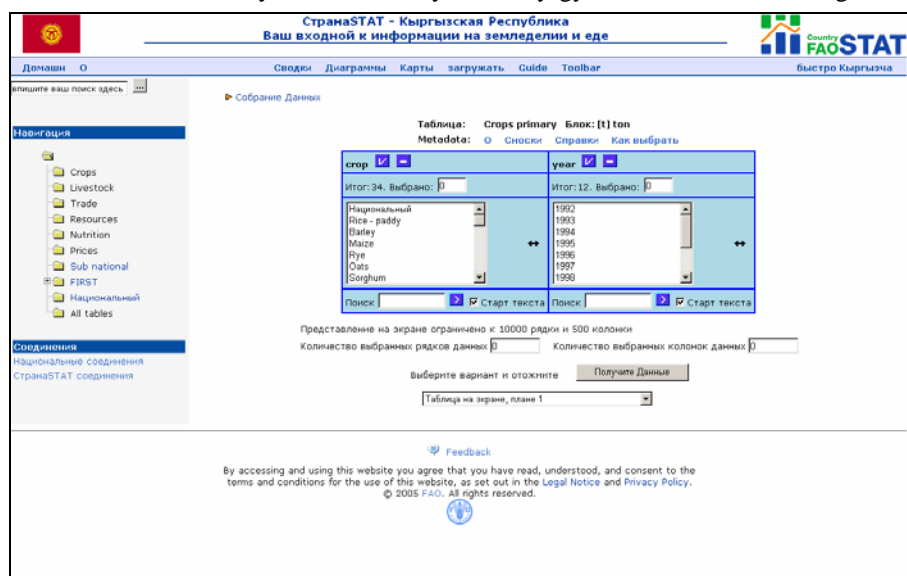

Figure 14: CountrySTAT in Kyrgyz Republic

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[19] FAO ABCDQ: http://faostat.fao.org/abcdq/about.htmx

The Multilinguality issue of CountrySTAT has been addressed at the sample of Kyrgyz Republic. The system has been enriched with a Cyrillic interface in Russian language. Data exchange can be done in almost all common exchange formats of CountrySTAT described.

NSC has prepared a country panorama report on the situation of the statistical information collection, management of data and metadata. In their strategic view CountrySTAT seems to be able to play a catalytic role in the bringing the various national data gathering agencies.

In this context capacity building at NSC has started: A core team of IT professionals has been trained to operate and maintain the technical system and a core team of statisticians has been trained to update and generate new matrixes. These core teams again were in the position to train NSC staff in the operation and the usage of CountrySTAT. At the end of the mission to the country, the CountrySTAT System has been presented to the member of the National Statistical Committee and received interest for participation.

The matching of the national classifications to FAOSTAT classifications turned out to be one of the most difficult tasks of the pilot project. There is still progress to be made in this area. The major limiting factor in the CountrySTAT Kyrgyz pilot study has been both partners' limited knowledge of a common language (English respectively Russian). This presumed disadvantage turned out to be an advantage for the further promotion and awareness raising in the area of the Commonwealth of Independent Countries. In addition to a FAO presentation, NSC provided two presentation of CountrySTAT Kyrgyzstan at a regional statistical workshop in Almaty Kazakhstan to delegates from eleven countries[20].

This project will continue working on the verification of existing data sets, translations of tables and variable sets, generation of new tables and themes for their national use. The participation at an advanced CountrySTAT System training course will accelerate and make the national level works more autonomous. A final evaluation report prepared by the country shall round-up the experiences made and explore operational and programmatic steps on how to integrate CountrySTAT in their national statistical systems.

Experiences CountrySTAT Kenya: Joint FAO-CSB Pilot Project

The first CountrySTAT pilot in Africa was Kenya. FAO's Agricultural Bulletin Board on Data Collection, Dissemination, and Quality of Statistics shows good data and metadata contributions for Kenya[21]. Within Kenya, the governmental body that has the institutional mandate to gather all food and agriculture related data is the Central Bureau of Statistics[22].

FAO Statistics Division and the Central Bureau of Statistics Kenya (CBS) have established a partnership for a piloting study to develop CountrySTAT in June 2005. National level statistical data and metadata covering all areas of production, consumption, resources, prices, and trade have been extracted from FAOSTAT database for 1963-2003 and prepared for web publication.

Figure 15: CountrySTAT in Kenya

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[20] FAO Workshop on Agricultural Surveys and Crop Forecasting: Almaty, Republic of Kazakhstan, 10-15 July 2005. http://www.fao.org/es/ess/meetings/almaty-2005.asp

[21] FAO ABCDQ: http://faostat.fao.org/abcdq/about.htmx

[22] Central Bureau of Statistics Kenya: http://www.cbs.go.ke

The above-mentioned system and extracted information has been published using a local web-server on a workstation and has been handed-over to CBS for testing and enhancing purposes. The homepage of the delivered webbased statistical information system of CountrySTAT Kenya is illustrated in Figure 15.

The integration of a Food Security Module[23] into CountrySTAT has been proven as a concept during FAO Statistics Division's FBS activities at national level. Twenty-five trainees of the Food Balance Sheet training were introduced to the CountrySTAT methodology and basic methods of using CountrySTAT for their purposes.

Immediate capacity building at CBS has started with the first mission in June 2005: A core team of IT professionals has been trained to operate and maintain the technical system and a core team of statisticians has been trained to update and generate new matrixes. These core teams again were in the position to train further CBS staff in the operation and the usage of CountrySTAT. At the end of the country mission CountrySTAT System has been presented to the representatives of the line technical Ministries and received interest for participation.

Matching of the national classifications to FAOSTAT classifications turned out to be one of the most difficult tasks of the pilot project. The operational environment for the project has been favorable, a well IT infrastructure and well-trained Statisticians paired with support from top management enabled rapid progress. This presumed advantage turned out to be a disadvantage for the further operation of CountrySTAT. Short while after being connected to the internet, the workstation was maliciously attacked and infected by computer viruses. This shows the cross-disciplinary needs of a webbased dissemination project.

This project will continue working on the verification of existing data sets, generation of new tables and themes for their national use. The participation at an advanced CountrySTAT System training course will accelerate and make the national level works more autonomous. A final evaluation report prepared by the country shall round-up the experiences made and explore operational and programmatic steps on how to integrate CountrySTAT in their national statistical systems.

Experiences in CountrySTAT Ghana: Joint FAO-GSS Pilot Project

The second CountrySTAT pilot in Africa was Ghana. FAO's Agricultural Bulletin Board on Data Collection, Dissemination, and Quality of Statistics shows for good data and metadata contributions for Ghana[24]. Within Ghana the governmental body, that has the institutional mandate to gather all food and agriculture related data is the Ghana Statistical Service[25].

FAO Statistics Division and the Ghana Statistical Service (GSS) have initiated a partnership for a piloting study to develop CountrySTAT in July 2005. National level statistical data and metadata covering all areas of production, consumption, resources, prices, and trade have been extracted from FAOSTAT database for 1961-2003 and prepared for web publication.
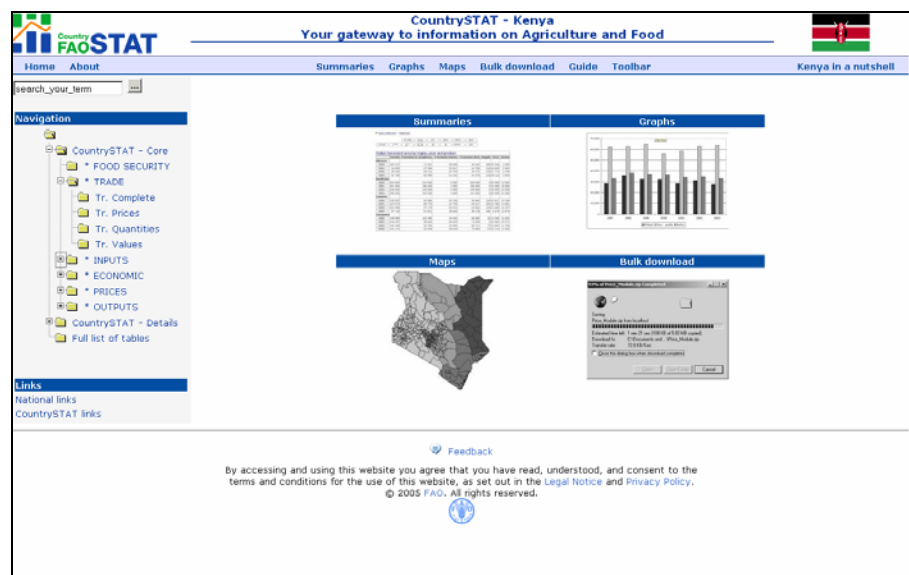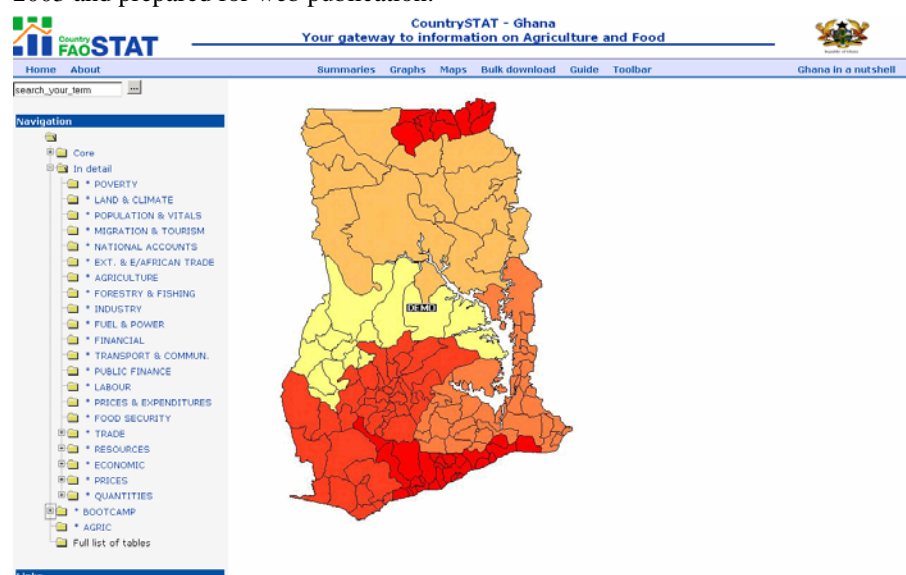

Figure 16: CountrySTAT in Ghana

[23] Ngendakumana, Vincent: Back to Office Report from Mission to CBS Kenya, July 2005.

[24] FAO ABCDQ: http://faostat.fao.org/abcdq/about.htmx

[25] Central Bureau of Statistics Kenya: http://www.cbs.go.ke

The above-mentioned system and extracted information has been published using a local web-server on a workstation and has been handed-over to GSS for testing and enhancing purposes. The homepage of the delivered webbased statistical information system of CountrySTAT Ghana is illustrated in Figure 16.

Immediate capacity building at GSS has started with the first mission in July 2005: A core team of IT professionals has been trained to operate and maintain the technical system and a core team of statisticians has been trained to update and generate new matrixes. These core teams again were in the position to train further GSS staff in the operation and the usage of CountrySTAT. At the end of the country mission CountrySTAT System has been presented to the representatives of the line technical Ministries and received concrete interest for participation.

Matching of the national classifications to FAOSTAT classifications turned out to be one of the most difficult tasks of the pilot project. The operational environment for the project has been good, the local network and well-trained statisticians paired with support from top management enabled a rapid progress. The connectivity to and from the internet however remains a serious dissemination issue which shows the cross disciplinary infrastructural needs of a webbased dissemination project.

The project will continue working on the verification of existing data sets, generation of new tables and themes for their national use. The participation at an advanced CountrySTAT System training course will accelerate and make the national level works more autonomous. A final evaluation report prepared by the country shall round-up the experiences made and explore operational and programmatic steps on how to integrate CountrySTAT in their national statistical systems.

As part of this agreement above mentioned system and extracted information has been setup on a workstation and handed-over to GSS for testing and enhancing purposes.

 Conclusions, Perspectives

The three CountrySTAT pilot projects in Kyrgyz Republic, Kenya, and Ghana indicate that the statistical framework and the applied technology as well as the outreach approach are suitable to meet the needs of FAOSTAT and the needs of the Statistical Offices. Data and metadata can be handled fine, classification and codes can be accommodated in the low IT demanding system, and sustainability can be expected.

Through its metadata rich framework, CountrySTAT system integrates with FAOSTAT and other international systems at ease. Tests on exchange of data and metadata between organizations, as well as between processes and systems within the National Statistical Offices will continuously be performed while the systems will be enriched with new themes and data sets. The underlaying work for the matching of classifications is tedious and will probably be a challenging semantic component in the project.

The selected CountrySTAT partners are all solid and find strong support from their management. The cooperation for pilot testing is demanding a lot of time of qualified staff and project resources. In the countries, functional roles have been created for the duration of the project however need to formalized and institutionalized. The same is valid for workflows and procedures that have to be elaborated and agreed between data gathering agencies and this will probably be a challenging network component in the project.

For future CountrySTAT implementations, the needs of individual country policy analysts and researchers will be taken into account with tailored analytical modules. This modular approach for the pilots will be based on individual country needs and suitability. All modules developed will be reused in other pilot countries, as funding will be widely available.

List of References:

Food and Agricultural Organization of the United Nations, *FAOSTAT2 Project,* 2004.
<http://www.fao.org/faostat/>

Food and Agricultural Organization of the United Nations, *CountrySTAT,* 2004.
<http://www.fao.org/faostat/countrystat_en.asp>

Food and Agricultural Organization of the United Nations, *Presentations - Informal Expert Consultation on CountrySTAT*, 17 to 19 March 2003.
<http://www.fao.org/es/ess/meetings/cy_stat_p.asp>

Food and Agricultural Organization of the United Nations, *Final Report - Informal Expert Consultation on CountrySTAT*, 2003.
<http://www.fao.org/es/ess/meetings/fin_rep.asp>

Food and Agricultural Organization of the United Nations, *Thirty-second Session of the Conference; Programme Evaluation Report,* 2003.
<http://www.fao.org/DOCREP/MEETING/006/Y8918E/Y8918e05.htm>

Food and Agricultural *Organization* of the United Nations, Programme Committee*; Evaluation of Programme 2.2.2 (Food and Agricultural Information) – Activities Related to Agricultural Statistics in the Context of FAOSTAT*, 2003.
<http://www.fao.org/DOCREP/MEETING/006/Y8675e.htm>

Food and Agricultural Organization of the United Nations, *Modernization of FAOSTAT - An Update,* 2002.
<http://www.fao.org/DOCREP/MEETING/004/Y6298e.htm>

FAO, Jacques Diouf: Thinking Globally, Acting Locally: The Rome-Kigali Model.
<http://www.fao.org/English/newsroom/news/2003/18043-en.html>

FAO Programme Committee (87th Session): Modernization of FAOSTAT – An update. Rome, 6-10 May 2002.
<http://www.fao.org/DOCREP/MEETING/004/Y6298e.HTM>

Final Report- Informal Expert Consultation on CountrySTAT, Rome, July 2003.
<http://www.fao.org/es/ESS/meetings/fin_rep.asp>

FAO Council (128th Session): Summary Programme of Work and Budget 2006-07. Rome, 20 - 25 June 2005.
<http://www.fao.org/docrep/meeting/009/j4754e/j4754e10.htm>

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