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*The specific components which make up the World Agricultural Information Centre at the Food and Agriculture Organization of the United Nations (FAO), are described in this paper.*

*WAICENT comprises three principal systems which are interactive and complementary: FAOSTAT, for the storage and dissemination of statistical information; FAOINFO, which covers hypermedia information; and FAOSIS which covers very specialised information systems. WAICENT has brought a new strategic information approach to the Organization related to paper versus electronic distribution and distribution versus central storage. Particular emphasis is given in this paper to the public information initiatives under WAICENT; the specialised information services provided by the various departments and delivered through WAICENT; and the full-text document storage and retrieval system study.*

FAO is faced with increasing demands to prepare, manage and disseminate the information that it produces to the widest possible audiences, in the most efficient manner, utilising the latest in technologies, and at less cost.

The WAICENT system was created at FAO to bring together and refocus the multiple information related enterprises, databases and publishing tasks of this large, multidisciplinary, international institution. There was also a need to reorient these activities to take advantage of the rapid developments in information technology.

In summary, the principal aims behind the creation of WAICENT were to:

- increase the extent of information coverage handled by FAO;
- improve and streamline in-house data management;
- strengthen and simplify the flow of information to and from the Member countries;
- reduce processing costs in all phases of receiving, treating and disseminating information;
- reach FAO's target audiences more effectively and at less cost.

The practical advantages are principally seen as three:

- ① to capitalise on the intellectual output of the Organization through the maintenance of an institutional memory in electronic format;
- ② increase the availability of information to multiple users, bringing greater efficiency and cost-effectiveness;
- ③ reduce the burden to Member Countries in accessing FAO's information resources.

The task of WAICENT is to foster a corporate atmosphere - to co-ordinate information, and, through a co-operative and well-structured approach, enhance the content, improve the quality and widen still further its outreach. This is the reason why WAICENT is termed an "umbrella" : the connotation is one of cumulating, *not* of controlling.

As previously mentioned, WAICENT is made up of three interactive and complementary components:

- FAOSTAT, for the storage and dissemination of statistical information,
- FAOINFO, which covers hypermedia information (viz. text, images, audio and video), and
- FAOSIS, covering specialised information systems.

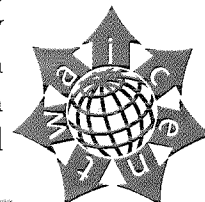
#### THE FIRST COMPONENT - FAOSTAT

This system contains a collection of time-series data on demography, agriculture, fisheries and forestry covering 210 countries and territories to date, merged into one statistical database service. There are data on trade flows, food aid, development assistance, and the results of the World Agricultural Census on household budget and food consumption surveys. Software was developed to allow users to select and organise the statistical information into tables and charts that meet their individual needs. FAOSTAT is being made available on the Internet, CD-ROM, and diskettes, as well as in printed yearbooks and other special publications. The original statistical data is supplied by each country or intergovernmental organization and is then mapped in a common format, merged and put into one database by FAO.

#### THE SECOND COMPONENT - FAOINFO

The intent of FAOINFO is to develop the infrastructure and procedures to prepare, organise, store and disseminate textual and hypermedia information. Like FAOSTAT, a key activity of this group is to manage the change in the way the information is prepared and handled by the Organization.

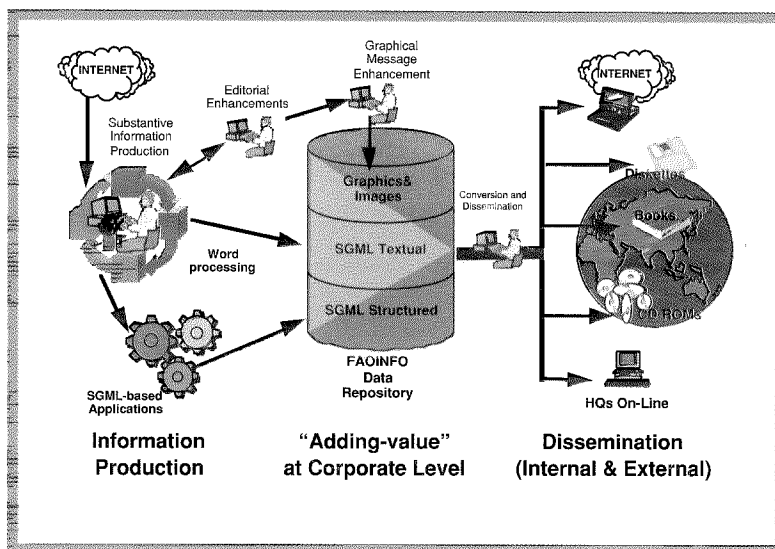
Word processing templates have been designed and are being implemented so that documents are properly formatted as they are being prepared in the departments. The records are then automatically converted into a structured document format in SGML (Standard Generalized Markup Language), processed



by the system and put into a corporate electronic document repository. There they are indexed by the FAO Documents Unit and the citations added to the FAODOC (FAO Documentation) and AGRIS (the International Bibliographic Information System for the Agricultural Sciences and Technology) databases, with links back to the full text records. The data can also be easily output in HTML format for the FAO World Wide Web pages and in other appropriate formats for printing or other forms of electronic distribution.

A new MediaBase system for hypermedia files, such as photos, audio, video, and graphics, has also been put into place, with the capability to link these files to the appropriate documents in the corporate repository. The new system can also be accessed and searched separately to find photos and other graphical materials to be used in new publications or on the Web.

The overall intent is to refocus the whole publishing system to a database centric one where the information is prepared in a decentralised mode but managed and made available through a centralised service for multiple use, as shown in the diagram below.

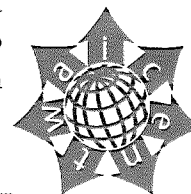


Publications Information flow

### THE THIRD COMPONENT - FAOSIS

FAOSIS, like FAOSTAT and FAOINFO, brings together information under its own discipline-heading. At present, there are three major information systems accessible under FAOSIS :

- the Global Information and Early Warning System on Food and Agriculture (*GIEWS*), provides regular bulletins on food crop production and markets at the global level, and situation reports on a regional or country-by-country basis.



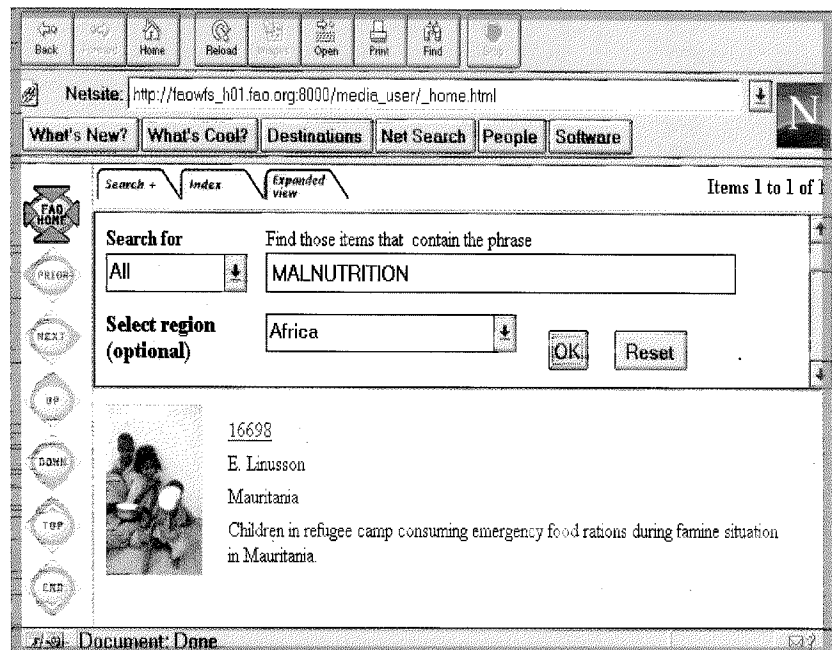


wide variety of users. Consequently, we attempt to provide a variety of products via Internet Web services. Being an international organization we are also attempting to provide as much information as possible in at least English, French and Spanish, with work currently underway to expand the Web service to include Arabic.

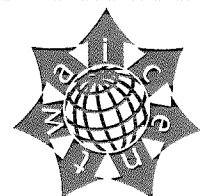
As part of a project to develop an electronic magazine or news service that we call CERESTronic, we have created a dynamic homepage with news stories regularly added describing FAO's activities and projects. This is the white area of the page shown above. This project has been developed in cooperation with FAO's Information Division (GII), with the objective of communicating on the Internet the Organization's first "message" - its Homepage.

General interest stories about FAO's work, how experts in developed or developing countries are participating in FAO's programmes, how a particular field project is affecting individual farmers, and how others are utilising its technical expertise - are transmitted under this system. *(For further information please contact Mr A. Marx, e-mail address: Andrew.Marx@fao.org).*

The new hypermedia *MediaBase*, was also developed in conjunction with the Information Division. Users can search the MediaBase for photos, video clips or other graphic files and are provided within seconds with „thumbnail“ previews of all the pictures fitting their request, together with a short caption and basic information about when and where the picture was taken. Clicking on the number that identifies a picture will bring up a larger version and more detailed textual information. Individuals, institutes, NGOs and journalists are able to access and download pictures from a database that includes thousands of photographs and information graphics.



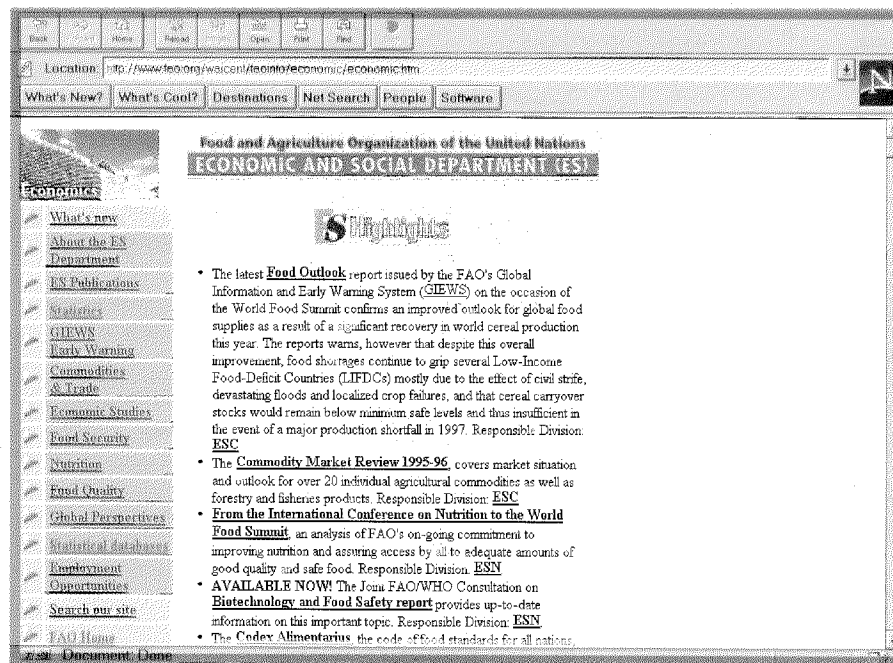
MediaBase - FAO's digital photo archive (example of request generated)  
 (<http://www.fao.org/news/1997/media-e.htm>)  
 - click on MediaBase



During the World Food Summit last November, when over 15,000 people including heads of state, senior government ministers, other delegates and journalists gathered in Rome to map a course towards greater world food security, we used a new system to quickly create dynamic pages of information combining text, photos, audio, and video data. In fact, during the Summit we were able to digitize the video televised from the Plenary Hall and have it up on our Website before the speaker even left the platform. Observers of the Summit who could not attend could follow the events and have the full text of related documents available anywhere in the world. Several CD-ROM versions containing our Web pages along with the Web browser software were also produced and distributed as an alternative for those not having Internet access. New versions of this CD product will continue to be produced in the future.

WAICENT, in its umbrella-type role, provides the overall infrastructure and support for the Internet service but each department and division is responsible for deciding what information they wish to put up and for preparing the data. Each department has its own homepage, which vary considerably in design and structure. This has been done purposely to allow all of us the flexibility to experiment with different approaches.

Below are two examples of departmental homepages, viz. the Economics and Social Department (ES), and the Fisheries Department (FI):



Economics and Social Department (ES) Homepage  
(<http://www.fao.org/waicent/faoinfo/economic/economic.htm>)



Fisheries Department (FI)  
Homepage  
([http://www.fao.org/waicent/  
faoinfo/fishery/fishery.htm](http://www.fao.org/waicent/faoinfo/fishery/fishery.htm))

Location: <http://www.fao.org/waicent/faoinfo/fishery/fishery.htm>

What's New? What's Cool? Destinations Net Search People Software

### Welcome to the FAO Fisheries Department

**Information**

- Trends
- International Agreements
- Statistics
- Newsletters
- Publications
- Meetings
- ITAFISH
- GLOBFISH
- ASFA
- FishBase
- Employment Opportunity

**Resources**

- Structure & Function
- Staff
- Regional Offices
- Regional Studies
- Projects
- Historical Services

**Highlights**

- What's New
- Global fish production
- Projection of World Fishery Production in 2010
- Fish as Food

FAO's Major Programme on Fisheries aims in the 1996-97 biennium to promote sustainable development of responsible fisheries and contribute to food security. To implement this Major Programme, the Fisheries Department focuses its activities, through programmes in **Fishery Resources**, **Fishery Policy**, **Fishery Industries**, and **Fishery Information**, on three main initiatives:

- Promotion of Responsible Fisheries Sector Management at the Global, Regional and National Levels**, with priority given to the implementation of the Code of Conduct for Responsible Fisheries, and particular attention paid to the problem of excess capacity and the strengthening of **Regional Fisheries Bodies**. The Department is fully involved in the implementation of important **international fisheries initiatives**.
- Promotion of Increased Contribution of Responsible Fisheries and Aquaculture to World Food Supplies and Food Security**. Following on the outcome of the **Kyoto Conference on the Sustainable Contribution of Fisheries to Food Security**, the Department focuses on reduction of waste in fisheries (particularly discards) and aquaculture (particularly in relation to **FAO's Special Programme on Food Security**). Support is given to aquaculture development in areas of highest potential or critical need by improving aquaculture resources utilization and integration with agriculture, promoting research as well as protection and rehabilitation of the environment. The Department has also initiated a specific programme of assistance in fisheries to **Small Island Developing States**.

Document Data

There are at present several on-going projects under FAOINFO: the public information text and multimedia service; a Virtual Library project to make library and other information resources available on the staff's computers; and the full-text document storage and retrieval system project. The bibliographic database AGRIS is part of the Virtual Library project, along with the FAODOC database and the David Lubin Memorial Library's On-line catalogue.

Incorporation of the Current Agricultural Research Information System (CARIS) into WAICENT allows a user to search by any keywords and quickly obtain data about on-going research projects in the developing countries including information on the current status of the project; available, relevant literature; and, in the future, the e-mail address of the researchers and the URL Internet address of the research institutes. The CARIS database is on the Web now:

Netstate: [http://faowfs\\_h01.fao.org/8001/library/caris.html](http://faowfs_h01.fao.org/8001/library/caris.html)

What's New? What's Cool? Destinations Net Search People Software

### Current Agricultural Research Information System

**Search Fields**      **Search elements**

Project title(s)      holstein      contains all

AGROVOC Descriptors      biotechnology      contains all

Country (English)           contains all

Year of information           =

AND OR NOT

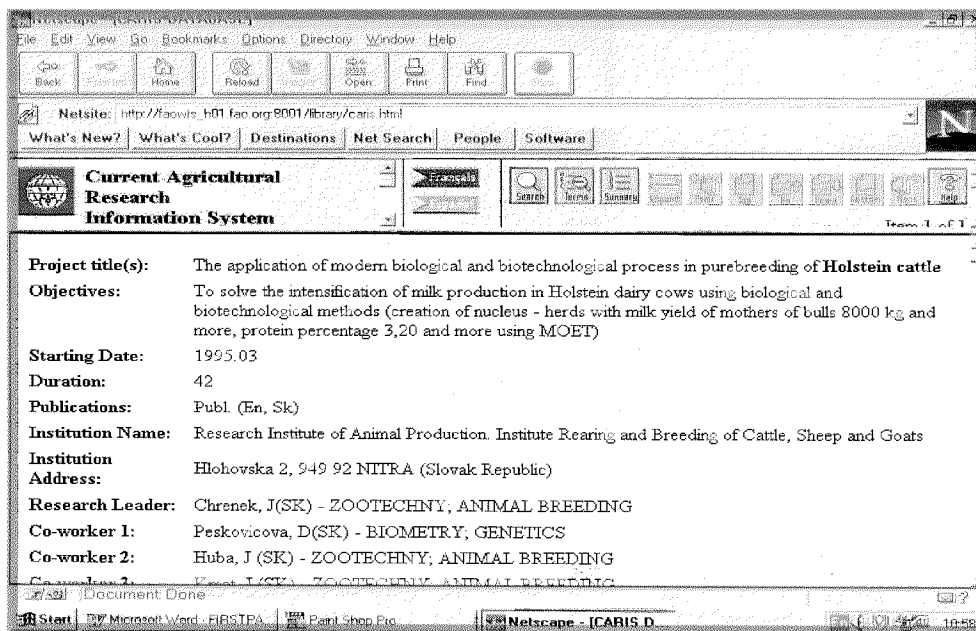
CARIS Database

([http://faowfs\\_h01.fao.org/8001/library/caris.html](http://faowfs_h01.fao.org/8001/library/caris.html))

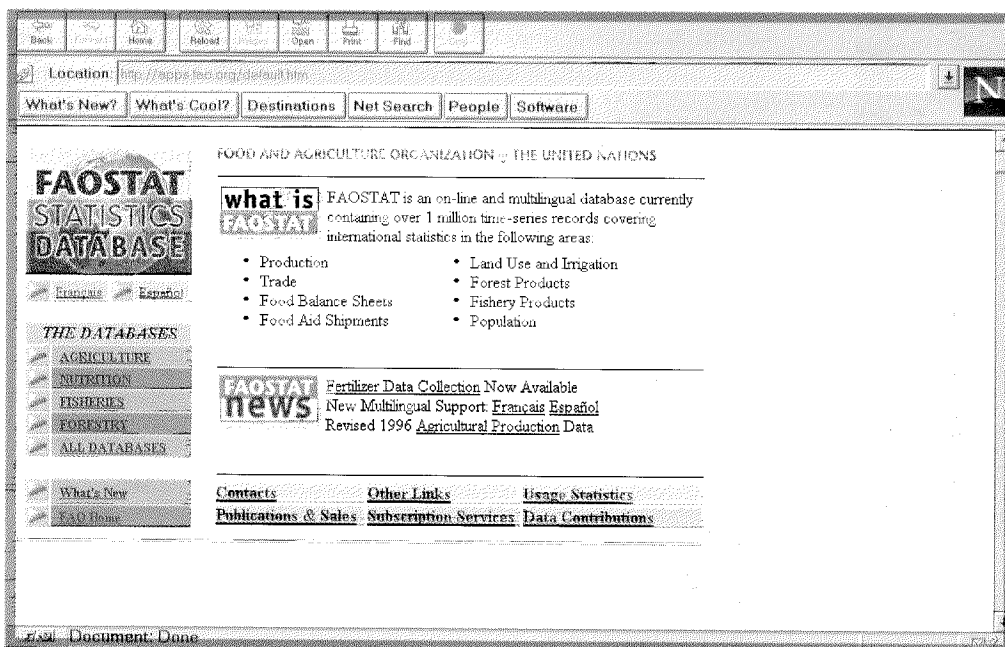




The results of the above search on CARIS database



For our FAOSTAT interactive Web service, special software was developed allowing users to select and organise the statistical information into tables and charts that meet their individual requirements. FAOSTAT provides a regularly updated table of hits/database downloads for each calendar month. Below, the Homepage for FAOSTAT, and recent statistics on usage.



The FAOSTAT Statistics Database  
 (<http://apps.fao.org/default.htm>)





Month	Page Hits	Accesses	Records Downloaded
November **	70,456	33,686	2,926,482
December	48,750	22,470	2,577,415

\*\* November was an exceptional month for FAOSTAT because of the interest in FAO's work generated by the World Food Summit, held in Rome, at FAO Headquarters.

Under the *FAOSIS* initiative other specialised database services are regularly being added to the Internet service with some available on CD-ROM or on diskette. Examples include the GIEWS system noted earlier, and shown in the next illustration.

Location: <http://www.fao.org/waicent/faoinfo/economic/giews/english/giewse.htm>

What's New? What's Cool? Destinations Net Search People Software

**Global Information and Early Warning System on Food and Agriculture (GIEWS)**

Publications and reports These reports are also available in [French](#) and in [Spanish](#)

- Food Outlook
- Foodcrops and Shortages
- Food supply situation and crop prospects in sub-Saharan Africa
- Sahel weather and crop situation
- Special Reports and Alerts

Data base on Western and Central African Countries (pilot site in French)

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS - Commodities & Trade Division  
 For further information please contact **Abdur RASHID**, Chief, Global Information and Early Warning Services, FAO, Viale delle Terme di Caracalla,  
 00100 ROME - ITALY.  
 E-mail: [GIEWS1@FAO.ORG](mailto:GIEWS1@FAO.ORG); Tel: (39) 6 5225 3099 or Fax: (39) 6 5225 4495

FAO Home Economic Search our site

NOTE: These reports are prepared on the responsibility of the FAO Secretariat with information from official and unofficial sources. Since conditions can change rapidly and information may not always represent the current crop or food supply situation as of present date, further enquiries should be made before any action is taken. None of the reports should be regarded in any way as statements of governmental views.

The designations employed and the presentation of material in these bulletins do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

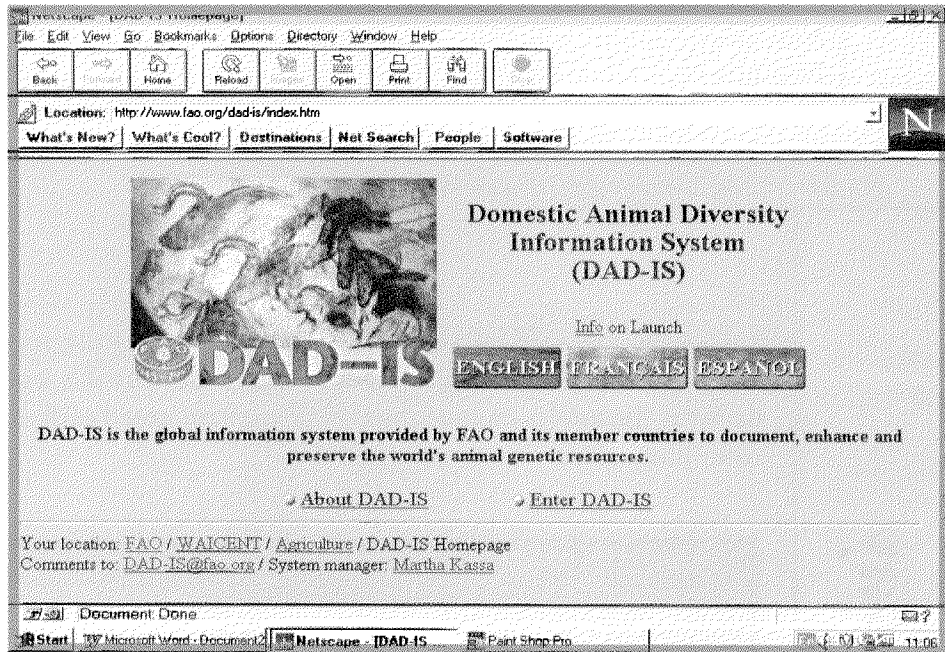
File Document Done

Global Information and Early Warning System on Food and Agriculture (GIEWS)  
 (<http://www.fao.org/waicent/faoinfo/economic/giews/english/giewse.htm>)

(GIEWS is developed by the Economic and Social Department (ES); for further information please contact Mr R. Marsili, e-mail address: [Raffaello.Marsili@fao.org](mailto:Raffaello.Marsili@fao.org)).



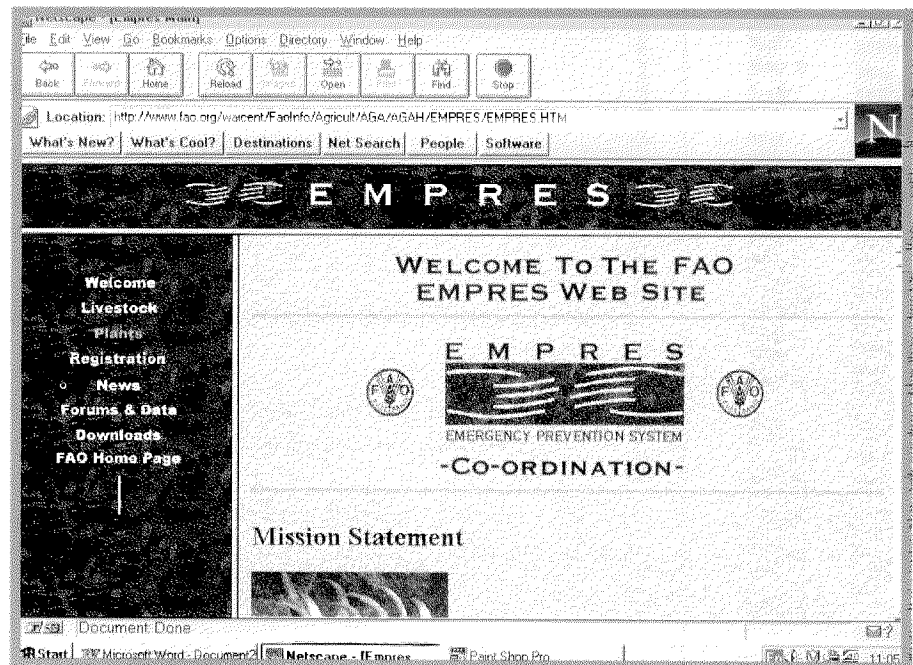
DAD-IS and EMPRES are two other services provided as well.



(<http://www.fao.org/waicent/faoinfo/agricul.htm>

(go to "Animal Production & Health" - "Animal Production Service")

(DAD-IS is developed by the Agriculture Department (AG); for further information please contact Mr K. Hammond, e-mail address: [Keith.Hammond@fao.org](mailto:Keith.Hammond@fao.org)).



(<http://www.fao.org/waicent/faoinfo/agricul.htm> (go to "Divisions"))

(EMPRES is jointly managed by the Animal Health Service (contact person Mr M. Rweyemanu, e-mail address: [Mark.Rweyemamu@fao.org](mailto:Mark.Rweyemamu@fao.org)), and the Plant Protection Service (contact person Mr A. Hafraoui, e-mail address: [Abderrahmane.Hafraoui@fao.org](mailto:Abderrahmane.Hafraoui@fao.org)), both of the Agriculture Department (AG).



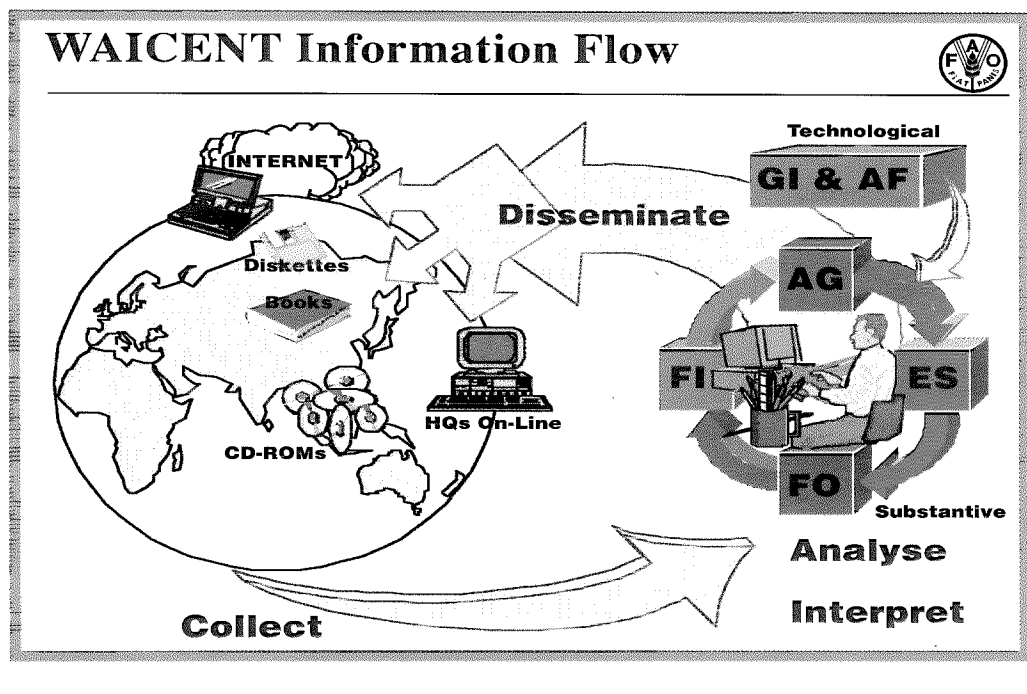
## WAICENT, IN SUMMARY

WAICENT is an example of how information activities can be integrated across departments and divisions, with reciprocal advantages allowing for greater efficiency and overall lower costs for the Organization. WAICENT provides the corporate tools for electronic processing and dissemination, making information equally available to all units, including those outside Rome, and eliminating unnecessary duplication of files.

Individuals, institutions, organisations and governments all over the world may access the WAICENT centralised database through the FAO Homepage on the Internet. Each department in FAO has presented its wealth of information sources independently; conformity only lies in the search mechanism.

By providing exhaustive on-line information through the World Wide Web, along with complementary services on CD-ROM, diskette and in print, FAO ensures that countries which face emergency situations will be alerted fully and ahead of time, and are now able to have real-time contact with experts, and immediate relief programmes.

Results can be measured in part by the usage figures from our Internet Web and Gopher services, as well as the feedback that we have received from users. Usage has grown from just under 400,000 "hits" in March of last year to over 905,500 in January - a hit being defined as a page of information accessed or a database record displayed. Records downloaded reflect a proportionally greater increase from 300,000 records in March 1996 to over 5,800,000 in January 1997. As a sign of the international interest raised by the World Food Summit- mentioned earlier in this paper - usage jumped to over 2,000,000 hits in that month alone. The overall usage trend should increase in the future as more information is made available on the site and as telecommunication services continue to improve and expand worldwide.



A great deal of work remains to be done: we aim to provide new subject-searching features, additional database services, and a greater depth of content.

The mechanism of WAICENT generates a continuous, circular movement of information around the globe produced by the countries and sent to FAO, where it is analysed, interpreted and organised and then disseminated on diskette, on CD-ROM, in print or on the Internet. This is the system and the path of the future: information collected and then disseminated in the form most appropriate to the audience requesting it.

The era of information technology offers new tools accompanied by a new, sophisticated vocabulary: "accessibility", "user-friendliness", "cross-platform portability", etc. WAICENT is one of the results made possible by this technology.



For more detailed information about WAICENT, please contact directly :

Francisco Pérez-Trejo  
WAICENT Manager  
Library and Documentation Systems Division (GIL)  
E-mail : [Francisco.PerezTrejo@fao.org](mailto:Francisco.PerezTrejo@fao.org)