BEFS
BONN-ROME, 2 JULY 2014

GAEZ Data Portal

www.fao.org/nr/GAEZ

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Content

- Background
- AEZ methodology and tools
- GAEZ Data Portal Features
- Next Steps
Main activities of the organization

- Putting information within reach
- Sharing policy expertise
- Providing a meeting place for nations
- Bringing knowledge to the field
**....about GAEZ**

- FAO and IIASA have developed the **spatial analysis system** that enables:
  - rational land-use planning
  - based on the inventory of land, water and soil resources
  - evaluation of biophysical limitations and production potentials of land
  - using FAO AEZ methodology for land evaluation
GAEZ introduction

- GAEZ provides a standardized **framework for characterizing** climate, soil and terrain conditions relevant to agricultural production.
- It is based on a **geospatial inventory of natural resources** compiled from recent global environmental data sets.
- The inventory allows **assessments of land productivity** for location-specific agro-ecological conditions.
- GAEZ enables the **harmonization and integration** of a variety of geospatial datasets, model scenarios and assessments.
- It offers technical support to **policy decisions** for sustainable management.
Selection of AEZ related tools

- **CropWat** – a decision support tool for Windows;
- **AquaCrop** – a crop water productivity model that simulates yield response to address conditions where water is a key limiting factor;
- **AgroMetShell, NewLocClim, MOSAICC** – tools to conduct agro-climatic analysis;
- **Eto calculator** – mainly to calculate Reference Evapo-transpiration according to FAO standards;
- **LRIMS** – ArcGIS extension to conduct Land Suitability Analysis;
- **BEFS tools** – A set of ArcInfo tools to conduct Land Suitability Analysis
- **ECOCROP** – a tool to provide agro-ecological information on crops and productivity.
Selection related databases

- **GAEZ database**  [www.fao.org/nr/GAEZ](http://www.fao.org/nr/GAEZ)
- **FGGD database** - available at [www.fao.org/geonetwork](http://www.fao.org/geonetwork)
- **AQUASTAT** - global information system on water and agriculture  [www.fao.org/nr/water/](http://www.fao.org/nr/water/)
- **CLIMWAT** - a climatic database to be used in combination with CROPWAT
- **Land Cover data** – GLCN website  [www.glcn.org](http://www.glcn.org)
Selected applications of AEZ

- Quantification of land productivity;
- Estimations of rain-fed or irrigated cultivation potential for food, feed, fiber, and bio-energy feedstock production;
- Potential production capacities of various land use;
- Identification of environmental constraints to agricultural production;
- Identification of potential hot spots of agricultural conversion and possible geographical shifts in agricultural land potentials due to changing climate;
- Identification of areas for crop intensification.
FAO GAEZ data portal version 3.0

- provides interactive and dynamic web application to report on the current state and trends of agricultural production and crop suitability;
- designed based on multi-dimensional, multi-temporal and multi-purpose database;
- developed using standards and innovative technology;
- enables public access to data and information, becoming a gateway global, regional and local geospatial and tabular information on agricultural resources and potential
GAEZ data portal capabilities

- designed to facilitate access to the GAEZ database and resources;
- enables users management;
- delivers terabytes of spatial data, maps, tables, statistics, metadata, reports;
- Fully documented (Data model, User’s Manual, GAEZ definitions, FAQ, limitations, and hints available);
- Compliant with FAO definitions, classifications and standards, ISO metadata standards to feed FAO GeoNetwork as part of data.fao.org
GAEZ menu structure

Steps in GAEZ Data Compilation

1. Land Resources Data Base
2. Agro-climatic Analysis
3. Assessment of Crop Potentials
4. Downscaling of Crop Statistics
5. Estimation of Yield and Production Gaps

Themes in GAEZ Portal

A

- Land and Water Resources
- Agro-Climatic Resources
- Agricultural Suitability and Potential Yield
- Actual Yields and Production
- Yield and Production Gaps

Sub-themes in GAEZ Portal

B

- Soil Resources
- Water Resources
- Terrain Resources
- Land Use/Cover
- Protected Areas
- Population, Accessibility
- Thermal regimes
- Moisture regimes
- Growing period
- Agro-climatic yields
- Climate yield constraints
- Crop calendars
- Agro-ecological suitability & productivity
- Aggregate value of crop production and yield
- Crop harvested area, yield and production
- Yield gap
- Production gap
GAEZ factsheet - Dimensions

- **THEMES**
  - 5 thematic areas (> 300,000 global datasets at mainly 5 arc minutes, also core layers at 30 arc-seconds)

- **CROPS**
  - 11 crop groups, 49 crops, 92 crop types and 280 Crop/LUTs
  - downscaling of 23 crops/commodities
  - yield and production gap analysis for 17 crops/commodities

- **WATER SUPPLY**
  - 5 water supply types (rain-fed, irrigation, gravity, sprinkler, drip)

- **INPUT LEVELS**
  - 4 Input levels (High, Intermediate, Low, Mixed)

- **TIME PERIOD**
  - Historical 1961-2000, 30 year average (1961-1990) and Future, 2020s, 2050s, 2080s)
Data Portal features

- Browsing, querying and visualizing spatial datasets;
- Search by free text, theme, crop, input level, water supply, time period, country and region;
- Navigation of spatial datasets (pan, zoom) and identify by location;
- Analysis and charting tools for tabular data;
- Preparation of maps and reports for different maps and variables;
- Download spatial, tabular, and metadata
GAEZ database outputs

- Geospatial datasets (raster format)
- Tabular data aggregated for current major land use/cover patterns
- Reports in PDF format
- Screenshots for quick presentation
- Metadata (dynamic: created on-the-fly using ISO metadata standards)
- Documentation and manuals
GAEZ Search and refine interface
GAEZ mapping interface
GAEZ in a nutshell

- **Search** and get information
- **Explore** and Analyze – Mapping
- **Aggregate** and graph – Tables
- **Report** and get the data – Access
- Improve your knowledge and use properly – **Help** and Documentation
- **Users opinion matters** – Feedback, Forum, Tweet, Email, Help Desk
GAEZ data users

- FAO technical departments
- Technical experts from Member countries
- International Research and Modeling Community, Academia

GAEZ data portal external use Bandwidth (GB)
Next steps

- Upgrade GAEZ baselines to 2010 spatially and thematically
- Update Agro-Maps up to 2011 (ongoing)
- Outreach and awareness raising continuously
Thank you

www.fao.org/nr/gaez

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