Project no: INCO-CT-2005-012065

Project acronym: DAFNE-WBC

Project title: The use of household budget survey data as a tool for nutrition interventions in the post-conflict Western Balkan countries - the European Data Food Networking (DAFNE) approach.

Instrument: Specific Support Action

Thematic Priority: Specific Measures in Support of International Cooperation INCO Calls for Western Balkan Countries

Final Activity Report

Date of preparation: 20 April 2008

Start date of project: 1 July 2005

Duration: 24 months

Project Coordinator name: Antonia Trichopoulou, MD

Project Coordinator organisation name: National and Kapodistrian University of Athens

Revision: draft 1

Project Execution

Following a decade of internal conflict, countries of the Balkan region have undergone demographic and nutritional transitions, which have brought about changes in the dietary habits adopted by the populations. The availability of data that would allow for the monitoring of food habits in the region is either restricted to small scale studies of limited scope or simply non-existent. Food availability data at household level are collected through the Household Budget Surveys (HBS). Unlike other sources of dietary data in the region, HBS are nationally representative, systematically conducted by the National Statistics Offices of the Balkan countries, and provide for the linkage between nutrition habits and explanatory demographic and socio-economic factors. The exploitation of the HBS food data for monitoring dietary habits in Europe has been evaluated in the Data Food Networking (DAFNE) initiative. The DAFNE project has been successful in developing the methodology for harmonizing the HBS data of 21 European countries (http://www.nut.uoa.gr).

The DAFNE-WBC project was aiming to harmonize and render comparable the existing HBS food data, according to the DAFNE methodology, in order to establish the foundations for a nutrition monitoring system in Albania, Croatia, Montenegro and Serbia. The project further aimed to utilize this nutrition monitoring system in order to evaluate associations with the prevalence of nutrition-related chronic diseases in the region.

Objectives

The specific objectives of the DAFNE-WBC project are:

- To train researchers from Western Balkan Countries (WBC) in applying the methodology developed in the context of the DAFNE initiative to their national HBS, in order to monitor the food choices of their populations, to evaluate the implementation of nutrition strategies and actions, and to follow the demographic and socio-economic determinants of eating habits.

- To integrate harmonized food data from WBC into *DafneSoft*, a software application tool providing free access to internationally comparable dietary data, through the internet [http://www.nut.uoa.gr/dafnesoftweb/].

- To identify dietary patterns prevailing in the region in the general populations and in population sub-groups and evaluating associations with nutrition-related chronic diseases.

- To apply the updated DAFNE food databank for developing national and international nutrition interventions in the region focusing on the fight against socio-economic inequalities in food choices.

- To prepare future community RTD activities, via the identification of food habits in the Western Balkan region.

Contractors

The contractors involved and their role in the project are presented in the following table:

Participant's role	**Participant name**	**Participant short name**	**Country**
Coordinator	National and Kapodistrian University of Athens	NKUA	Greece
Contractor	Ministry of Health	MoHA	Albania
Contractor	Croatian National Institute of Public Health	CNIPH	Croatia
Contractor	Institute of Public Health of Montenegro	IPHM	Montenegro
Contractor	Institute of Public Health of Serbia	IPHS	Serbia
Contractor	World Health Organization, Regional Office for Europe	WHO	Denmark

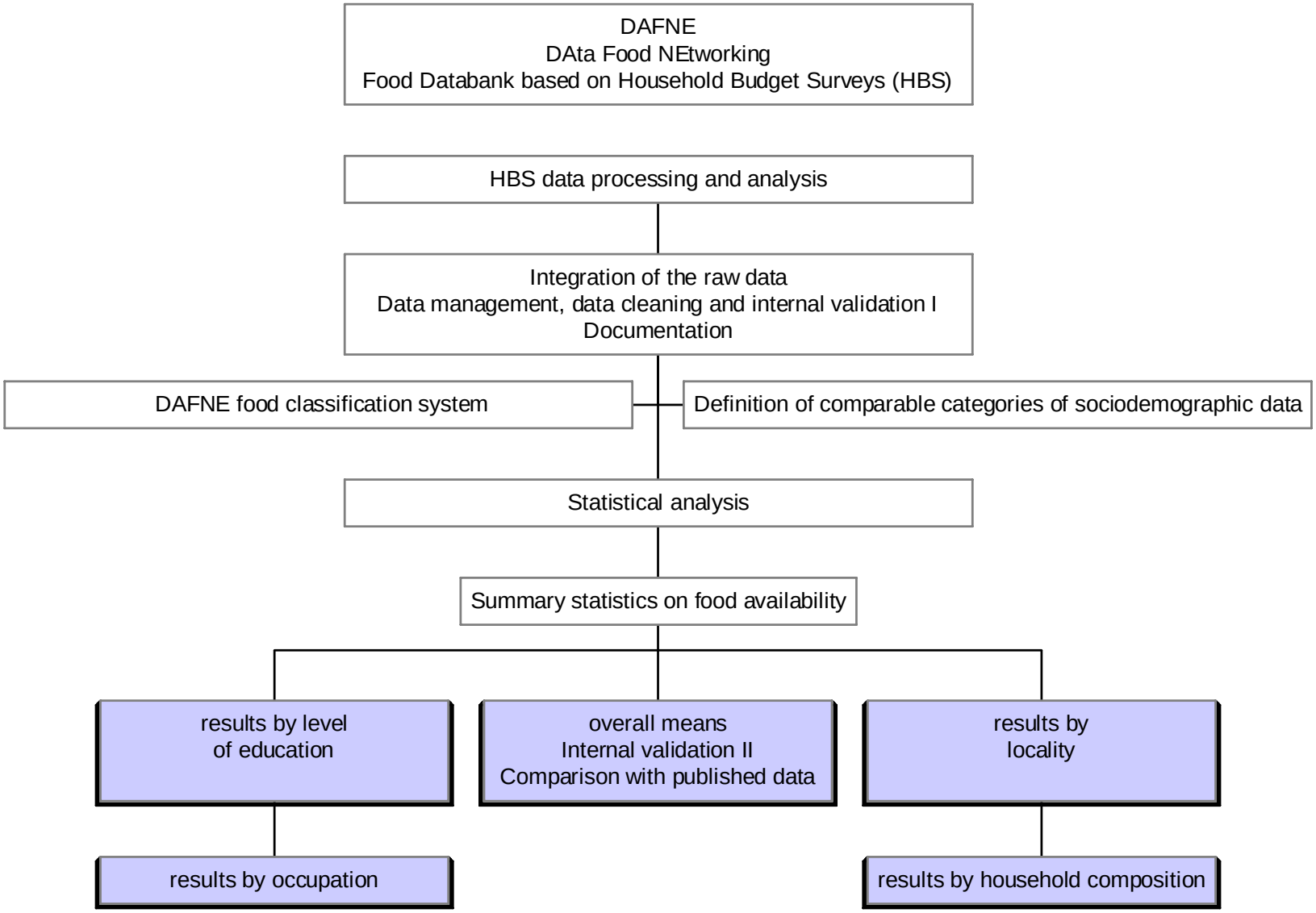
Work performed

The project was initiated through a kick-off meeting, during which participants were introduced to the project's support and management activities. Participants were further informed about the established DAFNE methodology and procedures of analysis. Prior to the meeting, the Coordinating Centre has distributed an inventory on the methodological characteristics of national HBS. Based on questions included in this inventory, participants presented the national datasets that would be provided to the Coordinating Centre.

In the course of the project, datasets from the following countries (survey year in parenthesis) were provided: Albania (2000), Croatia (1999, 2004), Montenegro (2003, 2004) and Serbia (2003, 2004). The provided datasets were collected through protocols harmonised according to EUROSTAT's recommendation and therefore allow for undertaking comparisons at national and international level, an objective of primary interest to the DAFNE-WBC project. With respect to the Albanian data, initial plans included the analysis of two datasets. A thorough study, however, of the protocols of data collected in the country at various time points since 1993, revealed that only the 2000 and 2006 datasets could be used for the DAFNE-WBC purposes. In the lifetime of the project, the 2006 survey was ongoing and participants agreed to proceed with the analysis of the 2000 data and potentially, if time and resources become available, with the analysis of the 2006 data.

The tasks undertaken in the context of the DAFNE-WBC project are summarized in the following diagram (Figure 1).

Figure 1: The Household Budget Survey data processing and analysis in the context of the DAFNE-WBC project



In summary, the applied methodology included the:

1. Integration of new datasets in the databank: All datasets, together with their file descriptions, were prepared and provided by the national Statistical Offices to the Athens centre. In the majority of the cases, data were generally stored in ASCII, Excel or SPSS files, with size and structure varying due to different sample sizes and variables provided. Datasets included information on the following variables:

General information

- household identification number
- trimester of participation

Nutritional information (purchases, own production and contributions in kind)

- food code
- total food expenditure (food expenditures outside the household included)
- expenditure per food item
- expenditure for meals out of home
- amounts per food item
- type of acquisition (purchases, own production and contributions in kind)

Socioeconomic information

- degree of urbanisation of household (urban, rural, semi-urban)
- number of inhabitants in the area where the household is situated
- population density of the area
- name of geographical area
- household size
- age and gender of household head and members
- relationship of household members with the household head
- household disposable income (net income)
- household total expenditure
- occupation / employment status / economic activity of household head and members
- education of household head and members

- income of household head
- data on the household's medical expenses

For the verification cleaning and management of the data, a visual FoxPro tool was used by the data managers of the Coordinating Centre. The understanding and correct reading of the data by the DAFNE coordinating team was evaluated through samples of random households which were sent to each country for cross-checking. The raw DAFNE data are stored per country and survey year and are maintained in a Microsoft SQL Server 2000 DBMS on a Windows 2003 Server Operating System at the Coordinating Centre.

2. Documentation of the HBS variables, which would be used in the analysis. Upon completion of the data reading, the NKUA team proceeded to checking of the data consistency in addition to identifying and estimating the extent of missing data for the variables that would be considered in the analysis.

3. Harmonization of the food and socio-demographic information collected in the national HBSs. The harmonisation procedure, according to the DAFNE standardised procedures, has resulted in the development of the:

- *DAFNE Food Classification Scheme*, which allows grouping the HBS-collected food data into 56 common subgroups, which can be further aggregated at various levels ending up at 15 main food groups (Table 1)

- *DAFNE Classification Scheme for Socio-demographic data,* including the locality of the household's residential area, the educational level and the occupational status of the household head and the household's composition.

Through a training seminar, participants were introduced to the rules of application of the aforementioned classification schemes and, with the assistance of NKUA personnel, worked on their application in national HBS data.

Table 1: The DAFNE Food Classification Scheme

Cereals and cereal products	**Vegetables**
Bread and rolls	FRESH VEGETABLES
Bakery products (bread and rolls excluded)	Green leafy vegetables
Rice, cereals and products (flour and pasta excluded)	Cabbage
Flour	Tomatoes
Pasta	Carrots
Meat, meat products and dishes	Onions, garlic and leek
RED MEAT	Other fresh vegetables
Pork meat (fresh and frozen)	PROCESSED VEGETABLES
Beef, veal and calf meat (fresh and frozen)	**Fruits**
Red meat, other than pork and beef (fresh and frozen)	FRESH FRUITS
OFFAL (fresh and frozen)	Apples
POULTRY (fresh and frozen)	Citrus fruits
CANNED MEAT AND MEAT PRODUCTS	Bananas
MEAT DISHES	Grapes
Fish, seafood and dishes	Plums
Fish (fresh, frozen and processed)	Berries
Seafood	Apricots and peaches
Fish dishes	Cherries and sour cherries
Milk and milk products	Pears
Milk	Other fresh fruits
Cheese	PROCESSED FRUITS
Milk products (cheese excluded)	**Fruit and vegetable juices**
Eggs	Fruit Juices
Added lipids	Vegetable Juices
LIPIDS OF ANIMAL ORIGIN	**Sugar and sugar products**
Butter	Sugar
Animal fat (butter excluded)	Sugar products
LIPIDS OF VEGETABLE ORIGIN	**Non-alcoholic beverages**
Vegetable fat	STIMULANTS
Margarine	Coffee
Vegetable fat (margarine excluded)	Tea and similar infusions
Vegetable oils	Cocoa
Olive oil	MINERAL WATER
Seed oils (olive oil excluded)	SOFT DRINKS
Potatoes and other starchy roots (potato products included)	**Alcoholic beverages**
Pulses	Wine
Nuts	Beer
	Spirits

With respect to socio-demographic data, related variables recorded at national level were classified under common between countries groupings. More specifically:

Locality of the residence was grouped in three categories:

- rural,
- semi-urban and
- urban

Information on the degree of urbanisation of the area where the household is located was not feasible for Montenegro and not available in the 1999 Croatian HBS. In addition, the identification of semi-urban areas was not feasible for Serbia.

Education of the household head, classified as:

- Illiterate / Elementary education,
- Secondary education and
- Higher education (College/University).

Occupation of the household head, grouped in

- Manual
- Non-manual
- Retired
- Unemployed
- Others (students, housewives or invalid persons as households' heads).

Occupation was classified under the above five categories, based on the occupational status and the profession, if employed, of the household head.

Household composition**.** With children defined as being up to 18 years old, adults being between 19 and 65 years of age and individuals more than 65 years old considered as elderly, and with an intended distinction between single and other households, eight categories were formed:

- households of one adult resident (single adult households),
- households of two adult residents,

- households of one adult resident and children (lone parent),
- households of two adult residents and children,
- households of adult and elderly residents,
- households of children, adult and elderly residents,
- households of one elderly (single elderly households) and
- households of two elderly residents.

4. Estimation of the average daily food availability, for the overall population and for socio-demographic groups. Analyses were conducted separately for each of the participating countries. Food availability per person per day was calculated by dividing the household availability by the product of the referent time period and the mean household size. Individual availability was estimated without making allowances for inedible parts, preparation losses, or spoilage on the plate and under the assumption of equal distribution of food within the household and during the survey period. After indication and the advice of the national data providers, a weighting factor was incorporated in the formula whenever necessary to accommodate for the sampling scheme.

5. Incorporation of the harmonized and comparable between countries results into the fully operating DAFNE databank and integration in *DafneSoft*: The estimated results were incorporated into the operating DAFNE databank, which was further integrated into the *DafneSoft* application tool (freely available at http://www.nut.uoa.gr/dafnesoftweb/), which allows retrieving and exporting DAFNE data in various formats, monitoring trends in food availability over time within and between the 24 countries of the network and studying the effect of socio-demographic characteristics on the daily food choices.

6. Ecological associations

Countries with no routine information on the food consumption of their population and those interested in comparing their national dietary patterns with those of other populations have traditionally used the Food Balance Sheet data which, in spite of their limitations, are often used to follow overtime trends in the supply of food commodities at the population level and they have even been exploited for epidemiological research. In the context of the DAFNE-WBC project, we examined whether the HBS-derived availability of food groups known or

presumed to have beneficial effect on the occurrence of coronary heart disease and total cancer can indeed predict overall mortality, coronary mortality and total cancer mortality in ecological epidemiological analyses across European countries, including the DAFNE-WBC participants.

To increase the observation units, data from the 24 countries of the DAFNE network were used. For each of these countries dietary data were retrieved for five main food groups (vegetables; legumes; fruits; meat and meat products; fish and seafood) and olive oil. Since the consumption of legumes is particularly low in some European countries, vegetables and legumes were combined in one food group. We have focused on food groups which are adequately captured by HBS and for which there is epidemiological evidence that they can have noticeable impact on population mortality, because they are widely consumed and are believed to affect common diseases. In order to address the latency issue associated with the development of chronic diseases, data on food availability were retrieved for the earliest of the HBS included in the DAFNE databank. To evaluate the correlation between the dietary data and mortality statistics in the participating countries, data on overall mortality, as well as on mortality from coronary heart disease and total cancer around 2004 were retrieved from the World Health Organization *European mortality database* (http://data.euro.who.int/hfamdb/), which provides rates adjusted to the standard European population. To control for differences in the prosperity of the participating countries, estimates made by the International Monetary Fund on national Gross Domestic Products (GDP) in 2006 were considered. The GDP estimates, expressed in US dollars, were derived from purchasing power parity calculations to reflect differences in the relative cost of living and inflation rates of the participating countries (International Monetary Fund, World Economic Outlook Database, October 2007, for the year 2006).

Partial rank correlation coefficients were estimated between overall mortality, coronary and total cancer mortality on the one hand and GDP and (in turn) vegetables (including legumes); fruits; meat and meat products; fish and seafood; and, olive oil on the other. This approach is described in a manuscript entitled: “Food Balance Sheet, Household Budget Survey dietary data and mortality patterns in Europe” submitted for publication in a peer review journal.

Deviations from initial work plan

The analysis of the 2000 Albanian data were not completed during the lifetime of the project, since participants were not in a position to provide the information required to assure comparability of their national data to those of the other countries of the DAFNE network.

End results

According to the estimated results, the higher daily availability of vegetables was recorded in Serbia (211 g/person/day, in 2004) and in all three West Balkan countries the availability was below the recommended minimum of 250 grams per day. The daily fruit availability ranged from 203 g/person/day (in Montenegro) to 142 g/person/day in Croatia and 108 g/person/day in Serbia, again below the recommended daily minimum of 150 grams. The highest daily availability of cereals and bakery products was recorded in Montenegro (497 g/person/day, in 2004) and the lowest in Croatia (342 g/person/day). With respect to added fats and oils, the higher daily availability was again recorded in Montenegro (51 g/person/day, 8 grams of which are butter and other animal fat and 43 grams are vegetable fats and oils), followed by Croatia (46 g/person/day, 6 grams of which are of animal origin and 40 grams are of vegetable origin) and Serbia (39 g/person/day, 7 grams of which are of animal origin and 32 grams are vegetable fats and oils).

With respect to foods of animal origin, the highest daily availability of meat was recorded in Croatia (181g/person/day) and the highest daily availability of milk and products was recorded in Montenegro (455 g/person/day). The higher fish availability was again recorded in Croatia (23 g/person/day) and the lowest in Serbia (16 g/person/day).

It is genuinely difficult to identify and assess trends over time having only two time points available, since the changes observed can either reflect normal variation in food intakes or true shifts in food habits. Bearing the above in mind and although the out of home consumption of beverages (alcoholic, non-alcoholic and juices) is more common than the in-house one, the DAFNE data point towards a general increase in the household availability of soft drinks, fruit and vegetable juices in Croatia and Montenegro.

Socio-economic differences in eating practices are often studied in terms of the level of education achieved. Education has been reported to be the strongest and most consistent indicator in assessing socio-economic differences as it expresses not only the individual's attainment and years of schooling, but it might also reflect occupation, income and, even more importantly when it comes to healthy dietary practice, the way an individual perceives and applies current nutritional information. Results presented in the countries' national reports, show that the trend-setting households with heads of higher educational attainment report higher household acquisitions of nuts, milk and milk products, fish and seafood, fruits, vegetables, alcoholic beverages and juices in Croatia and higher acquisitions of potatoes, nuts, milk and milk products, meat, fish and seafood, vegetables, fruits and juices in Serbia. Information on the educational attainment of the household head was not collected in Montenegro.

Household heads exercising non-manual professions are generally expected to be of higher educational status and results generally point similar dietary patterns between non-manual households and households of higher education. In addition, non-manual households generally report higher daily availability of non-alcoholic beverages (including juices). In all datasets, large food acquisitions are more common among households whose head is retired and elderly, possibly indicating infrequent out of home consumption. In addition, elderly individuals, particularly women living alone, have often been reported to overpurchase during the survey period and the extra purchasing was occurring throughout the range of foodstuffs.

The data on daily food availability by types of household composition should be interpreted with caution, as in the present analysis the individualization of the HBS data has been performed without taking into consideration the age and gender of the household members. There are different ways to estimate the per person food availability based on the HBS data and methods range from a simple division by the number of household members (as applied in the present analysis) to the application of sophisticated statistical modeling. The present approach for allotting food shares to each household member is based on the assumption of equal distribution of food during the reporting period, but fails to consider factors such as energy requirements, as well as personal taste and related preferences which also affect the food quantity consumed. A child's consumption of milk, for example, is

expected to be higher than that of a young adult male; while the consumption of alcoholic beverages is expected to be zero. Complex individualization processes that address the above limitations have been developed and tested in the context of the DAFNE project. Their application in the present analysis, however, falls beyond the scope of the DAFNE-WBC project which did not aim to present food availability by age and gender, but to compare average food choices among different households in the participating countries.

The HBS are not primarily designed to collect nutritional information and the food data bear limitations, which need to be considered when interpreting findings: in most cases, no records are collected on the type and quantity of food items and beverages consumed outside the home; food losses and waste, foods given to pets, and meals offered to guests are not consistently collected. Despite their limitations, however, the HBS provide a resource for the conduct of a wide range of nutritional analyses.

Evaluating ecological associations with mortality-based indicators

We have retrieved for 24 European countries information on per person availability as stored in the DAFNE databank, with respect to four major food groups (vegetables, including legumes; fruits; meat and meat products; fish and seafood), as well as olive oil. After controlling for purchasing power parity-adjusted GDP, we found that for vegetables (including legumes), fruits, fish and seafood, as well as for olive oil both the HBS estimates are inversely associated with all three indicated mortality indices, although the limited number of points in the calculation of the correlation coefficients does not allow formal statistical documentation (P-values were in some instances higher than 0.05) (Table 2).

The analysis has some weaknesses imposed by the nature of the data. The analyses were ecological rather than individual-based and such analyses are known to suffer from a number of biases which are particular to this study design, jointly called as ecological fallacy. The unavoidably small number of study points (the number of European countries with information for all the study variables) is another limitation. Our inability to control for differences in tobacco smoking among the participating countries is expected to confound the associations observed. Nevertheless, comparable between countries data on smoking, expressed as number of cigarettes consumed per person per year, were available only for some of the DAFNE countries and only for Croatia among the DAFNE-WBC countries. In

the absence of regular and comparable individual-based surveys across countries, HBS are likely to be used as valuable sources of information about long-term nutrition trends, their socio-demographic determinants and their likely health implications.

Table 2: Partial rank correlation coefficients (P-values) between mortality rates and Gross Domestic Product and Household Budget Survey (HBS)-derived dietary variables, in 24 European countries

	Total mortality	Coronary mortality	Total cancer mortality
Gross Domestic Product†	-0.70 ($<10^{-3}$)	-0.62 ($<10^{-2}$)	-0.48 (0.02)
Vegetables (including legumes)	-0.13 (0.56)	-0.49 (0.02)	-0 .18 (0.41)
Variables entered in turn, instead of vegetables (including legumes)			
Fruits	-0.22 (0.31)	-0.42 (0.05)	-0.47 (0.02)
Meat and meat products	-0.08 (0.71)	-0.24 (0.28)	-0.11 (0.62)
Olive oil	-0.34 (0.11)	-0.72 ($<10^{-3}$)	-0.37 (0.09)
Fish and seafood	-0.40 (0.06)	-0.31 (0.15)	-0.52 (0.01)

† Purchasing power parity-adjusted

Project achievements

Integrating the DAFNE data into nutrition-related information systems. The derived data were incorporated into the operating DAFNE databank, which was further integrated into the operating *DafneSoft* application tool (freely available at http://www.nut.uoa.gr/dafnesoftweb/).

Results on the mean food availability (g-mL/person/day) in all countries of the DAFNE network are currently available to any interested user through *DafneSoft*, which allows:

(a) presenting the DAFNE data in various formats (tables, bars, pie charts, map presentations) and at various levels of detail (from the analytical national food codes to the common DAFNE food groups)

(b) monitoring trends in food availability over time, both within and between the countries of the network

(c) studying the effect of the household's locality and composition, together with the education and occupation of the household head, on the daily food choices and

(d) exporting the data for further uses.

National reports

The methodology for post-harmonizing and analyzing the national HBS data together with the project results expressed as trends in the daily food availability over time and over different socio-demographic strata of the participating countries is presented in national reports. In addition, reports include a section on raising public participation and awareness and planning strategies to address specific needs in the region. Each team from every participating country is responsible for compiling this report, which has also been translated to national languages and is made available through the DAFNE page of the Coordinator's website (http://www.nut.uoa.gr/English/index.asp?page=202) to any interested parties, including but not limited to the scientific community, policy makers and the lay public.

Harmonisation of nationally collected data so as to allow international comparisons

The development of common classification systems that would allow international comparisons of dietary and related socio-demographic data was a central element in the DAFNE-WBC project. The process of post-harmonisation included the training of

Representatives from the participating countries in the established DAFNE classification schemes. One of the outcomes of this harmonisation procedure is the *Food Aggregation Tables,* which describe the classification of HBS-collected food data in Croatia, Montenegro and Serbia into 56 common subgroups. These subgroups can be further aggregated at various levels ending up at 15 main food groups.

The Project's Logo

The Project's Website

Information on the DAFNE-WBC project is hosted in the page of the DAFNE initiative (http://www.nut.uoa.gr/English/index.asp?page=202)

Photos

The below photos were taken during the training seminar in Athens April 26-28, 2006

Dissemination and use - The project's publishable results

The Food Classification Schemes (Food Aggregation Tables)

The development of a common classification system that would allow international comparisons of dietary data is a central element in the development of a European food databank. In the DAFNE initiative, the process of post-harmonisation included the establishment of operational criteria for the classification of the national food codes in European countries, iterative cross-coding, as well as several working group meetings and bilateral visits to address specific problems. One of the outcomes of this harmonisation procedure is the *DAFNE Food Classification System*, which allows the classification of HBS-collected food data into 56 common subgroups. These subgroups can be further aggregated at various levels ending up at 15 main food groups.

The food aggregation tables developed in the context of the DAFNE-WBC project for Croatia, Montenegro and Serbia describe in an operational manner, the application of the DAFNE food classification system in these national data. The classification schemes are presented in the forms of tables, specific for each country and survey year, and can thus serve as a basis for the integration of foods in a platform, which can conform to the European dietary habits and needs, and can contribute in making European food data interoperable, allowing international comparisons.

Intellectual property rights belong to the DAFNE Coordinating Centre and the national Contractors for the classification tables of their respective countries.

Contact details: Department of Hygiene and Epidemiology, c/o Anna Frantzi, School of Medicine, University of Athens, 75 Mikras Asias Str, 11527 Athens, Greece. e-mail: info@nut.uoa.gr

National reports

The methodology for analyzing the national HBS data so as to render them comparable at an international level, as well as the project results are presented in national reports. Reports further include proposals for raising public participation and awareness and planning strategies to address specific needs in the region. To ensure an efficient and wide dissemination to national governmental bodies and non-governmental organisations, the

scientific community, actors beyond the research community, policy makers, national, and international SMEs, the reports have been developed in English and in the country's language. Upon their approval from the EC services, reports will also be uploaded at the DAFNE page of the Coordinator's website (http://www.nut.uoa.gr/English/index.asp?page=202) so as to be made available to any interested parties.

Intellectual property rights, belong to the authors as these are indicated in the reports' front page.

Contact details: Department of Hygiene and Epidemiology, c/o Anna Frantzi, School of Medicine, University of Athens, 75 Mikras Asias Str, 11527 Athens, Greece. e-mail: info@nut.uoa.gr

Final report

The applied methodology and project findings are summarized in the project's Final Report, compiled by the Coordinating Centre. The methodological section of the Final Report can serve as a manual for the analysis of newly collected HBS data in these countries. The results' section of the Final Report summarises the findings presented in the countries' National Reports, putting emphasis on monitoring changes in food availability, identifying demographic and socio-economic factors possibly related to these changes and evaluating disparities in the dietary patterns existing in Europe. In addition, the Report includes a section describing the evaluation of associations, at the ecological level, between food groups known or presumed to have beneficial effect on the occurrence of coronary heart disease and total cancer and overall, coronary and cancer mortality. The information provided can be used for identifying priorities in nutrition policy planning and for formulating national and international nutrition interventions in the region. In the absence of regular and comparable individual-based surveys across countries, HBS are valuable sources of information about long-term nutrition trends, their socio-demographic determinants and, as the present analysis has shown, their likely health implications.

To assure the dissemination of the main project's outcome (the updated *DafneSoft*) even in cases where internet access is not presumed, each copy of the report can be accompanied by a CD-ROM with the updated version of the *DafneSoft*, and a manual for using *DafneSoft*.

Intellectual property rights belong to NKUA and the Contractors involved in the DAFNE-WBC project.

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ANNEX

THE MANUAL OF USING *DafneSoft*

IMPORTANT NOTIFICATION:

To run the desktop application, the user should have:

1. administrator privileges. If not, please contact your IT support.
2. the Microsoft .NET Framework 2.0 available. If, however, it is not available, it can be directly installed from file Framework .NET 2 available in the CD-ROM.

The first time the application runs, the SQL Server Express needs to be installed.

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Section A. The DafneSoft Home Page

The **DafneSoft** Home page (Fig.1)

Fig. 1

The **DafneSoft** application tool assembles the **DAFNE** data and allows the user to compare and monitor the daily food availability within and between European countries. The available information refers to nationally representative samples of the overall population, as well as population sub-groups defined according to their socio-demographic characteristics. Results are presented in tables, maps, bar and pie charts and can be printed or exported for further use.

Please note that when using the **DafneSoft** data in any publication, you are kindly requested to inform the **DAFNE Coordinating Centre** accordingly.

Fig.2

Select **Info** from the menu bar (Fig.2) and a drop-down menu will appear (Fig.3).

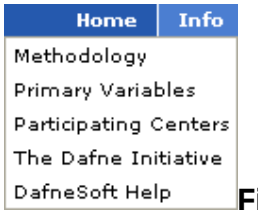


Fig.3

Click on **Methodology** for an overview flow-chart of the DAFNE methodology (Fig.3).

Click on **Primary Variables** for viewing the DAFNE primary variables (Fig.3).

Click on **Participating Centers** for information and contact details on the DAFNE collaborating centers (Fig.3).

Click on **The Dafne Initiative** to download an informative leaflet presenting the DAFNE project and its objectives (Fig.3).

The DafneSoft Food Data Bank: Using the Database

Depending on the type of data you wish to study, either click on:

- ✓ **Comparison Within Country:** **(Refer to Section B)**

Country based information on food availability for the overall population as well as for defined population sub-groups.

- ✓ **Comparison Between Countries:** **(Refer to Section C)**

Information on food availability compared between different countries.

- ✓ **Trends within a country:** **(Refer to Section D)**

Information on within-country trends.

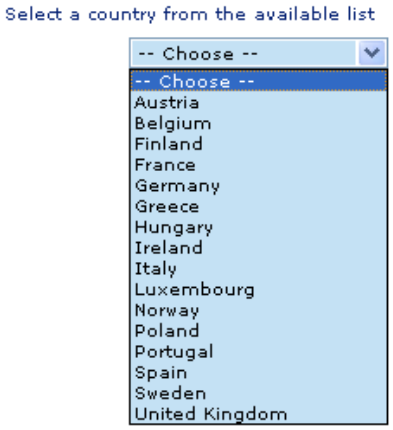
- ✓ **Sample Information:** **(Refer to Section E)**

Information on the data samples and the methodology of data collection, for each country.

Section B. Comparison within a country

From the Top Menu click on the **Comparison within a country** phrase or click on the **Comparison within a country** button . The page in Fig.4 will appear.

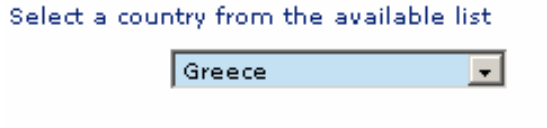
Fig.4



To select the country you wish to study, go to the selection menu in the left-hand side of the screen and click on the down arrow under the heading 'Select a country from the available list'. (Fig.5)

Fig.5

A drop-down list of countries will appear. Click on the country you wish to study. The country you choose will be marked and entered in the field automatically.



To select the year for which you wish to retrieve data, go to the selection menu in the left hand side of the screen and click on the down arrow next to the heading 'Select a year' (Fig.6)

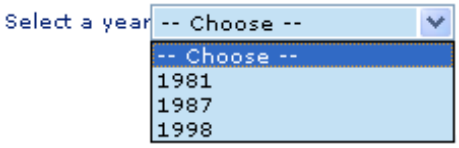
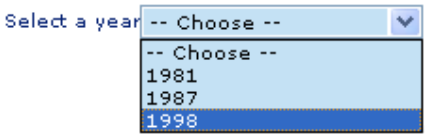


Fig.6

Click on the survey year you wish to retrieve information for. The year you choose will be marked and entered in the field automatically.



To retrieve the overall mean (Mean), or data by a socio-demographic characteristic of the household i.e. by degree of urbanization (*Locality*), by educational level of the household head (*Education*) or by employment status and profession of the household head (*Occupation*) or by *Household Composition* click on the down arrow at the upper left hand corner.
A drop-down list will appear. (Fig.7)

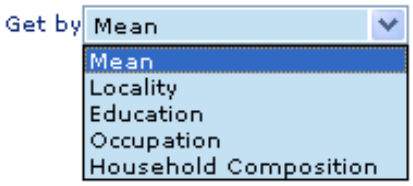
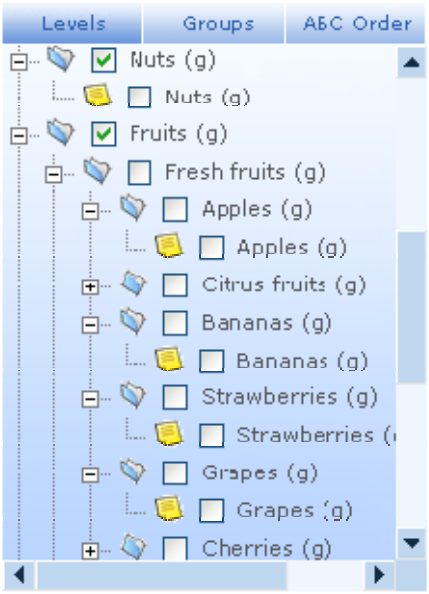


Fig.7

Food Items

There are three options for enlisting food items:

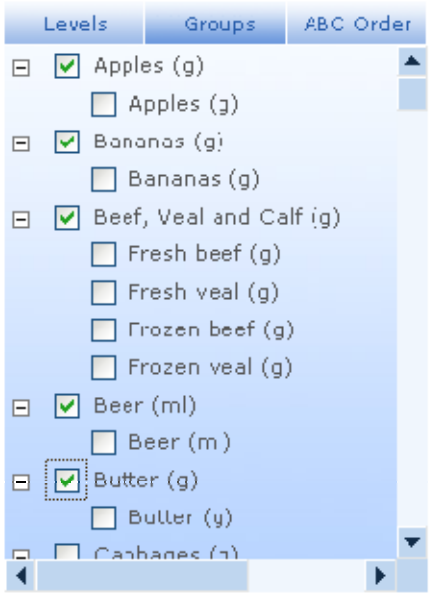
Levels: for information on comparable between countries food groups and detailed, specific, national data on food availability in the selected country. Twenty-two food groups are listed in this first level.



By clicking the plus ⊞ sign, the user may have access to the various sub-groups classified underneath in a tree structure, and eventually, to a detailed list of food items recorded per subgroup (marked with a yellow page before the name). Food groups / items can be selected by clicking on the check box ☑.

To select a second food group/item, click ☑ on the checkbox next to the food group/item of interest.

NB: You must select items that belong to the same level. If not, an error message will appear (rf. section J)



Groups: for a country-specific list of food items classified under each of the DAFNE food groups.
To choose more than one food items simultaneously, the user can click on the check box ☑ next to the food item.

ABC Order: for an alphabetical list of the food items recorded in the selected country.

To select food items just click on the check box ☑ next to them.

To Get DATA:

To view results, the user should either click on the **Get Data** button on the Top Menu or on the **Get Data** button Get Data ›› at the bottom left-hand side of the screen.

The data will appear in tabulated and graphical format (Fig.8).

Fig.8

To select the bar or pie presentation of results, click on the **Bar Chart** or the **Pie Chart** button on the Top Menu.

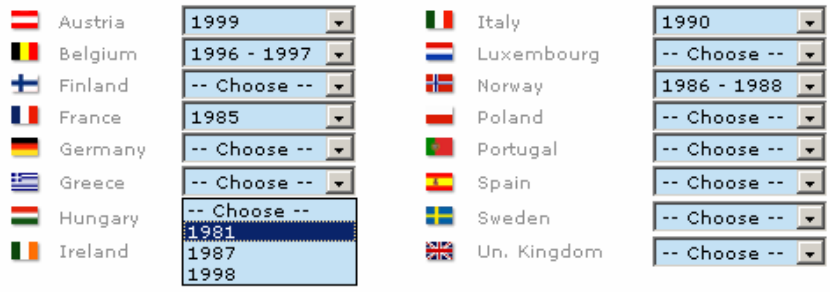
Previous choices can be cleaned by selecting the **Clear** button at the bottom left-hand side of the screen.

Section C. Comparison between countries

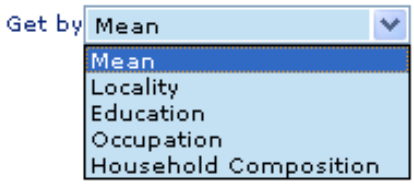
From the Top Menu click on the Comparison between countries phrase or click on the Comparison between countries button . The page in Fig.9 will appear.

Fig.9

To select the countries you wish to study, click on the down arrow next to each country. A drop-down list will appear and then select the survey year for which you wish to retrieve data.

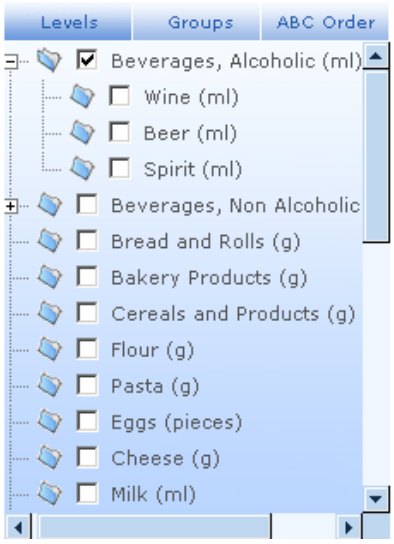


To retrieve the overall mean (Mean), or data by socio-demographic by degree of urbanization (*Locality*), by educational level of the household head (*Education*) or by employment status and profession of the household head (*Occupation*) or by *Household Composition* click on the down arrow at the right side.
A drop-down list will appear.



From the list at the left-hand side of the screen, click on the checkbox next to the food group you wish to study. Only one food group at a time can be selected.

NB: To move to a subgroup, click on the plus sign next to the main food group.
The plus sign will not appear, if the food group cannot be split into comparable between countries sub-groups. Only comparable among countries groups and sub-groups are available here.



To view results, the user should either click on the **Get Data** button on the Top Menu or on the **Get Data** button Get Data ›› at the bottom left-hand side of the screen.

The data will appear in tabulated and graphical format (Fig.10).

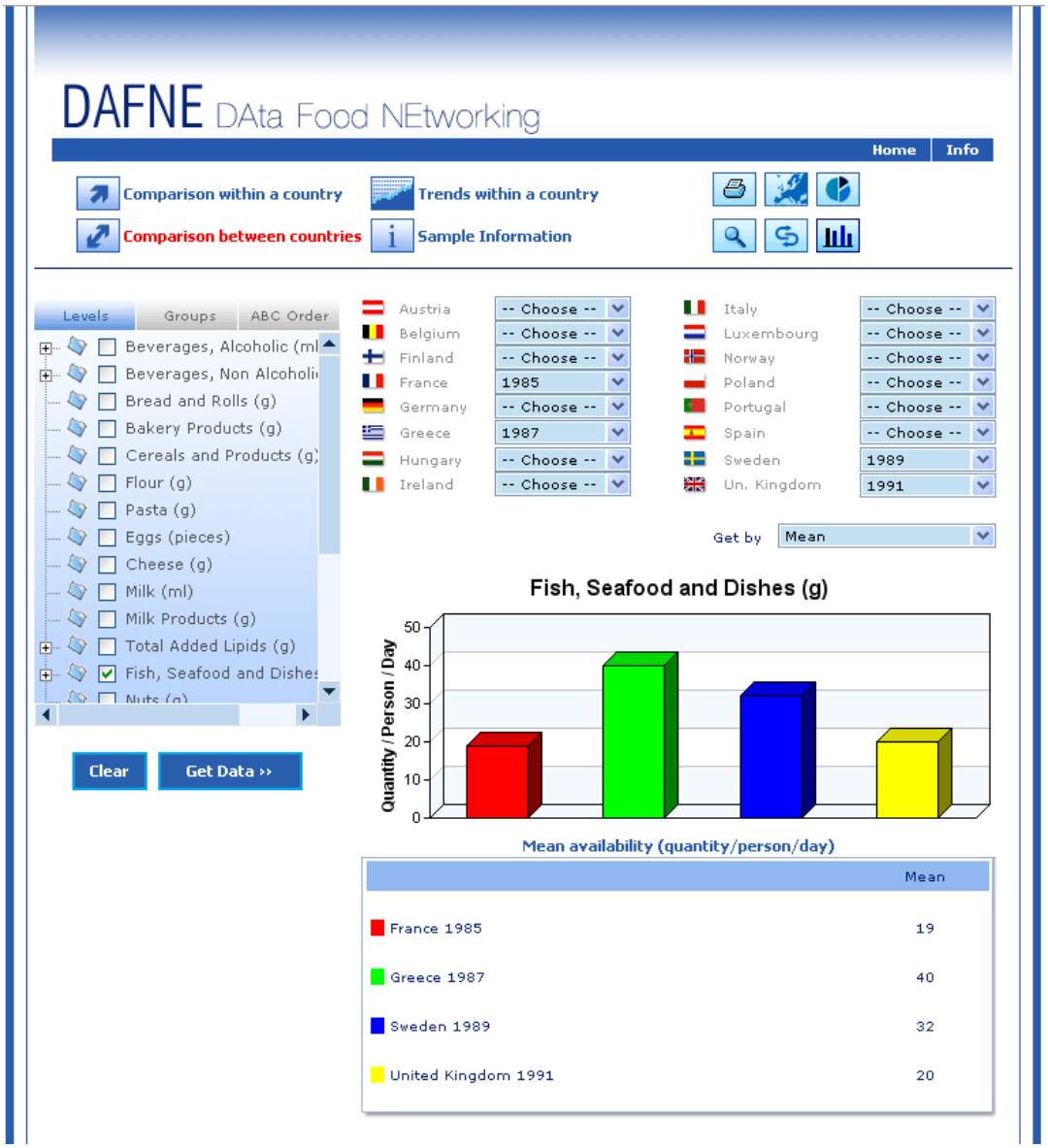


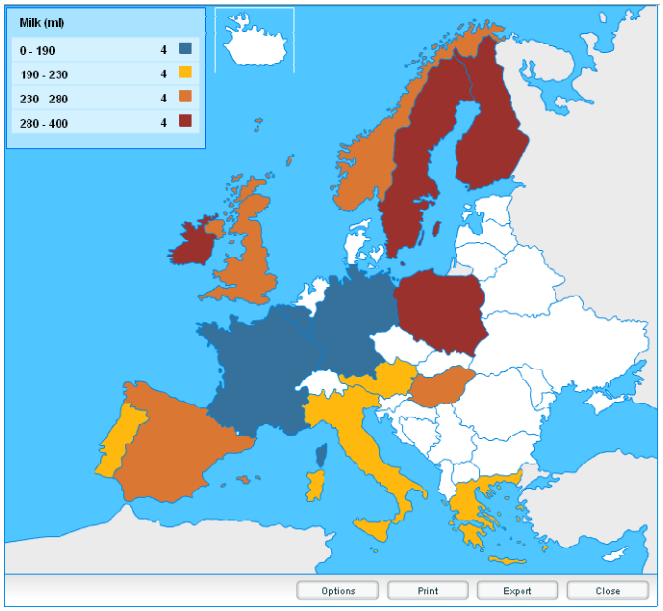
Fig.10

To select the bar or pie presentation of results, click on the **Bar Chart** or the **Pie Chart** button on the Top Menu.

Previous choices can be cleaned by selecting the **Clear** button at the bottom left-hand side of the screen.

Map Projection

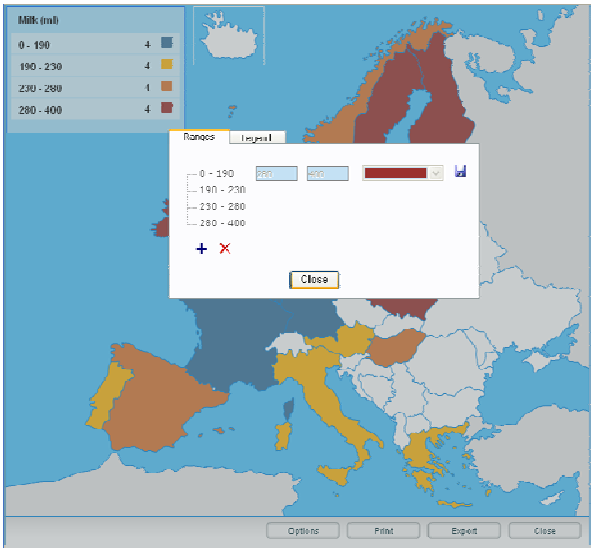
To display your results as a Map Projection: (this is available only in the Comparison between countries option and for data retrieved by Mean)



Select the **Map Projection** button on the toolbar to get an atlas presentation of your data (Fig.11).

Fig.11

To introduce changes on the map, click on the **Options** button at the bottom right-hand corner or click on the map. The **Map** modify editor will appear (Fig.12).



Choose one of the **Ranges, Legend** tabs from the **Map** modify editor.

Legend: to edit the legend.

Ranges: to modify the map ranges.

To **Add** a new range, click on the plus button +.

To **Delete** an existing range, click on the ✕ button.

To change the range values, click on the range you desire to edit. Change the value and the color of each range separately and press to see these values presented on the map.

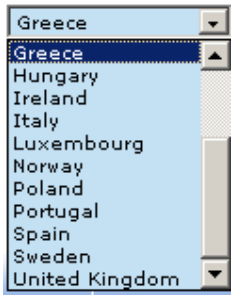
Fig.12

NB: values in each range must not overlap.

Section D. Trends within a country

From the Top Menu, click on the **Trends within a country** phrase or click on the Trends within a country button . The page in Fig.13 will appear.

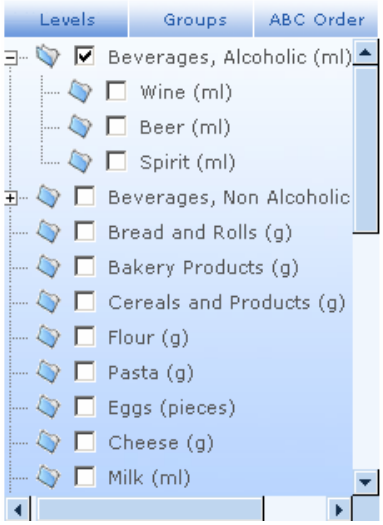
Fig.13



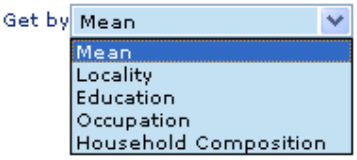
To select the country you wish to study, click on the down arrow at the left-hand corner. A drop-down list will appear in which you can select the country for which you wish to retrieve data.

Select the survey year (or years by holding the ctrl button) you wish to retrieve data for. A list with the available survey years will also appear.

Click on the food group you wish to study from the list. Only one food group at a time can be chosen.
To move to a subgroup, click on the plus ⊞ sign next to the main food group.

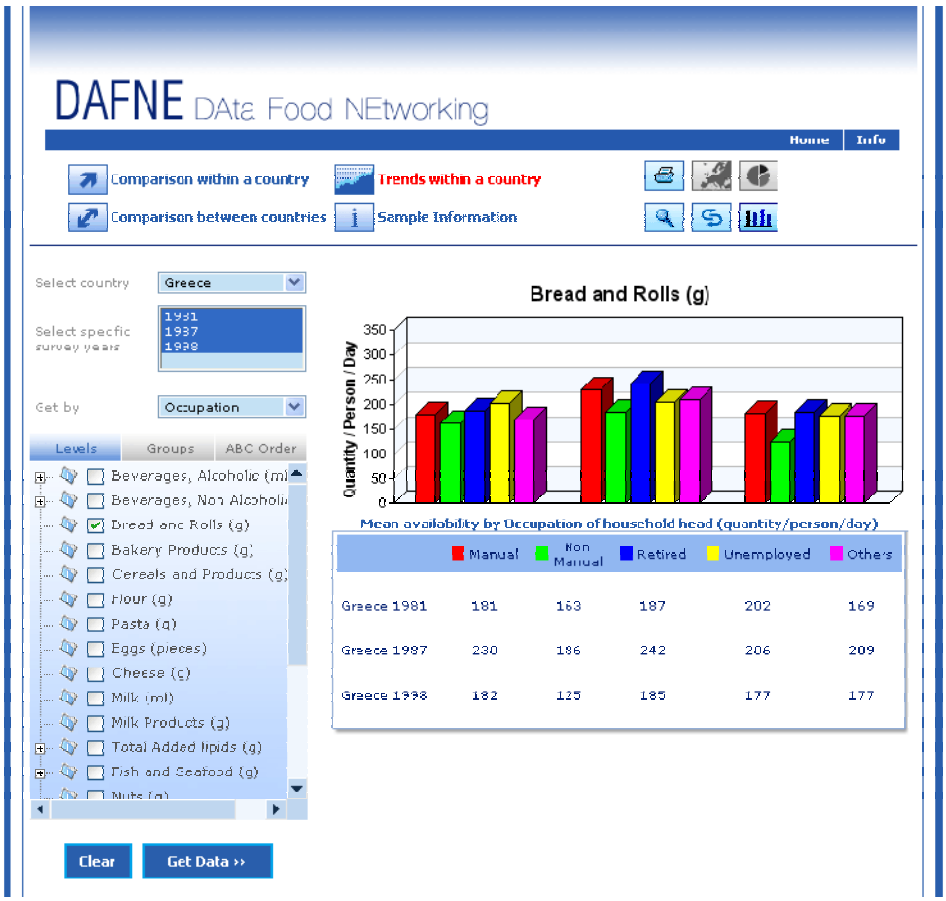


To retrieve the overall mean (Mean), or data by socio-demographic characteristics, click on the down arrow at the left-hand corner.



To retrieve the overall mean (Mean), or data by socio-demographic (characteristics by degree of urbanization (*Locality*), by educational level of the household head (*Education*) or by employment status and profession of the household head (*Occupation*) or by *Household Composition* click on the down arrow at the right side.

To view results, the user should either click on the **Get Data** button on the Top Menu or on the **Get Data** button at the bottom left-hand side of the screen. The data will appear in tabulated and graphical format (Fig.14).



Previous choices can be cleaned by selecting the **Clear** button at the bottom left-hand side of the screen.

Fig.14

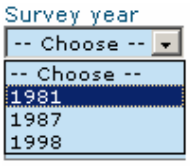
Section E. Sample information

From the Top Menu click on the **Sample Information** phrase or click on the Sample Information button i. The page in Fig.15 will appear.

Fig.15

Using this option one may get useful information on the methodology followed in the selected HBS.

Check the country you wish to retrieve information for. Then click on the down arrow at the upper left-hand side of the screen to select the survey year of your interest.



The information will appear on your screen (Fig.16).

DAFNE DAta Food NEtworking
Home
Info
Comparison within a country
Trends within a country
Comparison between countries
Sample Information
Austria
Belgium
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Luxembourg
Norway
Poland
Portugal
Spain
Sweden
Un. Kingdom
Sample Information
Survey year
1998
Sample Size (hhs)
6258
Response Rate (%)
69%
Meal of guests included
No
Recording period of food
14 days
Availability of own food production
Yes
Sample design
Two-stage stratified random sampling
Sampling frame
Census 1991
Definition of sample unit
Household: one person living alone in a dwelling, or a group of persons, related or not, living in the same dwelling, with common housekeeping and generally eating together.
Techniques for collecting food availability data
Food accounts diary
Capturing of seasonal variability
Yes
Frequency of HBS
Every 5 years

Fig.16

Section F. How to modify your Graph

To select bar or pie presentations of results, click on the **Bar Chart** or the **Pie Chart** button on the main screen.

To modify the graph click on the zoom button at the Top Menu. A window as the one presented in Fig.17 will appear. Click on the graph or click **modify** at the down right-hand corner print | modify | close and the Chart Editor will appear (Fig.18). The Chart Editor is designed to help the user to create and modify Charts.

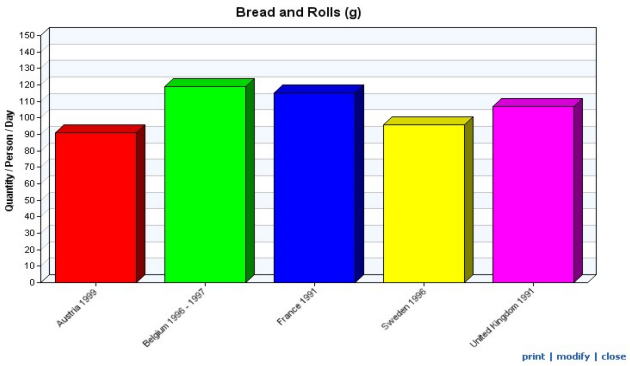


Fig.17

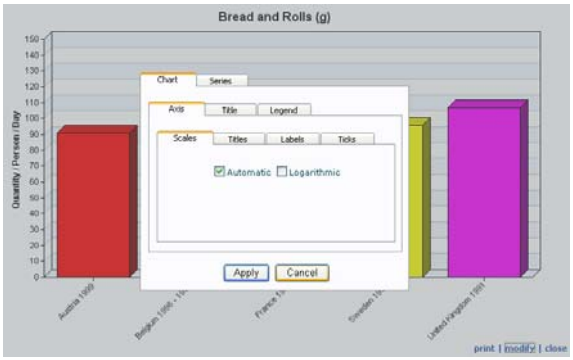


Fig.18

There are two principal sections in the Chart Editor: **Chart parameters** and **Series parameters**.

Chart parameters:

Axis Page: contains all axes definitions. Some parameters depend upon the Series associated with the axis.

Scales: When one opens the modify editor at the scales tab then by default the automatic checkbox is enabled. One can have the choice to change the scale:

- ✓ from automatic to manual (by un-checking the *Automatic* checkbox). You can change the minimum and the maximum values.
- ✓ from automatic to automatic-logarithmic by having both checkboxes checked
- ✓ from automatic to logarithmic

Titles: one can change the title, the fonts as well as the size of the fonts.

Labels: The bottom axis's labels can be visible or not. Fonts can also be changed.

Ticks: one can change the background appearance of the chart, which has influence on the scale of the graph.

Titles Page: allows changes in the title of the graph (Title, Fonts and Size).

Legend Page: introduces different positions to place the graph's legend (Top, Bottom, Left
and Right) as well as the ability to have the legend visible or not.

Series parameters:

Series tabs contain parameters dependant on the series type.

Format: to introduce changes on the bars of the graph. You may change the colors and the style of the bars on the graph (Side, Stacked or Percentage).
NB: changes in the style of the bars are meaningful only when the data are retrieved by socio-demographic characteristics.

Marks: to choose between visible or not values at the top of the bars.

Bars: The width and depth can be fixed automatically or manually (when the *Automatic* checkbox is not checked). The graph appears in 2 dimensions only if the *Depth* value in is set to zero.

Section G. Printing your graph / map projection

Graph:

The user can print or export the results, in tabulated and graphical format, from the Top Menu by clicking on the print button .

A new window will appear with the preview of the graph and the results (Fig.19). The user can click on **print** at the bottom right-hand corner and print as a picture.

To only print the graphs, click on the zoom button at the Top Menu first, then click **print** at the bottom right-hand corner print | modify | close and print as a picture.

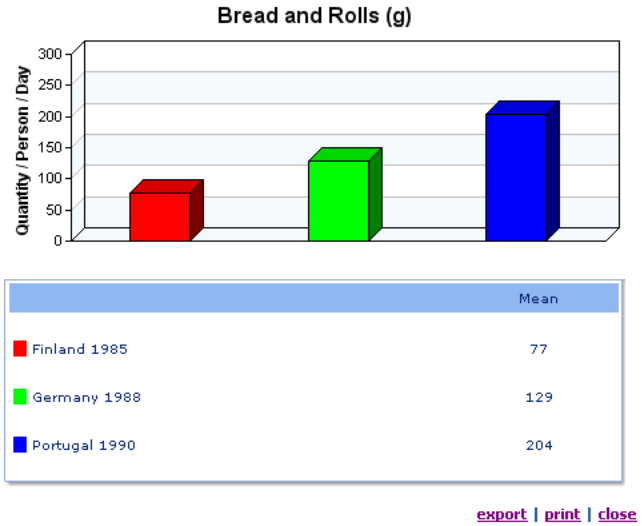


Fig.19

Map:
The user can also print the **Map Projection.** First click on the **Map Projection** button from the Top Menu to get an atlas presentation of the data and then click on the **print** button at the down right hand corner and print the map as a picture. By making right click on the Map and selecting the option "Print", the user can also print the map.

Section H. Saving your graph / map projection

Results can also be exported in tabulated and graphical format.

The graph will be saved as a:

Picture

- By right clicking on the graph and selecting the option “Save Picture As”.
- By clicking on the zoom button on the Top Menu first, right clicking on the graph appearing in a new window and then selecting the option “Save Picture As”.

Acrobat Reader (.pdf) file

- By right clicking on the graph, selecting the option “Print” and selecting the adobe acrobat printer.
- By clicking on the zoom button on the Top Menu first, clicking on the “Print” option at the bottom right-hand corner and selecting the adobe acrobat printer.

The map projection will be saved as a:

Picture

- By clicking on the **Export** button at the bottom right-hand corner of the map. After the export is completed, the map will appear in a new window. Right click on the map and select the option “Save Picture As”.

Acrobat Reader (.pdf) file

- By clicking on the **Print** button at the bottom right-hand corner of the map and selecting the adobe acrobat printer.

Section I. General messages in Dafnesoft

General Messages

- ✓ **"No separate value for [food name] is available "**

The message appears when the food group cannot be further separated in sub-groups.

- ✓ **"In the group Non Alcoholic Beverages powdered stimulants are converted to their liquid equivalents"**

When non alcoholic beverages are selected , the message appears to inform the user of the applied data handling.

- ✓ In Greece **1981/2**, the following messages informing the reader on some characteristics of the data may appear:

Within country

- ✓ **When selecting Fish and seafood: " Data refer to fish availability only"**
- ✓ **When selecting Fruits: "Data refer to fresh fruit availability only"**

Between countries and Trends

- ✓ **When selecting Fish and seafood**: **"Data recorded in the Greek 1981/2 survey, refer to fish availability only"**.
- ✓ **When selecting Fruits**: **"Data recorded in the Greek 1981/2 survey, refer to fresh fruit availability only"**

Section J. Error messages in Dafnesoft

Comparison within countries:

- ✓ **"You must select a country and a survey year first"**
  The message appears if the user asks to get data without having the country and the survey year specified.

- ✓ **"You must select an item first"**
  The message appears if the user asks to get data without having specified the food group/item (s)he wishes to retrieve data for.

- ✓ **"You must select items that belong to the same aggregation level!"**
  The message appears if the user selects to retrieve data for food groups belonging to different grouping levels.

Comparison between countries:

- ✓ **"You must select at least one Country/Year/ Food group"**.
  The message appears if the user asks to get data without having the country, the survey year and the food group/item specified.

- ✓ **"You must select an item first"**
  The message appears if the user asks to get data without having specified the food group/item (s)he wishes to retrieve data for.

Trends Within A Country

- ✓ **" Please select the following: – Country – Years"**.
  The message appears if the user asks to get data without having the country and the survey year specified.

- ✓ **" Please select the following: – Years"**.
  The message appears if the user asks to get data without having the survey year specified.

- ✓ **"You must select an item first"**
  The message appears if the user asks to get data without having specified the food group/item (s)he wishes to retrieve data for.

Section K. User Registration – Account validation

When entering the Dafnesoft web page for the first time, a login window will appear. To register as a user, click on the link at the top left side of the page (Fig.20) and the login registration form will appear (Fig.21).

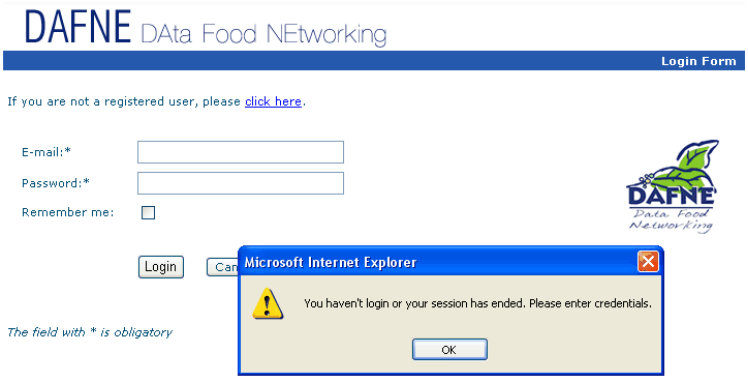
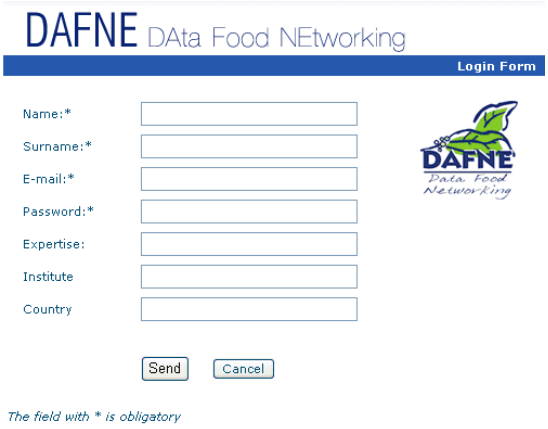
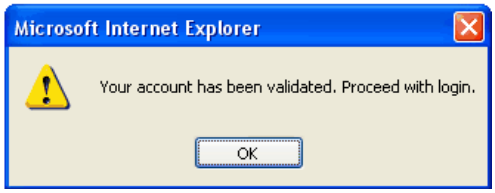


Fig.20



After filling in this form, click on the "Send" button. An email validating your account will be sent to your address after some minutes.
NB: The email address you indicate in the form must be valid.

Fig.21



Click the link in the email and the Dafnesoft web page will appear with a message (Fig.22).

Fig.22

By filling in your username and password, you are ready to use Dafnesoft. By checking the "Remember me" box, you will not have to login every time you access the Dafnesoft web page.

If you have not checked the Remember me box, the window and the message in Fig.20 will appear every time you enter the DafneSoft webpage. In case you have already registered, just login using your email address and the password you indicated in the registration form