



## Energy Requirement Calculator

FAO wanted to develop a windows based software that can calculate human energy requirements. The objective of this proposed project is to develop an application, which calculates human energy requirements. This software will be windows based and will run on any system having Windows 95 or higher versions of windows. Any user will be able to download the application from the FAO site and can run the application as a standalone in his/her computer.

Our solution consists of two main parts – the application that runs on the end users desktop and the application module, which enables the download. The main modules of our solution will be -

### **Desktop application:**

The desktop application is the program that can be downloaded onto the client system by a user so that he/she can perform computations pertaining to the energy requirements. This program can run as a standalone application so that the users can work on it offline.

**Customize/input data** – If the calculations have to done using a set of values other than the existing default values, this module will provide the interface to input the desired values for calculations.

**Energy requirement calculator** – The Energy requirement calculator can compute the following based on factors like age group, sex, population, birth rate, PAL, BMI, body weight and height

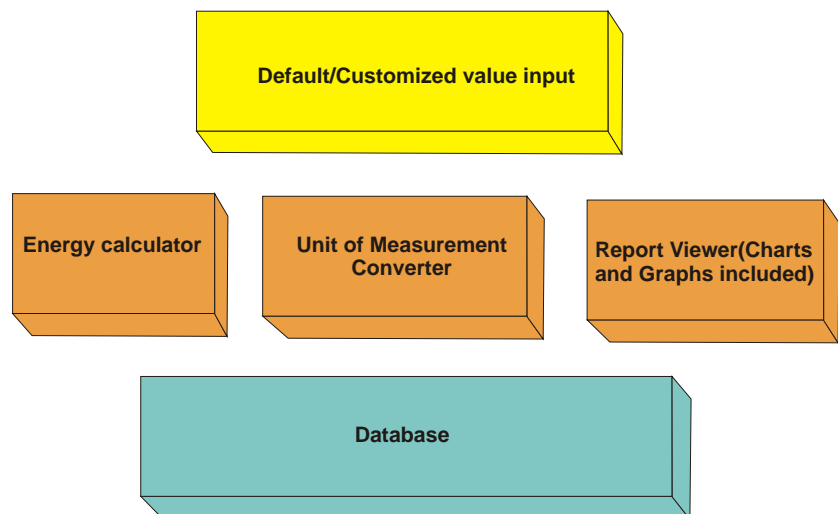
1. Country Level PAL according to urban % of the population under consideration
2. BMR
3. Total Energy Expenditure
4. Estimated Average Energy Requirement
5. Approximate cereal equivalent in metric tons of the estimated average daily energy requirement that correspond to the percentage of the national daily intake composed of cereals. For example, if the daily caloric needs of the country is  $1.29 \times 10^{12}$  kcal (equivalent to 2927 kcal per person per day for a population of 520 million persons), and if 55% of the diet were composed of cereal intake, then at 4kcal/gram, the daily need would be  $1.2 \times 10^8$  metric tons per day. The user would provide the percentage and choice of cereal, such as wheat or rice.

**UOM converter** – The resulting energy requirements can be expressed in terms of kilocalories (kCal), kilojoules (kJ) or Mega joules (MJ). This module also allows conversion from one unit to another. All inputs like weight/height/age can be entered in any unit that the user is comfortable with. This program will contain all conversion formulae and will make suitable adjustments to compute the energy requirements. The user would choose one or more unit types that should be displayed in the output report.

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**Reports** – Reports based on age group/percapita/sex or any other specified parameter can be generated. These reports can be country/region specific or a comparison between different parameters. The reports can be exported to excel/access/word formats and displayed as graphs and charts also. Comparisons can be shown for the customized data against total population (Male+female), total males, total females, specific age groups for a country or a comparative report can be generated based on these parameters for different countries also. The report should list all the parameters used, such as the country or area-level adult PAL value (either calculated by program or input by user), the birth rate, urban rate.

The diagram shows the module structure of the desktop application.



A sample report is shown in the graph, which indicates the daily energy requirements for total males in kilocalories.

