HE IMPORTANCE OF THE INFORMATICS SYSTEM FOR THE DURABLE DEVELOPMENT

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Abstract

One of the fields whose importance has been surging lately is the durable development, which is impossible to achieve unless humankind gives up gradually to the fossil energy sources and switches to the exploitation of the renewable energy sources. This shift is mainly due to the fact that the traditional energy sources are limited, pricier and pricier and have a negative and irreversible effect upon the environment.

In the durable development area, particularly the renewable energies, there are informatics systems used in a wide range of activities, from investments management and energy sources to the operation itself of their exploitation systems. Such informatics systems may be integrated at a higher level, as the national weather forecast system or other specific systems.

Key-words: *informatics system, renewable energies, durable development, use of the renewable energies*

JEL Classification: Q_{01}, O_{30}

Introduction

The field of durable development is a trend in the modern world, which, in its search for future stability, has an urgent need to find clean energetic long-term solutions – when the fossil resources are to be vanishing in the near future.

Among the conventional energy sources, coal, petroleum and natural gas are finite, their exploitation is more and more expensive and, therefore, people will not be able to use them at all after a few generations. Similarly, their extensive use is responsible for the greenhouse effect carbon emissions, with a harmful impact upon the environment, which thus brings their benefits to a lower value than the disadvantages of their long-term use.

Another source of energy is the nuclear one, based on the uranium resources, still finite, and it presents major risks due to its radioactivity. The nuclear stations have security issues and derive radioactive waste with a long half life, i.e. considered inacceptable.

The list of the renewable energy sources includes the following:
- solar energy;
- wind energy;
- biogas;
- biofuel;

- wood;
- geothermal energy;
- waves energy;
- hydro energy.

Most sources of renewable energy mentioned above require a special infrastructure that allows them to be exploited. Thus, there is a need to an effective management that, in its turn, has to be provided with competitive informatics systems.

The informatics systems may be used in the field of durable development, via the renewable energies, both to identify and establish the best investments herein and also to maintain and use the exploitation systems for such sources.

The importance of the informatics systems in the durable development

An *informatics system* represents a part of the computer-based system that allows to achieve the operations of data gathering, transmission, storage, processing and dissemination of information derived from using the IT means. (IT)' [15]. In other words, it may be said that the informatics system mainly deals with the data administration and processing via the computer, irrespective of their nature, while the notion of the informational system is broader and does not necessarily involve the data processing via the computer.

An *informatics system* automatically processes data from various fields of activity, including the durable development, stored in databases in such a way to provide information to the interested parties, as a decisional support. By using such informatic systems, it is possible to capitalize both past data, electronically stored in databases, text, etc. and also data derived in real time from the exploitation systems of the renewable energy sources.

When there are data collected during a longer period of time in this field, there will be issues related to their optimal exploitation in order to draw usable knowledge for the further decisional process, to select the best investments and not only.

From the point of data exploitation, derived for the durable development via the renewable energy resources, an informatics system, has the duty to automatically process the data that come from the registration of information inside and outside of a system.'[12].

Informatics systems for the durable development via exploiting the renewable energy sources

As in any area of activity, as well as for the durable development based on the exploitation of renewable energy sources before investments, a rigorous analysis of their profitability is required. Attention has to be paid to the above, considering that, for most cases, the investments made in exploiting the renewable energy sources are not as efficient on short term as the ones for exploiting the energy (not-renewable) fossil resources and, therefore, a comparison between them is not appropriate.

It needs to take into account the fact that a durable development may not be achieved by relying on some resources that will drain n the near future (coal, petroleum, natural gas) as the human society and the modern civilization are not

able to survive in the shape of today without finding non-destructive energy sources to provide long-term perspectives.

In order to establish the investments in the renewable energies area, competitive informatics systems are needed in order to store and process, on the one hand, data in this field with the purpose to identify the latest requirements and, on the other hand, to analyse what resources of renewable energy are available and to make investments to have them optimally exploited.

In the figure below, a cycle is being presented where the systems of exploiting the renewable energies are continuously improved. This cycle will not be possible to achieve in the absence of competitive informatics systems that collect the data, store them in a database, analyse them to draw conclusions in terms of what type of investments need to be made. As a result of effectively making these investments, the current systems of exploiting the renewable resources get better, become more efficient and, not lastly, new systems are being created and new sources of renewable energy identified.
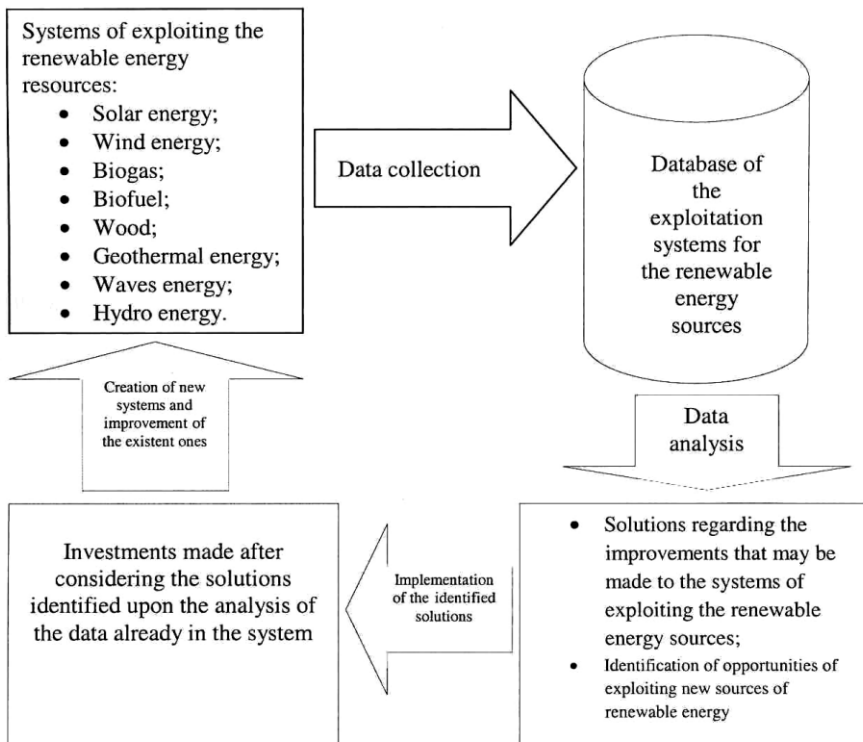

Fig. 1. *The improvement cycle of the renewable energy systems exploitation systems, based on the information already existent in the informatics systems*

The informatics systems that are used in the durable development area via the exploitation of the renewable energies may be also inter-connected with other informatics systems, like the national system of meteorology and hydrology. Thus, opportunities of extension might be identified and new systems of exploiting such energy sources created.

For example, aeolian stations will be built in those areas where the wind intensity is high, solar panels will be built in the predominantly sunny regions and hydroelectric power stations on those rivers with high water flow.

A strategy at a national level may be initiated in regards to the durable development and the investments in the renewable energies field.

Conclusions

The field of the durable development, as well as most of the fields that use advanced technologies, is a well-equipped-with-computers one, which utilizes specialized informatics systems to monitor and well operate the exploitation of the renewable resources. Such informatic systems collect stored data, on which they may identify new opportunities of their improvement.

Last but not the least, the informatic systems in this field may inter-connect with other systems of regional or national interest, such as the weather forecast or hydrologic ones, in order to pinpoint new opportunities of exploiting the renewable energies. This is the only way the human society will get to develop more, and thus give a chance to the following generations to enjoy prosperity in their lifetime.

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