

Bioenergy and Employment Generation

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European policy-makers recognize that renewables (in this case bioenergy) offer potential for employment creation in addition to environmental benefits. The renewable energy industry is one of Europe's fastest growing sectors. A study carried out in 1998-1999 predicted that in the European Union the use of renewable energy technologies, including bioenergy, will more than double by 2020, and that this increase will lead to the creation of more than 800 000 jobs by 2020.

Varying conditions and a lack of relevant data make it difficult to apply standard methods for appraisal of employment and earnings from bioenergy, especially when more sophisticated theories are applied such as those including induced effects and multiplier effects.

The employment opportunities vary with the scale of the operation. A landowner who heats the family home and farm buildings with a wood-fired system will probably harvest the fuel supply from the family's own woodlot using the family's own labour. There are no wages involved, only "sweat equity". The same landowner may also benefit from the sale of wood or from renting out equipment for production. In many countries agroforestry is becoming more widespread, with trees considered another crop in addition to grains, vegetables or forage crops.

Do bioenergy systems provide earnings that are high enough to make it worthwhile to mobilize local resources to implement them? It is assumed, and possibly generally true for rural conditions, that some of the required resources (e.g. labour, machines, forests or forest residues, land, infrastructure and management capacity) would otherwise not be fully utilized. Moreover, the work is generally not performed under wage contracts, but by self-employed farmers, forest owners or local contractors whose interest is to get adequate earnings regardless of the source (whether personal labour, rental of machines or sale of biofuel).

An important developmental comparison is what would be the investment cost per job created in the bioenergy sector. A study examining job potentials in tree plantation for electricity production industry, bio-ethanol industry, and sugarcane industry in Northeast Brazil found that for the biomass energy industries envisaged above, this lies between US\$ 15,000 and US\$ 100,000 per job, with costs in the ethanol agro-industry between US\$ 12,000 and US \$22,000. Such job creation costs compare with the average employment costs in industrial projects in the Northeast Brazil at US\$40,000 per job created, in the petro-chemical industry of about US\$ 800,000 per job, and for hydro power over US\$ 1 million per job (Carpentieri, 1992). Lower job creation costs are one of the most significant benefits of bioenergy.

A study for the European Union looked at the impact of bioenergy on job creation and came to the following conclusion (Grassi, 1997): The total average investment cost for about 1 million new direct jobs (the cost of the indirect jobs will derive automatically from private investment) will be around 250 billion Euro less than the estimated 345 billion Euro of total subsidies paid to 1,5 million non-employed people in socially relative protected EU society during the 20 year minimum life of the investment (plants).

Although biomass-based employment has an impact primarily in rural areas of developing countries, it is also important in cities and in developed countries, as demonstrated in Stockholm, Sweden and some other European cities (Dalén, 1999).

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In closing, it should be noted that at the local level bioenergy production and use may have other significant implications besides employment and monetary gains (social, cultural and environmental) which are not tractable to quantitative analysis and are therefore omitted from most impact assessments.

References

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IEA Task 29 - Socio-Economic Drivers in Implementing Bioenergy Projects

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Task 29 on Socio-Economic Drivers in Implementing Bioenergy Projects (1 Jan 2003 – 31 Dec 2005) is an international collaboration within the IEA Implementing Agreement on Bioenergy. The aim of Task 29 to achieve a better understanding of the social and economic drivers and impacts of establishing bioenergy markets at the local, regional, national and international level, to synthesise and transfer to stakeholders critical knowledge and new information, to improve the assessment of the above mentioned impacts of biomass production and utilisation in order to increase the uptake of bioenergy and to provide guidance to policy makers. The participating countries are Canada, Croatia, Ireland, Japan, Norway, Sweden and United Kingdom.

Among others, during the next three years deliverables will also include educational website about biomass and bioenergy, designed to be visual and interactive as possible, aimed at a wide audience and very user friendly. At this stage the educational website is already operational and can be seen at www.task29.epsilon.hr. Additional information is available under www.iea-bioenergy-task29.hr.



Figure: Activities of IEA Bioenergy Task 29 - Socio-Economic Drivers in Implementing Bioenergy Projects



Figure: Educational website of IEA Bioenergy Task 29