

TASK 29

Socio-Economic Drivers in Implementing Bioenergy Projects

Work Programme 2010 - 2012

ExCo 64

Liege, Belgium

30 September – 1 October 2009

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Canada, Croatia, Ireland, Japan, Norway, United Kingdom

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Working Period 2010-2012
Work Programme Summary Sheet

Task Title: **Socio-Economic Drivers in Implementing Bioenergy Projects**

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Objective

To achieve a better understanding of the social and economic drivers and impacts of establishing bioenergy fuel supply chains and 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.

Progress achieved in Task 29 (2003-2009)

- Completing an analysis of the existing tools for socio-economic modeling of different bioenergy systems;
- Facilitating the improvement of understanding socio-economic aspects of bioenergy in participating and other interested countries;
- Elaboration of complex social and economic interactions of bioenergy and community with references to case studies and projects in participating countries;
- Analysis of public perception and understanding, household surveys, awareness raising and educational campaigns in various participating countries;
- Review and identification of different socio-economic drivers for implementing bioenergy projects in urban and rural communities;
- Identification and contribution to understanding of local, regional and cross-boundary partnership in implementing bioenergy projects in participating countries;
- Achieving a recognition of the overall benefits of bioenergy and importance of socio-economic aspects of bioenergy systems with the International Energy Agency and the European Commission;
- Successful linkage and joint activities with IEA Bioenergy Tasks 30, 31, 38, 39, 40; FAO; World Bank and European Commission projects and programmes;
- Scientific papers, special issues of recognized international scientific journals (Energy Policy, Biomass & Bioenergy) expert reports, workshop proceedings, meeting minutes, poster, and a large selection of papers presented during 2003-2008 at national and international workshops, conferences and seminars;
- Recognised and extensive educational web site (www.aboutbioenergy.info) as a successful and powerful educational tool aimed for a wide audience;
- Frequently updated and maintained Task 29 information web site (www.task29.net) with a large selection of case studies, papers and other deliverables developed within the Task;
- Publication of a second (upgraded and extended) edition of the brochure 'Bioenergy in your Community' (and publication of translated versions in German, Japanese and Croatian);
- Prime contribution to IEA Bioenergy Position Paper 'Benefits of Bioenergy'.

Work scope for the new Task period (2010-2012)

The Task has been able to clearly set out the 'state-of-the-art' of socio-economic understanding and has commenced the application of new and novel methods of thinking to community centred initiatives, based on community interaction and feedback. Such modelling work and study has shown a clear impact when deployed in participating countries and beyond. The Task has also commenced the aggregation of case study material which shows in stark contrast the differing approaches and results that can be gained at the local and regional level by working with different host entities.

One key area to explore in greater detail is the impact of national policy on regional and local activities and to provide feedback to policy makers on both the positive and the negative implications of actual change and further considered change.

The proposed Task prolongation will seek to build further on the solid foundations constructed with a core team of participants as well as to extend the work beyond its current level. The Task participants, whom are supported by a wide range of national experts, identified the following three overarching themes which will be given maximum attention in the proposed new three year programme below:

- Fuel poverty,
- Green employment,
- Joint collaboration with FAO on further development of WISDOM methodology (inclusion of socio-economic factors) with the possibility of creation of own national WISDOM database.

Other themes and points of interest are:

- To examine land use issues and competition resulting in social 'dislocation' (working with national government bodies and Tasks 30/31, 39 and 40)
- To examine 'Biomass in the global economy' and the impact that international trade in biomass has on rural communities in developing countries (e.g. through higher food prices are having as a direct consequence of increased production of 1st generation biofuels). Equally, the impact in developed countries on emerging bioenergy business and communities. At least one workshop with a relevant international organisation / United Nations specialised agency - FAO or UNIDO is planned during the next three years
- To examine sustainability criteria and certification at the local, national and international levels.
- To use bioenergy as an economic development tool, especially in areas where the forest sector is in decline (e.g. in Eastern Ontario). Tracking these efforts in selected communities to be compared and contrasted with following similar efforts in other member countries. At least one workshop to be held on this topic
- To use bioenergy in addressing social needs by examining the beneficial impacts when applied to social housing developments (e.g. by addressing fuel poverty issues)
- To examine 'Entrepreneurship Models' for competitive biomass supply (small forest owners, farmers etc.)
- To examine the wider dissemination opportunities using a range of marketing actions (including social networks) arising out of targeted examples of biomass project success (e.g. the north Tipperary 'eco-village' development) and to promote more rapid take up and replication
- To examine the role of education, extension and competence building in the bioenergy sector (The Energy Farm as an example)
- To assess regional cluster strategies for development of bioenergy (Arena-project Hedmark/Oppland in Norway)
- Adoption and diffusion of innovative bioenergy technologies, the interrelated nature of technology and fuel markets
- Risk governance assessments of bioenergy
- To assess target regional strategies and the ability to balance energy, food and development priorities to deliver sufficient bioenergy projects in timely fashion to meet set targets (working in conjunction with regional governance bodies). The balance of 'carrot and stick'
- To produce case study examples of approaches and how this cascades to Local Government and application (working in conjunction with regional and local governance bodies). At least

one workshop with relevant stakeholder groups would be held to assess the levels of success and engagement, providing feedback to all groups and to policy makers in particular

- To work with at least one project developer (non energy, possibly a volume house builder or business park developer) to create optimal socio-economic gain for those involved (e.g. householders, businesses) and to hold a workshop associated with this topic drawing on the developer's expertise.

The new work undertaken in Task 29 will focus primarily on participating countries, taking into account their different international frameworks but will nevertheless find echoes for all IEA countries and beyond. The work will include the sharing of research results, stimulation of new research directions in national, regional and local programmes of participating countries, technology transfer from science to resource managers, planners and industry as well as beyond national borders. The emphasis will be on an integrated approach to economic, environmental and social aspects of bioenergy systems from production through supply chains to eventual consumers. Multi-disciplinary partnerships of key stakeholders in forest biomass production and utilisation research, planning and operations will be fostered. A clear linkage with Universities will continue to be made in order to ensure a strong **scientific** component and participation in Task activities. Likewise, strong links will be encouraged with **industry** partners and communities able to deliver projects and data for analysis and that generate real change on the ground.

The topics listed above will be elaborated on through international expert workshops and reviewed workshop proceedings, special issues of recognised international journals (e.g. *Energy Policy*, *Biomass & Bioenergy* etc.), case study reports, joint papers at the most important related conferences, international experts meetings, position papers etc. Much of these activities will be conducted in cooperation with other IEA Bioenergy Tasks in order to achieve the highest level of quality, synergy and global impact.

Work programme

- Annual workshops (some with specific themes as set out above) with field study tours, and expert meetings for the sharing of scientific and technical information and furthering the Task programme, with published proceedings.
- Joint events/activities with other *horizontal* Tasks 38, 40 and 43 as well as with some of the *conversions* Tasks like Tasks 32, 39 and 42 – where and when appropriate,
- Study of different regional and national achievements (as set out in the themes above) in recognition and evaluation of social and economic benefits of biomass,
- Establishing current best practice for maximising the social and economic gain for local communities including existing planning models for the implementation of bioenergy projects and programmes.
- Assessment of the international state of the art on socio-economic evaluation of bioenergy programmes and projects along with benchmarking national, regional, IEA and EU programmes.
- Dissemination of findings and conclusions by means of publications and an Internet web site with downloadable publications, tools, overviews communications and links relative to the activities of the Task.
- Transfer to stakeholders new knowledge and technical information.
- Co-operation and information exchange with other IEA Bioenergy Tasks.
- Make policy recommendations to the relevant bodies at various levels.
- Linkage with complementary FAO, IEA, EU and World Bank projects and programmes.

Deliverables

- Annual workshops with subsequent published reviewed proceedings.
- State of the art report on economic drivers and social benefits in developed countries towards the end of the Task period.
- Joint study work with FAO in one developing example country (Peru)
- Special editions of recognised international scientific journals.
- Selection of scientific papers presented at major international events.
- Selected case study reports and summaries (following gap analysis).
- Electronic information system based on existing Task 29 web site (www.task29.net).
- Further development of the Educational web site (www.aboutbioenergy.info).

- Technology and knowledge transfer including technical seminars, conferences and participation in different national and international events with educational goal.
- Contribution to educational/training programmes in participating countries.

Management

Task Leader: Dr Keith Richards, TV Energy Ltd., United Kingdom

Associate Task Leader: Dr Julije Domac, North-West Croatia Energy Agency, Croatia

Annual Budget US\$ 14,000 per participant (level of work will be adjusted to fit that budget)

**A PROPOSAL TO THE EXECUTIVE COMMITTEE
IEA BIOENERGY**

FOR PROLONGATION OF AN INTERNATIONAL COLLABORATIVE TASK ON

Socio-Economic Drivers in Implementing Bioenergy Projects

OBJECTIVES

To achieve a better understanding of the social and economic impacts and opportunities of bioenergy fuel supply chains and systems to communities at the local, regional, national and international level, to synthesise and transfer to stakeholders important knowledge and new information, to improve the assessment of the above-mentioned impacts of biomass production and utilisation. In addition, to provide feedback to policy makers from regional and local activities on the impact of new policy directions.

WORK SCOPE

Continuing and injecting new direction to the programme undertaken in the IEA Bioenergy Task 29, this new three year programme will focus on specific social and economic impacts and opportunities of bioenergy systems, whilst taking a more holistic view of the totality of Bioenergy activities which in some instances will involve linking bioenergy projects with specific frameworks and issues such as:

Development of WISDOM methodology (inclusion of socio-economic factors)

WISDOM - a methodological tool designed to provide a spatial representation of woodfuel demand and supply patterns was developed by the FAO's Wood Energy Programme, together with the Instituto de Ecología, National University of Mexico. This is a GIS-based tool, aimed at analysing woodfuel demand and supply spatial patterns from a new perspective that includes: (a) the assembling of existing but dispersed information into single data sets, (b) a modular integration of these data sets, based on the analysis of key variables associated with woodfuel demand and supply patterns, and (c) a multiple-scale and spatially explicit representation of the results, in order to rank or highlight areas in which several criteria of interest coincide. The final objective of WISDOM is to assess the sustainability of woodfuel as a renewable and widespread energy source, while supporting strategic planning and policy formulation. Several field applications have shown that it is a useful tool for mapping woodfuel (and biofuel) consumption as well as the supply sources and potentials. It also helps in the visualization, definition and mapping of the territory/area needed for the sustainable supply of the woody biomass demanded by the bioenergy industry in line with different need and users. During a recent Task meeting in FAO Headquarters in Rome, the Task was invited to work closely with the FAO on a pilot project using WISDOM for Peru.

Land use issues and competition resulting in social 'dislocation'

As the pulp and solid wood sectors struggle in some parts of the developed world, bioenergy is being touted as a potential economic development tool to maintain populations in rural and remote areas. Implementation of bioenergy (or other forest-based economic activities) is often inhibited by existing land use rights and other institutions. The failure to develop policies that allow for the optimal use of timber resources can result in economic and social struggles for communities and their citizens. While the forest sector provides interesting case studies for this issue, the results could provide meaningful input for other sectors as well.

Biomass in the global economy

Bioenergy is the dominant source of energy for most of the world's population who are living in extreme poverty and use this energy mainly for cooking. They have limited access to other forms of energy such as electricity or liquid fuels. Bioenergy is seen as part of the solution to climate change, as a renewable source of energy, as well as providing income and employment opportunities for rural populations. At the same time, it has become apparent that the sustainable use of bioenergy requires balancing many factors, including the possible competition between food security and energy security, the competing uses of water resources, effects on rural development, agricultural markets and food prices, as well as the impacts on the environment, biodiversity and others. This has to be done at the local, the national and the international levels, based on proper information and understanding. Knowledge management, mobilisation and implementation at country level are central pillars of such an approach.

Bioenergy as an economic development tool

Bioenergy has long been seen as a potential economic development tool. It is relatively labour intensive and normally results in the substitution of local resources for imported ones resulting in an augmented tax base for the community or region. Export opportunities (e.g. pellets) may also exist from the development resources for bioenergy. Bioenergy can provide value-added opportunities for, for example, the agriculture and forest sectors as residues from these sectors are used to generate heat and electricity. The prospect long-term stable employment for local residents can also provide social benefits to a community.

Bioenergy in addressing social needs (social housing developments and fuel poverty)

The use of Bioenergy (sometimes in hybrid solutions with other renewables) is often cited as a way of providing a local solution to issues such as fuel poverty in developed as well as developing countries. There are just a few examples where this technique is known to have been adopted for these reasons. The Task will examine these existing cases and seek to identify to what extent Bioenergy has contributed an effective solution here and more generally. The Task will work with providers of social housing and local Governmental bodies to investigate this activity. At the more strategic level, the Task will work with Regional governance bodies to see to what extent Bioenergy can be deployed in initiatives such as 'Eco-towns' to provide these niche social benefits and to what extent these benefits are valued.

Entrepreneurship 'models' for competitive biomass supply

Bioenergy provides business opportunities for farmers and many models have been tried in different countries. The Task will gather examples of experiences from different countries and examine how farmers can learn, adapt and realise employment with income generated from involvement in bioenergy activities. In addition, dissemination opportunities using a range of marketing actions (including social networks) arising out of targeted examples of biomass project success (e.g. the north Tipperary 'eco-village' development) will be pursued. Another strategy is to establish local dissemination and education centers (like the Energy Farm in Norway). There are many different actors that have to cooperate in a bioenergy system if this is to be successful and the Task will study the information flow, demonstration projects, the role of competence building and the diffusion of new technologies.

Dissemination opportunities using a range of marketing actions (including social networks) arising out of targeted examples of biomass project success

A 'Concerto' (European sponsored) project in North Tipperary will assist in the development of an eco-village and also provide assistance to retrofit insulation and renewable energy heating sources to 500 existing dwellings. There are opportunities to study the social networking effects of those involved, both in the ecovillage and the wider community. The influence (if any) of the ecovillage initiative on current residents in the region to embrace

sustainable energy would be analysed, as could the influence of those who decide to avail themselves of grant schemes to retrofit their dwelling in the wider community. A specific work package on socio economics will be delivered as part of this project. There are many excellent opportunities for synergies and joint initiatives with IEA Task 29.

Bioenergy in regional development strategies and the ability to balance energy, food and development priorities to deliver sufficient Bioenergy projects

Policies relating to energy, food and development priorities are primarily considered at the National level. However, increasingly Regions are being given devolved powers to engender action and to deliver on these priorities all of which interconnect and have a very definite spatial component. Often it is competition for land that will inevitably dictate the emphasis and timing of strategic developments and share. These decisions have a very major impact on both the potential rate of deployment of Bioenergy projects and the absolute number of projects that might be realised. Hence a positive influence could do much to speed up the use of Bioenergy and to achieve maximum penetration. The Task will seek to compare and contrast how these matters are dealt with in a target Region within each participating country and further go on to identify good (and bad) practice employed.

Many actors are needed for a Bioenergy system to work well. If the Bioenergy sector reaches a certain level in a region, the internal competition between the actors increases, this triggers innovation and may lead to cost reductions, new products and companies and increasing exports out of the region. In some regions we can see the start of bioenergy clusters. The Task will study chosen regional clusters in participating countries, the achievements and the role of government support to the clusters. One special aspect is the cooperation between research institutions and regional bioenergy clusters.

An interesting bioenergy cluster exists in Callen, Co. Kilkenny. A case study has already been carried out by the Irish partner on one such project (Camphill biogas plant). There are now a number of other bioenergy projects including examples of medium scale wood energy projects organised on a community basis along with the growing of energy crops.

Realisation of connected local supply and consumption of biomass

In several member countries, the adoption and diffusion of biomass energy utilisation technologies has not been sufficiently promoted and commercialised which has resulted in the limited take up of biomass, even though the resource is often seen to be plentiful. Among the inhibiting factors is the great dissociation between the potential supply relative to the market for biomass and the concomitant failure to establish a comprehensive supply infrastructure system connecting to downstream technology able to utilize the converted energy. The consciousness of municipality and local residents is also seen as key for this system establishment.

The key priority of the Task will be the analysis of the economic and social aspects of initiatives along with the net overall benefits of bioenergy use. The actions will be focused on working with key stakeholder groups to illustrate real life examples of how bioenergy impacts on existing and future developments. Analysis and feedback will be captured in detailed case studies and will be peer reviewed through workshops, conferences and scientific papers. The programme will also include further development and promotion of tools and guidelines as required by the policy makers. The Task will also deal with connected environmental considerations and the contribution that biomass makes to rural and remote areas, in which biomass production for energy often takes place.

Geographically, the new Task will focus directly on the member countries of IEA Bioenergy that agree to participate in the Task. More generally, the new Task will seek to compare and contrast conditions in rural and urban regions in various parts of the world (e.g. Europe,

North America, Japan, others), examining issues raised. However, efforts will also be made within budget limitations to involve, for example, South Africa, Brazil, and countries in Eastern Europe. Such countries may be able to contribute to the work of the Task, or to help implement its ideas through the development and expansion of bioenergy production systems in new regions. This work will be carried out in close collaboration with the FAO and European Commission.

The work of the new Task will draw on and build upon existing scientific and technical knowledge, information and expertise within the limits of budget, time and the voluntary nature of country participation. Results of completed and ongoing research in participating countries and elsewhere will be synthesised and stimulation will be given to new research directions. Applications to real projects and linkages with other complementary initiatives and programmes will be a priority matter. Key experts from government (central and regional), universities, high-level research institutions, local energy agencies, NGOs, and industry will be brought together and engaged in high-level discussions guided by scientific understanding in order to address the issues raised. In doing this, an integrated approach will be maintained involving critical social, economic and environmental sustainability components of bioenergy systems. Multi-disciplinary partnerships of the most important stakeholders will be fostered. Local communities and industrial involvement will be particularly sought in relation to the transfer of technical information concerning environmentally and socially sustainable and economic biomass production. In this way real change in the approach of project developers through development and application on the ground will be achieved. The new Task will endeavor to have a significant impact on research, development and demonstration (RD&D) and practice in participating countries in order to achieve the goals of IEA Bioenergy.

WORK PROGRAMME

Background

At a world level, biomass energy use represents nearly one billion tonnes of oil equivalent, a level comparable to the consumption of natural gas, coal and electricity. Biomass is the largest renewable energy source in use today. A wide range of sources supply this 'green energy' in developed and developing countries. For the future, bioenergy offers cost-effective and sustainable opportunities with the potential to meet up to 50% of world energy demands during the next century, while meeting the requirements of reducing carbon emissions from fossil fuels. Bioenergy based on biomass, therefore, functions in an environment of international agreements and national/international initiatives which promote sustainability.

The extremely varied nature of biomass, and the many routes possible for converting the biomass resource to useful energy, make this whole topic a complex subject. When we talk about sources of biomass then we need to consider: forestry, agricultural and industrial residues, SRC plantations, communal waste, urban biomass, etc. A very broad involvement made even more complex when overlaid by the different economic sectors and human activities involved in use. As a result the totality of bioenergy is poorly understood and often misinterpreted.

Bioenergy market growth has been uneven throughout the developed world. While this phenomenon could be partly explained by biomass resource availability and development priorities of a country, the same does not explain the inability to reach the bioenergy utilisation goals set at a national level. Development of market forces is not an isolated, abstract process but a process that has to be tailor made for the social environment in which it is occurring. Economic drivers that could be expressed in monetary units are not sufficient to fully describe reactions of the agents participating in the bioenergy market. Moreover, attitudes and values

(often called “social drivers”) sometimes could play the crucial role for bioenergy utilisation.

Using biomass for energy can bring extensive economic and social benefits. At a local scale employment and social cohesion can be enhanced, especially in rural areas where unemployment is often high and de-population is a problem. On a larger scale the production of energy without adding to the overall emissions of greenhouse gases serves national and international policy goals of GHG reduction and environmental responsibility. The choice between highly mechanised and labour intensive methods is based on local needs, energy demands and labour costs. Local economies and national trade balances benefit from the replacement of imported fuels with local, indigenous fuels, since the revenue from the production of biofuels tends to be retained by the local community. An increase in national self-sufficiency is a policy goal for many countries in response to uncontrolled increases in the price and availability of fossil fuels.

Modern industrialised societies function within a series of trade and political relations with a variety of countries, trading blocks, as well as economic and political alliances. Bioenergy use with its associated activities, production, harvesting, and utilisation is integrated with political, economic and environmental agreements. Recently, in addition to the normal trade, political and economic agreements, countries have developed a range of environmental agreements, conventions and protocols designed to address issues of sustainability of resources and communities. There is an increasing interest in shifting to a bio-based economy which uses as a feedstock agricultural crops, mill waste and fast-growing trees. The associated bio-processes; fermentation, biocatalysis, biosensors, and metabolic engineering growth areas by definition must rely on biomass rather than fossil fuels.

Task 29 of IEA Bioenergy included exchange of results and information among the normally discrete research areas of social, economic, techno-engineering/engineering-economic and environmental issues. As a result, a wider, system-oriented and multi-criteria-based view of the issues connected to production and utilisation of biomass for energy activities has evolved from this successful collaborative effort. Some concrete outcomes are a number of reports and studies as well as a book of proceedings from Task workshops.

Task 29 collaborated with several other Tasks, e.g. by organising joint workshops that were documented by joint proceedings. These activities also contributed to the development of a more integrated knowledge base. As well as the positive experience of synergistic effects of the multidisciplinary collaboration within Task 29, it is believed that this concept should be developed further. Important effects would include increased opportunities to share and exchange model components, technical information and linkages with other IEA Bioenergy Tasks.

The current proposal for a new Task builds on the achievements of Task 29 so far. It is designed to capitalise on the present body of knowledge, and to continue to add to it and develop it further drawing in new expertise sometimes generated by the action itself. The aim is an enhanced transfer of holistic, integrated knowledge and technical information which is believed to be of substantial value to local communities, scientists and decision makers in the field of biomass production and utilisation and energy planning. Most of all, the activity seeks to transfer the approaches developed to real developments on the ground making for improved projects with ever wider application and take-up.

Technical focus

The proposed Task 29 work programme continues and extends the work undertaken by Task 29 in the previous period. In particular, it encompasses results and findings obtained

previously in the Task and also through the international state-of-the-art in the socio-economic evaluation of bioenergy programmes and projects. The scope is world wide, but in practice focuses primarily on participating countries, also taking into account national and international regulatory and policy frameworks.

The emphasis will be on an integrated approach to study economic, environmental and social aspects of bioenergy systems. Multi-disciplinary partnerships of key stakeholders in forest biomass production and utilisation research, planning and operations will be fostered. A clear linkage with Universities and other higher research and education institution will be made in order to ensure strong **scientific** component and participation in Task activities. Likewise a stronger link will be made with **industry** and more specifically with developers of bioenergy projects. The new three years programme will focus on social and economic impacts and opportunities of bioenergy systems.

The Task as proposed will continue to organise a series of international workshops and meetings in participating countries with each workshop designed to provide a technical and scientific programme involving input from Task programme areas that will incorporate the local/regional context (if possible linking with a community action). Successive workshops are designed to build one upon another, and by doing so to maintain the collaborators' interest and continuity in the programme. Workshops and meetings aim for a high quality of scientific and technical contributions and fruitful and intensive interaction among the participants.

Linkages with other Tasks and Strategic Fund activities (including GBEP)

The activities envisaged under the proposed work programme for this Task will be carried out in cooperation primarily with Tasks focused on conventional forestry, short-rotation energy crops (or a new task focusing on biomass resources), greenhouse gas balances, liquid biofuels and international bioenergy trade. However, the Task 29 is often seen as a 'horizontal' Task connected with all existing Tasks and aspects of work of the IEA Bioenergy Agreement.

Within the original prolongation proposal for 2009 (ExCo61, Oslo) two meetings were planned to be held in England and Austria. However, after taking into account recent developments the team agreed on the following meetings:

- Meeting in Rome, Italy (June 2009) to explore the considerable potential for cooperation with the FAO on several topics including the WISDOM methodology (biomass GIS) and issues regarding social dislocation, benefits to rural communities and biomass fair trade;
- Joint meeting with (all) other tasks in Vancouver, Canada in August 2009;
- NTL meeting for detailed planning of future 3-years work programme in Dubrovnik, Croatia in October 2009.

Extension of work with the FAO and developing countries might sensibly be proposed and this would require additional resources. Hence, a strategic approach utilising central funds and calling upon expertise from across the Agreement could be advantageous.

The Task also envisages interacting with the GBEP sustainability task force with their work on sustainability indicators. The two sub-groups on social and economic security would seem to be the most relevant to the Task. This interaction will be explored in the months ahead in conjunction with Adam Brown and members of the EXCO.

Annual workshops

The Task will organise at least three annual workshops in different participating countries, if possible connected to major related international events. Workshops will further the Tasks' work of collecting, synthesising and sharing leading-edge science and technology on issues and themes identified in the work programme. These events will provide an opportunity and venue for resource managers, power industry representatives, bioenergy systems equipment manufacturers, energy production professionals, energy users, energy programme managers, educators, scientists and researchers to exchange information and discuss sustainable management, production and use of biomass for energy as an integral part of resource management for multiple benefits. The workshops will focus particularly on practical solutions to lower barriers to implementation of bioenergy systems and to get improved methods adopted for future project initiatives.

The workshop format will include two or three days of technical sessions and one or two days of field tours. Technical sessions will include presentations of invited papers along with volunteer posters and papers. These international workshops will offer attendees the opportunity to make and maintain professional contacts and to identify the opportunities for future collaboration. The proceedings of each annual workshop will be published following scientific peer-review. These proceedings will record substantive and progressive scientific and technical information, discussion and analysis. The Task intends to publish some of the proceedings as special issues of recognised international journals (e.g. *Energy Policy*, *Biomass & Bioenergy* etc.)

SCHEDULE AND MILESTONES

- 2010
- detailed Task work programme planning
 - selection and commissioning of scientific and industry experts
 - establishing mechanisms for co-operation with related Tasks
 - participation in a major international scientific or industry based event
 - Educational website maintenance
 - Task 29 information web site updating
 - issue of an updated brochure
 - Expert meeting/ workshop 1 (invited participation) on regional issues and dissemination issues in southern Norway. Central actors would then be the Energy Farm and researchers from The Norwegian Bioenergy Research Center at Aas
 - Expert meeting/ workshop 2 in Germany with the opportunity to examine technology diffusion methods and interlinking social dimensions
 - concept and content planning for a Task 29 paper on Bioenergy in regional development strategies
 - publication of a paper in a recognised scientific journal (e.g. Biomass & Bioenergy) or industry/ trade association publication
- 2011
- publication of 1st & 2nd workshop proceedings
 - Seminar/ workshop 3 on Biomass in the global economy co-organised together with UNIDO/FAO in Croatia
 - concept and content planning for a Task 29 paper on Entrepreneurship ‘models’ for competitive biomass supply
 - mid-Task assessment and, if necessary, re-orientation
 - publication of a paper in a recognized scientific journal
 - participation in a major international scientific event
 - Workshop 4 Theme: Marketing actions arising out of targeted examples of biomass project success, organised in Tipperary, Ireland linked to the Concerto SERVE project
 - Task 29 information web site updating
- 2012
- publication of 3rd & 4th workshop/ seminar proceedings
 - participation in a major international scientific event
 - final work by scientific experts on issues
 - Workshop 5 to be hosted in Japan. Theme (working title): The interplay of National and Regional policy initiatives on local delivery.
 - Workshop 6 Theme: Bioenergy as a solution to fuel poverty in developed nations, co-organised together with Local Government and Social Housing Providers in the SE Region of England
 - Educational website maintenance
 - Task 29 information web site updating
 - summary document, final Task report

ANNUAL BUDGET

Staff costs	38 %	US\$
Workshops, seminars, meetings etc	10 %	US\$
Travel	21 %	US\$
Materials, supplies, publications etc	15 %	US\$
Contribution to annual report and newsletters	1 %	US\$
Consultants and contracts	15 %	US\$
Overhead	0 %	US\$
TOTAL	100 %	US\$
		88,200*

* based on (an estimated) seven participating countries with a contribution of US\$ 14,000 each less 10% EXCO fund (US\$ 98,000 less US\$ 9,800).

Notes on budget items

Staff costs - includes cost of remuneration of Task Leader and Associate Leader, who will each devote up to 25% of their time to the Task, as well as others directly involved in the work of the Task.

Travel - for participation of Task Leader, Associate Leader and scientific experts in workshops and meetings.

Consultants - cost of specific contracts to achieve elements of the Task goals. Efforts will be made to obtain the participation of appropriate scientific expertise through remuneration of travel costs to international meetings rather than through more costly contracts.

Overhead - no overhead charge is made by any of the institutions involved in the Task.

MANAGEMENT

The Task will be led by Dr Keith Richards of TV Energy, Newbury/UK, assisted by Dr Julije Domac of North-West Croatia Energy Agency, Zagreb/Croatia.

Accountability and an institutional guarantee of performance and delivery of the Task will be provided by DECC through Kieran Power, the UK representative at IEA Bioenergy ExCo as well as the Energy Institute 'Hrvoje Požar' through Dr Branka Jelavic, the Croatian representative on the IEA Bioenergy ExCo. Each participating country will provide a representative to the scientific management team, the primary vehicle for active country involvement in the Task. The expenses of these representatives will be borne by the individual countries, according to IEA Bioenergy policy.

Keith Richards OBE, Ph.D., has 29 years experience of renewable energy project management and consultancy. He has been central to the take up of energy from waste and biomass projects in the UK developing strategies for Government and then implementing them. He has championed the development of resource assessment tools (particularly GIS) to aid in regional and community initiatives in the UK, Europe and OECD countries (through the IEA). Over the last five years, Keith has focused on working with community groups in close collaboration with Local Authorities and Regional Government to introduce hybrid renewables and rational use of energy solutions. Keith has acted as an independent technical expert evaluator for the European Commission for more than 25 years and is currently evaluating bioenergy R&D proposals under the 7th Framework. Some of his recent experiences include: TV Energy Limited - Managing Director, TV Bioenergy Ltd – Director, a trading company supplying 20,000 tonnes of wood chip to local consumers, TV Bioenergy Coppice, Chairman, growing short rotation coppice, TV Tree Station, Director, University of Reading & Oxford – External Lecturer: to renewable energy MSc course, soil and environmental sciences, business and sociology departments; Retained advisor to SE England Development Agency (SEEDA); UK participant with the Forestry Commission in the 'Woodheat Solutions' EIE project. UK participant for the EIE Bio-Sol-ESCO project focused on biomass and solar technology.

Julije Domac, Ph.D., is a recognised international expert with 13 years experience in renewable energy and energy efficiency projects. His current position is Managing Director of the North-West Croatia Energy Agency and in the past he acted as Deputy Head of Department for Renewable Energy at the Energy Institute *Hrvoje Požar* in Zagreb, Croatia and International Projects Adviser at TV Energy Ltd, a SAVE regional energy agency in Newbury, UK. Julije worked as the national biomass programme coordinator in Croatia, international expert for Tipperary Institute, Ireland, project leader for UNIDO, lead expert for the World Bank, project director and technical editor for FAO, expert evaluator for the European Commission and Task Manager for the International Energy Agency (IEA). Over the last four years, his main focus has been biomass energy, especially socio-economic modelling, biofuels, local communities and biomass conversion.

APPENDIX 1 – Overview of past meetings and events

2000:

NTL meeting, Vaxjo, Sweden, 3-4 February 2000

International workshop *Socio-economic Modeling of Bioenergy*, Brighton, UK, 2 July 2000 organized connected with the *World Renewable Energy Congress IV*

2001:

International workshop *Socio-economic Aspects of Bioenergy Systems – Challenges and Opportunities*, Alberta, Canada, 28-31 May 2001, organized together with Task 31

NTL meeting, Zagreb, Croatia, 5-6 December 2001

2002:

International workshop *Socio-economic Aspect of Bioenergy Systems: Issues Ahead*, Cavtat, Croatia, 19-21 September 2002

2003:

International workshop *Education and Promotion*, Streatley, UK, 18-20 June 2003

NTL meeting, Thurles, Ireland, 10-11 November 2003

2004:

NTL meeting, Rome, Italy, 12 May 2004, organized connected with the *2nd World Biomass Conference 2004*

International workshop *Biomass in urban Communities*, Tsukuba City, Japan, 18-22 October 2004

2005:

International workshop *International Bioenergy Trade and Development*, 17-18 March 2005, Washington DC, USA, organized as a side event of the World Bank Energy Week 2005 together with Task 40

International workshop *Local, regional and cross-boundary partnerships in implementing bioenergy projects*, 6-10 June 2005, organized together with the Slovenian Forestry Institute

Trondheim, Norway, 26-28 October 2005, organized connected with the *Nordic Bioenergy Conference 2005*

2006:

International conference *Biofuels and Bioenergy: Challenges and Opportunities*, Vancouver, Canada, 28-30 August 2006, organized together with Tasks 31 and 39

International conference *Realising the Promise of Bioenergy*, Oxford, UK, 18-20 September 2006 organized together with Tasks 30 and TV Energy

2007:

International workshop *Biomass Supply Issues and Solutions*, Bregenz, Austria, 14-15 May 2007

International Expert Consultation on *Sustainable Biomass*, Dubrovnik, Croatia, 25-26 October 2007, organized together with Tasks 38 and 40

2008:

International Conference *Achieving Targets – Maximising Benefits* - the Sustainability of Biomass in the context of the Renewable Energy Targets of the Irish Energy White Paper 2007, Dublin, Ireland, 8-9 May 2008

International Workshop with NEDO Japan *Socio-economic Drivers in Implementing Bioenergy Projects* held at the National Institute of Advanced Industrial Science and Technology (AIST), Chugoku 30th October 2008.

2009:

International Seminar and Expert Consultation on *Assistance Needs for Developing Bioenergy Strategies*, FAO Headquarters, Rome, Italy 17-19 June 2009

NTL meeting, Dubrovnik, Croatia, 8-10 October 2009