



EFFAT

GREEN JOBS IN AGRICULTURE AND RURAL AREAS



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GREEN JOBS IN AGRICULTURE AND RURAL AREAS



A study by Réseau Projectives

**for the European Federation of Food, Agriculture and
Tourism Trade Unions**

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We would like to warmly thank all partners and participants that contributed to the success of the project.

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Editor's foreword

“Highly qualified and less qualified workers will benefit from plans to create green jobs. These jobs will play a key role in combating the employment crisis in Europe”

This message was repeatedly conveyed by European Commission officials and MEPs at a conference in Brussels in June 2012.

Overcoming the current economic and financial crisis by creating new and better jobs – ‘Green jobs for green growth’ – that is the leitmotiv of the many new initiatives being taken by a broad range of civil society groups that are focusing currently on the issue of ‘green jobs’.

For agriculture trade unions, this concept denotes not only the creation of new jobs and economic recovery through job creation, but also the need for better working conditions, worker participation in corporate development processes and the production of high-quality, durable goods. In a nutshell: green jobs should improve the employment situation and conditions within society.

I would like to thank the authors of this brochure, especially the experts from Réseau Projectives and staff from the various national agricultural trade unions, who devoted a year of their time to the project in order to lay the foundations for a broad-ranging discussion among trade unions.

It has been a pleasure to work with so many committed and competent colleagues.

Arnd Spahn, EFFAT Agriculture Secretary

Authors' foreword

The not-for-profit association 'Réseau Projectives' was selected by EFFAT to conduct this project. This network of experts dedicated to the establishment and development of social dialogue in the European Union usually works in tandem with other specialists to be able to provide a wider range of expertise.

For this project, we have set four priority objectives:

- analysing, understanding and sharing specific studies on green jobs;
- drawing conclusions and identifying possible orientations for agriculture;
- identifying any existing pilot experiences;
- developing policy approaches to be incorporated into the social partners' work programme.

This project is being run in partnership with, and with the support of, GEOPA, which is the European employers' group of agricultural organisations, the national trade union federations in Austria, Denmark, France, Germany, Italy, Romania and Spain, and Sustainlabour.

Eight points have been identified with a view to establishing an action plan, which will be debated and which will serve as a guide:

- ✓ the meaning of green jobs;
- ✓ EFFAT's definition of green jobs (given that different bodies use different definitions);
- ✓ the methodology used;
- ✓ green jobs under the classification;
- ✓ green jobs and occupational health and safety;
- ✓ green jobs and training and qualifications;
- ✓ the partners drafting a best practices report;
- ✓ green jobs potential in the EU as a focal point.

The final report, including its conclusions, will be submitted to the social partners and will feed into discussions on new opportunities and prospects for the younger generation and the creation of stable jobs for highly qualified workers, since there are still many areas that remain untapped.

Jean-Pierre Klapuch, Réseau Projectives

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1 The importance of 'green jobs'

Europe has some 15 million farm holdings where over 40 million people are active. The one million agricultural employers employ over seven million workers in this sector that traditionally manufactures food for human consumption.

However, technological progress and the search for new fields of work are providing agriculture and rural areas with unimagined opportunities to radically change their standing and the work of farm holdings.

Farm holdings are already supplying raw materials for chemical processes and materials, which are used, for example, in houses as insulating materials. Renewable energy crops could contribute to establishing a low-carbon economy in Europe, thereby helping to reduce the use of materials that damage the environment. Biological waste is being converted into power and heating in biogas plants and wind and solar energy plants are being built in the fields.

Agriculture needs new impetus in order to overcome problems such as an ageing workforce, a lack of new entrants and a lack of versatility within the sector. This brochure is the European agriculture trade unions' contribution to helping secure and create jobs in Europe.

These new areas of activity will create new jobs, which should not only appear 'green' from the outside, but should also allow for worker participation and codetermination.

Only safe jobs can be 'green jobs'. Therefore, as worker representatives, we set a great deal of store by the health and safety requirements of these new jobs.

Indeed, these new areas of activity can provide prospects to the young people entering the agricultural sector. This will enable the sector to overcome the problem of its ageing population and build a future for itself with the help of well-trained workers.

2 Definition of 'green jobs'

2.1 UNEP/ILO/IOE/ITUC

A first more precise definition of the concept of 'green jobs' was laid down in the report published jointly in September 2008 by the **United Nations Environment Programme (UNEP)**, the **International Labour Organisation (ILO)**, the **International Organisation of Employers (IOE)** and the **International Trade Union Confederation (ITUC)** entitled 'Green Jobs: Towards decent work in a sustainable, low carbon world'¹:

"We define green jobs as work in agricultural, manufacturing, research and development (R&D), administrative, and service activities that contribute substantially to preserving or restoring environmental quality. Specifically, but not exclusively, this includes jobs that help to protect ecosystems and biodiversity; reduce energy, materials, and water consumption through high-efficiency strategies; and ... altogether avoid generation of all forms of waste and pollution"².

2.2 European Union

The European Commission's education and training agency has put forward an interesting definition. A synthesis report on 'Skills for Green Jobs', which was published by the **European Centre for the Development of Vocational Training (CEDEFOP)**, highlights the fact that governments can kill two birds with one stone by developing a low-carbon economy designed to foster green, sustainable growth: such an approach will enable them to better control the effects of climate change and

¹ Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World, UNEP/ILO/IOE/ITUC, September 2008

² Ibid., p. 3

reduce unemployment at the same time. In order to take better advantage of the opportunities provided by a low-carbon economy, workers must have the requisite skills³.

Occupational health and safety are the responsibility of a dedicated EU agency. In April 2013, the **European Agency for Safety and Health at Work (OSHA)** – which is a decentralised agency of the European Union – published a definition of ‘green jobs’: With pressure to reduce carbon emissions, reduce waste, increase energy efficiency and the proportion of renewable energy, the EU is set for a rapid growth in the number of ‘green jobs’ – jobs which help to protect or restore the environment.⁴

2.3 EFFAT

The **European Trade Union Federation EFFAT** brings together trade unions from the agriculture, food and hotel and catering sectors. As such, the stakeholders’ understanding is primarily limited to the working and daily realities in these sectors. The definition of these realities is not exhaustive and draws to a large extent on the work of the International Trade Union Confederation, the ITUC.⁵

For European agriculture trade unions, the creation of ‘green jobs’ is the result of a long development process. Such jobs in agriculture and rural areas should,

- help to mitigate the environmentally damaging aspects of agricultural land use;
- help to reduce the energy used by farm holdings to run their operations, machines and installations or use self-generated energy;
- serve to generate energy in rural areas from renewable raw materials or renewable energy sources;
- help to enhance the health and safety of people, animals and the environment;
- involve all stakeholders (especially employers and workers and their respective organisations).

In order to identify such jobs, EFFAT has developed a checklist for the purposes of this project, which can be found on page 36 of this brochure.

3 Methodology

The study, which Réseau Projectives was commissioned to conduct by the European Federation of Food, Agriculture and Tourism Trade Unions (EFFAT), has identified, on the basis of a survey of national agriculture trade unions in the participating countries, the current trends in jobs and business activities that meet the criteria established by EFFAT in its definition of ‘green jobs’ (see section 2.3).

After assessing the transferability of the examples collected, a projection for the relevant member state (where this was possible) and for the European Union was extrapolated from the overall data. Both national and European sources were used to this end. These sources are listed in the annex to this brochure.

However, it should be said that many examples can only be viewed in light of the historical context of the relevant country and, therefore, it is often not possible or sensible to apply the situation in one country to other countries.

³ Skills for green jobs: European synthesis report, CEDEFOP, July 2010

⁴ <https://osha.europa.eu/de/teaser/green-jobs>

⁵ Current work can be traced back to a white paper by European Social Partners from the agriculture sector from the year 2000, as well as to other publications, including ‘Kyoto and jobs’ and ‘World Climate Summit Copenhagen’

Moreover, many examples relate to political contexts that are hardly applicable to other Member States (see the 'energy transition' and legislation in German).

Furthermore, the different regional or national effects of the examples provided have not been fully investigated.

In the final analysis, however, such examples can stimulate activities in other areas and serve as practical examples to underpin demands for policy and legal adjustments to the implementation of the Europe 2020 strategy, to which both the contracting party and the contractor are committed.

A general treatment of the domains in which positive labour market effects may arise must lead to further steps being taken to ensure that the picture does not remain incomplete.

This includes first and foremost coming up with an assessment of the investments that are necessary and possible to create new jobs.

Réseau Projectives will regard its mission as successfully accomplished if the present study provides the aid needed for such further activities.

4 Green jobs based on the job register in European agriculture

The job register in European agriculture is a system that was developed by the social partners for the agriculture sector within the framework of the social dialogue committee for agriculture⁶.

The register is designed to list and assess opportunities for creating new and green jobs. As the assessments usually only focus on certain aspects of more wide-ranging activities, it is often not possible to make a quantitative assessment of the potential for job creation. Further references to this are made in the country reports (from page 25 onwards).

4.1 Livestock breeding

4.1.1 Sustainability concepts in livestock breeding

Few other branches of the agriculture sector are as heavily criticised by climate activists and environmental movements as the livestock breeding sector. Over the course of the project, EFFAT constantly reiterated its position: better, not less, livestock breeding is needed. There are many good examples of this in various Member States. Overall, those European livestock breeders taking part in the project attest to having attained a good standard compared to other regions of the world.

Nonetheless, innovation and investment must be swifter and more efficient and must be put into practice.

- Significant improvements in animal protection
 - In many cases, improvements in animal protection are associated with structural measures that have significant effects on the labour market. These measures involve high levels of investment and so are often only feasible with the aid of public subsidies. However, at the same time it should be said that the high proportion of public subsidies in this area is an effective means of delivering the required investments promptly.
 - Improvements in animal protection can often be achieved through changes in working methods and/or adjustments being made in the relevant holdings. In many cases, these measures can enhance the quality and sustainability of existing jobs.

⁶ Job register in European agriculture

- Improving the operative relationship between the number of animals and their living, grazing and feeding areas
 - Structural measures such as these have a fundamental impact on farm holdings.
- Low-emission farming systems

4.1.2 Heat recovery from animal sheds

4.1.3 Aquaculture

Around 50 % of all fish intended for human consumption already comes from aquaculture. And this form of production will increase, as there is increasingly less fishing from the seas as a result of precautionary quota-based policies. The farming of fish, molluscs and crustaceans will help to create new jobs in coastal areas, as well as in inland freshwater areas.

However, Europe has not yet successfully developed a sustainable and efficient aquaculture sector. Little more than one million tonnes is produced by the some 65,000 workers employed by aquaculture companies across the European Union.

EFFAT calls on the European Commission and the Member States to develop a policy that both supports this type of production and promotes opportunities for fishing concerns in coastal areas, and also safeguards the high standards in European freshwater fish farming through international agreements. This policy should be accompanied by regional policy measures, the promotion of labels, and improvements to direct marketing for aquaculture companies.

This would secure or create around 195,000 jobs throughout Europe.

4.2 Plant production

4.2.1 Regionally produced animal feed

Importing animal feed from countries outside the European Union is environmentally unsustainable and constitutes a risk to human and animal health at a time when genetically modified feed is being imported. Promoting feed production in the European Union thus contributes to protecting the environment and creating a fairer world.

If feed is to be produced on a regional basis and in an economically sustainable manner, business processes need to be radically adjusted and feed producing holdings modernised.

4.2.2 Grassland management and protection of marshland

The reform of the Common Agricultural Policy (CAP) involves consolidating grassland management and protecting other sensitive areas.

While these decisions may result in traditional jobs coming under threat, they also provide new opportunities and possibilities.

For this reason, EFFAT actively supports national grassland protection schemes that include new economic activities on this land and open up new possibilities for livestock holders in the regions concerned. However, EFFAT would also like to point out that as a rule such possibilities can only be created with new government aid and the social goals involved must also be achieved by public schemes.

Species-rich grassland can be used and maintained primarily by grazing livestock and extensive animal breeding. The marketing opportunities for such animal breeding systems are as yet inadequate. These should promote economic developments in the holdings in question. Specifically, this means supporting new marketing approaches, such as using appropriate labels and market strategies. This will require the cooperation of all the potential stakeholders, e.g. the public

institutions, the livestock holders, the abattoirs and the food processing, wholesale and retail industries. Regional quality programmes and marketing programmes do exist in various parts of Europe but are not yet systematically included in European programmes.

Protecting marshland and other sensitive areas is often connected with giving up traditional land uses. This requires the acceptance of the individuals and holdings concerned – something which cannot be obtained without adequate and appropriate adaptation schemes. Therefore, EFFAT advocates social follow-up research as a prerequisite for such measures. The individuals need political support, while impacted holdings need new economic prospects.

4.2.3 Green cities, towns and villages

Green cities, towns and villages enhance the quality of life and economic performance of the affected communities. Accordingly, EFFAT in conjunction with the European Landscape Contractors Association (ELCA) promotes the establishment of schemes to foster the development of such cities, towns and villages. Such schemes can also benefit other policy goals, such as reducing fine dust pollution for the local population.

Specifically, such schemes can help with setting up services for the management of green spaces in Member States that do not have them.

In a number of Member States there are reports addressing how in particular young unemployed people can find lasting employment through such institutions.

The exact number of jobs to be created would need to be investigated, but potentially tens of thousands of new positions could be generated in this way.

4.2.4 Forestry management

The European Forestry Strategy offers various incentives for new economic activities. EFFAT campaigns for the sustainable use of forests and many national unions belonging to EFFAT are actively involved in programmes to this end (e.g. FSC, PEFC).

EU-wide sustainable forestry management holds out the prospect of new jobs and will enhance the level of natural diversity in forests in the relevant regions.

4.3. Land use

4.3.1 Nature conservation activities

The increase in nature conservation areas (e.g. national parks, ‘fauna/flora habitat (FFH) areas’ and nature reserves) being demanded by society offers the prospect of new careers and jobs for many people who have to leave the agricultural and forestry sectors. In this context, EFFAT advocates tapping into the knowledge and skills of these individuals when hiring and training new qualified workers in these conservation areas.

Qualification programmes will top up their agricultural knowledge and skills with the new requirements of nature conservation, and these workers should then be given priority when recruiting for these activities.

4.4 Service and consultancy activities

4.4.1 Agricultural consultancy

Many people, particularly in crisis-hit countries, are reverting to agriculture by either establishing new holdings or modernising old holdings. Some of these people are highly qualified workers from outside the agricultural sector, who often do not have sufficient agricultural expertise. EFFAT advocates the exchange of best practices between Member States and access for farm holdings to agricultural consultancy services, so as to help them develop economically viable activities. The

consultancy should cover operational issues (production processes, organisational structures, etc.) and legal questions (e.g. access to credit, legal advice, applications).

Example of a best practice:

In the Spanish province of Las Palmas, the local authorities are making former farmland available to new start-ups and supplying these new farm holdings with basic raw materials (seed, manure, etc.).

4.4.2 Milk controls

Some Member States have public bodies that inspect the quality of the milk produced by dairy farms to ensure that the milk supplied to the processing companies is not harmful to human health. Their tasks also include providing preventive advice on animal diseases.

If this system were to be fostered in other EU Member States, this could create several thousand jobs and would significantly improve security of supply to the general public.

4.4.3 Insemination

Some Member States have public or private bodies that supply healthy, certified sperm for cattle and pigs, thereby acting as nationwide upstream suppliers of artificial insemination products for these livestock, thereby helping to improve animal health and enhancing the economic viability of farm holdings.

If this system were to be fostered in other EU Member States, again this could create several thousand jobs and would significantly improve security of supply to livestock holdings.

4.4.4 Rural services (agricultural contractors)

Some Member States have private companies that provide contractual services to farm holdings, e.g. field maintenance, soil preparation, sowing and fertilisation, as well as crop protection, harvesting and post-harvest field maintenance. These companies are usually offshoots of farm holdings and provide highly professional and efficient services. Their activities can be developed through measures by the public authorities, such as land consolidation and land use plans, and have a considerable impact on agricultural productivity.

If this system were to be fostered in other EU Member States, once more this could generate several thousand jobs and considerably improve the performance of farm holdings.

4.4.5 Irrigation and soil protection

Some Member States have public and/or private bodies that are responsible for improving soil quality and providing farm holdings with water for irrigation purposes. These bodies play a wide-ranging role within the sector.

In some Member States, EFFAT affiliates are involved in the work of their national planning bodies (e.g. soil and water associations, national water plans, land consolidation organisations), so as to ensure a sufficient supply of water and good soil for farm holdings. A particular focus of best practices in this field is more efficient use of water to make more of it available to competing economic sectors (e.g. tourism).

The development of these bodies could help to create new jobs.

We currently do not have any reliable data relating to number of new jobs that would be created if other EU Member States and regions that have the means to establish similar bodies did so.

4.5 Related sectors

4.5.1 Agritourism

In almost all EU Member States, agritourism provides many farm holdings with a second source of income. However, the conditions under which such businesses can be successful are often

challenging. EFFAT advocates EU-wide agritourism standards and solutions that enable holdings to pursue their core agricultural activities. EFFAT expects national policies to eliminate barriers to the implementation of such standards and support agritourism as a real opportunity for boosting economic activity.

These activities could make a contribution to generating new jobs.

However, we currently do not have any reliable data relating to the number of new jobs that would be created.

4.5.2 Direct marketing

Some Member States have implemented policies to support the direct marketing of agricultural products by farm holdings, thus providing those holdings with new economic opportunities.

EFFAT advocates EU-wide standards to ensure that a transparent share of directly marketed products is actually being sold by the producer holdings. A cap on the share of directly marketed goods produced off the holding should be established.

The effects of direct marketing are far-reaching, as the impacted farm holdings are faced with wide-ranging challenges, which, when positive solutions are found, can help them to significantly expand their business opportunities (customer relations, positive company image, marketing, use of new technologies, business accounting, increased production, specialisation, etc.).

These activities could help to create new jobs.

However, again we currently do not have any reliable data relating to the number of new jobs that would be created.

4.5.3 Self-marketing

In some EU Member States, direct marketing entails considerable red tape, especially for micro-enterprises and SMEs in the agricultural sector. EFFAT advocates an appropriate reduction of such red tape while at the same time safeguarding generally binding health and legal standards.

In many parts of Europe, self-marketing is an important means of guaranteeing a basic income for disadvantaged farm holdings and it should therefore be contemplated and promoted as a means of support in other policy fields.

In particular, holdings should be granted easier access to markets and sales outlets if they want this. Access rules should be transparent and easily understandable, to provide equal access to all and to prevent corruption.

Better access to training and further training would provide farmers with support for their agricultural activities and also help them to prepare to branch out into non-agricultural activities.

Self-marketing can help to safeguard jobs.

However, at present we do not have reliable data regarding the number of jobs that could be safeguarded.

4.5.4 Regional production

Regional production can account for a significant share of revenue from agricultural activities, but it must receive policy support.

Specifically, this means supporting new marketing approaches, such as using appropriate labels and market strategies. This will require the cooperation of all the potential stakeholders, e.g. the public institutions, the producers, the processing industry and the food retailers.

Regional quality programmes and regional marketing programmes do exist in various parts of Europe but are not yet systematically included in European programmes.

EFFAT advocates the expansion of regional brands. To this end, Member States should exchange the many examples of best practices and it should be possible to use best practices to showcase a region's activities.

These activities could help to create new jobs.

However, again at present we do not have reliable data regarding the number of new jobs that would be created.

4.6 Energy and water management

4.6.1 Energy management

1. Hydroelectric power
 - a. Hydroelectric power plants built in rural areas could serve as additional sources of income for farm holdings.
2. Wind energy
 - a. Farm holdings can build wind power plants in order to provide an additional source of income for themselves.
 - b. The construction of such plants creates jobs in the construction sector – when workers are recruited locally, they can strengthen purchasing power in rural areas.
 - c. Maintenance activities create long-term jobs for qualified workers in maintenance companies; these jobs can, in turn, strengthen purchasing power in rural areas.
 - d. If wind power plants are built by investors from outside the agriculture sector, the farm holdings that make their farm land available should receive an appropriate share of the power plant's revenue.
 - e. If wind power plants are built by investors from outside the agriculture sector, the local authorities should also receive an appropriate share of the power plant's revenue.
3. Solar energy
 - a. Photovoltaic power and hot water generation are suitable energy sources for farm holdings in many rural areas of the European Union and should be promoted.

4.6.2 Rural energy plans

- Local energy plans designed to strengthen self-supply of energy could be tied in with agricultural services

4.6.3 Water conservation

1. Water conservation areas
2. Water use plans
3. Recycling of wastewater

5 Green jobs and health and safety

'Green jobs' must provide safe, healthy and suitable working conditions. To this end, they must be beneficial for both the environment and workers.

The creation of new green jobs will entail establishing new occupational safety requirements. It will therefore be necessary to tailor the tried-and-tested tools of occupational safety to these new situations and to develop other new appropriate tools that can meet the new challenges, such as those currently encountered in the waste sector and in the field of new energy technologies.

In particular, this entails further developing operational and occupational risk analysis and providing employers, as well as impacted workers (safety officers, H&S officers and other workers performing similar roles), with appropriate solutions.

In this respect, European and national trade unions are working closely with the Bilbao-based European Occupational Safety and Health Agency (OSHA), as well as with the competent national authorities and bodies (labour inspectorates, employers' liability insurance associations, and trade union safety officers, etc.) with a view to developing such solutions.

We are facing a whole range of problems. According to OSHA in Bilbao, "The speed at which the 'green economy' is expected to grow could lead to skills deficits. As a result, inexperienced workers would be involved in processes for which they have no training, thereby potentially compromising their health and safety. This could also cause a skills divide to develop between workers, as a result of which less highly qualified workers would have to accept poorer working conditions. Lastly, we should not lose sight of the fact that health and safety concerns may be neglected due to economic and political pressures."

A first step towards tackling this issue would be to expand use of OSHA's online interactive risk assessment (OiRA) to jobs in sectors represented by EFFAT.

Developments in these areas must be monitored closely by the social partners. Reports on new developments must be communicated without delay to the European authorities so that measures can be taken to ensure that the health and safety of the impacted workers continue to be subject to the highest standards in the future.

6 Green jobs and vocational qualifications and training

As in the field of health and safety, new activities relating to green jobs will entail new requirements in terms of vocational qualifications and training.

7 Best practices in Member States

7.1 Denmark

In Denmark the agricultural sector is defined as

- Primary agriculture (livestock and plant production)
- Agro-industry (processing of farm products)
- Dairy industry
- Forestry
- Market gardens (production of greenhouse vegetables and flowers)
- Nurseries
- Landscape gardeners

About 50,000 people work in the agricultural sector.

Of these workers, 75% are employed throughout the year, and the remainder work 8-10 months of the year depending on how weather conditions and seasonal changes impact production.

According to official figures approx. 10,000 seasonal workers come to Denmark from other EU countries to help harvest berries and vegetables as well as chop down Christmas trees and cut holiday greenery on Christmas tree farms.

There are also large numbers of unregistered workers, often from non-EU countries, working under insecure forms of employment.

New jobs and activities

The farming sector offers great potential for creating new, long-term jobs, especially in the field of biomass production.

However, innovations in livestock production and market gardening will also open up new job opportunities.

The project “Pigcity” embodies one such innovation in production forms, combining pig production with tomato production and thus utilizing pig slurry to fertilise tomatoes and, conversely, tomato by-products for feed.

This form of production has long-term sustainability if successfully established in a closed system, and as such will also engender new job opportunities.

Agriculture of the future

At the United Federation of Danish Workers, 3F, we envision creating, as in the case of the islands of Bornholm, which is testing a smart-grid system, and Samsø, which is running on renewable energy, a living laboratory on a Danish island, such as Langeland that will exclusively produce sustainable agricultural products and sustainable foods from the Langeland products. As a result, some social clauses have been added to expand on the organic standards, including greater health and safety requirements, requirements stipulating that production meet Danish employment terms, etc. and an obligatory focus on high food quality and safety.

Langeland has been pinpointed as an ideal location for a sustainable testing ground because it has an organic estate, Skovsgaard, and some other organic farms that provide a solid basis for building up the experiment.

Moreover, the island constitutes a clearly demarcated area from which to gather experience that can subsequently be applied to the rest of Denmark.

Initially, the project will help create jobs as well as improve health and safety for workers, as they will not risk exposure to harmful pesticides.

Second generation biomass and other new, alternative products

Second generation biomass holds a vast potential.

BioRefining Alliance has prepared a catalogue outlining opportunities for creating about 30,000 new jobs in the sector.

These jobs will be located in the more remote parts of Denmark since this is where biomass will be produced and collected, as it is today. Statistically, these areas also have high rates of unemployment, a trend that will meld well with the high demand for labour.

Moreover, Denmark can help develop new products in the plastics industry by starting the large-scale production of second generation biomass, thus using biomass-based materials to replace oil-based materials in plastics production. Added to this are other and new products based on biomass or by-products from this production.

In the long run focus on second generation biomass will generate about 30,000 jobs in Denmark.

Combining this focus with biogas plant development, including the use of slurry, energy crops like maize as well as waste in biogas plants, will serve to create a wealth of new jobs.

Aquaculture

Other focus areas should include the farming of aquatic organisms such as algae, seaweed, shellfish and fish.

Production can occur in freshwater or saltwater farms. Initiatives of this kind could generate jobs in both the production and the processing industries. Denmark's exports would also benefit.

According to calculations, Denmark will gain about 150-200 new workplaces.

The forest as a growth area

The forest is another area with great development potential, especially when it comes to afforestation and the use of wood in modern, sustainable housing construction.

This will foster employment in both the forestry and the construction sectors.

The need for education and training

New production methods bring new needs for competency. The agriculture of the future will require more expertise than mere pig farming. A wide range of other competencies will also be needed, including within high technology, product development, resource optimisation and tomato production.

To best equip today's workforce for tomorrow's high-tech production, we have to develop new courses and educations that intermix new and existing subjects in new ways. To this end, we need to analyse the competencies needed for these new production alternatives more closely.

7.2 Germany

Renewable Energy Act (EEG)

The German Renewable Energy Act (EEG), which was adopted in 2000, is regarded as an example of a 'best practice' in terms of creating new jobs and fostering renewable energies. People who generate power from renewable energies can either use this power for their own needs or sell it to the nearest grid operator at guaranteed prices. Through this act, Germany aims to increase the share of renewable energies within the national energy mix to 35% by 2020, 50% by 2030 and 80% by 2050.

The importance of agriculture and rural areas

Currently almost 50% of power financed via the Renewable Energy Act (totalling around 100,000 GWh/year) comes from rural wind power plants, 27% from biomass power plants, 19% from solar power plants and 5% from hydroelectric power plants. This underscores the importance of agriculture and rural areas within Germany's energy transition plans. These energies are an important economic factor for SMEs, which is shown clearly by the fact that around 60% of turnover in the sector is generated by businesses that employ fewer than 250 salaried workers⁷.

Development of 'green job' creation in the renewable energies sector in Germany between 2004 and 2011

In fact, the number of people employed in the renewable energies sector has virtually doubled since 2004. According to the Federal Ministry for the Environment (BMU), the sector employed 160,500 workers in 2004. Four years later this figure had already risen to 278,000. By 2009, this figure had risen by a further eight per cent to 300,500 and stood at 380,000 by 2011.

The German agriculture trade union IG BAU expects to see a further increase in the number of 'green jobs' in the renewable energies sector.

Waste disposal (here: composting)

The example of wet fermentation

In 1984, a family farm holding created the firm Wurzer UMWELT GmbH, which deals in the disposal of green waste. The company now disposes of the green waste of around 500,000 people living in the Munich area and currently employs around 260 staff.

In addition to agriculture and grassland, water and forest management, its other activities include grubbing, road construction, winter services, oil spill clean-up operations, fire damage clean-up operations, biogas and composting, the production of horticultural products from waste, and waste sorting.

The waste sorting plant sorts around 70,000 tonnes of waste per year. The wet composting plant composts around 28,000 tonnes of bio-waste generated by around 500,000 inhabitants in surrounding areas and then converts it into gas in its own biogas plant, which is in turn converted into electricity.

Wind power in rural areas

An example of sustainability within rural local authorities

Over 90% of German wind power plants have been built in rural areas. Involvement of rural local authorities is an important factor in reducing planning impediments and allaying public opposition.

⁷ The Federal Government 2010, www.bundesregierung.de/Content/DE/Artikel/2010/08/2010-08-26-erneuerbare-energien.html

The existing building rules and regulations on distances between sites will, in the future, lead to much closer ties between the wind energy labour market and the local authorities.

The German agriculture trade union IG BAU therefore recommends that investors establish contact with the local authorities at an early stage, via a public meeting for example. The same also applies to local small and medium businesses (construction companies, forestry contractors, farmers, hunting associations, etc.).

Table: Employment effects in the renewable energies sector in Germany in 2011

	Employment generated by investment	Employment generated by maintenance/operational activities	Employment generated by fuel supply	Overall employment 2011	Overall employment 2010	2011 / 2010 expressed as a percentage.
Onshore wind	74,700	17,800		92,500	89,200	+ 3.7
Offshore wind	7,900	700		8,600	6,900	+ 24.6
Photovoltaic	103,300	7,600		110,900	107,800	+ 2.9
Solar thermal	11,500	2,600		14,100	13,100	+ 7.6
Hydroelectric	3,200	4,100		7,300	7,600	- 3.9
Geothermal	10,500	3,700		14,200	13,300	+ 6.8
Biogas	21,900	14,100	14,600	50,600	35,100	+ 44.1
Liquid biomass Stationary applications		1,600	700	2,300	2,900	- 20.7
Biomass Small plants	7,300	15,000	11,500	33,800	36,400	- 7.2
Biomass Heating/ Power plants	1,700	8,600	4,200	14,500	24,500	- 40.8
Biofuels			23,200	23,200	23,100	+ 0.4
Research/ Management				9,600	7,500	+ 28
Total				381,600	367,400	+ 3.86

Source: Federal Ministry for the Environment (BMU) 2012 and own additions

7.3 Austria

Green job creation: joint goals of the Austrian partner trade unions

Green jobs

The jobs of the future are **green jobs**

What are green jobs?

Green jobs include professions such as solar or wind power technicians, biomass specialists, manufacturers of passive houses and thermal insulation materials, manufacturers of hybrid engines, organic farmers, foresters specialising in renewable energies, environmental protection, tourism and many other areas. In our view, **green jobs** are jobs related to the manufacture of **products, technologies** and **services** that **mitigate environmental damage** and **conserve natural resources**.

Training is key to success

Young people are particularly interested in the dynamic and innovative 'environmental' sector.

Austria is setting **training and further education quality standards** for green jobs.

It is working closely with established training institutions in sectors such as solar heat, heat pumps, biomass and climate-friendly construction.

The **Land- und forstwirtschaftliche Bundeslehrlings- und Fachausbildungsstelle**⁸ has developed a **training diploma for skilled workers in the biomass and bioenergy sectors**, which has been greeted with a great deal of enthusiasm. (www.lehrlingsstelle.at). The training, which agriculture and forestry vocational schools and colleges guarantee to provide, also covers professions that require high-level qualifications.

Renewable energies as an employment driver

Energy resource management – i.e. the supply of renewable energies and energy saving activities – accounts for almost 40% of the workforce in the environmental sector and more than half of overall environmental turnover, thus making a key contribution to growth in this sector.

In fact, the **70,000 people** involved in the production and supply of **renewable energies**, the construction of **passive and low-energy houses** and the provision of services such as thermal rehabilitation, have generated a turnover of **16.6 billion euro**.

Other professional fields have registered an increase in the number of green jobs:

- **Soil and groundwater conservation**

This sector includes people employed in **organic farming**, as they help to conserve soil and water through their particularly eco-friendly husbandry. The increasing demand for healthy and high-quality food is helping to create additional green jobs in agriculture.

- **Waste treatment, waste prevention and wastewater treatment**

This sector includes **management of landfill sites and wastewater treatment plants, as well as waste sorting**.

- **Recycling**

This sector includes the recycling of paper, glass and metals.

- **Other environmental activities**

⁸ Translator's footnote: the Austrian Federal Institute for Apprenticeships and Professional Training in Agriculture and Forestry

In areas such as **noise control** (e.g. manufacture of sound absorbers and noise barriers), **air pollution control** and **climate protection** (such as air scrubbers), **environmental monitoring, nature reserves and national parks**, as well as certain public services.

- **Development of ecotourism**

Higher demand for **eco-friendly holidays and leisure activities** could have a significant impact on job creation.

- **Increased use of biomass**

Around half of the renewable energies in Austria are already generated from biomass. Greater use of wood chips, pellets, etc., will secure and create 6,500 green jobs in the long term.

- **Expansion of environmental services**

The services sector (for example, waste or wastewater disposal) currently accounts for the biggest share of green jobs. Increased demand could help to create a further 4,000 jobs.

- **Investment in thermal rehabilitation and heating conversion**

The financing offensive in the field of thermal rehabilitation, amounting to 100 million euro per year, has already helped create 10,500 jobs. By 2020, a total of 35,000 green jobs could potentially have been created.

- **Energy system conversion – renewable energy development**

The Eco-Electricity Act provides the foundation for an ambitious **expansion of green electricity** from hydroelectric power, biogas, biomass, solar and wind energy. This Act will also pave the way for the **expansion of electromobility** and the creation of around 20,000 green jobs.

- **Better public transport**

As part of the 'klima:aktiv' programme, the Ministry of Life is granting subsidies to local authorities and companies that **convert their vehicle fleets to alternative fuels** or purchase electric vehicles. An expanded and improved public transport service will create 15,000 jobs.

- **Measures to create more green jobs**

The Ministry of Life is implementing a series of measures in order to deliver on the promising growth forecasts for the green economy:

- **Over 700 million euro for green jobs**

Currently 700 million euro of public money per year is being made available for measures to promote green jobs. The knock-on effects of the investments are far greater.

- **Environmental and climate protection measures**

In 2011, a total **domestic environmental investment** (UFI) of **90 million euro** was made available for environmental and climate protection measures; 100 million euro has already been made available for thermal rehabilitation. For the period 2012-2014, a further **100 million euro per year** has been earmarked for **thermal rehabilitation**. An additional 150 million euro will be invested from the **Climate and Energy Fund**. The fund subsidises photovoltaic installations, plans for energy self-sufficient regions, low-carbon transport alternatives and climate research projects, amongst other things.

- **Water pollution control**

In this sector, investments are being particularly focused on **wastewater treatment** and **improving water ecology**, such as river restoration.

- **'klima:aktiv' climate protection initiative**

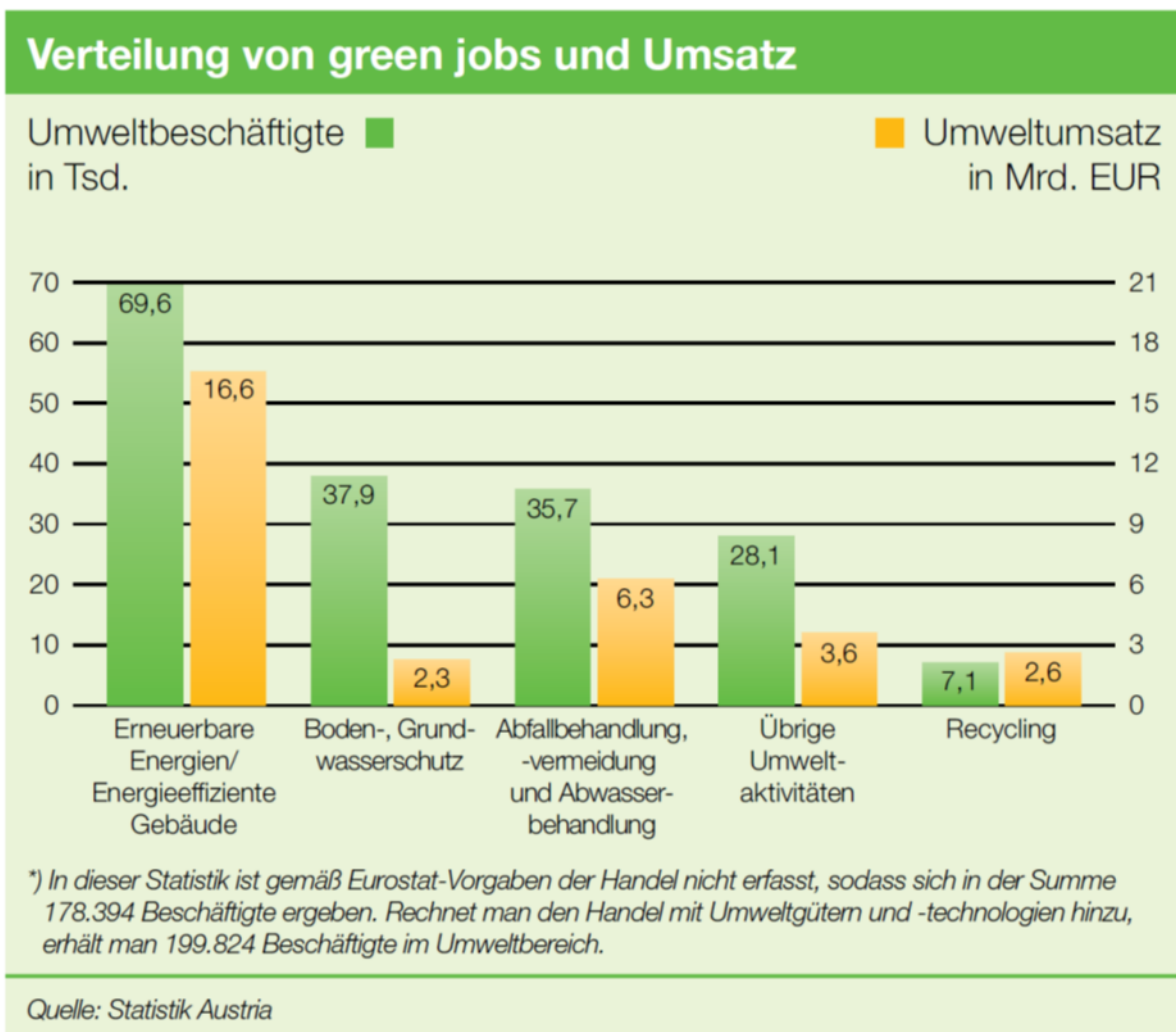
This Ministry of Life initiative is contributing greatly to ensuring that **a significant number of high-quality training and further training opportunities** are being provided in renewable energies, energy efficiency, construction and renovation and alternative forms of mobility.

- **Austrian organic farming**

The funding mainly comprises **subsidies** for this particularly eco- and animal friendly production method, as well as **investment aid** and **consultancy, training and marketing measures**.

These jobs of the future – **green jobs** – must provide working conditions that at least match the standard conditions in industrial and commercial sectors.

Regionality is the future of our country and that of Europe. It is also our strength.



¹ Lt. Eurostat Definition, inkl. Beschäftigten im Handel mit Umweltgütern und -technologien. / Zahlenauswertung für 2009

7.4 France

Green economy and jobs in France

The main impact of the green economy on jobs is felt in traditional sectors of activity. These jobs, known as 'green jobs', must adapt to the green economy. They account for over three million jobs in France, i.e., 11% of total employment, mainly in the construction and transport sectors.

The green professions that help to protect the environment currently only employ 132,000 people. The agricultural sector comprises professions linked to biomass production. These professions are usually highly qualified occupations, such as environmental consultants specialising in agriculture.

Number and breakdown of agricultural workers by sector

The agricultural sector employs 1,215,000 workers, equating to 388,000 FTE (full-time equivalent).

Almost half of paid work is performed in the specialist crops and wine growing sectors: 167,000 FTE, including 120,000 workers on permanent contracts.

42,000 FTE in specialist breeding sectors, including 42,000 workers on permanent contracts and 65,000 FTE in non-specialist breeding and crop sectors, including 60,000 workers on permanent contracts.

The agricultural sector per se therefore employs 209,000 FTE.

The wood sector (forestry, logging and sawmills) employs 24,000 FTE, around half of whom are employed on fixed-term contracts.

Gardening and landscaping businesses governed by private law employ 68,000 FTE, around 45 % of whom are employed on fixed-term contracts.

Agricultural contractors employ 22,000 FTE, a large majority of whom are employed on fixed-term contracts.

Agriculture

In 2013, the current Minister for Agriculture launched the agro-environmental project for France.

This plan is based on six strategies, which are being developed or have recently been presented:

Ecophyto, Ecoantibio, biodiversity and sustainable beekeeping plan, vegetable proteins plan, the future organic farming plan, methanation plan. During the course of 2013, agro-ecology will incorporate further training and primary agricultural education reference frameworks.

Agro-ecology is also set to become a priority research topic for the country's agricultural research institutions: INRA, IRSTEA and CIRAD.

Reduction in inputs

Following the adoption of Directive 2009/128/EC on the sustainable use of pesticides and the national consultation within the framework of the 'Grenelle Environment Forum', France established a general certification system for professionals whose work involves the use of plant protection products.

The 2018 Ecophyto plan comprises a commitment by stakeholders to halve, if possible, their pesticide use at national level.

One of the goals of the plan is to reduce the dependency of agricultural holdings on plant protection products, whilst maintaining a high level of agricultural production.

The principles:

- Awareness-raising and information for users and their consultants
- Guarantee expertise throughout the chain: distributors, consultants and professional users

- Energise agricultural research

Impact on training

Initial vocational training was strengthened in 2008 by incorporating an 'education in sustainable development' strand into the training reference frameworks.

42 agricultural colleges are taking part in an educational experimentation and development network.

The certification system was rolled out on 1 January 2012. The system comprises nine certificates corresponding to the three major professional activities of consultancy, sales and farming, as well as to the tasks performed or the products marketed.

It is divided up into four themes – regulation, prevention of health risks, prevention of environmental risks and strategies designed to limit the use of plant protection products. Training lasts between two and four days. 400,000 farmers and 160,000 workers will have participated by October 2014. So far, 200,000 people have attended these training courses.

The vocational training fund has been fully mobilised to finance the courses.

However, this fund cannot meet all the financing requirements, especially as certification must be renewed every five years.

By 2011, after the plan had been in place for three years, sales of plant protection products had stabilised and the use of small doses of more efficient active substances had increased.

Agricultural consultancy professions affected

In the wake of the adoption of the Grenelle 2 Law in 2011, the scope of the authorisation applicable to plant protection product distributors was expanded to include service providers and consultancy businesses providing advice on their use, regardless of whether they sold the products or not (for example, Chambers of Agriculture and private consultants).

12,000 agricultural consultants working for Chambers of Agriculture and cooperatives are affected.

Below is a good example of a trade union demand that was included in the charter of agricultural cooperatives: decoupling the performance premium paid to consultants/salesmen from the quantity and turnover of products sold.

The forest

An economic challenge

In France, 60 million cubic metres of wood are harvested each year, whereas forest growth amounts to 90 million cubic metres. The result is that the current annual wood shortfall in France amounts to 6.6 billion euro, particularly pulp and furniture wood.

In France, 10.6 million hectares of the total surface area of 15.3 million hectares are privately owned. In some regions, the main problem is the dispersion of landowners. For example, in the department of Dordogne, the 400,000 hectares of wooded land are in the hands of 100,000 owners.

The wood sector is currently experiencing difficulties as a result of the economic crisis, especially in the downstream construction sector, which is being hit particularly hard.

However, experts from the sector firmly believe that the wood sector will come out of the crisis in 2014, particularly as French timber is now being sold in China and the Middle East. New opportunities are starting to appear in the energy sector, where there is a need for wood chips and wood pellets.

An example is the region of Aquitaine, which launched a multi-annual regional forest development plan in 2012. The aim of the plan is to double wood harvests by 2016. Two new forestry technicians have been recruited in Dordogne in order to raise awareness among forest owners.

An environmental challenge

In the long term, global warming and increased summer droughts will lead to a reduction in carbon stocks in biomass and forest soils. In order to increase carbon storage in forests, it will be absolutely vital to adjust tree populations to future climates through reforestation and by increasing logging.

According to a recent study by the EU's Joint Research Centre, burning wood to generate heat or electricity does not have a neutral effect on levels of greenhouse gas emissions in the short and medium term. The increase in emissions is less significant with wood energy systems that use forest waste and clearings. Short-term emissions savings are achievable if the wood is burnt close to the place of harvest.

Need for a public policy

All this will be unachievable, however, unless a fully-fledged forest policy is re-launched. Up until 1998, 120 million plants were planted each year. That figure now stands at 40 million, whereas the figure for Germany is 500 million and one billion in Poland.

France Bois Forêt, a cross-sectoral association that brings together public and private forest owners and managers, is proposing to increase the production of lumber or fuel wood by 13 million cubic metres between now and 2020 (+32 % compared to current wood harvesting levels). This would cost 500 million euro per year (e.g. replanting, opening of forest paths, gearing the sector towards wood chip production).

Potential for job creation

The forest/wood sector currently directly employs 300,000 people (lumberjacks, sawyers, wood processing operators), or 450,000 if we add craftsmen and construction companies.

The forestry lobby is proposing to create a 'Strategic Carbon Fund for the Forestry Sector'(FFSC), which would be topped up by a quarter of the proceeds from greenhouse gas emissions sales, amounting to 250 million euro per year.

France Bois Forêt has pledged to use this money to plant or regenerate 75,000 hectares per year, improve tree populations on 60,000 hectares per year and to create 25,000 jobs. The region of Aquitaine, which was given as an example above, has already established an 'Aquitaine Carbon' fund.

The social situation must be made sustainable

The social conditions in this sector cannot be regarded as sustainable.

Working conditions are very difficult. The risk of occupational accidents, including fatal accidents, is very high. Forest contractors are trying to increase their profit margins by using migrant workers and undeclared work.

In order to achieve sustainability within the sector, collective bargaining agreements must be improved and enforced.

Possible lines of action include stepping up the fight against undeclared work, a stronger TU presence in the sector, and sustainable certification, including the social dimension, for a significant share of the forestland.

Professions and Qualifications

A number of traditional professions, such as logging using horses, are reappearing, which is helping to mitigate the impact on the land.

Organic farming

10,000 holdings are currently practising organic farming. This figure could increase to 50,000 in the medium term. The aim of the 'ambition bio 2017' project is to double the surface area of organic land.

Training, educational programmes and reference frameworks for organic farming must continue to be developed. 250 chambers of agriculture consultants are already specialising in organic farming.

Demand for organic products remains high and outstrips supply at national level.

Some local authorities are supporting agricultural or association-based projects that promote the creation of activities and jobs in the organic farming sector.

Bio-fuels

Developments in the EU's bio-fuels policy since 2005 have enabled several sugar processing plants to convert to bio-ethanol production, while other plants specially geared towards bioethanol production have been built. Several sugar refineries, which are located close to ports as a matter of priority, are involved in such activities. This has enabled European sugar beet producers to recover some of the 800,000 hectares of land lost following the reform. In addition, farms are increasingly using sugar beet to produce biogas for themselves. Overall, it is estimated that, in 2010, some 100,000 hectares of sugar beet production fell outside the sugar regime. However, this amounts to only around 6.9 % of sugar beet land under the sugar regime. Current world cereal prices, however, are not helping to keep contractual sugar beet farming outside the sugar regime (i.e. sugar beet for non-sugar use at a price below the reference price).

The former sugar refinery at Aiserey en Bourgogne is running a pilot 2nd generation biomass bioconversion project.

At its 2009 Congress, the FGA adopted a text supporting sustainable bio-fuel development.

Methanation

The Ministry of Agriculture has recently launched its 'methanation, nitrogen autonomy' plan. The goal is to build 1,000 medium-sized collective agricultural methane units by 2020, compared to the 90 units that currently exist. The agricultural sector has welcomed this plan, but with a certain amount of caution. The points to pay particular attention to are the use of urban sludge, the failure to eliminate nitrogen from the residues, increased intensification of livestock breeding and diverting production away from food towards energy.

The scenario developed by ADEME (the French Environment and Energy Management Agency) foresees the installation of 600 methane units per year.

Each methane unit should create 1/2 FTE.

Future trends

The **Ministry of Agriculture** has piloted a prospective study on future trends in agriculture and the energy transition. This study has resulted in four scenarios (Territorial approach and energy conservation in the face of the crisis – Dual agriculture and energy conservation – Health-oriented agriculture without any significant limitation of energy consumption – Green farming and energy management) and 13 operational objectives. We do not have any data to demonstrate the employment impact of these scenarios.

According to a prospective study of the energy scenarios conducted by **ADEME** in 2012, agriculture could potentially make energy savings of 23% by 2030 and 40% by 2050. It also has the capacity to mitigate its greenhouse gas emissions by 50%. Moreover, agriculture could provide over 30% of the country's energy needs by 2050.

The **NGO Négawatt** conducted a study based on a scenario of energy conservation and the development of renewable energy (biomass, wind, photovoltaic and solar thermal). By comparison with the baseline scenario, this scenario would lead to the creation of 335,000 new jobs in the renewables sector by 2030, bringing the overall total employment in the sector to 535,000.

After taking account of all the production and distribution-related jobs created and destroyed in all energy sectors, the Négawatt scenario points to an increase of 142,000 jobs by 2020, rising to 220,000 by 2030.

The effect of progressively re-injecting the equivalent cost of energy imports into the local economy should lead to the creation of many additional jobs.

Parks and gardens

Sales and consultancy in garden centres

France's gardens cover a surface area of 1 million hectares, i.e. 1 million hectares of natural habitat. 45 % of French people have a garden or an allotment.

An agreement on the use of pesticides by amateur gardeners was signed by the public authorities, plant protection product distributors and amateur gardening associations.

The agreement includes provisions on information and training for distributors and gardeners, such as educational workshops.

The landscape

Reducing, or even completely eliminating all inputs, and green management of green spaces are policies that are supported by many local authorities. For example, the City of Paris has decided to drastically reduce the use of inputs. It is also seeking to increase the amount of vegetation in the city as part of its climate change mitigation measures. One flagship initiative involves planting vegetation on walls and roofs.

However, most of this work is currently carried out by construction companies, which do not possess the requisite expertise. Small, highly specialised landscaping companies operate in luxury niche markets. A green roof charter is being developed by Paris City Council, which will also address biodiversity-related concerns.

These changes in practices mean that professionals from the landscaping sector will have to make cultural and technical changes to the way they work.

Trade Union involvement in national consultation processes

National debates

Sustainable development has been the focus of major national consultation processes bringing together social partners and NGOs: the Grenelle Environment Forum, hearings on the energy transition, biodiversity, an environment conference comprising several workshops, and so on.

A broad consultation on the energy transition is underway.

Sectoral policies

Federations from the agro-food industry have signed up to their relevant sectoral agreements. Working groups will address the issues of organic farming, the green challenge, etc.

Prospective employment and training studies

At the moment, none of our joint employment and training bodies in the agricultural and agro-food sectors have conducted prospective studies on the impact of sustainability and energy transition policies on 'Employment, Professions and Qualifications'.

Raising awareness and informing activists and workers

This study is a useful tool for raising awareness and informing activists and workers.

7.5 Spain

RURAL GREEN JOBS IN SPAIN

1. NUMBER OF WORKERS

According to the Spanish Sustainability Monitoring Centre (OSE), around 530,000 jobs could be regarded as 'green jobs' in 2010.

According to the UNEP/ILO Green Jobs study, which defines the concept of green jobs, a sustainable economy cannot externalise environmental and social costs. The price paid by society for the consequences of pollution or poor health, for example, should be reflected in the market prices. Green jobs should, therefore, constitute decent work.

The studies available do not distinguish between green jobs in urban and rural areas.

When the figures are broken down into jobs created by subsector, the OSE arrives at the following scenario for 2011:

Table: Traditional green jobs in Spain in 2009

Sectors of activity	No. of jobs	% of total
Wastewater treatment	58,264	11.0
Waste management and treatment	140,343	26.4
Renewable energies	109,368	20.6
Forestry management	32,400	6.1
Environmental services for businesses	26,354	5.0
Environmental education	7,871	1.5
Green agriculture and livestock breeding	49,867	9.4
Management of natural areas	10,935	2.1
Green jobs in industry and the services sector	20,004	3.8
Public sector	53,072	10.0
Green R+D+i	21,929	4.1
Tertiary sector	540	0.1
Total	530,947	100

Source: Own statistics, 2009⁹

If the green job calculation includes all sectors related to organic forestry, farming and livestock breeding, as well as management of protected natural areas, the figure rises to almost 100,000 jobs; if, in addition, we add 50% rural employment to the other sectors, we would get a figure of around 300,000 green jobs in the rural sector, where growth in green jobs is faster than in urban areas.

Of this group of sectors, only those related to agriculture and forestry fall under the sectoral remit of the Agro-Food Federation of CCOO and can therefore be influenced by the latter:

According to the Environment Ministry, organic farming accounted for 23,278 jobs in 2000. By 2010, this figure had increased to 49,867 jobs, which equates to an increase of 114% over the past decade.

The forecasts from the sector for the present decade appear to be very promising:

- They predict annual sales growth of 11% in 2012,
- This is not dependent on public demand, but rather on consumer decisions.

For these reasons, it is foreseeable that this production model (based on green jobs) could lead to at least a doubling in green jobs by 2020 despite the economic recession currently affecting Spain.

⁹ http://www.ccoo.es/comunes/recursos/1/doc19288_Informe_sobre_empleos_verdes_del_Observatorio_de_la_Sostenibilidad_de_Espana.pdf (in Spanish)

The summary of the OSE report states that:

'...It can be said that the organic farming and livestock breeding sectors (49,867 jobs, 9.4% of total jobs) are currently expanding significantly. As with renewable energies, organic farming and livestock breeding have significant job creation (or conversion) potential in Spain. Support from European policies, the increasing concern for and awareness of these environmental and health issues among consumers, as well as the huge potential for developments in the processing industry, which could benefit national production capacity but is currently being exported (between 70% and 80% of green production is exported as raw materials), point to a significant margin for green job growth, thus converting this activity into a significant net job creation niche, although this will contribute to the destruction of traditional jobs in the agricultural sector. However, growth in organic farming and demand for local products (due to increasing environmental awareness and a desire to reduce the environmental impact of transport) is contributing considerably to energising the agricultural sector, which, allied with greater use of human capital in green technologies, suggests that employment levels in the agricultural sector will increase as a result of the greening of jobs'.

As regards the forestry sector, the OSE report states that:

The employment situation in the forest management sector (6.1% of employment, 32,400 jobs) has been influenced by the reform of forestry policy, which has led to the development and implementation of new regulatory and management instruments, commitments, strategies and public investment programmes (Spanish Forestry Strategy, Law 43/2003 relating to mountains, Spanish Forestry Plan, etc.). There are currently certain factors at play that are helping to stimulate job creation in this sector.

These include combating climate change (forest fire prevention, reforestation, forestry policies), using forest biomass as a renewable energy source, the launch of rural development strategies, and an increasing demand for certified forest products. However, there are also other factors that are seriously hampering this growth potential: low profitability of forest holdings, high level of seasonal employment, very low level of specialisation among forest companies and a high level of reliance on public investment, which make this sector highly vulnerable to economic cycles.

In the biomass and biogas sector, the branch association AVEBIOM reported a total of 20,120 jobs in 2010 in the field of energy recovery from by-products, a figure that could triple or quadruple over the course of this decade, bringing the total number of jobs in the biomass sector to 75,000 by 2020.

Job creation as a result of renewable energies: the forest biomass and agricultural by-products sectors are becoming increasingly important in terms of job creation in Spain¹⁰:

Technology	2008			2009			2010		
	Direct jobs	Installed MW capacity	Ratio per MW	Direct jobs	Installed MW capacity	Ratio per MW	Direct jobs	Installed MW capacity	Ratio per MW
Wind	22,970	16,323	1.41	21,620	18,811	1.15	17,898	19,700	0.91
Photovoltaic	25,063	3,463	7.24	10,889	3,630	3.00	9,952	3,841	2.59
Solar thermal electric	761	0	N/A	978		N/A	1,810	532	3.40
Hydraulic	1,101	1,981	0.56	1,110	2,014	0.55	1,094	2,027	0.54
Biomass - Biogas	21,238	587	36.18	21,620	665	32.53	20,122	699	28.79

Source: Deloitte and CNE

¹⁰ <http://www.avebiom.org/es/descargas> Contribution of biomass to growth in Spain. June 2012

In order to prevent falling employment levels in the rest of the renewable energies sectors, as has happened over the last three years as a result of the reductions in the premiums for these energies (employment in the photovoltaic sector fell from 25,000 to 9,000 jobs between 2008 and 2010), and furthermore if employment is to increase in this cutting edge sector, it is absolutely essential for the Spanish Government to publish and implement, as quickly as possible, the standards for decentralised power generation, which, without the need for public aid and benefitting from a level playing field on the grid, could generate demand that could not otherwise be sustained by the public sector or with the help of premiums.

2. NEW PROFESSIONS AND ACTIVITIES. GROWTH POTENTIAL

If we limit ourselves to activities directly related to the forestry and agro-food sectors, which are relevant to our agro-food organisation, and which are also generally less dependent on scarce public investments and therefore have a greater growth potential, we can identify two areas and emerging scenarios that have not been envisaged in the OSE studies:

- **Recovery and reuse of by-products**

- o Urban bio-waste. This sub-sector has not yet taken off, and the OSE has not yet conducted a detailed study of this area, as neither the Waste Directive nor the planned Bio-waste Directive have been implemented yet. According to our estimates¹¹, we believe that the goal of 50% bio-treatment of the organic component of municipal waste (FORM in Spanish) by 2020, as required by the Directive, plus the recovery and reuse of a certain share of agricultural, livestock and forest waste, all of which should be sold at a price of roughly €50 per tonne on the green production market, could lead to the creation of no fewer than 30,000 jobs in Spain by 2012.
- o Forest biomass. Deloitte and the National Energy Commission (CNE)¹² have identified the significant job creation potential in the field of energy recovery from biomass: between 36 and 28.7 jobs per installed MW capacity. It should also be noted that most of the jobs are located in rural areas, which contributes to establishing rural populations and to the industrial development of rural areas.

According to the association AVEBIOM, the installation of 350,000 biomass boilers running on local forest by-products could generate over 35,000 permanent and direct jobs in Spain. Other countries, such as Sweden and Finland, generate over 30% of all energy consumed using solid biofuels (chips and pellets). In the case of Sweden, employment in the biomass sector is 2% higher than in the fossil

¹¹ The calculations made by our Federation in the Green Jobs Report drafted by the FOREM Foundation in 2011 produced the following results:

- If 100% of the Organic Component can be composted, Spain could generate around 3 million tonnes of organic fertilisers, taking account only of those generated from SUW¹¹.
- If synthetic fertilisers are to be replaced by organic compost, around 20 million tons of organic fertilisers will be needed.
- Forest waste could provide¹¹ a further one million tonnes, and a similar additional amount could be derived from agricultural, livestock and gardening waste.
- If 23 million tonnes of compost can be produced and marketed at €30/tonne, this would generate a turnover of 690 million euro.
- 23 million tons of compost, at a rate of 1 job per 2,000 tonnes, would equate to 11,500 jobs and 5,700 jobs at a rate of 4,000 tonnes/job.

¹² <http://www.avebiom.org/es/descargas> - [Employment creation recommendations from the bioenergy sector I Bioenergy World Cafe](#). 2011

fuels sector (29%). Biomass substitution – replacing heating oil and natural gas – is one of the biggest green jobs niches in Spain.

One of the main advantages of bioenergy is the number of jobs it creates; studies endorsed by International Bodies and Organisations, such as FAO, AEBIOM, etc., show that, in developed countries, **bioenergy creates 135 direct jobs for every 10,000 inhabitants**, whereas only 9 jobs are created as a result of the use of oil and the misnamed ‘natural’ gas. In other words, for every fossil fuel-related job created, 14 jobs are created as a result of the use of biomass to produce energy. In Spain, 594,000 direct jobs could be created by 2050 thanks to bioenergy, but only if a fully-fledged plan to use bioenergy for domestic heating is ultimately implemented.

Given the drawbacks of having to transport by-products long distances to supply the products derived from urban, agricultural and forest biomass, one of the options in rural areas would be to develop mixed plants that separate biomass based on its potential use as biomaterial for wood chips or for compost.

- **Fruit and vegetable production using short supply chains**

- o **Producers (micro-farmers)**

Using the guidelines applied by the French AMEP model as a basis, the Agro-Food Federation of CCOO ([FEAGRA CC.OO.](#)) is establishing a network of self-employment schools in the agro-environmental field, bringing together groups of consumers in employment centres. In France, this model leads to the creation of 1 job (AWU) per 1.5 hectares. In Spain, the goal is to achieve one job per hectare through the development of consumer groups meeting in employment centres (in order to keep down logistical costs), with a target of 25-30 consumer groups per trained micro-farmer.

There are currently seven micro-farmers operating within the framework of the TREDAR project run by the Agro-Food Federation and a total of 100 consumers. The plan is to increase this figure to 15 producers and 350 consumers in the summer of [2014](#).

- o **Sales agents (small intermediaries, distributors or consumer groups).**

According to calculations made by our own federation based on cases studied in 2012, in 2013, based on average consumption of €500/year per household, and a profit margin of 3-5% for alternative short supply chain commercial systems (online and/or part-time work by associations), one part-time job per 200 consumers could be created.

In Spain, a significant share of jobs related to the management of consumer groups can be regarded as informal, undeclared work or underemployment in the tertiary sector. In Spain, there could well be around 1,000 consumer groups operating with around 300 persons working on part-time contracts. According to the report that we are drafting, this type of self-management of short supply chain consumption is increasing by around 20% year on year.

The explicit aid very soon to be provided by the CAP and the EAFRD to short supply chains may enable flanking policies to be developed for this type of initiative. The strategy adopted by consumer groups operating within short supply chains is to reduce investment and costs in order to be able to optimise income, based on an efficiency-oriented rather than effectiveness-oriented approach. Consumer groups constitute a clear example of this collaborative model within the agro-food sector.

The cost analysis that all productive and commercial processes are being subjected to will probably lead to a remarkable increase in this type of collaborative presumption-oriented strategies (presumption = amalgamation of production and consumption).

In the rural sector, above and beyond the agro-food sector, but closely related to demand in this sector (agro-tourism, catering based on local traditions and local produce, etc.), it is important to highlight the fact that rural tourism increased significantly from 2000-2010, and has experienced a lower fall in demand than in other service activities in Spain. The OSE believes that, by 2020, 45,000 jobs could be linked to rural tourism (hotel and catering), as well as to related activities (educational activities, guided tours, outdoor pursuits).

3. QUANTIFIED SCENARIOS FOR 2020

Based on our federation's experience of green jobs, we would like to highlight the growth potential of three rural sub-sectors that are subject to solvent (and extremely private) demand.

It will only be possible to tap in to their potential if the necessary regulatory adjustments are made, if they are described clearly in the Joint Strategic Frameworks that form part of the Cohesion Funds and if innovation and social entrepreneurship are displayed.

- Recovering and using by-products from urban, agricultural and livestock biomass. Both:
 - o To produce mainly biofuel for heating.
Potential job creation by 2020: 35,000-45,000 jobs
 - o For composting and sale for use in gardening and horticulture (substrates) or organic farming.
Potential job creation by 2020: 30,000-40,000 jobs.Potential job creation by 2020: 65,000-85,000 jobs.

- Organic production of fruit, vegetables and other handicrafts within short supply chains that are run by self-managed consumer groups, thereby reducing the cost of intermediaries and optimising purchase and sales prices.
Potential job creation by 2020: 20,000-40,000 jobs

8 Job creation potential in green sectors of activity in the European Union

Many new jobs could be created in the European Union as a result of innovative approaches in green sectors of activity, thus enabling green sectors to make a significant contribution to achieving the goals of the 'Europe 2020' strategy.


The report does not point to necessary investments, but instead endeavours to estimate the job potential in green sectors.


Sector	Jobs per % of growth	EU job creation potential as a result of investment	EU job creation potential as a result of maintenance /operational activities	EU job creation potential as a whole
Wet fermentation (German model)	2,600	44,000	190,000	234,000
Green composting (Spanish model)	3,500			270,000
Biogas from agriculture	3,500			315,000
Aquaculture	2,500			195,000
Wind power generation in rural areas	7,000	404,800	101,200	506,000
Organic farming	4,500			400,000
Heat generation from animal sheds	300			20,000
Agricultural solar power plants	3,000			200,000
Biomass combined heat and power plants	1,250			84,000
Hydroelectric power plants				
Total job creation potential				2,034,000


9 EFFAT action plan

This action plan is broken down into five stages. The action plan is designed to implement the ideas put forward in this brochure and enhance the trade unions' capacity to act.

 Inform				
Topics	Responsibility	Means		
Identify potential Collect examples	National and European trade union and employers' federations	Meeting with colleagues interested in the topic Meeting with Employers' Federation		

 Mobilise				
Topics	Responsibility	Means		
Informing members and own newsletters	National and European trade union and employers' federations	Establishing timetables and budgets		

 Involve				
Topics	Responsibility	Means		
Identify partners and call on them to join the campaign	National and European trade union and employers' federations	Planning meetings and taking account of different positions and interests		

 Act				
Topics	Responsibility	Means		
Formulate stakeholder demands	All stakeholders	Developing a joint position among partners		
Set up dialogue with politicians and administrations		(Public?) event in the presence of politicians and administrations		
Visit and present examples of 'best practices'				

 Assess				
Topics	Responsibility	Means		
Present the campaign results	National and European trade union and employers' federations	Press conference and reports in trade union newsletters Report to Sectoral Social Dialogue Committee		

10 Green jobs checklist

This checklist is just a rough guide designed to help gauge the authenticity of a ‘green job’. The relevant criteria for assessing green jobs always stem from national, regional, local and sector-specific practices, which cannot be adequately reflected in such a checklist.

If you have any suggestions for improving the checklist, please send an email to:

agriculture@effat.org

25 criteria for green jobs

No.	Criteria	Yes	No
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Basic in-company issues

1	Basic worker rights are observed within the company		
2	Workers are paid at least the minimum wage		
3	Workers can choose a workers’ representative or a company union		
4	Trade union is present in the company or is known to the workers		

Working hours

5	Statutory provisions or provisions laid down in collective bargaining agreements relating to working hours are observed		
6	Working hours are set in consultation with the workers and/or the company’s worker representatives		

Labour protection

7	Workers are familiar with the company’s occupational health and safety measures		
8	Workers are informed about the risk assessments		
9	Workers are familiar with the company’s internal work rules		
10	Workers are familiar with the company’s fire prevention system		
11	Workers are familiar with the company’s rescue chain (immediate urgency measures – emergency call – first aid – rescue service – doctor/hospital) and can activate the chain in the event of an emergency		

In-company further training

12	Workers can regularly attend training courses		
13	Further training is promoted and funded by the company		
14	Young workers are given in-company training (where possible)		

Equal treatment and inclusion

15	Female workers are treated equally		
16	Young workers are encouraged		
17	Older workers are given working opportunities that are adapted to their situation		
18	Disadvantaged workers are encouraged and made to feel welcome		

Worker participation

19	Workers are consulted when new company goals are set		
20	Contributions from workers are welcomed		
21	Workers are informed about the company's goals		

Environmental protection

22	Workers are informed about the desired environmental effects		
23	Workers are encouraged to point out environmental impacts in the workplace		
24	Workers are informed about environmental protection measures taken by their company		
25	Suggestions from workers about how to achieve more eco-friendly production processes are valued		

11 Project participants

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¹³ The participants from GEOPA-COPA – its President Chris **BOTTERMAN** and Secretary Federica **ZOLLA** – point out that their participation does not signify that the results of the project will be endorsed by GEOPA-COPA

¹⁴ See previous footnote

