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**POLICY INSTRUMENTS TO SUPPORT GREEN GROWTH IN AGRICULTURE - ANNEX**

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## TABLE OF CONTENTS

POLICY INSTRUMENTS TO SUPPORT GREEN GROWTH IN AGRICULTURE – ANNEX .....	4
AUSTRALIA .....	4
Caring for our Country .....	4
Carbon Farming Initiative.....	4
Clean Energy Future Plan.....	6
The Rural Research and Development Corporation Model.....	8
National Enabling Technologies Strategy .....	8
Landcare .....	9
AUSTRIA.....	9
The Resource Efficiency Action Plan.....	9
BELGIUM.....	10
Federal Authorities .....	10
Flemish Region.....	10
Walloon Region.....	11
Brussels Capital Region.....	12
CANADA.....	13
Renewable energy.....	16
CZECH REPUBLIC .....	16
DENMARK.....	16
Green Growth Strategy .....	16
ESTONIA.....	19
EUROPEAN COMMISSION .....	19
The European Innovation Partnerships (EIP) on Agricultural Productivity and Sustainability .....	21
FINLAND .....	22
Renewable energy - Biogas .....	22
FRANCE .....	23
The programme Produisons Autrement (Let's Produce Differently) and the “Agro-ecological project for France” .....	23
Energy Performance Plan (PPE) for Farms .....	23
Grenelle de l’Environnement and ECOPHYTO plan on pesticides .....	24
Environmental certification for farms.....	26
GREECE .....	26
The Integrated Management System in agricultural production.....	27
Green infrastructure and efficient resource use (smart irrigation system).....	28
Renewable energy.....	28
Water use efficiency in agriculture.....	28
IRELAND .....	29
Food Harvest 2020.....	29
Origin Green .....	29
Rainwater Harvesting Scheme.....	30
JAPAN .....	30
The Strategy for the Rebirth of Japan.....	32

Basic Promotion Plan for Biomass Utilisation .....	32
KOREA .....	33
Low-Carbon Green Growth Strategy.....	33
MEXICO .....	35
The Sustainability of Natural Resources Programme.....	35
National Strategy for Climate Change.....	35
NEW ZEALAND .....	37
Primary Growth Partnership (PGP).....	37
Sustainable Farming Fund (SFF).....	37
Emissions Trading Scheme (ETS).....	38
Sustainable Land Management and Climate Change Plan of Action (SLMACC) .....	40
Pastoral Greenhouse Gas Research Consortium (PGGRC).....	40
Irrigation Acceleration Fund (IAF).....	40
THE NETHERLANDS .....	41
Sustainability Agenda.....	41
Green Deals .....	41
Incentive renewable energy .....	42
The Dutch Enterprise Policy – Top-sector approach.....	42
Long-Term Agreements (LTAs) on energy efficiency in the Netherlands.....	43
Clean and Efficient Programme.....	43
NORWAY .....	45
SLOVAK REPUBLIC .....	46
SWEDEN .....	46
Vision for the Green Sector 2008-12 - “Using resources without using them up” .....	46
SWITZERLAND .....	47
Action Plan on the Green Economy .....	47
Sustainable use of agricultural resources.....	48
TURKEY.....	48
National Climate Change Action Plan (NCCAP).....	48
UNITED KINGDOM.....	50
The Green Food Project.....	50
Advice and Incentives for Farmers Project.....	50
Reducing emissions and waste in food chains.....	50
UNITED STATES .....	51
Renewable energy policies related to agriculture .....	51
Environmental Protection Agency (EPA) - Renewable Fuel Standard (RFS).....	51
Department of Agriculture (USDA) .....	52
Department of Energy.....	57
Internal Revenue Service.....	57
BIBLIOGRAPHY .....	58

## POLICY INSTRUMENTS TO SUPPORT GREEN GROWTH IN AGRICULTURE – ANNEX

### AUSTRALIA

#### *Caring for our Country*

1. The *Caring for our Country* initiative, which came into force in 2008, is one of several government initiatives seeking to improve the protection and restoration of land and seascape functions. It supports projects that increase the capacity of farmers to adopt sustainable practices through monitoring, information development, demonstration sites and piloting innovative practices. Over the next phase of the initiative (2013-18), a further AUD 2 billion will be provided by the government to continue its focus on protecting ecosystems and biodiversity, particularly through improving integration and planning across the different sectors involved in natural resource management.

2. The strategic objectives will be focused under two streams – a *sustainable environment stream* and a *sustainable agriculture stream*. The sustainable environment stream will complement investments in biodiverse carbon plantings and water planning, and continue to contribute to the National Reserve System, by focusing on Indigenous Protected Areas and marine reserves. This will not exclude contributing to the recovery of threatened species. The sustainable agriculture stream will focus on increasing the sustainability of agricultural production and recognise the contribution made by communities towards managing and improving these landscapes.

3. A range of different funding mechanisms is used to encourage landholders to adopt sustainable land management practices to build farm productivity and improve the quality of ecosystem services delivered to the broader community from their land, whilst building their resilience to climate change. Supported activities include pilots, demonstrations, and trials to adapt practices and systems to regional conditions, the development of industry guidelines and codes of practice, and the dissemination of information through extension activities, including training, workshops, demonstration sites and field days. Moreover, in the area of R&D, a unique form of collaboration exists between the Australian government and industry through Research and Development Corporations, which work to increase resource-use efficiency and productivity in the agricultural sector.

4. Monitoring undertaken over the first five years of *Caring for our Country* has shown that farmers have adopted many of the practices that will contribute to better production outcomes, build resilience to climate change and provide community benefits by improving the quality of ecosystem services from agricultural lands. The practice changes that have occurred are improving soil condition, mainly by reducing wind and water erosion. Over the next five years *Caring for our Country* will focus on food security, managing natural resources sustainably and address key threats that impact on agricultural production such as weeds and pest animals.

#### *Climate change policies*

#### *Carbon Farming Initiative*

5. Australia's *Carbon Farming Initiative* (CFI) is a voluntary carbon offset scheme designed and implemented by the Australian government. It is a market-based mechanism designed to will support green growth in Australian agriculture by encouraging activities that reduce greenhouse gas (GHG) emissions while improving production efficiency and sustainable resource use in agriculture. The CFI allows land

holders and managers to generate and sell carbon credits by undertaking projects that reduce GHG emissions, or to sequester carbon from the atmosphere in vegetation and soil. These credits can be sold into domestic and international carbon markets, providing an additional and diversified source of income for agricultural producers.

6. Potential participants in the CFI include farmers, landholders, community groups, businesses and local governments. Farmers, landholders, community groups and local governments will be able to carry out activities that generate carbon offsets. Businesses, such as agents or carbon trading companies, may assist those wishing to carry out projects to participate in the scheme.

7. The CFI covers a range of land sector abatement activities including the reduction of methane emissions from livestock, manure management or rice cultivation; changes to the burning regimes of savannas and grasslands; reduction of nitrous oxide emissions through more efficient farm and fertiliser management practices; and the sequestration of carbon in vegetation and soils. Examples of potential CFI activities, including additional green growth benefits from these activities, are described below.

- Management practices to reduce methane emissions in the beef and dairy industries may lead to improvements in production efficiency, in addition to achieving abatement outcomes. For example, optimising cattle breeding and stocking rates, achieving faster turn-off of sale cattle or improving the quality of diet can increase production efficiency in beef and dairy systems.
- Management practices to reduce GHG emissions from savannah fires could lead to biodiversity benefits and new employment and economic opportunities for indigenous land managers. For example, carrying out controlled burning earlier in the dry season reduces the severity of fires and increases habitat diversity in savanna landscapes.
- Management practices to reduce GHG emissions from manure in intensive livestock installations can result in reduced input costs for businesses. For example, the capture and flaring of methane emissions from piggery manure ponds can be used to produce heat and electricity.
- Management practices to reduce nitrous oxide emissions associated with nitrogen fertilisers may improve production efficiency. For example, lowering fertiliser use by synchronising the application of fertilisers with plant needs, or by using lower-emission nitrogen-inhibitor fertilisers can result in the same level of plant growth as that associated with higher fertiliser inputs.
- Management practices to increase carbon stored in vegetation and soils can lead to a range of production and environmental benefits. For example, integrating trees into agricultural systems can improve water quality, protect soils, prevent erosion and increase habitat, while also protecting livestock from wind and heat and thereby potentially increasing survival rates and increasing milk, wool and meat production.

8. The CFI will provide important benefits for landholders, regional communities and the environment. First, the CFI will help Australia meet its international obligations to reduce its GHG emissions under the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. Second, the scheme will create incentives for people to invest in land sector abatement projects and provide land holders with an additional and diversified source of income. Third, the CFI will help land holders to adopt management practices that will improve their ability to adapt to the impacts of climate change. Fourth, the CFI has the potential to protect biodiversity, improve natural resource management and support regional communities.

9. In order to participate in the CFI, land holders and indigenous land managers must use an approved methodology. This ensures that projects satisfy internationally recognised offset integrity standards, such as additionality and permanence. Moreover, estimation methods must be consistent with the methods applied in compiling Australia's National Greenhouse Accounts for reporting under the UNFCCC. Methodologies are assessed by an independent committee of experts, the Domestic Offsets Integrity Committee (DOIC). The DOIC brings a range of experience to these assessments, including expertise in science, technology, law, methodology development and greenhouse gas measurement approaches.

10. To be approved for use under the CFI, an offset methodology must contain: i) a description of the abatement activities, GHGs, and sources and sinks affected by a project; ii) procedures for determining the baseline GHG emissions and storage for the project, against which project abatement will be estimated; iii) procedures for identifying any GHG effects of the project outside of its boundary; and iv) procedures for measuring and monitoring project emissions.

11. The CFI has provisions to exclude activities that have the potential to negatively impact the availability of water, biodiversity conservation, employment or local communities. This will help ensure that abatement is achieved in a way that protects Australia's natural environment and improves resilience of the agriculture sector to the impacts of climate change.

12. Announcement of the CFI in 2010 included the introduction of two programmes to support participation in the scheme:

- A CFI *Communications* programme is investing AUD 4 million from 2011-12 to 2013-14 to provide farmers and other land managers with credible, clear and consistent information on the CFI. The programme includes targeted grants to each of Australia's 56 Natural Resource Management regions to assist stakeholders in identifying how they can participate in and benefit from the opportunities created by the CFI.
- A *Biochar Capacity Building* programme is investing AUD 2 million between the periods 2011-12 to 2013-14 to investigate how biochar mitigates greenhouse gas emissions, demonstrate the use of integrated biochar systems on-farm and facilitate the development of biochar offset methodologies to enable land managers to participate in domestic and international carbon markets through the CFI.

### ***Clean Energy Future Plan***

13. The *Clean Energy Future Plan*, announced by the Australian government in 2011, is a major economic reform which entails a range of measures aimed at reducing the nation's GHG emissions and supporting businesses transition to a low emissions path. In order to achieve the set target of reducing emissions by 5% by 2020 – compared with 2000 levels – the following four broad policy approaches were established: a carbon pricing mechanism; investment in renewable energy; support for energy efficiency improvements; and investment to drive abatement in the land sector.

14. The carbon pricing mechanism requires companies that emit over a threshold of 25 000 tonnes of carbon dioxide equivalent per year to pay for their emissions from 1 July 2012. This price is fixed at AUD 23 per tonne (rising at a rate of 2.5% per year) between 1 July 2012 and 30 June 2015. From 1 July 2015, this will transition to an emissions trading scheme with a fully flexible price. Kyoto-compliant offsets created under the CFI can be purchased by liable companies under the carbon pricing mechanism. In addition, the Australian government and the European Commission have announced the linking of the

Australian and European carbon markets and, as from 1 July 2015, liable Australian companies will be obliged to meet half of their liabilities under the carbon price mechanism using European compliance units.

15. The AUD 1.7 billion *Land Sector Package* will support participation in the CFI while assisting the agricultural sector to increase production efficiency and protect food production into the future. Land Sector Package measures are funded through revenue from the carbon price mechanism and include the following programmes:

- The *Carbon Farming Initiative non-Kyoto Carbon Fund* provides AUD 250 million, commencing in mid-2013, to support the uptake of abatement activities that are not counted towards Australia's emissions targets under current international carbon accounting rules – for example, feral animal management and cropland and grazing land management. The CFI non-Kyoto carbon fund will be administered by the Department of Climate Change and Energy Efficiency.
- The *Indigenous Carbon Farming Fund* provides AUD 22.3 million to encourage indigenous Australians to benefit from carbon farming. This fund includes two main streams:
  - A *Research and Development* stream, delivered by the Department of Climate Change and Energy Efficiency, which provides AUD 5.2 million over five years for research and reporting tools for CFI methodologies. This funding is directed towards low-cost methodologies likely to have a high participation of the indigenous population.
  - A *Capacity Building and Business Support* stream (AUD 17.1 million over five years) to assist indigenous organisations and individuals assess, establish or participate in CFI projects. This stream will be delivered by the Department of Sustainability, Environment, Water, Population and Communities. The fund will provide support for indigenous organisations and individuals to access carbon farming specialists, business development expertise and legal advice for developing governance and contractual arrangements for carbon farming projects.
- The *Carbon Farming Futures Program* will provide AUD 429 million to help farmers and other land holders to benefit from economic opportunities provided by the CFI, while assisting Australia in achieving its emissions reduction targets. This programme includes five elements: i) AUD 201 million to fund research into new technologies and practices to enable land managers to reduce emissions and store soil carbon; ii) AUD 99 million to assist industry and farming groups to trial and apply research outcomes in real farming situations; iii) AUD 20 million to convert research into estimation methodologies for use in the CFI; iv) AUD 64 million to provide information, support and an extension network to help farmers take action on the land; and v) AUD 45 in the form of a Refundable Tax Offset (RTO) to provide support to the uptake of conservation tillage practices.
- The *Carbon Farming Skills* programme will provide AUD 4 million in funding, over five years, to train and accredit key CFI-related service providers and ensure land holders have access to credible, high-quality advice and services.
- The *Regional Natural Resource Management Planning for Climate Change Fund* of AUD 44 million over five years to support regional natural resource management (NRM) organisations to incorporate climate change mitigation and adaptation components into existing regional NRM plans.

- The *Biodiversity Fund* will provide funding of AUD 946 million over six years to support projects that establish, restore, protect or manage biodiverse carbon stores.

### ***The Rural Research and Development Corporation Model***

16. Australia's R&D Corporation (RDC) model is unique to Australia and is a partnership between the Australian government and the agriculture, forestry and fishery industries. This rather complex model was created in 1989 and, since then, has remained largely unchanged. It commissions and manages targeted research, and fosters uptake and adoption of technology based on the identified needs and priorities of both industry and the Australian Government. Agricultural R&D is funded on a competitive basis amongst public and private stakeholders using funds from levies on production and matching Commonwealth grants. R&D funding can be targeted either to production (on-farm) or processing (off-farm) issues and is expected to fund portfolios of projects that have a mix of both public good and private industry good components.

17. Under this co-investment model, industry (particularly individual farm businesses) agrees to finance R&D. Once agreement is reached from the majority of farmers – who will have to pay a levy – the industry submits a proposal to the government to mandate, through legislation, that these levies should be paid by all relevant businesses in the sector. Such a mandate ensures that every producer makes a contribution to R&D consistent with their size and production levels, thereby avoiding some of the free-rider issues that a voluntary system may pose. Once private industry voluntarily agrees that the government should issue a mandate, it becomes a statutory responsibility for producers to pay their contribution.

18. Once the mandate is issued, government and industry collaboratively determine priorities for R&D, based on the industry's strategic plans. When the government collects levy funds from producers, it provides these funds to the relevant RDCs along with matching funds up to a limit of 0.5% of each industry's gross value of production.

19. There are 15 RDCs under this system, representing all of the major sectors of commodity production in Australia. One of the largest is the Grain Research and Development Corporation, which is the recipient of levy funding from 25 different sources.

20. Overall, the RDC model allows for a targeted approach to R&D fund allocation by industry, where those funds are a mixture of government and industry contributions. A major challenge is to get the balance just right – to ensure the correct incentives are in place to encourage the private sector to continue to invest in R&D, while ensuring that key public good concerns are also addressed by relevant R&D.

### ***National Enabling Technologies Strategy***

21. The Strategy, which was established in the 2009-10 federal budget, provides a framework to support the development of enabling technologies, such as nanotechnology, biotechnology and other emerging technologies. The Strategy is a partnership between the Federal, State and Territory governments, agencies and a wide range of stakeholders.

22. With funding of AUD 38.2 million over four years, its aim is to improve the management and regulation of biotechnology and nanotechnology in order to help Australian industries capitalise on growth opportunities and ensure that the country can benefit from enabling technologies, while making sure that processes are in place to identify, monitor and mitigate any associated risks.

23. More specifically, the expected outcomes of the Strategy entail: timely and accurate information that informs policy makers' decisions on the impacts, opportunities and challenges of enabling

technologies, with a particular focus on policy co-ordination and coherence of government responses; increased competitiveness through uptake of nanotechnology-based products, processes and services; effective regulatory frameworks that manage the impacts of enabling technologies on public health, safety and the environment but do not unreasonably inhibit or prohibit uptake of technologies; effective regulation and improved industry use of enabling technologies, through world-class bio-metrology and nano-metrology capability; and public confidence in enabling technology products and services through better understanding of their risks and benefits, and how these are managed; and an understanding amongst government, researchers and industry of public concerns with regard to enabling technologies.

24. The Strategy also aims to assist government, researchers, industry and other stakeholders to prepare for the advent of new technologies by undertaking foresighting activities and supporting the development of policy and regulatory frameworks. Towards this end, an Expert Forum has been established to assess future challenges and opportunities arising from enabling technologies.

### ***Landcare***

25. Landcare is a community-based approach that has played an important role in raising awareness, influencing farming and land management practices and delivering environmental outcomes across Australian landscapes for many years. Landcare has over 20 years of experience in bringing communities and governments together to promote the Landcare ethic and support the sustainable management of natural resources. There are approximately 6000 Landcare, Coastcare and other community-based groups working on environmental projects in their local communities.

26. The Australian Government supports the Landcare ethic and the Landcare movement through its *Caring for our Country* programme (see above). The Government has invested more than AUD 2 billion over five years (2008-13) in order to achieve measurable improvements to the nation's environment. Grants have been made available to Landcare and other community groups, regional natural resource management bodies, indigenous organisations and various other organisations to identify and promote best-practice sustainable agriculture and to undertake works on-ground designed to protect and enhance the natural environment. Support, through the *Caring for our Country – Landcare stream*, of over AUD 180 million also provides support to Landcare through initiatives such as Regional Landcare Facilitators, a National Landcare Facilitator, Landcare Australia Limited (the corporate arm of Landcare), the Australian Landcare Council (the ministerial advisory body), and national and state Landcare conferences and awards for promoting the adoption of best practices.

27. Australians have pioneered, developed and refined the Landcare model over the past two decades. Initiatives such as tax deductions for farmers undertaking Landcare further encourage the uptake of the Landcare ethic and practices. Landcare has developed both nationally and internationally and has now been adopted in over 21 countries, overseas.

## **AUSTRIA**

### ***The Resource Efficiency Action Plan***

28. The *Resource Efficiency Action Plan* (REAP) was published in early 2012 by the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management.<sup>1</sup> It is an on-going process

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1.

[www.lebensministerium.at/umwelt/nachhaltigkeit/ressourceneffizienz/aktionsplan\\_ressourceneffizienz/aktionsplan.html](http://www.lebensministerium.at/umwelt/nachhaltigkeit/ressourceneffizienz/aktionsplan_ressourceneffizienz/aktionsplan.html)

and entails a multi-stakeholder partnership approach to achieving increased resource efficiency in Austria. Its overall objectives are to reduce the environmental impacts of resource consumption, to create new markets, export opportunities and green jobs and to support the economy and industry in designing innovative and sustainable technologies, products and services.

29. The REAP provides an analysis of recent resource efficiency trends and sets medium- and long-term national targets for increased resource efficiency. By 2020, resource consumption should be fully decoupled from economy growth, and resource efficiency should be increased by at least 50%, compared with 2008 levels. As a long-term goal (2050) has been set to accomplish a 4/10 gain in resource efficiency. In order to achieve these medium- and long-term goals, REAP includes a short-term implementation programme (2012-13) which focuses on four main “action fields”: i) resource-efficient production; ii) public procurement; iii) a closed loop economy; and iv) raising awareness, in particular, identifying specific measures of sustainable consumption and production, and identifying measures of the cascading use of natural resources.

## BELGIUM

### *Federal Authorities*

30. As reflected in the 2011 Federal Government Agreement, the federal authorities fully support the greening of the economy and of the agro-food industry, although there is no specific green growth strategy in place for the agro-food sector. The Federal Authorities also strongly encourage the industry to integrate sustainable development into their activities, on a voluntary basis. In this context, the Belgian Food Industry Federation published in 2011 its first “sustainability report” for the agro-food industry in Belgium.<sup>2</sup> The future *Federal Plan for Sustainable Development* will be elaborated on the basis of the objectives of the future “long-term vision” (under negotiation at the Federal Parliament).<sup>3</sup>

### *Flemish Region*

31. There is no specific “green growth” policy for the agro-food sector, although, under the current coalition agreement (2009-14), such policy forms part of sustainable development, which is the principal guiding policy of the Flemish Government. More specifically, the Government is pursuing policies aimed at achieving sustainability in various socio-economic areas, including the following: sustainable business processes; sustainable materials within the Flemish administration; establishment of a science policy aimed at sustainable employment creation and the greening of the economy; infrastructure durability and the promotion of public transport; the creation of sustainable spatial development; establishing a sustainable consumption pattern for agricultural and fisheries production and the development of the sustainable re-development of the fishing fleet; the use of sustainably produced timber.

32. In addition to the policy measures undertaken in the context of the EU CAP, the following initiatives will be undertaken: i) the *Flemish Sustainable Development Strategy* (2010-14), which provides a reference framework and ensures a long-term vision (2050) of the Flemish economy.<sup>4</sup> The *New Food Frontier* is a Flemish network established in 2011, involved in a search for a more sustainable agriculture and food system ([www.thenewfoodfrontier.be](http://www.thenewfoodfrontier.be)); ii) A *New Industrial Policy* White Paper was approved in

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2. [www.fevia.be/#ref=publication&val=44590](http://www.fevia.be/#ref=publication&val=44590)

3. [www.ciddd.be/FR/publications/plans\\_federaux](http://www.ciddd.be/FR/publications/plans_federaux)

4. <http://do.vlaanderen.be/beleid/vlaams-beleid/vlaamse-strategie-duurzame-ontwikkeling>

May 2011 with 50 actions under four policy pillars, to foster system innovations:<sup>5</sup> within this framework a *Round Table on Agro-food and Innovation Platform in the Agro-food* will be established. In 2011, an agreement between the Flemish Government and the food sector was signed with specific objectives and appointments to further green the sector, including a joint feasibility study of a CO<sub>2</sub>- water- and waste-neutral food-processing industry by 2030.<sup>6</sup> iii) An *Action Plan-Flemish Materials* programme was set up in 2011, which also entails a shift towards a bio-based economy, with the agro-food sector being one of its levers ([www.vlaamsmaterialenprogramma.be](http://www.vlaamsmaterialenprogramma.be)). An interdepartmental working group has also been established to prepare this strategy. iv) The agro-food sector is eligible for financial support in almost all economic programmes, including the “ecology premium”, the “investment support for the agro-food sector”, and support for research and innovation in the agricultural sector.<sup>7</sup>

33. Within the sustainable production and consumption theme of the Flemish Government’s environmental policy plan for 2011-15, different actions to foster the greening of agriculture and food industry are envisaged, including the issue of food waste.<sup>8</sup> Moreover, in the context of the Flemish climate change mitigation policy, the 2006-12 Flemish Climate Policy Plan includes several measures relating to agriculture: promoting a fuel switch to natural gas and other sustainable energy sources (biomass, heat, solar energy) in greenhouse horticulture; supporting the rational use of energy and energy-saving investments in agriculture; creating an energy knowledge centre for agriculture; and stimulating the production of energy crops for renewable energy.<sup>9</sup> A progress report that gives an account of the state of affairs of Flemish climate policy is produced annually.

### **Walloon Region**

34. The green economy is part of Wallonia’s Development Strategy. The *Priority Action Plan for the Future of Wallonia* – better known as the *Marshall Plan 2. Green* – will allocate, for the period 2010-14, over EUR 1.6 billion to six priority areas (i.e. human capital; competitiveness clusters and business networks; scientific research; creating businesses and quality jobs; employment-environment alliances; and combining employment and social well-being). For each priority area, quantified objectives have been defined.

35. Second priority area of the *Marshall Plan 2 Green* (“competitiveness cluster and business networks”) aims at implementing an industrial policy based on networking for five economic areas: life sciences; agri-business; mechanical engineering; transport logistics; aeronautics-space. Each cluster brings together companies (of all sizes), training centres and research units. These different bodies sign partnership agreements and establish innovative projects, creating businesses and jobs.

36. The goals of the “Agro-Industry Competitiveness Cluster” involve improving competition between companies in the food industry, and boosting business and employment in the sector by: bringing manufacturers together; developing the spirit of innovation with products and technology whose qualities

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5. [www.vlaanderen.be/nl/publicaties/detail/white-paper-a-new-industrial-policy-for-flanders](http://www.vlaanderen.be/nl/publicaties/detail/white-paper-a-new-industrial-policy-for-flanders).

6. [www.lne.be/doelgroepen/bedrijven/doelgroep-voeding/doelgroepprogramma-vlaamse-voedingsnijverheid/#DGP\\_2011\\_2016](http://www.lne.be/doelgroepen/bedrijven/doelgroep-voeding/doelgroepprogramma-vlaamse-voedingsnijverheid/#DGP_2011_2016)

7. <http://agentschapondernemen.be/download/file/fid/22569>;  
<http://lv.vlaanderen.be/nlapps/docs/default.asp?id=1847>;  
<http://lv.vlaanderen.be/nlapps/docs/default.asp?id=1848>.

8. <http://lv.vlaanderen.be/nlapps/docs/default.asp?id=2647>;  
<http://lv.vlaanderen.be/nlapps/docs/default.asp?id=2812>.

9. [www.lne.be/themas/klimaatverandering/vlaams-klimaatbeleidsplan-2006-2012/flemish-climate-policy-plan-2006-2012/070124\\_english\\_version\\_versie\\_website.pdf](http://www.lne.be/themas/klimaatverandering/vlaams-klimaatbeleidsplan-2006-2012/flemish-climate-policy-plan-2006-2012/070124_english_version_versie_website.pdf)

meet the needs of the customer and the market; improving the profitability of networks by encouraging people to work together and nurture sustainability; and increasing production capacity and the size of businesses by enhancing their place in growing markets and extending their sales skills and capacities (<http://clusters.wallonie.be/wagralim/en/index.html>). To achieve these goals, manufacturers in the sector have defined four priority development areas which are: health foods; innovative production and conservation technology; bio-packaging; and the development of durable food industry networks.

37. The *Regional Policy Declaration* for 2009-14, entitled “A shared energy for a sustainable, human and more solid society”, expresses the intention of promoting sustainable development for all policies. One of its chapters explicitly refers to agriculture.<sup>10</sup>

38. The 2007 *Air-Climate Plan* of the Walloon region gathers 100 concrete measures to tackle the climatic challenges and to improve air quality. One chapter is dedicated to agriculture and forestry.<sup>11</sup> It enumerates practical actions that Wallonia plans to implement to favour the development of agriculture while combating climate change and air pollution.

39. Wallonia supports the development of the organic sector (namely by providing financial support to the BioForum, which represents/supports companies working in the organic agricultural and food sector and which informs consumers on the surplus value of organic agriculture and food). A new strategy plan for the development of the organic sector for the 2020 horizon is currently being analysed by the Walloon Government. Wallonia also supports “Quality Product Differentiation” in agriculture. This system defines new sets of criteria (positive energetic balance of farms, for instance) to differentiate some products from their “standard” counterparts. The Walloon Rural Development Programme 2007-13 includes measures (“modernisation of agricultural holdings”, “increase in added value of agricultural products”, “creation and development of micro-enterprises”) that will promote green growth by granting subsidies to farmers and companies that invest in renewable energy ([www.pwdr.be](http://www.pwdr.be)).

### ***Brussels Capital Region***

40. According to the Government Agreement 2009-14, promoting and developing a sustainable agro-food sector in Brussels is one of the key concerns of the Region. An overall policy to create green jobs and to boost the green economy in the region is the so-called *Green Jobs Pact* (Alliance Emploi-Environnement), which was launched in 2011 and will run until 2014. Concerning the agro-food sector, the objectives are to create new green jobs in the sustainable food sector and to stimulate the demand for sustainable food. The strategy is focused primarily on the demand side (mostly on “collective” consumption such as in school canteens and restaurants), as there is almost no production in the Brussels region.

41. An *Action Programme for the Stimulation of Sustainable Food* was launched in April 2011. This action programme describes the objectives and actions that the authorities will undertake – or are currently undertaking – in order to stimulate the demand for sustainable food consumption in the Brussels Capital Region. The actions and policies as described in the action programme are:

- Promotion of the use of sustainable food in canteens (“sustainable Canteens Project”), which has been in existence since 2008. Its objective is to provide sustainably-produced food in canteens in the private and public sectors and also in school canteens;
- Stimulation of the consumption of sustainable food in HoReCa (hotels, restaurants and cafés) businesses;

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10. [www.uwe.be/uwe/presse/communiqués/declaration-de-politique-regionale-wallonne.pdf](http://www.uwe.be/uwe/presse/communiqués/declaration-de-politique-regionale-wallonne.pdf)

11. [http://airclimat.wallonie.be/spip/IMG/pdf/DGRNE-07-06452-Plan\\_Air\\_Climat-partie\\_2.pdf](http://airclimat.wallonie.be/spip/IMG/pdf/DGRNE-07-06452-Plan_Air_Climat-partie_2.pdf)

- Encouragement of the provision of sustainably-produced food during organised events;
- Promotion of green public procurement criteria for public purchasers of food items (since 2009);
- Education and training of the public: distribution of free publications on sustainable food to the general public, training for the creation of kitchen gardens;
- Support for the development of kitchen gardens, fruit orchards and apiaries;
- Subsidies for associations that work on the promotion and education of sustainable food.
- Publication of a study entitled “*Système d’alimentation durable – Potentiel d’emplois en Région de Bruxelles-Capitale*”.

## CANADA

42. Agriculture is a shared jurisdiction under Canada's constitution. As such, interprovincial agri-environmental initiatives require significant collaboration between federal and provincial/territorial (FPT) governments. Provincial governments are responsible for their own environmental targeting and many have instituted climate change action plans for their jurisdictions.

43. In consultation with the sector, FPT governments jointly develop policy objectives and strategic outcomes, and develop programmes and initiatives to include in collective multilateral agricultural policy frameworks. FPT governments implemented their first collaborative framework, the Agricultural Policy Framework (APF), in 2003. The goal of the APF was to secure the long-term prosperity, profitability and success of the sector, and to position Canada as the world leader for food safety, innovation and environmentally responsible production. The APF was succeeded in 2008 by Growing Forward (GF), which built on the APF with a vision for a profitable, innovative, competitive, market-oriented agriculture, agri-food and agri-based products industry. GF was replaced on 1 April 2013 with Growing Forward II (GFII), with an emphasis on innovation, competitiveness, market access, sustainability and adaptability.

44. Agricultural policy frameworks have proven to be an effective way of co-ordinating government action in support of the sector. GF and GF II, similar to APF, contribute to sustainability objectives for the sector by helping the farm sector to remain economically viable and environmentally responsible. The vision of GF II focuses on ensuring the sector is competitive and profitable in markets over the long term and capable of adapting to changing circumstances and maintaining sustainable productive capacity.

45. Through focusing on GF II strategic outcomes, Agriculture and Agri-Food Canada (AAFC) strives to help the sector maximise its long-term profitability and competitiveness, while respecting the environment and the safety and security of Canada's food supply. The activities of the Department extend from the farmer to the consumer, from the farm to global markets, through all phases of producing, processing and marketing of agriculture and agri-food products.

46. Canada has had a Federal Sustainable Development Strategy (FSDS) in place since October 2010. The FSDS is focused on the Government of Canada's environmental sustainability priorities and links to the broader context of social and economic priorities. The strategy reflects the Government's commitment to improve transparency and accountability of environmental decision-making. Progress Report on the 2010-13 FSDS cycle was released in February 2013 and present the progress of 27 federal departments and agencies towards achieving the goals and targets set out in the first cycle of the FSDS (2010-13), supported by 34 Canadian Environmental Sustainability Indicators, and highlights of key actions from selected implementation strategies of the FSDS departments and agencies. As the first progress report of its kind under the Federal Sustainable Development Act, this report shows, at a broad level, that the Government of Canada is making progress both towards greater transparency of environmental decision-making as well as towards the FSDS goals and targets. The report points to challenges and underscores the opportunities to further improve environmental sustainability. This is an

important step as the Government of Canada develops the next cycle of the 2013-16 FSDS and future progress reports. In addition, Canada also has a Federal Policy on Green Procurement. As part of its ongoing commitment to improve the environment and the quality of life of Canadians, this policy seeks to reduce the environmental impacts of government operations and promote environmental stewardship by integrating environmental performance considerations in the procurement process.

47. AAFC also has a Departmental Sustainable Development Strategy (DSDS) that supports the FSDS. This approach was tabled through the Department's 2012-13 Report on Plans and Priorities (RPP). The DSDS strategy commits AAFC to supporting an economically, socially and environmentally sustainable agriculture, agri-food and agri-based products sector that ensures proper management of available natural resources and adaptability to changing environmental conditions. Through this strategy, the department has a full range of programs and services dedicated to helping the sector to augment its environmental leadership capacity and environmental stewardship and reduce the sector's overall impact on the environment. AAFC conducts integrated economic and environmental policy research and analysis to support departmental decision-making related to the environment. Its investments in data and analytical model capacity support the department's work to ensure environmental priorities are met.

48. AAFC has also developed the Departmental Environmental Strategic Plan, a strategy that describes how the department will support the agricultural sector's efforts to ensure sound management of available natural resources and adaptation to changing environmental conditions, will be an important consideration when negotiating the next policy framework.

49. While AAFC has no explicit department wide 'green growth' policies, it is committed to an overarching goal to promote programming that supports environmental sustainability actions in a manner that increases economic returns and shares knowledge among sector participants.

50. AAFC encourages innovation and productivity growth, areas that contribute directly to overall growth in the sector and the ability of the sector to meet global demand for agricultural products within the existing resource base. Emphasis is placed on improving input use efficiency and increasing outputs with genetic improvements. Improved efficiency means that lands being brought into agricultural production, and water use, can be kept to a minimum. Continued investment in research and development and technology transfer are key policy supports.

51. A number of programming initiatives that complement green growth with the objective of reducing existing negative environmental impacts include:

- ***Agri-Environmental Programming/Environmental Farm Planning (EFP):*** Sustainable agricultural systems can only result from sound management of natural, economic and human resources. Implementation of beneficial management practices (BMPs) for the preservation of soil, land and water resources and development of effective policy for promoting these practices contribute to the goal of an environmentally responsible and competitive agricultural sector in Canada. With an approved EFP, FPT governments cost share incentives for the adoption of BMPs.
- ***Canadian Agriculture Adaptation Program:*** The objective of the program is to facilitate the agriculture, agri-food, and agri-based products sector's ability to seize opportunities, respond to new and emerging issues and pilot solutions to new and ongoing issues in order to adapt and remain competitive.

- ***Agri-Flexibility Program:*** The objective of the program is to help reduce the cost of production or improve environmental sustainability for the sector, support value-chain innovation or sectoral adaptation, and address emerging market opportunities and challenges for the sector.
- ***Agriculture Greenhouse Gases Program (AGGP):*** Under the programme, Canadian farmers will benefit from a partnership between the Government of Canada, industry and universities across Canada to boost producer profitability through green agriculture technologies. The AGGP represents Canada's initial contribution to the Global Research Alliance. The programme represents a partnership between the Government of Canada, industry and universities across Canada to boost producer profitability through green agriculture technologies. The AGGP will provide funding of CAD 27 million over five years to various partners across Canada to investigate innovative mechanisms, tools and approaches to benefit farmers.

52. AAFC is active in contributing to the monitoring of environmental outcomes and meeting the environmental targets established by the Government of Canada. For example, Canada has agreed to international commitments to reduce use of ozone-depleting substances and the agriculture sector will be responsible for meeting established commitments. AAFC also sets time-bound, quantitative targets for adoption of environmental practices and reductions in risks to soil, water and biodiversity. These targets are reported in annual federal government “Reports on Plans and Priorities”, such as “Fresh Water Quality: Achieve a value between 81-100 on each of the Water Quality and Soil Quality Agri-Environmental Performance Indices by 31 March 2030.

53. AAFC’s National Agri-Environmental Health Analysis and Reporting Program (NAHARP) provides science-based agri-environmental information that plays a critical role in guiding policy and program design, and can help determine which policy options could be most effective in addressing environmental issues, such as water quality, biodiversity or air quality.

54. As policies and programs are implemented, information from NAHARP will help monitor and understand progress towards reducing environmental impacts. The information generated will also provide a report card that can help track the environmental performance of Canadian agriculture over time and assess the degree to which the sector is managing its resource use.

55. The Sustainable Agriculture Environmental Systems (SAGES) initiative aims to provide science based responses to two high level priorities: water and climate change. SAGES supports 25 peer-reviewed research and development projects and provides benefit to producers through knowledge and development. SAGES is designed to accelerate the creation of BMPs, offer policy options and provide a better understanding of impacts and adaptation opportunities.

56. Lastly, AAFC completes Departmental Performance Reports (DPRs) that provide information on results achieved against planned performance expectations as set out in respective RPPs. These Reports are tabled annually in Parliament in the fall by the President of the Treasury Board on behalf of Ministers. AAFC’s DPRs include information on the department’s success at supporting an ‘environmentally sustainable agriculture, agri-food and agri-based products sector’, a departmental strategic outcome. In the most recent DPR, AAFC identified the percentage of farms in Canada which have a formal EFPs and the percentage of farms taking action on their EFPs as performance indicators. Results are made available to the public through the Treasury Board of Canada Secretariat.

### ***Renewable energy***

57. The Government of Canada's renewable fuels strategy was announced in 2006. The strategy has four key objectives and corresponding sets of policy instruments aimed at supporting the development of a domestic biofuels industry in Canada:

- *Reducing GHG emissions resulting from fuel use by increasing the retail availability of renewable fuels through regulation:* Canada's federal *Renewable Fuels Regulations* require an annual average renewable content of 5% based on the volume of the national gasoline pool and two-percent renewable content in diesel fuel.
- *Supporting the expansion of Canadian production of renewable fuels:* The CAD 1.5 billion ecoENERGY for Biofuels Program provides production incentives to Canadian biofuel producers. The programme aims to support 2 billion litres of ethanol production and 500 million litres of biodiesel production. The programme expires in 2017.
- *Helping farmers capture new opportunities in this sector:* The CAD 200 million ecoAgriculture Biofuels Capital Initiative (ecoABC) provides capital incentives for the construction or expansion of biofuels facilities that include new equity investment from farmers of at least 5% of eligible project costs. ecoABC expires in 2013. The CAD 20 million Biofuels Opportunities for Producers Initiative, which ran from 2006 to 2008, helped farmers and rural communities hire experts to assist in developing business proposals, feasibility studies and other work necessary to create and expand agricultural producers' biofuels production capacity.
- *Accelerating the commercialization of new technologies:* The CAN 500 million NextGen Biofuels Fund was designed to support the construction of large scale demonstration facilities for the production of next-generation renewable fuels, such as cellulosic ethanol made from agricultural residues and waste products. The NexGen Biofuels Fund will disburse funds up to 31 March 2017.

## **CZECH REPUBLIC**

58. Up to date there is no any conceptual document dealing with the policy of Green Growth in the Czech Republic. A *Strategy for Agriculture* and the Rural Development Plan for period 2014-20 are being prepared by the Ministry of Agriculture. A particular focus is accorded to: production of renewable energy (i.e. solar, biogas, etc.); farming under organic and integrated regime; special targeted farming on HNV biotopes; and land consolidation.

## **DENMARK**

### ***Green Growth Strategy***

59. Launched in 2009, the Denmark's Green Growth Strategy was designed to establish a green growth economy in which the agro-food sector can improve its innovative and competitive potential. The stated purpose of the Strategy is to bring about a modern and competitive agro-food sector that is compatible with a high level of environmental, nature and climate protection. Its central aspect is that it promotes coherence between the environment and production methods through technological innovation and revision of agricultural legislation.

60. The Strategy, prepared with the collaboration of sectoral ministries and public agencies, and with expert inputs from working groups, is an ambitious and long-term plan defining environment and nature policies and the conditions of growth for the agriculture sector until 2020. A total of DKK 13.5 billion (EUR 1.8 billion), to be financed in part by the EU Rural Development Programme 2007-14, is to be invested in green growth activities until 2015, which is an increase of around 50% compared to previous initiatives.

#### *Renewable energy*

61. A central element in the Strategy is the emphasis placed on the development of renewable energy in the agricultural sector. In particular, the role of the agricultural sector as a supplier of green energy is to be strengthened, with up to 15% of arable land to be used for energy crops – which represents a 16-fold increase in production of energy coming from agriculture – and the share of farm animal manure to be used for green energy is to be increased from 5% to 50% by 2020.<sup>12</sup>

62. Policy initiatives to reach targets include annual financial support of DKK 100 million for starting investments in biogas and a biogas team to co-ordinate biogas activities around the country. The treatment of slurry for biogas is voluntary and farmers receive a premium of DKK75 per m<sup>3</sup>. Up to 100 farmers can use one biogas installation. Under this scheme, a grant covering up to 20% of the investment in the plant can be provided. The remaining funds will be provided by a 60% loan, guaranteed by the local municipality and 20% of own financing. Municipalities are obliged to include the construction of biogas plants in their municipal planning, as well as the allocation of grants for selling biogas to co-generation plants and the natural gas net.

63. The status of the development of the biogas plants will be assessed in 2012, including an evaluation of the need for any further initiatives to achieve greater energy exploitation of livestock manure. As the general public has proved rather reluctant to accept the construction of biogas plants, the location of these installations will pose a challenge to meeting the target levels of production (SEI, 2011).

64. Other initiatives to promote the role of the agricultural sector as a supplier of green energy include a grant scheme for planting perennial crops totalling DKK 32 million annually from 2010 to 2012. The scheme became effective as from the 2010 planting season. The grant can be given to areas in normal operation, in which planting results in a large reduction of nitrogen, and at locations where a reduction in the nitrogen burden can contribute towards meeting the requirement of the Water Framework Directive. The grant scheme for perennial crops will be assessed in 2012.

#### *Less nitrogen and phosphorus loss*

65. Less nitrogen loss to the aquatic environment can be achieved through higher storage/usability of slurry and the reduced use of synthetic fertiliser: concrete initiatives to reduce the discharge of nitrogen and phosphorus into aquatic environments include targeted measures, such as permanent buffer zones and wetlands that are spraying-free, fertiliser-free and cultivation-free, as well as general regulation, including the neutralisation of the negative effects of nitrogen, when agricultural land is taken out of production.

66. Unlike previous action plans, where targets for nitrogen reductions were based on leaching from the root zone, the targets in the Green Growth Strategy are based on the discharge of nitrogen into the aquatic environment. The goal is an annual reduction of 19 000 tonnes of nitrogen and 210 tonnes of phosphorus discharge into the aquatic environment.

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12. According to the Danish Energy Agency, to meet this requirement, 130 biogas plants would have to be constructed by 2020.

*Organic farming*

67. The Green Growth Strategy considers organic farming to be an important driver of green growth as it is a combination of green production with a sound economy. It is planned to increase the area used for organic production from 6% in 2007 to 15% in 2020 through a massive effort amounting to almost DKK 350 million a year.

*Agricultural R&D*

68. In its Green Growth Strategy, the Government aims at an efficient organisation of agricultural research and development. Among other things, this will be brought about through a green development and demonstration programme, aimed at increasing the co-ordination between research, innovation and demonstration in agro- and aquaculture and food sectors. At the same time, DKK 145 million per year has been earmarked for green investments, while the Action Plan for the Promotion of Environmental Technology 2010-11 includes DKK 225 million dedicated to the development of green agricultural technologies.

*Modernising legislation and harnessing the structural development*

69. The Green Growth Strategy also introduced legislative changes to improve the policy environment for an improved structural development in order to provide farmers with better opportunities for growth, improve their financial viability and increase the competitiveness of the agricultural sector. The limit on the number of animals on a farm and the requirement that a farmer must have a certain amount of land in relation to the number of animals on his/her farm has been removed.

70. The legislative changes introduced permit farmers, for the first time, to form shareholding corporations for the ownership of land for farming purposes. The previous legislation required individual ownership and management, and a maximum of four farms owned per farmer, or a maximum of 400 ha. The motivation for these changes was to avoid the closure of one-quarter of Denmark's 13 000 farms that had been forecast to take place within 5 years.

*New pesticide tax*

71. The law on the restructured pesticide tax, which was due to be submitted in the autumn of 2009, came into force in January 2012. This new level of tax, which is designed to place the highest tax on the potentially most harmful products, will consist of four components: a basic tax based on the content of the active ingredients in the product; a component for health, based on the classification of the formulated product; a component for the effect on non-target organisms, based on the properties of the active ingredients in the product; and a key component for the environmental fate of the products, also based on the properties of the active ingredients contained in them.

72. A key element of the tax is that smaller or specialised crops, such as potatoes and lettuce, should not be so heavily taxed that their production will be outsourced. The new taxes are expected to generate extra revenue of DKK 150 million (around EUR 20 million) compared to the previous taxes. The revenue will be returned to the agricultural sector via reduced taxes on land to compensate for the cost incurred.<sup>13</sup>

73. In addition to the new tax, a new national target for the use of pesticides based on environmental impact and several measures to support the greater use of Integrated Pest Management (IPM), according to

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13. The revenue from the reduction of taxes on land is estimated at DKK 500 million.

the EU Directive 2009/128/EC. One of the objectives is to provide subsidised advice in the implementation of IPM.

## ESTONIA

74. The country's interest in green growth is mainly reflected through various government programmes concerning either renewable energies or bio-economy:

- National Renewable Energy Action Plan (until 2020)
- Estonian Rural Development Plan 2007-13:
  - Investments into the production of bio-energy
  - Improving the economic value of forests and forestry products
- Estonian Development Strategy of Energy Related Technologies
- National Energy Efficiency Programme 2007-13
- Estonian Biotechnology Programme 2010-13
- R&D support for energy-related technologies
- Procurement of electric cars for public institutions, support measures for purchasers of electric cars and the establishment of a network charging stations.

75. There are also several other government strategies which include "Green Growth" components of the agricultural sector, such as waste management, materials design/production, but these are not carried out by the Ministry of Agriculture.

## EUROPEAN COMMISSION

76. While the key EU strategy of "Europe 2020" does not formally include the term "green growth strategy" (GGS), it has many of the features a GGS and seeks "green" outcomes, citing "green growth" as an object of attention. The "CAP towards 2020 Communication" COM(2010)672 of 18 November 2010 deals with the application of the "smart, sustainable and inclusive growth" of the Europe 2020 strategy to agriculture states that: "this means *green growth* in the agricultural sector and the rural economy as a way to enhance well being by pursuing economic growth while preventing environmental degradation".

77. The linkages between the CAP and the "Resource Efficiency" flagship of the Europe 2020 strategy indicate that a "green growth" type approach to the challenges of the future has been internalised in the EU policy process.

78. Titles of the policies and the date when they were (or planned to be) introduced:

- Europe 2020 Strategy COM(2010) 2020 of 3 March 2010
- Innovation Union Flagship COM(2010) 546 of 6 October 2010

- CAP towards 2020 Communication COM(2010)672 of 18 November 2010
- A Resource-efficient Europe Flagship COM(2011)21 of 26 January 2011
- Resource-efficient Europe Initiatives February – December 2011
- Tackling the Challenges in Commodity Markets and on Raw Materials COM(2011) 25 of 2 February 2011
- Roadmap for moving to a competitive low carbon economy in 2050 COM(2011) 112 of 8 March 2011
- Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system COM(2011) 144 of 28 March 2011
- Energy Roadmap 2050 COM(2011) 885 of 15 December 2011
- Roadmap to a Resource-efficient Europe<sup>14</sup> COM(2011)571 of 20 September 2011
- CAP after 2013 Legal proposals COM(2011) 625 of 19 October 2011
- Establishing Horizon 2020 – The Framework Programme for Research and Innovation<sup>15</sup> of 30 November 2011
- A Bioeconomy for Europe COM(2012)60, 13 February 2012
- Agricultural Productivity and Sustainability European Innovation Partnership (EIP) COM(2012)79 of 29 February 2012
- Commission position at the "Rio+20: United Nations Conference on Sustainable Development" on 19 June 2012<sup>16</sup>
- Future steps in bio-waste management in the EU COM(2010)235 of 18 May 2010.

### ***Mainstreaming resource efficiency into EU legislation***

79. Launched in September 2011, the initiative for a resource-efficient Europe is one of seven flagship initiatives designed to deliver smart, sustainable and inclusive growth for Europe, as part of the Europe 2020 strategy ([ec.europa.eu/resource-efficient-europe](http://ec.europa.eu/resource-efficient-europe)). The initiative for a resource-efficient Europe addresses all natural resources, from raw materials to food, water, air and ecosystems and establishes guiding principles for EU policies on energy, transport, climate change, industry, commodities, agriculture, fisheries, biodiversity and regional development.

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14. In particular section 5.1 "Addressing Food" in which there are initiatives on sustainable food, waste, sustainability criteria for key food commodities and phosphorous

15. In particular under the "Societal Challenges" 2 "Food security, sustainable agriculture, marine and maritime research and the bioeconomy" and 5 "Climate change, resource efficiency and Raw Materials"

16. EC press release supported moves "Towards a global green economy" and provided a factsheet on "Sustainable agriculture, Food Security and Nutrition"

80. The resource efficiency flagship initiative aims to create a framework of policies designed to support the shift towards a resource-efficient and low-carbon economy capable of achieving sustainable growth by: boosting economic performance, while reducing resource use; identifying and creating new opportunities for economic growth and greater innovation, thus boosting the EU's competitiveness; ensuring security of supply of essential resources; and combating climate change and limiting the negative environmental impacts of resource use.

81. The resource efficiency flagship initiative is now Europe's engine for generating growth and employment. The strategy will also be instrumental in reaching a variety of EU objectives, including reducing emissions of GHG in Europe by 80 to 95% by 2050, and reforming the agricultural and fisheries sectors to make the EU more resilient to future rises in global energy and commodity prices.

82. The resource efficiency flagship initiative also sets an integrated framework and long-term agendas for these policies, and lists over twenty initiatives, that include proposals designed to deliver concrete results for the resource-efficient Europe flagship. It recommends an integrated approach across many policy areas, ranging from a roadmap for a low-carbon economy by 2050, to reform of the Common Agricultural Policy (CAP); a new EU 2020 biodiversity strategy; a review of reform of cohesion policy; and measures concerning commodity markets and raw materials. The instruments employed will include legislation, market-based instruments, refocusing of funding instruments and promotion of sustainable production and consumption. Clear targets and indicators will be developed by 2013, through a participative process involving policy makers, experts, NGOs, business and consumers.

83. The concrete proposals to be tabled will seek to exploit synergies to secure win-win innovations that are good for business and the environment – for example, rewarding consumers for recycling. But they will also address trade-offs between policy options, in order to avoid undesirable consequences – such as in the glass sector, where the production of super-insulating glass requires large amount of energy, but, once in use, the amount of energy required to heat a building decreases. Another example of trade-offs is the use of land for food and energy production, which may compete with land allocated for biodiversity and ecosystem services, such as carbon capture.

#### ***The European Innovation Partnerships (EIP) on Agricultural Productivity and Sustainability***

84. European Innovation Partnerships (EIP) are a new approach to innovation which were first proposed in the Europe 2020 strategy and further elaborated in the European Commission's (EC) 2010 Communication on Innovation Union. The Partnerships come as a response of the need to help accelerate the adoption of research findings and to overcome the fragmentation of research activity in Europe. Their aim is to accelerate the process of research, development and deployment of innovations in order to address major societal challenges, and pool expertise and resources to boost Europe's competitiveness and aid job creation and economic growth. The Partnerships encompass the whole research and innovation cycle by bringing together all relevant actors at EU, national and regional level.

85. In February 2011, the EC adopted a Communication on an EIP Agricultural Productivity and Sustainability, with the motto of "achieving more from less", in order to address, through innovation, both the lagging productivity growth and the need for greater sustainability in agriculture ([http://ec.europa.eu/agriculture/eip/pdf/com2012-79\\_en.pdf](http://ec.europa.eu/agriculture/eip/pdf/com2012-79_en.pdf)). The aim of this new tool is to promote resource efficiency, and to fill gaps, by improving the links between research, advisory services and practical farming. Particular emphasis is placed on overcoming perceived bottlenecks to getting research results adopted on the ground and to ensuring feedback on research needs from practice to science, such as insufficient information flow and missing links between different actors (farmers, advisers, enterprises and researchers). Its main role is to bring together the whole research spectrum, from fundamental science through to actual applications, involving a range of funding instruments and policy initiatives.

86. The EIP on Agricultural Productivity and Sustainability seeks to improve co-ordination between actors and to facilitate the taking up of opportunities provided by the different policy fields, such as the Common Agricultural Policy (CAP) and the EU Research Policy. It will rely mainly on the existing instruments of the Rural Development policy and the Research Framework, currently being reformed.

87. The EIP will draw on Rural Development programmes to provide support for co-operation and the establishment of “operational groups” composed of farmers, advisers, enterprises, researchers and administrations. These groups will carry out projects, and test and apply innovative processes, products and technologies. A specific innovation network will be established, under the umbrella of the European Network for Rural Development, aimed at fostering the sharing of experience of innovative approaches and improving communication between agricultural practice and science.

88. The EIP will also draw on the Research Policy to finance innovative actions. In this respect, the EC’s Communication on the Multi-annual Financial Framework for 2014-20, shows the high importance being placed on research and innovation in agriculture by proposing to earmark EUR 4.5 billion for this purpose, which is more than double current resources devoted to agricultural research at EU level.

## FINLAND

### *Renewable energy - Biogas*

89. According to the Finnish Long Term Climate and Energy Strategy launched in 2008, the use of biogas should be increased by 2020 ([ec.europa.eu/energy/renewables/transparency\\_platform/action\\_plan\\_en.htm](http://ec.europa.eu/energy/renewables/transparency_platform/action_plan_en.htm)). In order to promote combined heat and power production using biogas, a market-based feed-in tariff scheme has been introduced, which is financed from the state budget. The feed-in tariff: i) is equivalent to the difference between the target price and the market price of electricity; excludes the possibility to obtain a simultaneous investment subsidy; supports only the generation of electricity, while other forms of energy (i.e. alternative fuels for traffic, etc.) are excluded; facilities under 100kWA are excluded (a significant proportion of facilities are below this threshold); and the tariff is fairly low. Within the scope of the country’s energy-related targets, agricultural investment support is granted to on-farm boiler houses that use renewable energy sources. The purpose of the investment support is to promote the increased use of renewable energy sources, the more efficient use of energy and energy saving, the adoption of new energy technologies and the reduction of environmental damage from energy production and use.

90. Over the 2008-11 period, EUR 5 million per year for relevant research, investigation, training and communications projects to promote the establishment of bio-energy production plants, as well as for pilot projects applying new research data and technologies. A particular objective of the support is to promote the construction of biogas plants in areas with large farm animal populations and consequent environmental impacts. It is estimated that as a result of these projects, 6-10 fairly large biogas plants will be constructed in the next few years, particularly in areas with large farm animal populations. Biogas plants can produce electricity, heat or transport fuels, but, in addition to producing renewable energy, they also have positive environmental impacts brought about by the improved use of manure and reduction of GHG emissions. The support is primarily targeted at biogas plants that are not accepted under the terms of the electricity feed-in tariff scheme.

91. As regards the boiler houses on farms, the requirement for granting the support for the construction, expansion or renovation of a boiler house is that the boiler house must utilise waste, water, air, earth or solar heat or any other source of renewable energy, biomass included. If peat is used as an energy source, the boiler house must also be able to produce heat from wood or another renewable energy

source. The support is not granted for costs resulting from the utilisation of oil, hard coal or other similar fossils. The amount of support depends on the nature of the target receiving the funding. Of the primary material used in the eligible biogas plants, 50% must originate from the farm, and over 50% of the energy produced must be used on the farm.

92. In addition to the support for the production and use of biogas, bio-energy investments in rural micro-enterprises and small- and medium-sized enterprises can receive financing under the Finnish 2007-13 Rural Development Programme. For example, support can be granted to bio-energy product refinement, energy production from biomass or other construction investments related to bio-energy business activities.

## FRANCE

### ***The programme Produisons Autrement (Let's Produce Differently) and the "Agro-ecological project for France"***

93. The programme *Produisons Autrement* and the "agro-ecological project for France" were launched in a national conference held on December 2012. They aim to *initiate a new transfer of agricultural production models* and farming systems by reconciling economic and environmental performance.

94. The agro-ecological project is based on three complementary components :

- Assessing current knowledge and experience in agro-ecology. As part of the campaign *Produisons autrement*, a participatory forum has been created to organise and exchange information on existing practical experiences and agricultural knowledge. In addition, the orientation documents of the research and technical Institutes in agronomy and agriculture fields are being in-depth revised to promote agro-ecology.
- Strengthening agro-ecological training, continuing education and farming advice.
- Encouraging farmers to convert to and maintain agro-ecological practices at the farming level, through public support. The Common Agricultural Policy is being strongly and crosswise oriented *to encourage changes in practices and investments*. The bill for the future of French agriculture (*Loi pour l'Avenir de l'Agriculture*) which is expected for the end of 2013 will also strongly support agro ecological practices.

95. Beyond these three components, six action plans have been launched. They aim to: i) support the reduction of pesticides; ii) support the reduction of antibiotic; iii) seek methane energy production and nitrogen autonomy; iv) support beekeeping sector; v) enhance vegetal protein autonomy; and vi) support organic agriculture.

### ***Energy Performance Plan (PPE) for Farms***

96. The *Energy Performance Plan (PPE) for Farms, 2009-13* programme was launched in February 2009 and is part of the French environmental plan « Grenelle ». This five-year programme aims to reduce the energy dependency of 30% of French farms, through various kinds of actions and investments, based on the production of an "energy and GHG emissions audit". Its specific objectives are to: increase awareness of energy consumption on farms through: reducing energy consumption; enhancing energy efficiency in agriculture; producing renewable energies; and improving farmers'

competitiveness. Its total budget was EUR 160 million for 2009-11. It includes a number of actions to be conducted at the farm level, with particular emphasising on the “energy and GHG emissions audit”.

97. The Energy performance audit reviews farms direct and indirect energy consumption, identifies room for improvement, and formulates recommendations. These may cover practices to reduce energy consumption (e.g. through reducing nitrogen input, or changing crop management), to promote the use of different equipment (e.g. isolation materials, heat economisers), and to develop renewable energy production (mainly through methanisation and the use of biomass. Depending on the recommendations of the audit, aid for investments may be granted, and, in particular, aid for investments aimed at producing renewable energies and/or saving energy.

98. The programme comprises eight pillars:

- i) improved knowledge of energy consumption and production on French farms to be obtained through national energy surveys, designed to improve the statistical basis;
- ii) increased implementation of farm energy and GHG emissions audits (e.g. through the provision of grants);
- iii) improved tractor-energy efficiency;
- iv) increased energy efficiency on farms (e.g. through grants offered to farmers who install energy-efficient equipment; encouraging field operations that take into account the reduction of input consumption (such as nitrogen fertilisers), and promoting the use of Energy Performance Certificates);
- v) development of renewable energy production (e.g. providing grants to farmers who install renewable energy equipment such as biomass heating systems and solar heating, thermal exchangers and heat pumps, and for methanisation units and equipment linked to the production of electricity on an isolated site not connected to the network, such as small wind farms and photovoltaic panels);
- vi) the taking into account of the characteristics of France’s overseas territories;
- vii) promotion of research and innovation; and
- viii) the monitoring and assessment of the PPE.

99. After 3 years of implementation, 10 000 energy and GHG emission audits have been carried out on farms, and 6 400 projects to promote renewable energy production or energy saving are now being implemented on farms. In addition, 127 methanisation units have been developed and more than 10 tests benches for tractor's engines have been granted. The Plan has also contributed to the national policy of "energy savings certificates". In addition, Research and Development projects, which are an important part of the Plan, have received financing of EUR 10 millions.

#### ***Grenelle de l’Environnement and ECOPHYTO plan on pesticides***

100. The “*Grenelle de l’environnement*”, launched in 2007, is a comprehensive multi-stakeholder consultation on environmental protection, including agriculture. Following the consultation the government brought the *Loi Grenelle* legislation into force in 2009, which concerning policies relevant to green growth in agriculture include:

- Total area certified as organic agriculture to increase from a 2% share of agricultural land in 2004 to 6% by 2012, and eventually to 20% by 2020.<sup>17</sup>
- Number of farms under high nature value certification to reach 50% of all farms by 2012.
- 50% reduction in the use of plant production by 2018 if feasible.
- Withdrawal from commercial use of 40 of the most harmful pesticides.
- Support for research aiming to reduce pesticide use.

101. The ECOPHYTO plan on pesticides, which is part of the *Loi Grenelle*, aims to reduce pesticides by 50% by the year 2018 if possible, while keeping a high level of production, as well as quality of agricultural products ([agriculture.gouv.fr/ecophyto](http://agriculture.gouv.fr/ecophyto)). It is lead by the Ministry of Agriculture and Fishing together with the implication of the major actors concerned – farmers, technical institutes and researchers.

102. The ECOPHYTO plan on pesticides encompasses the following eight sets of actions to manage risks and monitor impacts, and to reduce cropping system dependence on pesticides:

- Evaluate progress towards a reduction of pesticide use.
- Identifying and mainstream practices and existing agricultural systems to enable pesticide use reduction by mobilising research, development and knowledge transfer partners.
- Encourage innovation in the design and development of low pesticide input practices and cropping systems.
- Training on the reduction of secure use of pesticides.
- Reinforce pest surveillance networks and monitor un-intentional effects of pesticides.
- Take into account the specificities of the *départements d'Outre-Mer*.
- Reduce the use and improve the safety of pesticides used for non-agricultural purposes.
- Monitor the plan at both national and local scales, including improving communication of then plan to stakeholders.

103. Interestingly, a specific indicator of pesticide pressure is used to monitor the plan, to take into account the fact that pesticides are more or less biologically active. The plan also mentions the development of a set of socio-economic indicators consistent with the pressure-impact framework.

104. The research and development effort within the *Ecophyto* plan is seeking to develop new Integrated Pest Management solutions that can contribute to sustainable agriculture while preserving the competitiveness of French agriculture (OECD, 2012). To that end, the Ministries of Agriculture and Environment have requested that the *Institut National de la Recherche Agronomique (INRA)* launch research which is mobilising a hundred experts from over 30 organisations and is focusing on four main

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17. Between 2008 and 2010, the number of farms engaged in organic agriculture rose by 55% and the AREA by 45%, but the target of 6% of the utilised agricultural area in organic farming has not been reached (3.01% in 2010).

sub-sectors: arable crops, fruit arboriculture; viticulture; and vegetables. For each of these sub-sectors different strategies for limiting the use of pesticides are being analysed, with research efforts focussing on the following.

### ***Environmental certification for farms***

105. The “*Grenelle 2*” environmental law of 12 July 2010 enshrined environmental certification in the French code of rural law. It also created a new value statement for products, both processed and unprocessed, from farms certified as having “High Environmental Value”.

106. The environmental certification for farms is a scheme designed by the partners in the *Grenelle* consultation process: the farming industry, environmental organisations, consumer bodies, representatives from downstream industries and relevant official bodies. It is voluntary and open to all sectors of the industry. It is built around four themes: biodiversity, plant protection strategy, management of fertiliser use and management of water.

107. It has been constructed on the basis of progressive certification of the whole of a farm as verified by independent third-party bodies approved by the Agriculture Ministry. Three levels of environmental progress are recognised:

- Level 1 indicates fulfilment of the environmental requirements in cross-compliance and assessment of the holding by the farmer based on the level 2 criteria or the indicators of level 3.
- Level 2 reflects compliance with a set of criteria laying down 16 requirements with an effective impact on the environment and designed for relevant integration into the farm’s daily management. The criteria for environmental progress focus on the farm, providing in particular for the rational use of inputs and the limitation of accidental leakage into habitats. At this level, certification can be managed within a collective framework. Existing programmes can receive recognition on the basis of dual equivalence: equivalence of requirements and equivalence of control measures.
- Level 3, defined as “High Environmental Value”, involves meeting a formal obligation to achieve defined outcomes. The farmer can choose to be assessed according to a battery of four composite indicators that include the four themes already described (option A) or two synthetic indicators (option B). These two options allow the diversity of the systems of production encountered in practice to be taken into account while maintaining the same level of environmental excellence.

108. Oversight of the scheme is exercised by the Commission Nationale de la Certification Environnementale (CNCE), a body set up on 25 October 2011. Its membership includes all the *Grenelle* partners and it examines: Applications for official approval of certifying bodies to audit environmental certification levels 2 and 3; and Applications for official recognition relating to existing environmental schemes. The CNCE may also suggest necessary changes to the scheme in light of experience acquired during practical implementation. For more detailed information in the scheme’s structure, see: <http://agriculture.gouv.fr/exploitations-agricoles>. As of mid-2013, nineteen initiatives, such as production charters, have been certified as "level 2", representing thousands of farms. Regarding the "level 3" certification, thirty farms have already been certified, some of which have certified organic status.

## **GREECE**

109. Promotion of green growth in the agro-food sector is mainly effected through the implementation of measures under the Rural Development Programme of Greece (RDP) 2007-13. More specifically,

investments in renewable energy sources are promoted via the modernisation of agricultural holdings and measures to increase the value of agricultural products (processing and marketing).

110. Furthermore, investment aiming at environmentally friendly actions is also promoted via agri-environmental support, such as: promotion of environmentally-friendly production practices (organic agriculture; organic stock-farming; stock-farming extensification; and rotation with non-irrigated crops on fields formerly cultivated with tobacco); agri-environmental actions for protection of water resources (protection of areas vulnerable to nitrates; protection of wetland areas; integrated management system); special actions for the preservation of biodiversity (e.g. preservation of endangered indigenous livestock races; preservation of extensive crops threatened by genetic erosion); and the protection of the rural landscape formed by agricultural activity (e.g. protection of traditional olive groves in Amfissa and preservation of the practice of viticulture on the island of Thira).

### ***The Integrated Management System in agricultural production***

111. According to AGROCERT, the Hellenic Agricultural Products Certification and Supervision Organization, the introduction of the Integrated Management System (IMS) in agricultural production helps farmers to drastically reduce the use of pesticides as well as to avoid unbalanced implementation of cultivation techniques. The farmer is obliged to follow certain cultivation management rules and techniques, under the surveillance of a supervising agronomist, and to keep track of the implemented practices. Greek national protocols have been issued by AGROCERT describing the obligations of the participant farmers.

### ***The Integrated Management System in the production of tobacco***

112. IMS has been implemented in the tobacco-production areas of Greece. The objective is to reinforce the transition from conventional methods to IMS farming in the tobacco sector. It is financed by the Greek RDP 2007–13 and the aim is to cover 12 800 ha over 5-years.

113. Beneficiaries of the programme receive financial aid of EUR 936 per ha per year, to cover: i) extra costs arising from the implementation of the IMS (e.g. agronomic advisory services, such as planning and monitoring of the 5-year Environmental Action Plan of the farm, IMS certification costs, the cost of buying specialised apparatus, cost involved in soil analysis, etc.); ii) income forgone by the implementation of the extra obligations (i.e. no tobacco cultivation on the 5% buffer strip around the parcel, and 20% crop rotation with legumes); and iii) the extra cost produced by the additional work needed for non-chemical weed control.

114. The rationalised management practices followed under IMS are expected to produce positive environmental impacts, such as: a 30% reduction of inorganic fertiliser and pesticide use; improvement of the soil's organic content and texture; reduction of fertilisers and pesticides causing pollution of soil, surface water and the groundwater table; improved water efficiency; and reduction of GHG emissions, mainly nitrous oxide (NxO). Apart from the obligations deriving from the IMS, beneficiaries are expected to implement supplementary eco-friendly farming management techniques, such as: i) crop rotation with legumes of at least 20% of the utilised land, which are not to be harvested but incorporated in the soil for amelioration of its texture, organic and nitrogen content; ii) the creation of buffer strips of at least one metre in width (at least 5% of the utilised land) around each parcel for the creation of passages and feeding/resting areas for animals, insects and birds; and iii) adoption of non-chemical weed control in 75% of the utilised area for the protection and enhancement of wild flora and fauna.

*Integrated Management System in sugar beet production*

115. IMS in sugar beet production, which is also financed by Greek RDP 2007–13, aims at covering 12 500 ha of the sugar beet cultivation area over 5 years. Sugar beet was selected for support as the Hellenic Sugar Industry S.A. (the sole sugar producer in Greece) is finding it difficult to increase the national sugar beet production to fill the national production quota of 158 702 tonnes. Moreover, the increase in sugar beet production has to be achieved in an environmentally responsible way and IMS in sugar beet production was considered a good way to achieve the goal.

116. As with the case of tobacco, the agri-environmental Action has the aim of improving the environmental performance of the farming system through IMS management. In addition, beneficiaries are obliged to reduce the use of nitrogen fertilisers by 30% and the use of irrigation water by 20%, compared to the baselines. Implementation of the integrated crop management (decrease of inputs, such as fertilisers, pesticides and irrigation water), in combination with the extra reductions in nitrogen fertilisers (-30%) and/or irrigation water (-20%), is expected to have a negative impact on the yields for sugar beet, and consequently, on the income of the beneficiaries.

117. The financial aid provided to the beneficiaries of the programme compensates farmers for income forgone due to implementation of the IMS in sugar beet production and the extra limitations on the use of fertilisers and irrigation water. Beneficiaries of the programme receive financial aid of: a) EUR 299 per ha per year on condition that they undertake to decrease their use of nitrogen fertilisers (by 30%); b) EUR 318 per ha per year if, in addition to the decrease in the use of fertilisers, they decrease the use of water for irrigation purposes (by 20%). The latter case is applicable mainly in rural areas equipped with collective irrigation systems using electronic abstraction apparatus with rechargeable memory cards, as only with such systems can the reduction of water use be accurately quantified.

***Green infrastructure and efficient resource use (smart irrigation system)***

118. The smart electronic irrigation system, which is based on a rechargeable memory card, is an example of good practice to improve efficiency in the use of water for irrigation. The system was established by the Local Land Improvement Organisation in the Region of West Macedonia-Velvento, Kozani, and financed by the RDP 2007–13. The microclimate of that area is ideal for the production of such products as peaches, apples, plums, cherries and wine, which all benefit from the smart irrigation system.

***Renewable energy***

119. At present Greece is preparing the legal framework for the implementation of the EU Renewable Energy Directive (Directive 2009/28/EK). In May 2010, the Ministry of Environment, Energy and Climate Change implemented a law which permits farmers to construct solar photovoltaic installations on their land, in order to produce electricity, either for personal use or for sale to the Public Enterprise of Electricity, thus offering farmers a potential source of additional income. According to the legislation, the area of farmland used for such photovoltaic installations cannot exceed 1% of the total farmland of each prefecture. This measure has as a goal the promotion of renewable energy systems and in the long-term the mitigation of climate change. Some of the above measures serve not only as a tool for “greening” agricultural growth by implementing environmental friendly policies, but also add to the economy through creating “green” jobs.

***Water use efficiency in agriculture***

120. According to the requirements of Directive 91/676/EEC (introduced into the national legislation with Joint Ministerial Decision 161890/1335/1997), eight vulnerable zones, with respect to nitrogen

pollution from agricultural run-off, have been identified and suitable action programmes have been put in place. The adoption of sound agricultural practices, obligatory for all farmers operating in vulnerable zones, is a key element of these programmes. In addition, a National Plan of Action has been developed in the context of implementing the 2009/128/EC Directive aiming to protect the human health and the environment (based on a joint ministerial decision).

121. The newly developed legislative framework aims to protect the aquatic environment and freshwater from the impacts of pesticide use. For this purpose, a number of special areas have been set up, where the use of pesticides is restricted or forbidden.

122. Moreover, a Joint Ministerial Decision was signed in March 2011 regulating wastewater management: it includes, among other things, the re-use of treated wastewater for irrigation purposes. This measure has been designed to save water resources and to promote the use of treated wastewater (i.e. minimising the use of freshwater in irrigation, industry, etc.). SA Joint Ministerial Decision passed in June 2011 a Joint Ministerial Decision requiring farmers and cattle breeders to declare their irrigation bores by the end of the year. This measure is aimed at monitoring the abstraction of ground water used for irrigation reasons, to control the unreasonable use of water resources and to define the water rights of farming areas.

## IRELAND

### ***Food Harvest 2020***

123. Food Harvest 2020 is a strategic vision for the development of the agri-food, fisheries and forestry sector in Ireland for the period to 2020. It envisages a sector that can reap considerable rewards if it works and acts ‘smartly’ so as to make the most productive use of Ireland’s rich natural “green” resources in a way that is both economically viable and sustainable in the future.

124. Examples of elements of the strategy include:

- *Agricultural Catchments Programme*: The Agricultural Catchments Programme (ACP) is a key component in the provision of environmental quality verification which will be at the heart of the smart, green growth set out in Food Harvest 2020. The ACP is monitoring six intensively farmed wholly agricultural catchments and is contributing to the delivery of smart, green, growth by providing comprehensive hydrological, ecological, economic and attitudinal knowledge for agriculture under current regulatory standards. This detailed scientific knowledge is critical to the sustainable holistic expansion of Irish milk and meat production from grass.
- *Dairy Efficiency Programme & Beef Technology Adoption Programme*: These programmes are discussion group schemes which focus on improving grass utilisation which is Ireland’s primary resource for agriculture. Participants attend a minimum number of discussion groups throughout the year where emphasis is placed on the transfer of knowledge, technology and best practice in relation to grassland management, animal breeding and financial management.

### ***Origin Green***

125. In 2011, Bord Bia (Irish Food Board) introduced carbon footprint monitoring for all Bord Bia Quality Assured Beef farms, which is the world’s first nation-wide sustainability standard. The *Beef and Lamb Quality Assurance Scheme*, developed by Bord Bia in conjunction with Teagasc (the Irish Food Development Authority) incorporates a carbon model which calculates the carbon footprint of Irish beef

and lamb production, thus providing an objective assessment of sustainability on Irish farms. The model was accredited by the Carbon Trust and this accreditation ensures consistent measurement to a fully recognised specification and helps deliver solid feedback to producers on how they can further improve their environmental performance.

126. Building on these initiatives, Bord Bia launched the *Origin Green* voluntary sustainability development programme in 2012. The programme involves manufacturers setting targets in areas such as emissions, energy, waste, water, biodiversity, and corporate and social responsibility activities. The programme has set a target of 75% of Irish food and drink exports to be sourced from its participants before the end of 2014, and 100% by the end of 2016. (<http://www.bordbia.ie/origingreen/sustainabilitycharter/pages/default.aspx>).

127. Participants in the programme are required to submit a sustainability charter, outlining their annual sustainability targets over a 5-year period in key areas such as emissions, energy, waste, water, biodiversity and corporate social responsibility. The overall purpose of the Charter is to promote best practice in the design, implementation and reporting of environmental and other sustainability practices operating in the Irish food and drink industry. It is also designed to promote shared learning within the industry as to what constitutes good performance.

128. Companies are required to sign up to developing and implementing an action plan covering up to five years, which can be renewed/updated as appropriate at the end of the period. This action plan will need to clearly set out targets in the key action areas (i.e. sourcing of raw materials, manufacturing process and social sustainability) identified by the company. It will also require a commitment to deliver a progress report on an annual basis. For each target area, each company will need to set out a baseline, decide on short, medium and long term targets and commit to reporting progress on an annual basis.

### ***Rainwater Harvesting Scheme***

129. The objective of the Rainwater Harvesting Scheme is to conserve water by maximising the use of rainfall run-off and reducing water costs on farms. Grant-aid support is provided for rainwater harvesting facilities and equipment. The scheme has been targeted initially at young trained dairy farmers.

## **JAPAN**

130. Although Japan does not have any policy package which is sorted under the name of “Green Growth” focusing solely on agro-food sector, ensuring the sustainability of the environment and economy are reflected in a number of government initiatives: i) the *New Growth Strategy* of 2010 which aims to ensure the sustainability of the environment and the economy; ii) *The Strategy for the Rebirth of Japan* of 2011, to aid the recovery from the Great East Japan Earthquake, utilising rural area resources for producing energy;<sup>18</sup> and iii) “the promotion of the greening economy and society, and green innovation” has also been addressed recently in the 4<sup>th</sup> Basic Environment Plan (Cabinet decision, 27 April 2012)<sup>19</sup>, which is the principal Japanese environmental policy. Based on the result of the discussion on energy and environmental policy, led by the National Policy Unit, *Broad Outline of the Green Growth* will be launched by the end of 2012.

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18. Strategy for the Rebirth of Japan (English) [http://www.npu.go.jp/policy/pdf/20120127/20120127\\_en1.pdf](http://www.npu.go.jp/policy/pdf/20120127/20120127_en1.pdf)

19. The Fourth Basic Environment Plan (English Summary):  
[http://www.env.go.jp/policy/kihon\\_keikaku/plan/plan\\_4/attach/pamph\\_en-1.pdf](http://www.env.go.jp/policy/kihon_keikaku/plan/plan_4/attach/pamph_en-1.pdf);  
[http://www.env.go.jp/policy/kihon\\_keikaku/plan/plan\\_4/attach/pamph\\_en-2.pdf](http://www.env.go.jp/policy/kihon_keikaku/plan/plan_4/attach/pamph_en-2.pdf)

131. Policy measures which could contribute to enhancing sustainability in the field of agriculture are widely implemented, although it is difficult to define a principal green growth policy:

*Renewable energy: Utilising rural area's resources for energy production purpose*

- Legislative measures are discussed at the Diet.
- Pilot projects are introduced in order to utilise the resources in rural areas and to promote supply of renewable energy that is locally-led in a balanced manner with the food supply and with the conservation of national land.
- Promote maximum utilisation of biomass resources under integrated framework of agriculture and forestry industry, producer of biomass products, local public organisations and related governmental bodies.

*GHG mitigation*

- Advanced heating systems in green house are introduced.
- GHG mitigation in the food industries are encouraged through government assistance such as education or workshop.
- Industry's Voluntary Action Plan for GHG mitigation is determined, implemented and verified by MAFF.
- Direct payments to farmers to adopt management practices which contribute to GHG mitigation (e.g. cover cropping, living mulching/grass cultivation, winter season flooded paddy fields) subject to reduction of chemical fertilizer and pesticide more than 50% are introduced.
- Introduction of "The visualisation of carbon dioxide" (carbon footprint) Plan.
- Japan's Offset Credit (so called, J-VER)<sup>20</sup> Scheme and the Domestic Emissions Trading System are implemented.

*Adaptation to climate change*

- Research on the impact assessment of global warming is promoted.
- High temperature-resistant varieties are developed.

*Biodiversity conservation*

- Direct payments to farmers to adopt management practices which contribute to biodiversity conservation subject to reduction more than 50% of chemical fertiliser and pesticide are introduced.
- Labelling for biodiversity-friendly rice (Living Creature Label) is introduced in the local market.

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20. Offset Credit (J-Ver) Scheme: [www.j-ver.go.jp/e/index.html](http://www.j-ver.go.jp/e/index.html)

132. Concerning monitoring, in the 4<sup>th</sup> Basic Environment Plan appropriate monitoring measures are to be developed in order to analyse and evaluate the environmental effectiveness of policy measures. Regarding energy use, government's "Energy Basic Plan", which includes renewable energy supply targets, has been drafted in August 2012, following national debate. This plan for future energy supply balance is closely related to the GHG mitigation target.

### ***The Strategy for the Rebirth of Japan***

133. As noted earlier, green growth in agriculture in Japan is primarily reflected by government initiatives to utilise sources of renewable energy (such as wood waste-crushing operations and conversion into biomass energy, in east Japan) to aid the recovery and reconstruction measures following the earthquake and tsunami.

134. In particular, the Government's programme, "The Strategy for the Rebirth of Japan", identifies as immediate and priority policy: the utilisation of rural resources for producing energy, the introduction of legislative measures and the implementation of pilot projects.

135. In terms of legislative measures, a bill has been passed, aimed at revitalizing rural areas by introducing the production of renewable energy, as well as promoting agriculture, forestry and fisheries. Moreover, the discussion and the necessary work introduced in revising the Government's "Basic Energy Plan", in which renewable energy supply targets are included, is currently under process. It is envisaged to be completed by mid-2012, following a national debate.

136. In terms of budgetary support, the following areas have been identified of major importance:

- Facilitating heat and electric supply by utilising rubble created by the earthquake (FY 2011, supplementary budget). This support for the development of electric and heat-generating facilities is aimed at utilising wood-waste and wood produced through the thinning of unused forest. This will facilitate the reconstruction of communities through the stable and sustainable supply of energy produced from woody biomass in rural areas.
- Setting-up a pilot project for the supply of renewable energy, with farmer participation. This budgetary support is also intended to cover investigation of the possibility of introducing renewable energy (i.e. wind, geothermal heat, solar, biomass and small hydroelectric generation) in distressed areas. In addition, budgetary support is envisaged for the trial project in which farmers (forestry and fisheries) can participate in the energy business by utilising rural resources.

### ***Basic Promotion Plan for Biomass Utilisation***

137. The Plan, endorsed by the Cabinet in 2010, is based on the *Fundamental Law for the Promotion of Biomass Utilisation* that aims to support the creation of an autonomous, distributed system of energy supply in local regions through the use of local biomass, and is of crucial importance in the aftermath Great East Japan Earthquake of March 2011 and the ensuing nuclear power plant accident. Its basic principles are to develop R&D into the technological aspects of providing efficient and effective biomass applications, and to promote the dissemination of practical installations.

138. The Basic Plan set targets in three broad areas to be achieved by 2020: to combat global warming by utilising about 26 million tonnes (CO<sub>2</sub> equivalent) of biomass; to create of new biomass industries worth up to JPY 500 billion; and to vitalise of rural communities through the formulation of plans to promote the utilisation of biomass in 600 municipalities.

139. Guidelines for achieving these targets are set out, along with a technical "road map" to identify key technologies and biomass resources, and a list of priorities ranging from raw material procurement to the securing of markets. Also included is an estimate of annual energy potential from biomass by 2020: approximately 13 billion kilowatt-hours in available power (enough to power 2.8 million households), about 11.8 million kiloliters in available crude oil (enough gasoline for 13.2 million vehicles), and about 40.7 million tonnes (CO<sub>2</sub> equivalent) in reduced GHGs (equal to about 3.2% of Japan's GHG emissions).

140. In September 2012, Japan's Ministry of Agriculture, Forestry and Fisheries (MAFF) announced that, along with six other ministries, it has finalised the "Biomass Industrialisation Strategy". Its main objectives include: i) the creation of biomass-based industrial practices focusing on conversion technologies (e.g. methane fermentation and combustion); ii) the establishment of an integrated and co-ordinated biomass-system; iii) the creation of green industries and the enhancement of renewable energy supply in the regions and iv) the establishment of a stable policy environment to attract investors. Main policies to achieve these objectives include: i) technological development; ii) incentives to stimulate market demand (e.g. feed-in tariff scheme, carbon credit system, tax reduction, etc.); iii) procurement of raw materials (the establishment of agricultural and forest management systems to supply biomass resources to manufacturers in a stable manner; development of a highly-productive energy crops and plants; full utilisation of waste-related biomass, such as food, animal and human waste, etc.); iv) specific measures concerning the targeted biomass (biofuel, woody biomass, food waste, sewage sludge and animal waste); v) establishment of "biomass industrial communities"; and the development of high technologies and business model related to biomass overseas, particularly in Asia.

## KOREA

### *Low-Carbon Green Growth Strategy*

141. Korea has been at the forefront of green growth initiatives. In Korea, green growth policies are part of the government's "Low Carbon, Green Growth Strategy" (LCGG) launched in 2008, as a part of a new national development paradigm adopted in order to respond to the challenges posed by excessive energy-dependency on imported fossil fuel and doubling of its GHG emissions in the past 15 years.<sup>21</sup> The strategy, based on the concept of environmentally sound and sustainable socio-economic development, emphasises the role of technological progress and innovations as a source of new growth momentum. It is composed of three pillars: i) to reduce GHG emissions through introduction of market-based instruments (e.g. an emissions trading system by 2015) and through regulatory reforms; ii) to develop green technologies and products through provision of business incentives; and iii) to enhance consumers' awareness and demand for green products.

142. The institutional base of Korean green growth began with the establishment of the Presidential Committee on Green Growth as headquarters for policy promotion. The government also introduced the "Five Year Green Growth Plan for 2009-13" and the "Framework Act on Low Carbon Green Growth" during 2009.

143. The Five-Year Plan outlines government actions for implementation of the Strategy, and detailed tasks for ministries and local governing entities, as well as specific budgets. Under the plan, the government will spend approximately 2% of annual GDP on green growth programmes and projects. Investments will initially be geared towards infrastructure systems in order to boost the economy. In line with this plan, Korea has passed a USD 30.7 billion stimulus package aimed at supporting its green

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21. Korea is one of the top energy-consumer countries in the world, importing 97% of its gross energy consumption.

objectives. This includes renewable energy resources, energy-efficient buildings, expansion of railway systems and improvement to waste management systems. Over time, the government aims to become a leading exporter in green research and technology.

144. In the agricultural sector “low carbon, green growth” policies have been adopted in order to cope with the environmental challenges faced in agriculture, such as the negative impacts of climate change, an increase in agricultural management costs due to the rising price of oil, and the degradation of the agricultural environment due to the excessive use of agricultural chemicals and the inappropriate treatment of livestock manure. Examples of green growth policies in the agricultural sector include, but are not limited to, the development of biomass energy, the supply and national diffusion of green technology/equipment, and the strengthening of the sector’s capacity to cope with climate change.

145. Concerning agriculture’s contribution to the implementation of the green growth strategy, the Ministry for Food, Agriculture, Forestry and Fisheries (MIFAFF) has adopted three areas: (i) climate change, energy saving and renewable energy, to reduce greenhouse gas emissions beyond business-as-usual projections, adopt carbon-footprint in paddy rice and promote the use of technologies to reduce fossil fuel (e.g. through biogas system); (ii) foster green industry, promoting new technologies and new functional crops; and (iii) promote green diets and enhance quality of life, starting a green dietary campaign in elementary schools, local food campaign and promoting low-carbon food.

146. Since “low carbon, green growth” was announced as the future national growth paradigm, the MIFAFF has been working to prepare green growth measures based on the low carbon, green growth policies proposed by each bureau and department within the ministry. In December 2008, the MIFAFF created “The Council for Green Growth in Food, Agriculture, Forestry and Fisheries” (chaired by the Minister of MIFAFF) and the “Green Future Strategy Department” was created in 2009 to supervise green growth affairs. The Department administrates the tasks related to the agro-food sector from among the 50 major implementation tasks listed in the “Five-year Plan for Green Growth (2009-13)” issued by the Presidential Committee on Green Growth.

147. The plan established “agriculture, forestry and fisheries and rural, forest and fishing districts that will lead to national happiness and prosperity” as its vision to promote green growth in the agro-food sector. The Committee has formulated and implemented three strategies (low-input, high-efficiency green industry; sustainable utilisation and management of natural resources; and improvement of public health and enhancement of national quality); six initiatives and 50 practical tasks. Concerning policy targets for green growth, the following were presented: reduction of GHGs emissions from its 2007 level (18.39 million tonnes); bionergy supply: an increase from 66% in 2007 to 88% in 2013; environmentally friendly agricultural production: a rise from 3% in 2007 to 10% in 2013 and to 15% in 2020.

148. The six initiatives are: 1) to put green growth in practice in people’s everyday lives; 2) to promote the utilisation of biomass energy and enhance energy efficiency in the green energy field; 3) to firmly establish low-carbon food, agricultural, forestry and fishery policies in the low carbon policy field; 4) to expand investment in green R&D and foster a foundation for an environment-friendly agricultural industry in the green industry field; 5) to protect the ocean and forest ecosystems in the sustainable resource management field; and 6) to strengthen the green global partnership in the field international co-operation. Of the 50 practical tasks set forth for green growth, a total of 34 policy programmes are aimed at the agro-food sector, which appears to have green growth measures properly combined.

149. As stipulated by the Framework Act on Low Carbon, Green Growth, the Korean Government revised the Restriction of Special Taxation Act to provide tax breaks for green finance as of January 2010. In 2010, the Government, in a joint effort with the relevant ministries, announced measures for promoting green certificates. Green-certified firms will be given prioritised access to public funding, including R&D

programmes. These categories are: renewable energy, carbon reduction, alternative water resources, green IT, green cars, high-tech, green residential cities, new materials, clean production methods, eco-friendly agriculture and food, and environmental protection and preservation. The criteria for the award of certificates are the ability to demonstrate that the technology has reached 70% of the most advanced level in the same line of technologies. The list of candidates will be renewed every year to reflect related technological advancement and social change.

## MEXICO

### *The Sustainability of Natural Resources Programme*

150. This programme, which will be implemented by the Mexican Ministry of Agriculture (SAGARPA) during the 2012 fiscal year, is the main policy instrument to promote green growth in the agri-food sector. The Program is comprised of seven specific components:

- a. *Bioenergy and alternative sources*: Subsidies to promote production of inputs used in the production of biofuels, bio-fertilisers, organic fertilisers, and other products of the bio-economy.
- b. *Conservation and sustainable use of soil and water*: Subsidies to build, repair and maintain small infrastructure for the storage of water, soil preservation actions, and crop reconversion towards products that demand less water and tillage.
- c. *Reduction of fisheries' rate of extraction*: Direct payments to promote withdrawal of large fishing boats.
- d. *Fisheries inspection*: Subsidies to finance inspection and surveillance campaigns focused on preventing illegal fishing.
- e. *Fisheries and aquaculture management*: Subsidies for the elaboration of public policy instruments and plans to improve national fisheries and aquaculture management.
- f. *Livestock management*: Direct payments to ranchers and animal growers on a per-head basis, to promote sustainable livestock production.
- g. *Reconversion*: Subsidies to promote the adoption of new "technological packages" in the production of crops that are better suited to specific regional conditions.

### *National Strategy for Climate Change*

151. Launched in 2007, the *Strategy* is a first attempt to translate policy intentions into concrete actions to address climate change issues. A Ministerial Commission on Climate Change (MCCC)<sup>22</sup> was created under the Strategy to work on the design and integration of the 2008 Special Programme for Climate Change (SPCC). The SPCC is the main legal instrument outlining the Mexican strategy, actions, and goals to meet the challenges of climate change. It describes the main actions to be adopted for mitigation and adaptation.

152. Regarding the Ministry of Agriculture, the SPCC establishes the following objectives and goals:

- Agricultural Production:
  - ✓ Objective: To reduce agricultural vulnerability to climate change and ensure agro-biodiversity.
    - ❖ 2008-12 Goals:

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22. In Spanish: *Comisión Intersecretarial de Cambio Climático*. The MCCC was created in April 2005 by the then President, Vicente Fox. It consists of the Mexican Ministries of Agriculture, Foreign Affairs, Environment and Natural Resources, Energy, Commerce, Transportation, and Social Development.

- Insure 9 million ha of crops against extreme meteorological events.
- Save 3 000 million cubic meters of water in agricultural uses.
- Increase water storage capacity by 116.2 million cubic meters.
- Create a National Center of Genetic Resources.
- ✓ Objective : To upgrade existing irrigation infrastructure.
  - ❖ 2008-12 Goals:
    - Upgrade 1 772 000 ha under irrigation using existing technical improvements (in conjunction with the National Water Commission).
    - Increase water productivity in agricultural uses at an annual rate of 2.8%.
    - Consolidate the organisation of 2 000 irrigation units.
    - Elaborate 21 Master Plans in the Irrigation Districts.
    - Issue 85 “Exclusive Planting Licenses” in the Irrigations Districts.
    - Establish Agricultural Plans in 58 Irrigation Districts, with emphasis on the use of “Exclusive Planting Licenses” as the main determinants of planting decisions.
- ✓ Objective : Deepen the knowledge about the vulnerability of agriculture to climate change.
  - ❖ 2008-12 Goals:
    - Elaborate 3 maps of productive potential for maize, barley and beans in selected Mexican regions, under different climate change scenarios.
    - Elaborate 1 study on the negative effects of flooding and sea water penetration on agricultural activities in coastal areas, under different climate change scenarios.
- Livestock Production:
  - ✓ Objective: Reduce livestock production vulnerability to climate change and strengthen adjustment capabilities in the sector.
    - ❖ 2008-12 Goals:
      - Restructure the National Commission of Animal Genetic Resources.
      - Insure 5 million animal units against extreme meteorological events.
      - Declare 91% of total area used for livestock production as animal disease free or with low disease prevalence.
  - ✓ Objective: Deepen the knowledge about the vulnerability of livestock production to climate change.
    - ❖ 2008-12 Goals:
      - Creation of the guiding framework for research on the vulnerability of livestock production to climate change.
      - Elaboration of 500 studies on the so-called *Coeficientes de Agostadero* (the optimal number of animal units grazing on a given area), and on the optimal use of existing grazing areas.
      - Development of Geographic Information Systems to be used by livestock producers.
      - Promotion of scientific research, through the Mexican Carbon Programme.

153. Regarding mitigation, full implementation of the SPCC is estimated to achieve a reduction in total annual emissions of 51 million tonnes of carbon dioxide equivalent in 2012, with respect to the business as usual scenario (in which emissions would rise to 786 million tonnes of carbon dioxide equivalent by 2012), resulting from actions carried out in the energy use and production (59%); agriculture (1.9%); livestock (1.8%); forestry (19.6%), land use (6.9%) and the waste (10.8%) sectors.

## NEW ZEALAND

### *Primary Growth Partnership (PGP)*

154. The PGP scheme, launched in 2009, is a programme of investment by the Crown and industry in research and innovation which provides investment in research and innovation to boost productivity, economic growth and sustainability across New Zealand's primary, forestry and food sectors.

155. The PGP will provide funding of no less than NZD 5000 000 over the lifetime of the programme, which must be matched by co-investors from industry. In 2009, the Government increased the funding for the PGP from NZD 30 million for 2009/10 to NZD70 million per annum from 2012/13. As of September 2011, PGP has funded seven programmes with almost NZD 493 million, with almost NZD 400 million committed to these programmes from PGP and industry.

156. Industries eligible to participate in the PGP are pastoral (including wool) and arable production; horticulture; seafood (including aquaculture); forestry and wood products; and food processing. Investments can cover the whole of the value chain, including education and skills development, R&D, product development, commercialisation and technology transfer.

157. A key programme under the PGP is the establishment of the Centre for Agricultural Greenhouse Gas Research, which has been allocated NZD 5 million per year. The Centre, which is fully government-funded, with a commitment to 10 years' core funding was created with the aim of developing technologies to reduce emissions and improve on-farm efficiency and productivity. Its research focus includes methane emissions from farm animals and waste systems; nitrous oxide from farm animals and nitrogen fertiliser; and soil carbon from agriculture, arable and horticultural land.

### *Sustainable Farming Fund (SFF)*

158. MAF's SFF invests up to NZD 9 million a year to support rural community-driven projects aimed at improving the productive and environmental performance of the primary sectors. The SFF includes funding specifically for projects that focus on climate change. Its purpose is to support rural communities to undertake applied research and extension projects to tackle a shared problem or to develop a new opportunity. SFF projects are led by rural landowners and managers, often with the support of industry organisations, agribusiness, researchers or consultants. Most successful projects are able to secure leverage of a high proportion of other funding or in-kind support to complement the SFF grant. The maximum investment SFF can provide to any one project is NZD 200 000 annually for three years. The SFF requires a minimum of 20% non-governmental contribution (either cash or in-kind) towards the total project costs – however, the most successful projects have significantly more co-funding.

159. SFF projects include (but are not restricted to): sustainable land management; novel production systems; human capability development; dairy, sheep and beef production; horticulture; deer, goats and pigs; sustainable arable systems; indigenous and exotic forestry; alternative land-use options; bee-keeping; marine and land-based aquaculture; niche crops; cross-sectoral catchment issues; irrigation efficiency; soil management; floriculture; organic systems; Māori land-use options; viticulture; climate change adaptation, mitigation and business opportunities.

160. Projects that are not eligible for SFF funding include: fundamental or long-term research; projects not directly related to New Zealand's primary industries; projects that benefit an individual or a single business (including funding for farm plans); large capital expenditure; work already underway; projects primarily benefiting participants outside New Zealand.

161. The following criteria are used to assess applications:

- Contribution to sustainability or climate change objectives: how will the project contribute to economic, social and/or environmental sustainability, or advance the climate change objectives of mitigation, adaptation and/or business opportunities?
  - Significance of the problem or opportunity: what is the significance of the problem or opportunity for the community of interest submitting the application?
  - Community of interest commitment: is the project led by the community of interest and supported by appropriate levels of cash and in-kind contributions?
  - Ability to deliver: does the team have the appropriate technical skills, project management, financial management and methodology to deliver on the project?
  - Adoption and extension: how will the proposed project make a difference, and to whom?
  - Innovation: does the proposal display innovation?
  - Risk: is the level of risk involved in the project acceptable?
  - Value for money: is this project likely to provide a good return on investment?
- Final investment recommendations also take into account consideration of the overall portfolio balance (the balance of projects across sectors, regions and outcomes) and other factors, such as issues of timeliness and relationship to other project applications.

### ***Emissions Trading Scheme (ETS)***

162. The ETS is a price-based mechanism for greenhouse gases and is a key policy instrument of the Government's efforts to meet its international commitments on climate change and move towards a low carbon economy. Its aim is to strike the right balance between introducing incentives to reduce emissions, while maintaining the economic viability of the agricultural sector. The Ministry for the Environment is the lead agency for the ETS, while the Ministry of Agriculture and Forestry is responsible for development of the regulations for agriculture and forestry sectors; the Environmental Protection Authority is responsible for the emissions unit register.

163. The principle behind the ETS is that emitters of GHGs must either reduce their emissions (e.g. methane and nitrous oxide) or purchase New Zealand Units (NZUs) to pay for those emissions. NZUs can be purchased through an online exchange, a broker, or direct from the holder of the emission units.

164. The rationale behind an ETS is that it allows for the abatement of emissions at least cost. No other financial incentives are provided. However, complementary measures in the areas of R&D and technology transfer seek to facilitate reduced emissions and lessen the impact of the ETS on the agricultural sector. These initiatives will encourage innovation and provide the information farmers need to respond to the market signal.

165. The scheme covers all major sectors of the economy. Forestry was the first sector to enter the ETS, on 1 January 2008, while stationary energy, transport and the industrial sector entered in 2010. Agriculture is set to fully enter the ETS in 2015, with voluntary reporting starting in 2011 and mandatory reporting in 2012 through, to 2014, but participants are not required to pay for emissions in these years.

166. From 1 January 2015, participants in the ETS for agriculture will have to report GHG emission activities and surrender NZUs to account for agricultural emissions at the end of each calendar year. Although participants will report and surrender NZUs, in order to reduce the cost of participation in the ETS they will be eligible to receive a free allocation of NZUs from the Government. The framework for

distributing NZUs under the ETS for removal activities is independent of the framework for calculating and assigning emissions liabilities.

167. The allocation will be provided on an output intensity basis. This means that a participant's allocation will vary with output. The assistance level will be 90% of an emissions baseline and will phase out at -1.3% per annum from 2016. The baseline will be the industry average emissions per unit of output for a given year or years. The baseline will be established by regulation and subject to a consultation process. The allocation will be uncapped – there is no set limit on the number of NZUs that may be allocated. The ETS is set to be reviewed every five years by an independent panel. The first review was undertaken in 2011.

168. The ETS for agriculture will cover all the major agricultural sources of methane and nitrous oxide, such as methane from ruminant animals and nitrous oxide from urine, manure and nitrogen fertiliser applied to pasture. With some exemptions, participants for agricultural emissions liabilities are currently set at the processor level, which includes fertiliser manufacturers and importers, dairy processors, meat processors, live animal exporters and egg producers. Farmers and growers are not required to register and participate directly in the ETS.

169. By placing a price on carbon, the ETS provides an incentive to landowners to reduce the level of emissions for every unit of agricultural output. Reductions can be made by: improvements to farming efficiency; increased forest/tree planting on farmland (creating carbon sinks); efficient use of nitrogen fertiliser; increased use of nitrification inhibitors; more effective management of animal waste and the use of other mitigation technologies as they are developed; and the reduction of the carbon intensity of outputs through improved productivity.

170. The ETS encourages action by large industry participants (e.g. large processors) to promote behaviour that will result in lower emission factors for the sector. Incentives are also likely to develop over time with refinement of the ETS and with changes in farming practices. The legislation also allows the government to change the point of obligation to the farmer in the future, having regard to issues of verifiability, effectiveness and cost. However, the successful implementation of the programme will depend, *inter alia*, on the emission trading context in the international market.

171. The broad settings of the ETS – including how New Zealand's trade competitors are addressing their emissions, what mitigation technologies are available, and whether the allocation path or other settings might need to be adjusted – are currently being reviewed by an independent panel. Among the recommendations it makes is the exclusion of laying hens from the ETS on the grounds that: this sector accounts for an insignificant proportion of agricultural emissions annually; inclusion in the ETS (with 100 participants) would place a relatively large and costly administrative burden on a sector with a tiny level of emissions; there are no greenhouse gas mitigation options currently available to this industry; exclusion from the ETS provides the greatest benefit to New Zealand over the next 10 years, given the lack of mitigation options at the current time; exclusion from the ETS does not provide a competitive advantage to the laying hen industry over other sectors that are included in the ETS; exclusion will not undermine the primary purpose of the ETS, which is to support global efforts to reduce greenhouse gas emissions by assisting New Zealand to meet its international obligations ([www.maf.govt.nz/agriculture/agriculture-ets](http://www.maf.govt.nz/agriculture/agriculture-ets)).

172. The govt held a review of the ETS scheme in 2011. It is currently consulting on a number of changes - including a power to defer agriculture obligations from 2015 for up to 3 years - based on the findings of a review in 2014 which will assess the following: the availability of practical technologies to reduce emissions; and/or progress by trading partners on policies to reduce emissions.

***Sustainable Land Management and Climate Change Plan of Action (SLMACC)***

173. Launched in 2007 and administered by the Ministry of Agriculture and Forestry (MAF), this is a five-year programme for the land-based sectors, running in partnership with the land management sectors, local government and Maori. Key work streams include: the impacts of climate change and adapting to climate change; reducing New Zealand's GHG emissions and enhancing carbon sinks; research; and a technology transfer programme. Priority research topic areas and funding are identified through consultation with stakeholders.

174. Research programmes have been carried out in the following areas: farm-level GHG reporting using the Overseer nutrient budget model; bioenergy and biochar R&D; national nitrification inhibitor research; national agriculture and forestry inventory development; life-cycle analysis for a number of industry sectors and products.

***Pastoral Greenhouse Gas Research Consortium (PGGRC)***

175. The PGGRC is a partnership, formed in 2002, between the Government and the dairy and fertiliser industries, to provide livestock farmers with the information and means to mitigate their greenhouse gas emissions. The scope of the programme is broad, and includes research into improvement to the production efficiency of ruminant animals. The PGGRC target is to decrease emissions by 10% per unit of output by 2013 over business as usual relative to 2005 (estimated to be 4 million tonnes). The PGGRC will receive funding until 2012. The 2011 level of annual direct funding for the PGGRC was just over NZD 7.0 million, of which approximately 50% is from industry.

176. The membership of the consortium includes major companies, industry bodies and research organisations and currently includes: Fonterra Ltd, Beef and Lamb NZ, DairyNZ, AgResearch Ltd, Fert Research (NZFMRA ) PGG Wrightson Ltd - Observers: DEEResearch Ltd, Landcorp Farming Ltd, MAF, NIWA, NZAGRC.

177. A significant area of investment for the PGGRC has been a three-year trial of nitrification inhibitors aimed at providing independent verification of the role these inhibitors play in reducing the environmental impacts of farming practices. In particular, the research aims to: i) determine the best management practice for the use of nitrification inhibitors in New Zealand's grazing systems; ii) improve understanding of the potential for nitrification inhibitors to improve a broad range of environmental outcomes, including those related to water quality and GHG emissions; iii) assess the ability of nitrification inhibitors to reduce nitrous oxide emissions; and iv) promote uptake by farmers by providing scientifically sound information on the productivity advantages, potential cost reductions and environmental benefits of using nitrification inhibitors.

***Irrigation Acceleration Fund (IAF)***

178. The primary purpose of the fund is to support regional scale rural water infrastructure proposals. Funding of NZD 35 million has been allocated over five years (FY 2011/12 to FY 2015/16) to support the development of irrigation infrastructure proposals. Qualifying applicant's contributions must be equal to or greater than 50% of the programme cost. There is no minimum size for IAF grants.

179. IAF funding is available for three distinct components to target the delivery of investment rural water infrastructure proposals: regional rural water infrastructure; strategic water management studies; and community irrigation schemes. Funding for the regional rural water infrastructure component aims to assist the development of proposals for large scale, regionally significant water harvesting, storage and distribution, which must be consistent with agreed regional approaches to the sustainable use and management of water. Funding for strategic water management studies focuses on the development of

regional approaches to integrated water management, particularly the potential of rural irrigation-related infrastructure to contribute to the sustainable use and management of water for future generations. Funding for community irrigation schemes is aimed at improving the development of both new, smaller-scale community schemes and providing capital upgrades of existing community scheme infrastructure. The proposals must be consistent with agreed regional strategies.

180. Proposals are assessed against the following criteria: i) use of collaborative processes early in the planning phase; ii) demonstrated commitment to good industry practice and management; iii) be fit with regionally agreed approaches to the sustainable use and management of water; iv) expected direct and indirect net economic benefits to New Zealand; v) expected co-benefits; vi) ability to deliver the programme; vii) having work programme that fits with good industry management practice; and viii) programme costs and contributions.

## THE NETHERLANDS

### *Sustainability Agenda*

181. Launched in October 2011 by the Government, the Sustainability Agenda presents the Netherlands' green growth strategy for. It sets out the country's commitment to achieving more sustainable society and identifies the priorities and key actions of the government in creating a green economy (e.g. the goals of having close to 85% of waste recycled and 15 000 to 20 000 electric cars on the roads by 2015).

182. There is a focus on number of priority areas: natural resources, use of water and land, food, mobility, climate, energy and a number of remaining issues. The agricultural sector is mentioned in the Strategy, and plays an important role in a number of these priority areas, such as getting the agricultural sector on to a more sustainable path.

### *Green Deals*

183. To promote and speed up the transition to a green economy, in 2011 the Dutch Government launched the *Green Deals* programme, as part of the Sustainability Agenda. *Green Deals* encourages the private sector, NGO and citizens to develop and implement plans for a more sustainable economy. They give much attention to the legislative framework. The role of central government is to remove administrative obstacles for the exploitation of the project, such as confusion about licences, lack of collaborative partners, or ambiguous regulations.

184. The government has set agreements with the Dutch Dairy Organisation and the Dutch Agricultural and Horticultural organisation to have zero-carbon emissions in dairy chains by 2020. By removing harmful regulations, *Green Deals* aims to strengthen private initiatives.

185. The Government evaluates proposals on the basis of the following criteria:

- They must concern specific sustainable initiatives in the field of energy, raw materials, mobility and water;
- The project must (potentially) be profitable;
- The project must produce rapid results;
- The project must lead to new economic activity or energy saving for companies.

186. One of the projects where the agricultural sector is involved is the green deal "Biogas XL". The Dutch central government, Essent, Friesland Campina and Dutch Green Gas Company will work over the

next two years on two “Biogas XL”-scale projects. Two small-scale farmers will experiment with two (mono-) manure fermentation biogas produced and liquid biogas, which will be then used as fuel for transport. Working together with the government, ways to shorten the licensing procedure and simplify. The process will be explored. Ultimately, the goal is to have 125 of these projects nationwide.

### ***Incentive renewable energy***

187. In 2006, the Dutch Government decided on a target for the production of renewable energy and for the reduction of CO<sub>2</sub> emissions by 2020. To meet these targets the Government developed a new scheme *Incentive for Renewable Energy*. The scope of the scheme is to promote the production of renewable energy (wind, sun and biomass). The production of biogas on farms is also supported, including conversion of biogas into electricity. The scheme can be called a feed-in subsidy. In fact, electricity producers are guaranteed a fixed tariff that would adjust in proportion to fossil fuel energy prices. In cases when the feed-in tariff is higher than the electricity price, the mechanism acts like a premium. On the contrary, should the electricity price/kWh be higher than the estimated generation cost for a determined technology, no subsidy will be received from the government. The subsidy is for twelve years.

### ***The Dutch Enterprise Policy – Top-sector approach***

188. This is a government initiative to boost growth and innovation in nine sectors, in which the Netherlands excels globally and they are a priority for the Dutch government: agro-food; horticulture and propagating stock; high-tech; energy; logistics; creative industries; life sciences; chemicals; and water. Core to the top-sector approach is collaboration among researchers, entrepreneurs and government (the “golden triangle”). The government does not make proposals, but asks companies and scientists to join an action agenda.

189. Two of those top-sectors refer to agriculture: propagating stock and agro-food; and horticulture. In the *Top-sector approach* proposals concerning energy, the agricultural sector is also involved. Most of the green growth themes are described as an element of the innovation contracts.

190. In relation to agro-food, the *Top-sector approach* focuses on further promoting sustainable food supply chains where there is a continuous challenge of dealing with an increasing resource efficiency. Furthermore, there is an increasing ambition to reach a level of:

- Sustainable land management.
- Emission-neutral production (by 2030) in terms of minerals (losses to be no greater than in unfertilised systems. Greatly reduced emissions and residues of pesticides.
- Reduction of energy use and GHG emissions and increased use of renewable energy, following the ambitious commitments made in 2008 to be clean and efficient by 2020 in terms of CO<sub>2</sub> emissions (i.e. 30%), renewable energy production and energy efficiency towards a future climate neutral management and chain.
- Have energy neutral stables. Greatly reduce products CO<sub>2</sub> footprint.
- Reduction in the use of fertilisers, in conformity with the objectives of the Nitrates Directive, the Water Framework and Marine Framework.
- Efficient use of water in agriculture.

191. The *Top-sector* approach to horticulture and propagating stock contains a proposal for four innovation themes. One of the green growth themes is the production of food utilising less space, water, energy and minerals to feed the future 7.7 billion people in the world.

### ***Long-Term Agreements (LTAs) on energy efficiency in the Netherlands***

192. Since the early 1990s, the Ministry of Economic Affairs, Agriculture and Innovation has been making voluntary long-term agreements (or covenants) (LTAs) with various industrial and non-industrial sectors as part of Dutch energy policy. The aim is to promote energy savings in the Netherlands by improving energy efficiency. The current LTAs span the period 2005 to 2020.

193. Medium-sized – and sometimes smaller – enterprises take part in LTAs. Larger energy-intensive companies participate in the LEE Covenant (LTA on Energy Efficiency for ETS enterprises). LTAs are signed by two government ministers (for Economic Affairs, Agriculture and Innovation; and of Infrastructure and the Environment), the provincial authorities, the Association of Dutch Local Authorities, the participating companies and relevant trade organisations. Over 1 000 companies and over 40 sectors have signed the LTAs. Concerning agriculture, LTAs are in place to improve energy efficiency for the horticulture sector with heated greenhouses.

194. Every four years, LTA companies must draft an *energy efficiency plan* (EEP) mapping out the company's energy efficiency goals, the measures they intend to employ, and a schedule for reaching the goals. An EEP describes measures for improving energy efficiency not only *within* the company's production process, but it also covers *energy management* and product and supply chain efficiency.

195. The total use of energy within the total life cycle of a product, from raw materials up to disposal, is taken into account. Improvement of energy efficiency per sector can result from energy efficiency measures taken by companies to improve the performance of products (process efficiency); and measures taken by companies regarding product and supply chain efficiency, such as more efficient transportation, or savings in the use phase (e.g. lower energy consumption, lifetime extension), or savings resulting from efficient and effective disposal of products (e.g. re-use, recycling/up-cycling). Companies also report the use of renewable energy.

196. In terms of monitoring, the LTA programme is implemented by the NL Agency, which is part of the Ministry of Economic Affairs, Agriculture and Innovation and implements government policy for sustainability, innovation, and international business and co-operation. Companies must provide the NL Agency with monitoring data, on an annual basis, before 1 April. This information – on the progress they have made with implementing their EEP and the practice of systematic energy management – provides the basis for the sector reports that are discussed each year with the members of the Dutch energy-saving consultative body of the sector.

### ***Clean and Efficient Programme***

197. The *Clean and Efficient Programme* (CEP) is a package of measures aimed at achieving the following targets: i) reduction of GHGs (mainly CO<sub>2</sub>) by 20% by 2020 compared with 1990; ii) an increase of the proportion of renewable energy to 20% by 2020; and iii) the achievement an energy efficiency level of 2% per year by 2020. The programme came into force in June 2008 and will run until December 2020. Considerable attention is given to the efficient use of heat, as well to the production of extra wind power, both on land and at sea. A mix of policy instruments to achieve these objectives is used:

- Financial instruments (the European Emission Trading Scheme (ETS) to reduce CO<sub>2</sub> emissions);
- Normative measures for energy efficiency, CO<sub>2</sub> emissions and sustainability;
- Instruments to stimulate innovation;

- Temporary stimuli (e.g. subsidies for renewable energy or fiscal stimuli);
- International climate and energy diplomacy.

198. The programme includes measures for all sectors. Under the CEP, multi-year agreements are also being made with other agricultural sectors, such as livestock farming, open cultivation, bulb cultivation and the forestry and timber sector, with a view to achieving energy efficiency improvements averaging 2% per year in the period up to 2020, and introducing the production of renewable energy in 2020. Progress will be monitored through annual work programmes, and adjustments will be made where necessary.

#### *Food industry*

199. In the food and drink industry, around 200 (small) and medium-sized businesses in the dairy, meat processing, margarine, oils and fats, coffee-roasting, fruit and vegetable processing, cocoa, potato processing and flour milling sectors participate in a separate covenant, "LTAs energy efficiency". Under this agreement, participants endeavour to achieve (on average) for the combined businesses a 30% energy efficiency improvement in the period 2005-20.

#### *Greenhouse horticulture*

200. Greenhouse horticulture is the biggest energy consumer in the primary agricultural sector, mainly using natural gas for heating greenhouses and generating electricity. The electricity produced by the greenhouse horticulture industry accounts for 10% of national consumption.

201. The 2020 goals for this sector include: the introduction of climate neutral (new) greenhouses; the achievement of 48% less CO<sub>2</sub> emissions (compared with 1990); establishment of a supply of renewable heat and power; significant reduction use of fossil-fuel energy. Many different measures are used, including research, demonstration, communication, teaching, subsidies, settlement system and insurances. The national government and the greenhouse horticulture sector have also agreed to set up a system of CO<sub>2</sub> emissions trading for greenhouse horticulture businesses not participating in the EU's Emissions Trading Scheme (ETS).

202. Through the *Glasshouses as Energy Providers* innovation programme, the government, in Public-Private Partnership with the industry and knowledge institutes, attempts to ensure that new greenhouses become virtually independent of fossil energy by 2020. Improvement in energy efficiency is to be sought partly through more efficient cultivation methods (e.g. replacing the primary fuel – usually natural gas – with sustainable energy, such as solar energy, geothermal heat and bio-fuels).

203. In order to achieve the targets, the total level of funds estimated for the period 2007-12 is around EUR 1 363 million (total investments from businesses and national government). Of this amount, it has been estimated that EUR 258 million would have to come from national government. In addition, a sum of EUR 50 million has been assumed for innovation, of which around 43% will come from greenhouse horticulture.

#### *Arable farming, outdoor horticulture and livestock farming (ATV)*

204. The CEP envisages that the emissions caused by direct energy use (gas, oil and electricity) in this sector should be reduced by approximately 60% by 2020 compared with 1990, by applying energy-efficiency measures, such as more efficient equipment and machinery, insulation and efficiency enhancement. The sector should also produce 63 PJ of sustainable energy by 2020 (equivalent to reducing CO<sub>2</sub> emissions by 3 Mtonnes/year).

205. The ATV sector should also make a contribution towards increasing the proportion of land-based wind energy: the number of wind turbines on land within the sector is to be doubled by 2020; and half of the existing wind turbines are to be replaced by turbines with a higher output. The sector (where it uses land) shall develop projects in the context of precision agriculture in order to reduce emissions from manure, artificial fertiliser and crop protection agents. The objective is to replace by 2020 50% of the artificial fertilisers being used with fertilisers that cause 50% less emissions during their production and application. The Innovation programme for precision agriculture and trials of climate-friendly fertilisers may be co-financed by the government.

206. With respect to livestock, the development of manure policy is recognised to be closely linked to the achievement of the targets in the field of sustainable energy, particularly in respect to reducing GHGs. Co-fermentation of manure is an important development with a view to achieving the stated targets. It can be used to produce sustainable energy in the form of heat, electricity or green gas, and it also leads to methane reduction and offers potential for reducing artificial fertiliser use, resulting to less energy-intensive artificial fertiliser production.

207. The livestock sector should aim to produce 1 500 million m<sup>3</sup> (natural gas equivalent) of biogas (from around 400 installations) via co-fermentation of manure with fermentable biomass. Energy-intensive livestock farming (poultry, pigs and calves) should fully switch by 2020, on 20% of its holdings, to the use of sustainable electricity such as biomass, solar water heaters for heat and/or small windmills and solar panels for their own electricity consumption.

208. Examples of policy interventions to achieve these targets include: innovation programmes for the reduction of GHG emissions, such as animal nutrition; fundamental research to reduce emissions of methane from enteric fermentation; research into additives used in concentrate feed; precision agriculture; and the reduction of fertiliser use.

209. The dairy and pig sectors should separate 25% of their manure by 2020, thus reducing the need for artificial fertiliser and achieving a reduction (of 15%) in methane emissions from manure storage. The poultry sector should aim to incinerate 2/3 of its manure, to achieve a reduction in methane emissions from storage.

210. The dairy sector should aim to achieve the lowest emissions of other GHGs per litre of milk in the EU. Methane emissions per dairy cow should be reduced by at least 5% by 2020 compared with 2007, by focusing on optimising dairy cow rations in a way that takes account of methane emissions and by the use of specific feed additives.

## NORWAY

211. The term of “green growth” is not used in Norway, although the need to increase agricultural production in an environmentally sustainable manner is acknowledged in the 2012 White Paper. Current agricultural policy encompasses border control measures, agricultural support and targeted environmental measures – all of which are considered essential for achieving the country’s sustainability goals. The importance of the role of research in improving agricultural productivity is also emphasised, and the Agricultural Knowledge Systems play a critical role in bringing forward new knowledge gained through research by using teaching and disseminating information to farmers. There are four research institutes under the Ministry of Food and Agriculture. Funding of research is provided by the Norwegian Research Council.

212. More specifically, the main policy instruments used are:

- The Annual Agreement on Agriculture between the government and the two farmer unions.
- Grants for research through the Research Council of Norway (for basic funding of research institutes and assets subject to competition).
- Grants for knowledge development, made directly to research institutes.
- Definition of statutes for research institutes under the Ministry of Food and Agriculture.
- Regulation of the research levy on agricultural products.
- The Research Council participates in international forums where international research policy is formulated, with emphasis on the European Commission.

## SLOVAK REPUBLIC

213. Slovakia does not currently have a dedicated strategy or action plan on Green Growth or for improving resource efficiency for the agro-food sector, but these are addressed primarily through: i) the national targets for the *Strategy Europe 2020*; the *Action Plan for Green Public Procurement 2011-15*; *Renewable Energy Action Plan*; *Rural Development Programme 2007-13*; *National Forestry Programme*; *Energy Efficiency Action Plan 2011-13*; and the *Biomass Action Plan 2008-13*.

214. The goals of the *Biomass Action Plan* clearly highlight the importance of biomass availability and the potential for exploitation in Slovakia, the problems related to the practical use of biomass and the implementation of the commitments of Slovakia in the field of renewable energy supply. The Plan also includes support systems that are currently used by different sectors in increasing the share of renewables in the market. It also includes targets for biomass energy utilisation in Slovakia reviewing biomass availability (agricultural biomass, animal manure, forest biomass, biomass resources generated by wood-processing industry) and determining priorities for biomass utilisation.

215. The main priorities concerning resource efficiency are as follows: high quality of the environment; protection and sustainable use of natural resources, reduction of waste generation; decreasing energy demanded and pressures on natural resources, increasing the efficiency of the Slovak economy; and replacing a share of non-renewable resources utilisation with sustainable renewables.

216. Concerning monitoring progress, the following green growth indicators in the agro-sector for Slovakia are proposed: nutrient balances in agriculture; land use; agricultural land area affected by water and wind erosion by class of erosion.

## SWEDEN

### *Vision for the Green Sector 2008-12 - "Using resources without using them up"*

217. The Vision encompasses four strategic objectives: a dynamic and competitive business sector throughout the country, characterised by openness and diversity; a green sector distinguished by concern, responsibility and high ethical standards; an eco-efficient and resource-efficient green sector that plays a key role in Sweden's energy production; and a green sector that contributes to sustainable development on a global scale.

218. Concerning the monitoring of progress towards achieving this Vision, the importance of choosing the following indicators was noted: In the green sector: agriculture, forestry, fishery, the food and beverage industry, and the wood and pulp industry; rural areas: population size, population density, commuting; official statistics published by agencies (Statistics Sweden); in addition, indicators should be quantitative,

use available statistics and not be numerous. The establishment of a Parliamentary Committee for the Review of the Environmental Objectives System was noted.

## SWITZERLAND

### *Action Plan on the Green Economy*

219. The Government's Action Plan on the Green Economy at national level, which was adopted by the Swiss Federal Council in March 2013, entails 27 measures (including food waste reduction). It mandated the Federal Department of the Environment, Transport, Energy and Communications (DETEC) to prepare a parliamentary dispatch to adapt the Environmental Protection Act (EPA). The salient points of the planned revision of the EPA are:

- Definition of targets for the efficient use of natural resources, the measurement of resource use, reporting, dialogue with economic actors, science and society, and the provision of information and raising of public awareness.
- Improvement of the resource efficiency of consumption and production; in particular improvements shall be made to the information provided about the ecological footprint of products; promotion of target agreements and dialogue with business.
- Closure of nutrient cycles that are not yet closed (recovery of phosphorus and copper).
- Strengthening of Switzerland's international commitment to the green economy and improvement of resource efficiency in the context of international environmental conventions and organizations; Swiss shall assume a more prominent presence in international networks.

220. In the area of sustainable agriculture and food security, the *objective* is to achieve a sustainable agro-food system with increased resilience that ensures: food security for all; maintains the availability of natural resources; and provides decent livelihoods and income for farmers and rural populations.

221. The *targets* for sustainable agriculture and food security are the following:

- Sustainable intensification of food and agriculture systems (increasing the efficiency of food and agriculture systems with a high ecological footprint; increasing the productivity of food and agriculture systems with a low ecological footprint; reducing post-harvest losses and food-waste);
- Increased environmental and economic resilience of agro-food systems and delivery of public goods (improved market and stocks information; reduction of trade-distorting measures and environmentally harmful subsidies; decrease of freshwater use for agriculture; increased soil fertility and agro-biodiversity);
- Maintenance of sufficient employment levels in agriculture and related sectors in rural and mountain areas and increased income; investments into smallholder production systems; investments in infrastructure to facilitate access to markets.

222. Concerning *instruments* a wide range is proposed, including the following: payment for ecosystem services and remuneration of good agricultural practices; information for sustainable products (labels) and promotion of sustainable consumption; harmonised methods for life-cycle analysis, water and energy use; full-cost pricing of food, energy and water; phasing-out the use and production of highly toxic pesticides; research and development in agro-ecology; provision of global public goods through investing

in research into agriculture and technology; addressing post-harvest loss along the value chain; investment in infrastructure and public services in rural areas; establishment of principles for agricultural foreign direct investment; and appropriate and effective protection of intellectual property rights, including a legal framework enabling the protection of collective rights for geographical indications.

223. Since 1996, sustainable agriculture has been included in the Swiss constitution. Gradual policy reforms in Swiss agriculture since 1999, such as decoupling of support from commodity production, cross compliance, abolition of export subsidies and reduction of environmentally harmful subsidies and increasing resource efficiency, are consistent with the principles of the OECD's Green Growth Strategy. Moreover, reforms of the system of direct payments envisaged under the Agricultural Policy Reform 2014-17 (AP 14-17), by focusing on targeting economic and ecological objectives, would further improve the efficiency of the agricultural programmes.

### ***Sustainable use of agricultural resources***

224. The *Sustainable use of agricultural resources* programme was launched in 2008 and is part of the Government's efforts to improve the efficient use of natural resources. This is a six-year programme which co-finances (maximum 80% of costs) projects developed by local authorities ("cantons") in specific areas: nitrogen (e.g. direct injection of manure), phosphorous and energy, optimised pest control, protection and sustainable use of soils (e.g. direct injection of manure) and biodiversity. The cantons submit the projects to the federal government, which allocates the funding. The AP 14-17 proposes the allocation of funds to individual farmers instead of the cantons. Improving efficiency of the use of natural resources in agriculture and fostering sustainable consumption is also a key pillar of the government's 2025 strategy.

## **TURKEY**

### ***National Climate Change Action Plan (NCCAP)***

225. In order to ensure implementation of the *National Climate Change Strategy (2010-20)*<sup>23</sup>, the National Climate Change Action Plan (NCCAP)<sup>24</sup> was published in July 2011. The NCCAP includes strategic objectives and goals for GHG emission control and adaptation to climate change over 2011-23. Its overall aim is to address climate change by identifying national actions to limit GHG emissions and build resilience through managing impacts, thereby encouraging mitigation and adaptation to climate change in Turkey.

226. The NCCAP addresses measures in priority sectors (energy, industry, waste, buildings, forestry, transportation and agriculture), specifically focusing on long term co-operation, technology development and transfer, and national and international financing mechanisms.

227. The NCCAP consists of two main parts which are: the Greenhouse Gas Emission Control Action Plan Energy (concerning buildings, transportation, industry, waste, agriculture, land use and forestry, cross-cutting issues) and Climate Change Adaptation Plan (water resource management, agriculture and food security, ecosystem services, biodiversity and forestry, natural disaster risk

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23. Turkey's National Climate Change Strategy (English)  
[http://iklim.cob.gov.tr/iklim/Files/Stratejiler/%C4%B0DES\\_ENG.pdf](http://iklim.cob.gov.tr/iklim/Files/Stratejiler/%C4%B0DES_ENG.pdf)

24. National Climate Change Action Plan(English)  
[http://iklim.cob.gov.tr/iklim/Files/IDEP/%C4%B0DEP\\_ENG.pdf](http://iklim.cob.gov.tr/iklim/Files/IDEP/%C4%B0DEP_ENG.pdf)

management, human health and cross-cutting issues). Under these headings, there are a total of 541 actions under NCCAP.

228. The established objectives and goals related to agriculture are the following:

- Greenhouse Gas Emission Control Action Plan Energy
  - Agriculture
    - Determining and increasing the quantity of carbon stock captured in the soil
    - Identifying the potential for GHG emissions limitation in agriculture sector
    - Decreasing the rate of GHG emissions originating from vegetable and animal production
    - Establishing the information infrastructure that will meet the needs of the agriculture sector in adapting to and combating climate change.
  - Land use and forestry
    - Increasing the amount of carbon sequestered in forests by 15% of the 2007 level by 2020 (14 500 Gg in 2007; 16 700 Gg in 2020)
    - Reducing deforestation and forest damage by 20% of the 2007 level by 2020
    - Increasing the amount of sequestered carbon as a result of agricultural forestry activities by 10% of the 2007 level by 2020
    - Identifying the amount of sequestered carbon in pastures and meadows in 2012, and increasing the carbon stock by 3% of the 2007 level by 2020.
- Adaptation
  - Agriculture and food security
    - Integrating climate change adaptation into the agriculture and food security policies
    - Developing and expanding R&D and scientific studies to identify the impacts of climate change on agriculture and to ensure adaptation to climate change
    - Sustainable planning of water utilisation in agriculture
    - Protecting soil and agricultural biodiversity against the impacts of climate change
    - Developing institutional capacity and improving inter-agency co-operation in Turkey with regard to adaptation alternatives in agriculture.
  - ❖ Management of water resources
    - Integrating adaptation to the impacts of climate change into water resource management policies
    - Strengthening the capacity of water resources management, inter-agency co-operation and co-ordination with regard to adaptation to climate change
    - Developing and expanding R&D and scientific studies to ensure adaptation to the impacts of climate change in water resources management

- Integrated management of water resources and water basins for adaptation to climate change
- Planning renewable energy resources taking into consideration the impacts of climate change and the sustainability of the ecosystem services oriented to increase resilience to climate change.

## UNITED KINGDOM

229. The Department for Environment Food and Rural Affairs (DEFRA) have begun a number of different projects that are designed to improve the environmental performance of agriculture and also increase its ability to expand. Following the UK National Ecosystem Assessment published in June 2011, the Natural Environment White Paper (NEWP) (the first White Paper on the natural environment in 20 years), outlined the Government's vision for the natural environment over the next 50 years. Sustainability is a key objective for economic growth for the UK (e.g. green house gas reduction targets; carbon budgets; and waste and recycling targets).

230. The NEWP covers the following areas: climate change, biodiversity, water, air quality and soils. Two specific projects of the NEWP relate to agriculture: i) Green Food Project; and ii) Advice and Incentives for Farmers.

### *The Green Food Project*

231. This is the most significant agriculture-specific project. The objectives of the Green Food Project are to work with stakeholders on how to increase the production and productivity of the sector, while at the same time increasing the environmental performance of the whole supply chain (e.g. reduce GHGs, reduce waste and reduce water use, and improve biodiversity and soil quality).

232. Stemming from a commitment in the Natural Environment White Paper, published in June 2011, the project is driven forward in partnership bringing together government, the farming and food industries and environmental and consumer groups. The time period over which the project will consider is 2050. The project steering group has committed to publishing conclusions from this work by June 2012.

233. Among the questions addressed will be how competing pressures on land use and on natural resources can be managed, how new technology should be embraced and the implications of changing consumer behaviour and the potential to innovate.

234. The first steps have been the identification of a number of test cases to open the debate, focussing on the dairy industry, wheat and bread production, the production of 'packaged' meals and issues affecting certain specific regions, including the Lake District, Norfolk and the South West of England.

### *Advice and Incentives for Farmers Project*

235. The focus of this project, which is still at the development stage, is on the provision of targeted advice to farmers. The aim of the project is to better integrate advice for better environmental outcomes and economic performance.

### *Reducing emissions and waste in food chains*

236. Efforts to improve the environmental footprint of food systems can mobilize public-private partnerships. The Climate Change Act of 2008 commits the United Kingdom to an 80% economy-wide

reduction in GHG emissions from 1990 levels by 2050. The agriculture industry's ambitious Greenhouse Gas Action Plan (GHGAP) aims to reduce annual emissions by 3 million tonnes CO<sub>2</sub>-equivalent by 2018-22 through strategic delivery of messages, technical advice and information to agricultural producers in all farming systems. GHGAP builds on existing initiatives (for example, the Dairy Roadmap) and brings together whole supply chains, to encourage adoption of farm practices that are more efficient and reduce greenhouse gas emissions while enabling cost savings per unit of production and enhancing landscapes and biodiversity.

237. Another UK initiative, the Waste Resources and Action Programme (WRAP) works with businesses, individuals and communities to reduce food waste. Household food and drink waste represents GBP 12 billion in lost value and 20 million tonnes of CO<sub>2</sub>-equivalent in emissions each year. Research by WRAP focuses on ways to cut down the amount of food thrown away by consumers and covers consumer habits, attitudes and behaviours, appropriate ways of communicating to priority audiences and retail innovation. In partnership with WRAP, the grocery sector has made changes to make it easier for consumers to buy the right amount of food, and to optimise freshness and value, as well as to implement large-scale consumer-facing campaigns. As a result, 670 000 tonnes of food waste have been diverted from landfills, saving GBP 600 million a year.

## UNITED STATES

238. The US employs a suite of programmes aimed at enhancing resource use efficiency and increasing productivity in a sustainable manner. For example, several programmes have been put in place to encourage the adoption and use of environmentally beneficial practices and the conservation of resources: these include agri-environmental payments (e.g. the Conservation Reserve Program, the Environmental Quality Incentive Program, etc.), compliance requirements and technical assistance (Conservation Technical Assistance). The US also invests substantial resources in agricultural R&D to enhance productivity growth (see OECD, 2011 – *Evaluation of Agricultural Policy Reforms in the United States*). These types of policies have been discussed in various other studies undertaken by the Committee for Agriculture and will not be discussed here. Instead, the focus will be on renewable energy policies related to agriculture.

### ***Renewable energy policies related to agriculture***

239. Most of the federal programmes are administered by five separate agencies and departments (the Environmental Protection Agency, the U.S. Department of Agriculture, the Department of Energy, the Internal Revenue Service and the Customs and Border Protection).<sup>25</sup> However, as renewable energy production has been considered primarily a concern of energy, tax and environmental policy (rather than agricultural policy) most of the federal programmes that support renewable energy production in general, and agriculture-based energy production in particular, are outside the domain of the Farm Acts.

### ***Environmental Protection Agency (EPA) - Renewable Fuel Standard (RFS)***

240. The RFS mandate, administered by the U.S. Environmental Protection Agency, requires that the nation's fuel supply contain a specified amount of blended biofuel. The RFS, which has its origins in the

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25. The Department of Energy operates the greatest number of efficiency and renewable energy incentive federal programmes; the Department of the Treasury and the Department of Agriculture operate several programmes; a few programmes are also conducted by the Departments of Transportation, Labor, and Housing and Urban Development. For more details discussion, see Yacobucci (2012) and OECD (2011).

2005 Energy Policy Act and was expanded by the 2007 Energy Independence and Security Act of 2007 (EISA), sets a minimum on the quantity of biofuel to be used in the United States.

241. The EISA mandates the use of 36 billion gallons of renewable fuels by 2022 (an almost five-fold increase over pre-legislation levels).<sup>26</sup> Beginning in 2015, ethanol from maize will be capped at a maximum of 15 billion gallons. In 2015, 5.50 billion gallons of non-maize based biofuels are to be consumed; and by 2022 the mandate specifies 21 billion gallons of non-maize based biofuels.<sup>27</sup> The RFS also mandates maximum lifecycle GHG emissions from each type of biofuels contributing to the mandate. Lifecycle GHG emissions of qualifying renewable fuel must be less than the lifecycle GHG emissions of the 2005 baseline average of the gasoline or diesel fuel that it replaces<sup>28</sup>

242. The mandate is enforced by a credit trading scheme tying together biofuel producers with refiners, importers and blenders of oil-based gasoline (EPA, 2010). Biofuel producers and importers generate Renewable Identification Numbers (RINs) with each gallon of biofuel they produce. Fuel refiners, importers or blenders can choose to use less biofuel than the stipulated amount, and buy credits from others who use in excess of the required amount. For example, if the blend exceeds the RFS, blenders can sell their excess RINs to other obligated parties who can then blend biofuels at a rate below the RFS.

243. With the termination of tax incentives and import duty on ethanol, and the more ambitious targets being mandated, the RFS mandate becomes the main policy instrument in promoting the use of biofuels. While this programme is not a direct subsidy for the construction of biofuels plants, the guaranteed market created by the renewable fuel standard is expected to stimulate growth of the biofuels industry and to result in higher world prices for biofuels (in particular ethanol) as well as for biofuel feedstocks (coarse grains, sugar cane) that would have been the case in the absence of the mandate (OECD/FAO, 2012).

#### *Department of Agriculture (USDA)*<sup>29</sup>

244. The Department of Agriculture, particularly the Rural Business and Co-operative Programmes, comprise a wide array of programmes aimed at achieving the goal of 80% of America's electricity coming from clean sources by 2035 (including wind, solar, nuclear, clean coal and natural gas) and ensuring America's energy independence from imports.

245. These programmes provide grants, guaranteed loans and payments for a wide range of purposes, including: support for rural energy efficiency and self-sufficiency; research, development, deployment and production of advanced biofuels (especially cellulosic); realisation of energy efficiency improvements (e.g. help convert older heating sources to cleaner technologies); installation of renewable energy systems (e.g. installation of flexible fuel pumps, solar panels and build bio-refineries); completion of energy audits and feasibility studies; encourage federal procurement of bio-based products; and creation of educational programme to increase understanding of biodiesel and promote its use.

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26. The Energy Policy Act of 2005 required, starting in 2006, the use of 4 billion gallons of renewable fuels, increasing to 7.5 billion in 2012.

27. The EISA amendments to the RFS specifically mandate the use of cellulosic biofuel (16 billion by 2022) and biomass-based diesel fuel (1 billion gallons annually by 2012).

28. Cellulosic-based fuels must achieve at least a 60% lifecycle GHG reduction; maize starch-based fuel (produced by newer plants) a 20% GHG emissions reduction; and advanced-based biodiesel a 50% GHG emissions reduction.

29. In addition to these programmes, there are several conservation programmes which significantly reduce fuel and other energy-related costs, such as the Conservation Security Program, the Environmental Quality Incentive Program, Conservation Technical assistance, etc.

246. The 2002 Farm Act was the first omnibus Farm Act to explicitly include energy – as well as on the goals of EISA. Renewable energy policy under the 2008 Farm Act – The Food, Conservation, and Energy Act of 2008 – builds programmes put in place by the 2002 Farm Act: amended or established various biofuels incentives, including lowering the value of the ethanol excise tax credit, establishing a tax credit for cellulosic biofuel production, extending import duties on fuel ethanol, and establishing several new grant and loan programmes(OECD, 2011).

247. The 2008 Farm Act authorised USD 1.1 billion in mandatory funding for FY2008 through to FY2012, compared with USD 800 million under the 2002 Farm Act (FY2002-07), with most of the increase mandated for the Biorefinery Assistance Program, which aims at promoting the development of advanced biofuel refining capacity. More specifically, key biofuels-related provisions in the enacted 2008 Farm Act include:

*The Biorefinery Assistance Program*

248. This programme provides grants and loan guarantees to bio-refineries that use renewable biomass to reduce or eliminate fossil fuel use. The programme was established to assist in the development of new and emerging technologies for the development of advanced biofuels, and aims to accomplish the following goals: to increase the energy independence of the United States; promote resource conservation, public health, and the environment; diversify markets for agricultural and forestry products and agricultural waste materials; and to create jobs and enhance economic development in rural America. Funding for FY 2009 was USD 74 million and for FY 2010 USD 245 million.

*The Repowering Assistance Program*

249. The programme provides grants to eligible bio-refineries to help offset the costs associated with converting existing fossil fuel systems to renewable biomass fuel systems. The programme encourages the use of renewable biomass as a replacement fuel source for fossil fuels used to provide heat or power in the operation of eligible bio-refineries.

250. The amount of assistance is determined by the availability of funds, the project scope, and the ability of the proposed project to meet all the scoring criteria – in particular, the percentage reduction in the amount of fossil fuels used by the biorefinery, the quantity of fossil fuels replaced by a renewable biomass system, and the cost effectiveness of the renewable biomass system.

*Advanced Biofuel Payment Program*

251. This programme provides payments to producers to support and expand production of advanced biofuels from sources other than maize kernel starch. Additional incentive payments may be made to producers who have increased their biofuel output over the previous year's production. To be eligible for the programme, an applicant must produce and sell an advanced biofuel. The programme provided USD 80 million in FY 2010 and USD 85 million in FY 2011.

252. Eligible advanced biofuel producer includes an individual, corporation, company, foundation, association, group of organisations, or non-profit entity that blends or otherwise combines advanced biofuels into a blended biofuel. The biofuel must meet the definition of advanced biofuel, be a solid, liquid, or gaseous advanced biofuel, and be a final product; if the biofuel is used on-site, there must be an Agency-approved system to verify the quantity used. Fuel must be derived from renewable biomass other than maize kernel starch.

253. Payments are based on requests received and each producer's level of production. Examples of producers who are eligible are operations of biodiesel facilities producing advanced biofuel from canola

oil, greases, and soybean oil. Ethanol facility that uses milo or sorghum, anaerobic digester on a farm that uses animal waste to produce electricity and wood pellets is not considered an advanced biofuel producer under the programme.

*The Rural Energy for America Program (REAP)*

254. The REAP provides assistance in the form of loan guarantees and grants to agricultural producers and rural small businesses to enable them to complete a variety of projects, including: the installation of renewable energy systems, such as solar panels or anaerobic digesters; the attainment of energy efficiency improvements, such as installing irrigation pumps or replacing ventilation systems; the development of renewable energy; and the carrying out of energy audits and feasibility studies. The REAP is comprised of the following components: The Renewable Energy System and Energy Efficiency Improvement Guaranteed Loan and Grant Program; The Energy Audit and Renewable Energy Development Assistance Grant Program; and the Feasibility Studies Grant Program. Funding for FY 2009 was USD 90 million; for FY 2010 USD 60 million; and USD 70 million for each FY 2010 and FY 2011.

*Biomass Crop Assistance Program (BCAP)*

255. This programme, established by the 2008 Farm Act, encourages biomass production or biomass conversion facility construction with contracts that will enable producers to receive financial assistance for crop establishment costs and annual payments for biomass production. Producers must be within economically practicable distance from a biomass facility. It also provides payments to eligible entities to assist with costs for collection, harvest, storage, and transportation to a biomass conversion facility.

256. The BCAP provides assistance to support the production of eligible biomass crops on land within approved BCAP project areas. In exchange for growing eligible crops, annual payments are provided under 10- to 15-year contracts. Up to 75% of establishment costs may also be provided under these contracts. The government also provides dollar-for-dollar matching payments for collection, harvesting, storage and transportation of biomass to qualified biofuel production facilities (as well as bioenergy or biobased products). Payments may not exceed USD 45 per tonne for a two-year period, and matching payments are available for no more than two years per participant.

257. Qualified applicants include: eligible biomass material owners and eligible biomass producers. Qualified technologies comprise: eligible material for a matching payment is renewable biomass, as defined by the 2008 Farm Act, with several important exclusions, including harvested grains, fibre or other commodities eligible to receive payments under the Commodity Title (Title I) of the 2008 Farm Act (the residues of these commodities, however, are eligible and may qualify for payment); animal waste and animal waste by-products, including fats, oils, greases and manure; food waste and yard waste; and algae. Eligible crops include renewable biomass, with the exception of crops eligible to receive a payment under Title I of the 2008 Farm Act and plants that are (or have the potential to become) invasive or noxious, invasive or noxious.

258. In response to concerns raised on the impact of increased ethanol production on agricultural and rural economies, the Biomass Crop Assistance Program requires an assessment of the economic impacts of expanded cellulosic biomass production on local economies and infrastructures.

*Biomass Research and Development*

259. Established by the Biomass Research and Development Act of 2000 and significantly modified by the 2008 Farm Act, the programme provides grants for biomass research, development, and demonstration projects. Eligible projects include ethanol and biodiesel demonstration plants and a wide range of eligible applicants. The programme is administered by the National Institute of Food and

Agriculture. Like the BCAP, this programme also requires an assessment of the economic impacts on rural economies of bio-refinery expansion and conversion by USDA. Annual funding: mandatory funding of USD 20 million for FY 2009; USD 28 million for FY 2010; USD 30 million for FY 2011; and USD 40 million for FY 2012.

*New Era Rural Technology Competitive Grants Program*

260. The programme, authorised by the 2008 Farm Act, is administered by the National Institute of Food and Agriculture and provides grants to community colleges or advanced technological centres located in rural areas, for technology development, applied research, and training necessary to produce graduates capable of strengthening the nation's technical, scientific and professional workforce in the fields of bioenergy, pulp and paper manufacturing, and agriculture-based renewable energy resources. In FY 2010 funding was USD 875 000; in FY 2011 it was USD 875 000; and is estimated at USD 875 000 for FY 2012.

*Feedstock Flexibility Program for Producers of Biofuels (Sugar)*

261. The programme was established by the 2008 by the Food, Conservation, and Energy Act of 2008, and is administered by the USDA's Commodity Credit Corporation (CCC). It authorises the use of CCC funds to purchase surplus sugar, in order to ensure that the sugar programme operates at no-net-cost. Qualified applicants are producers of biofuels using eligible sugar as a feedstock.

*Biomass and Biorefinery Systems R&D Program*

262. The programme, administered by the Office of Energy Efficiency and Renewable Energy, provides financial assistance to industrial partners, national laboratories, universities and other stakeholders to develop the technologies and systems needed to cost-effectively transform domestic biomass resources into clean, affordable and sustainable biofuels, bio-products and bio-power. In recent years, the programme has been primarily geared towards the development and deployment of ethanol from non-food feed stocks, but its scope is now expanding to include additional alternative fuels, such as bio-butanol, green gasoline, jet fuel and diesel. Total annual funding increased from USD 89.8 million for FY2006 to USD 220 million for FY 2011.

*Business and Industry Guarantee Loan Program*

263. The Business and Industry (B&I) Guarantee Loan Program, which provides guarantees of up to 90% to commercial lenders, could possibly be used to assist biofuels producers indirectly. The primary purpose of the B&I programme is to create and maintain employment and improve the economic climate in rural communities. It is targeted on the needs of rural residents and of communities suffering from out-migration, persistent poverty, long-term population decline and job deterioration, natural disasters, and fundamental structural changes in their economic base. Higher priority is accorded to loans and loan guarantees for locally or regionally produced agricultural food products (i.e. those products that are transported less than 400 miles between their place of production and point of sale) – 5% of funding annually is reserved for this purpose. Priority is given to projects benefitting under-served communities.

264. Under this programme, during the FY 2002-05 period, over 2 200 loans were guaranteed, and almost 23 000 jobs were created, and 68 000 jobs saved. Alternatively, the cost of each job created or saved amounted to USD 1 500 (USDA, 2006c). In FY 2009, the B&I programme represented about 80% (USD 700 million) of the funds allocated to business programmes. This level of support is expected to save or create 25 836 jobs.

265. A study by Johnson (2009) provides an empirical evaluation of the effectiveness of the programme in increasing employment, using standard econometric techniques based on a sample of 1 369 loans. The study found a robust association between loan reception and increased employment growth: a county that receives a loan of USD 1 000 per capita experiences a 3-6% increase in employment-per-capita-growth over the two years following the granting of the loan, but also experiences a 3-5% decrease in earnings-per-worker growth, which leaves the effect on total county earnings unclear. The cost to the federal government per job created is estimated at USD 1 827. The study concludes that the B&I loan programme subsidises loans associated with increased employment growth, although the jobs created pay less than the average wage.

#### *Value-Added Grants*

266. The Value Added Producer Grant Program (VAPGP), which came into force under the 2002 Farm Act, provides grants for the marketing of value-added products and farm-based renewable energy. Like the B&I programme, it could possibly be used to assist biofuels producers indirectly. Its ultimate goal is to enhance the economic well-being of rural areas. The programme does not allow the grants to be used for on-farm or business purposes, such as acquiring or repairing equipment. Under the 2002 Farm Act, the programme was authorised for six years, with an annual allocation of USD 40 million. In FY 2006, there were 185 beneficiaries, who received a total of USD 21.2 million.

267. The U.S. Office of Management and Budget Program Assessment Rating Tool assessment undertaken in 2006 found the VAPGP to be both well-designed and managed (US Government, 2006). However, its overall assessment rating was only “adequate” and some performance indicators lacked data. In terms of improvement, the assessment suggested actions in various areas, including the continuous re-assessment of existing performance indicators, evaluation of potential new indicators and increased targeting towards emerging markets.

#### *Sustainable Agriculture Research and Education Program (SARE)*

268. Established by the 1990 Food Act, SARE is a decentralised, grass root programme run by four regions (North Central, Northeast, South and West). SARE's mission is to advance agricultural innovations that improve profitability, stewardship and quality of life by investing in ground breaking research and education. The purpose of the programme is to encourage research designed to increase our knowledge concerning agricultural production systems that: i) maintain and enhance the quality and productivity of the soil; ii) conserve soil, water, energy, natural resources, and fish and wildlife habitat; iii) maintain and enhance the quality of surface and ground water; iv) protect the health and safety of persons involved in the food and farm system; v) promote the well being of animals; and vi) increase employment opportunities in agriculture.

269. In particular, SARE grants fund research and education projects exploring: on-farm renewable energy; pest and weed management; pastured livestock and rotational grazing; no-till and conservation tillage; nutrient management; and agro-forestry. Since 1988, SARE has funded more than 5 000 projects through its regions, including research and education grants, professional development grants and producer (farmers and ranchers) grants.<sup>30</sup>

270. Qualified applicants include the following: federal and state governments; colleges and universities; state agricultural experiment stations; state co-operative extension services; non-profit

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30. Generally, research and education grants range from USD 60 000 to USD 150 000; professional development range from USD 20 000 to USD 90 000; and producer grants range between USD 1 000 and USD 15 000.

organisations; individuals with demonstrable expertise. Qualified technologies include biomass; biofuels. Annual funding amounted to: USD 12.5 million for FY 2006; USD 12.4 million for FY 2007; USD 9.1 million for FY 2008; USD 14.5 million for FY 2009; USD 14.5 million for FY 2010 and USD 13.5 million for FY 2011.

*The American Taxpayer Relief Act of 2012*

271. The American Taxpayer Relief Act of 2012 (so-called “fiscal cliff” bill), which came into force in January 2013, re-instated the biodiesel blenders credit and extended the cellulosic biofuels producer tax credit. More specifically, the Act: i) extends, retroactively to 1 January 2012 and through the end of 2013, the USD 1.00 per gallon tax credit for biodiesel (which had expired on 31 December 2011); ii) the small agri-biodiesel producer credit of 10 cents per gallon; and iii) extends through the end of 2013 the USD 1.00 per gallon tax credit for diesel fuel created from biomass.

272. Under the Act, the Biobased Markets Program, Biorefinery Assistance program, Repowering Assistance program, Bioenergy Program for Advanced Biofuels and Biodiesel Fuel Education Program are extended through 2013. The bill also extends the Rural Energy for America Program, the Biomass Research and Development program, the Rural Energy Self-Sufficiency Initiative, the Feedstock Flexibility Program for Bioenergy Producers, Biomass Crop Assistance Program, Forest Biomass for Energy and Community Wood Energy Program through the end of 2013.

***Department of Energy***

*Loan Guarantees for Ethanol and Commercial by products from Cellulose, Municipal Solid Waste and Sugar Cane*

273. These programmes, administered by the Department of Energy (DOE) and authorised by the 2005 Energy Policy Act, provide loan guarantees for the construction of facilities that produce ethanol and other commercial products from cellulosic material, municipal solid waste, or sugar cane. Qualified applicants include private lending institutions to guarantee loans for the construction of biofuels plants.

*Cellulosic Ethanol Reserve Auction*

274. The programme, established by the 2005 Energy Policy Act and administered by DOE, provides per-gallon incentive payments for cellulosic biofuels until either annual domestic production reaches 1 billion gallons or until the year 2015 whichever is earlier. Qualified applicants include: any US cellulosic biofuel production facility that meets applicable requirements. Annual funding of USD 1 billion is authorised for all fiscal years, with a cap of USD 100 million per year.

***Internal Revenue Service***

*Renewable Energy Grants (1603 Program)*

275. This programme, which is part of the American Recovery and Reinvestment Act of 2009 and is administered by the U.S. Department of the Treasury, expired at the end of 2011. It provided grants for investments in certain energy production property in lieu of tax credits. The programme provided payments equal to 10% or 30% of the eligible cost basis for specified energy projects. The purpose of the payment was to reimburse eligible applicants for a portion of the cost of installing a specified energy property used in a trade, or business, or for the production of income. A payment was made after the energy property was placed in service; a payment was not made prior to, or during, construction of the energy property.

*Special Depreciation Allowance for Cellulosic Biofuel Plant Property*

276. Administered by the Internal Revenue Service, this programme was established in 2006 and is scheduled to run until the end of 2012. It provides to a taxpayer a depreciation deduction of 50% of a new cellulosic biofuel plant in the year it is put into service by the taxpayer. Any portion of the cost financed through tax-exempt bonds is exempted from the depreciation allowance.

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