

STUDY

Requested by the AGRI committee



Research for AGRI Committee - A comparative analysis of global agricultural policies: lessons for the future CAP



Agriculture and Rural Development



Research for AGRI Committee -

A comparative analysis of global agricultural policies: lessons for the future CAP

Abstract

This study provides a comparative analysis of global agricultural policies aimed at drawing lessons for the future of the CAP. Against the background of the main trends in agricultural support as well as recent changes and new initiatives in global agricultural policies, an in depth analysis is made of selected instruments in five countries (Australia, Canada, Japan, Switzerland, US). Recommendations are made on how current instruments and the policy mix can be improved to better address challenges for agriculture and rural development in the European Union.

This document was requested by the European Parliament's Committee on Agriculture and Rural Development.

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LIST OF ABBREVIATIONS

AA	Agricultural Act (US)
AAFC	Agriculture and Agri-Food Canada
ACCU	Australian Carbon Credit Unit
AECM	Agri-Environment-Climate Measures
AGGP	Agricultural Greenhouse Gases Programme (Canada)
AIA	Agricultural Improvement Act (US)
AIS	Agricultural Innovation System
AMS	Aggregate Measurement of Support
ANS	Allowable Net Sales
AP22+	Agricultural Policy from 2022 onwards (Switzerland)
ARC	Agricultural Risk Coverage (US)
ASA	Agricultural Stabilization Act (Canada)
AUD	Australian dollar
AUS	Australia
CA	Canada
CAD	Canadian dollar
CAP	Common Agricultural Policy
CETA	Comprehensive Economic and Trade Agreement
CC	Cross-compliance
CH	Switzerland
CHF	Swiss Franc
COP	UNFCC Conference of the Parties

CRC	Cooperative Research Centre (Australia)
CRP	Conservation Reserve Program (US)
CSE	Consumer Support Estimate
CWB	Canadian Wheat Board
DPFHMA	Direct Payment to Farmers in Hilly and Mountainous Areas (Japan)
EAFRD	European Agricultural Fund for Rural Development
ECCC	Ministry for Environment and Climate Change (Canada)
EIP-AGRI	European Innovation Partnership for Agricultural Productivity and Sustainability
ERF	Emissions Reduction Fund (Australia)
FACCE-JPI	Joint Programming Initiative on Agriculture, Food Security and Climate Change
FCS	Farm Credit System (US)
FMDS	Farm Management Deposit Scheme (Australia)
FWU	Farm Work Unit
GAP	Good Agricultural Practices
GSSE	General Service Support Estimates
IOI	Instruments-Objectives-Impact
IPART-NSW	Independent Pricing and Regulatory Tribunal of New South Wales
JP	Japan
JPY	Japanese Yen
Leader	<i>Liaison Entre Actions de Développement de l'Économie Rurale</i>
LIPs	Land Improvement Projects (Japan)
MAFF	Ministry of Agriculture, Forestry and Fisheries (Japan)
MEP	Members of the European Parliament
MFF	Multiannual Financial Framework

MPS	Market Price Support
OECD	Organisation for Economic Co-operation and Development
PEP	Proof for Ecological Performance (Switzerland)
PLC	Price Loss Coverage (US)
PRRP	Pesticide Risk Reduction Programme (Canada)
PSE	Producer Support Estimate
R&D	Research and Development
RDCs	Rural Research and Development Corporations (Australia)
SDGs	Sustainable Development Goals
SM	Supply Management
TPP	Trans-Pacific Partnership
TRQ	Tariff Rate Quotas
TSE	Total Support Estimates
UNFCC	United Nations Framework Convention on Climate Change
US	United States of America
USD	US dollar
USDA	United States Department of Agriculture
USMCA	US-Mexico-Canada
WTO	World Trade Organization

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EXECUTIVE SUMMARY

Aim and approach

This study provides a comparative analysis of global agricultural policies aimed at drawing lessons for the future of the CAP. This supports the European Parliament AGRI Committee's analysis of the available options for the future CAP. The study aims to show how the future CAP can, in the medium to long term, learn from the level and nature of assistance to agriculture in third countries. Against the background of the main trends in agricultural support as well as recent changes and new initiatives in global agricultural policies, an in depth analysis is made of selected instruments in five countries (Australia, Canada, Japan, Switzerland, US).

Global agricultural policy evolution

Although the characteristics of the agricultural sector vary widely between countries, the main challenges are broadly the same: lagging farm incomes, increasing resource constraints (land, water) and environmental concerns (including climate), and a rapidly increasing future food demand. In order to meet these challenges, economic viability and resource use-efficiency of the sector require continuing attention.

On the whole, the level of policy support in global agriculture has not changed very much from 1995-1997 to 2015-2017. The share of the potentially most distorting forms of support (based on output or based on unconstrained use of variable inputs) has declined, but these policies continue to represent almost two-thirds of the producer support across all countries.

Also major changes have been made to the content of agricultural policies with regard to environmental aspects, especially by regulations and requirements for land management, climate change action is expected to receive increasing priority in the future.

Country studies

While no major changes in the level of support were observed on the global scale, the European Union and the five selected countries in this study have all reduced their support to agriculture since the mid-1990s. Australia has the lowest level of support, whereas Japan and Switzerland have the highest level. There is a general trend towards payments that are less coupled with production decisions. The main objectives and instruments are the following:

- **Australia:** Strong market orientation with minimal support to farms. The majority of support is funding of rural research and development (R&D), support for farm financing and drought relief.
- **Canada:** Main objective is the protection of agricultural incomes from the vagaries of markets and nature. Main mechanisms of policy support are supply and business risk management.
- **Japan:** Target of self-sufficiency in rice as a staple food through market price and investments support. For risk management, an insurance scheme is available for a wide range of products.
- **Switzerland:** Reliable provision of foodstuffs while conserving natural resources and landscapes. The current agricultural policy mainly relies on direct payments and market price support.

- **US:** Main objective remains the support for farm income and stabilization of farm commodity markets. Insurance type products are the main form of support.

Comparative analysis

Core economic objectives of the assessed agricultural policies are to ensure a viable farm income and to maintain a competitive farming sector. However, the policy instrument mixes vary with countries focusing on risk management and insurance support, while others use a combination of supply management and direct payments. Environmental goals are pursued by all the countries considered, with the current focus more on sustainable use of natural resources and less on adaptation to climate change.

Whilst innovation and support services are an integral part of the European policy mix, these aspects seem to play a less-pronounced role in the countries under consideration. Instead, some countries are increasingly using policies to ensure food supply and address consumer concerns.

New and promising approaches for possible CAP instruments and measures were identified from the country policies considered, particularly in the areas of 'risk management' and 'environment and climate'. Interesting risk retention instruments and risk transfer instruments have been assessed in the five countries. In contrast, environmental and climate instruments are already available to a large extent in the context of the CAP, and adaptations to their implementation would be required primarily.

Policy proposals and recommendations

The EU has in several respects obtained an advanced position in agricultural policy with pursuing a comprehensive set of policy goals and the availability of a rich set of instruments. The EU could still learn from other countries, particularly to achieve farm income resilience through risk management tools and to achieve climate and other environmental objectives.

Risk management instruments:

- Risk retention measures (Farm Management Deposit Scheme (AUS), AgrilInvest (CA)) represent savings deposits that are interesting to be further considered for adoption in the CAP, as both in the current and the proposed CAP precautionary savings measures are missing.
- Implementation approaches of risk management tools from Australia and the US show possibilities to increase farmer adoption rates beyond current EU levels.

Environment and climate instruments:

- Long-term support and contracts for environmental and nature conservation measures could be beneficial to the EU to achieve its biodiversity, environmental and climate objectives.
- Thematically broadly applicable and innovative project-related approaches to enhance the performance of area-based instruments via advisory services and knowledge transfer provide an option to strengthen result-delivery.
- Selection of programme or measure beneficiaries via auctioning systems could contribute to cost-effective delivery of results.

Rural development instruments:

- An implementation based on the Japanese multifunctionality payments would provide financial assistance to local groups consisting of farmers and other rural actors for the costs concomitant with preserving agricultural and commonly managed resources.

Support instruments in regions with natural constraints:

- The Japanese instrument providing support to farmers in hilly and mountainous areas provides unique opportunities to combine a local tailoring of conditionalities (baseline adjusted to local needs via a communal approach to habitat and landscape management) with income support.

Innovation and knowledge:

- The assessed research and innovation instruments have the potential to provide applicable solutions to specific issues. Integrating networking and dissemination of information activities in supported (research) projects could increase the effectiveness providing solutions and uptake in practice.

1 AIM AND APPROACH

In November 2017 the European Commission published the communication ‘The Future of food and farming’ (European Commission 2017¹), which outlines the ideas of the European Commission on the future of the Common Agricultural Policy (CAP). There, the European Commission set out the general and specific objectives for the CAP after 2020, which have since also been set out in legislative proposals (European Commission 2018a). The overarching principles are to make the CAP smarter, modern and sustainable, while simplifying its implementation and improving delivery on EU objectives. With this approach the EU recognizes the importance of tailoring and targeting the CAP and its adherence to local needs, rather than aiming for a one-size-fits-all approach.

Challenges to agriculture and rural areas that are addressed by the CAP are not unique to the EU. Given the similarities, differences, challenges and objectives of the agricultural sector, an international comparison offers valuable insights. The identification of main trends in agricultural support as well as current developments and new initiatives within the agricultural policies of non-EU countries, and how these relate to the EU agricultural policy, can provide good information for the further development of the CAP. A comparative analysis of global agricultural policies can contribute to the identification of the pros and cons of such practices, and thereby contribute to learning in policy making.

The aim of this study is to provide a comparative analysis of global agricultural policies aimed at drawing lessons for the future of the CAP and supports the European Parliament AGRI Committee’s analysis of the available options. The study focusses on how the future CAP can, in the medium to long term, learn from the level and nature of support to agriculture across five selected countries (Australia, Canada, Japan, Switzerland, US), notably by providing highlights on the main trends in agricultural support as well as recent changes and new initiatives in agricultural policies.

The specific objectives of the study are to provide an overview of agricultural support, focusing on the main mechanisms applied in the selected countries. Main trends in agricultural support, as well as recent changes and new initiatives with respect to agricultural policies are highlighted. Identified patterns are compared with policy options proposed by the European Commission for the CAP post-2020. A comparative analysis accounts for the multidimensional nature of agricultural policies by distinguishing different policy domains and their interaction. Moreover, a differentiated analysis provides the main support mechanisms (e.g. direct payments, risk management schemes, sectoral support, and market measures).

In the medium to long-term, the CAP can learn from policy developments in other countries. In the light of the main drivers and challenges for the CAP post-2020, the policy recommendations provided particular (1) highlight what policy instruments, which are part of other countries’ policy toolbox, could be taken on board in the next CAP; (2) envisage how the current balance between existing CAP tools could be adapted in the light of the policy mix applied in other countries; and (3) present a set of related policy options for the future CAP.

This study's approach consisted of several phases. The five countries were chosen on the basis of different characteristics that set them apart from other countries: (1) global-level competitor of the EU in one or more sectors; (2) the level of support provided (ranging from very low/almost non-existent to very high); (3) type of support programme; (4) extent to which agricultural policies are similar to those of the EU; and (5) food security reasons (i.e. would import most commodities without high levels of support). As a result, the choice is made to focus on Australia, Canada, Japan, Switzerland and the United States of America (all G10 members). Main developments in the field of international

¹ Sources cited in the text are listed in detail in the References chapter of the report.

agricultural policy during the last years were identified on the basis of intensive literature and data research. Local experts carried out specific country studies in order to present the main developments and approaches and provided a data set of the items utilised in the framework of their national agricultural policy. Based on this output, promising instruments were selected and analysed by means of an instrument-objective-impact (IOI) matrix for their potential contributions to the general and specific objectives of the future CAP. The IOI matrix was eventually an integral part of the comparative analysis of the individual instruments carried out by the research team. The respective evaluations and assessments are strongly based on the contributions of the case study experts, who worked in close cooperation with the research team. The experts also provided feedback on the results presented here. For a more detailed description of the methodological approach of this study, see Annex.

2 INTRODUCTION INTO GLOBAL AGRICULTURAL POLICY OBJECTIVES AND INSTRUMENTS

KEY FINDINGS

- Although the characteristics of the agricultural sector vary widely between countries, the main challenges are broadly the same: lagging farm incomes, increasing resource constraints (land, water) and environmental concerns (including climate), and a rapidly increasing future food demand. In order to meet these challenges, economic viability and resource use-efficiency of the sector requires continuing attention.
- On the whole, the structure of policy support in global agriculture was not changed very much from 1995-1997 to 2015-2017. The share of the potentially most distorting forms of support (based on output or based on unconstrained use of variable inputs) has declined, but these policies continue to represent almost two-thirds of the producer support across all countries.
- In Emerging Economies, support to agriculture has increased substantially over the long term. The dominant part of support is market price support.
- OECD countries have gradually reduced the total support to agriculture. Support to farms represented 18 % of gross farm receipts (% PSE²) in 2015-2017 across the OECD area, a decline from almost 30 % in 1995-1997. Support based on commodity output (including market price support and output payments) shows a long term decline in favour of direct payments (notably in the US and the EU) uncoupled from output.
- Also major changes have been made to the content of agricultural policies with regard to environmental aspects, especially by regulations and requirements for land management. Increasingly, ecological sustainability is being addressed, especially with regard to the expected climate change, where agriculture also in the future is likely to have to contribute in order to allow countries to achieve their climate action commitments (e.g. Paris Agreement).
- Innovation is generally considered as an important approach in meeting the demands on agricultural products. The goals are to increase the productivity and sustainability of the agricultural sector.

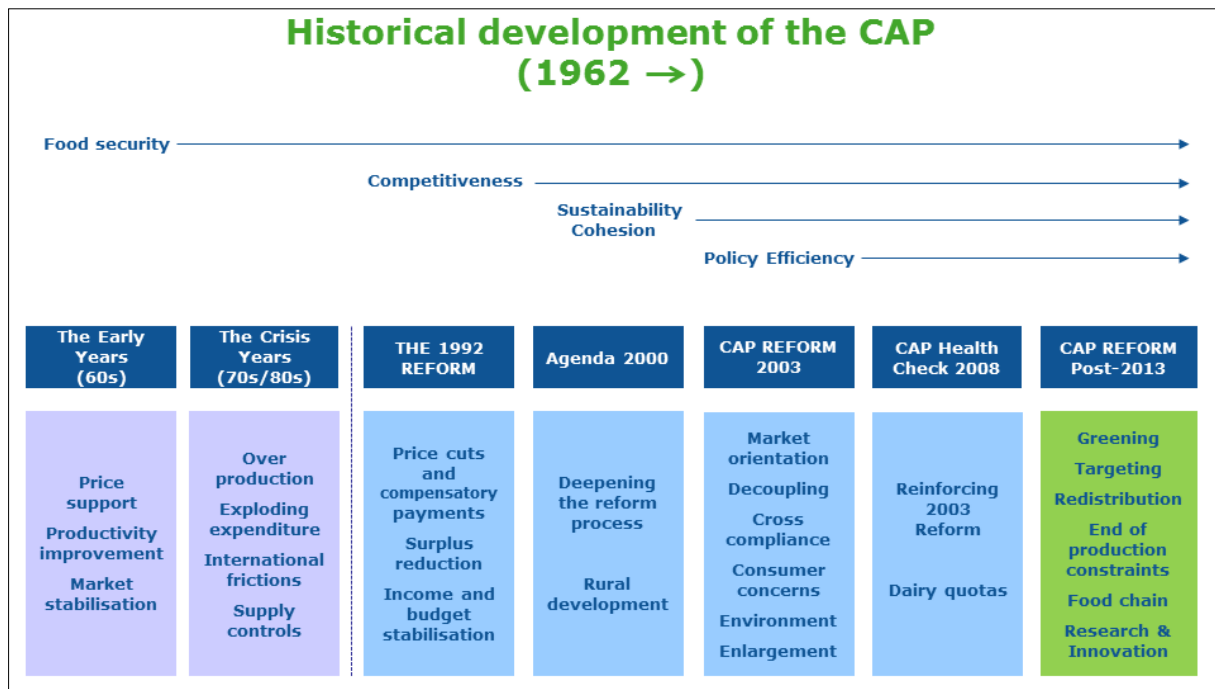
2.1 EU Common Agricultural Policy's reforms

2.1.1 Historical development

While focusing on the objectives of the Treaty of Rome which builds the foundation of the European Union, the Common Agricultural Policy (CAP) has continually evolved to better address existing and upcoming challenges and to account for shifts in the local and global contexts. Though farm income concerns are still important, the CAP covers a much wider range of aspects. It has also increased its emphasis on the environment, climate and the wider rural context in which farming operates. Policy challenges may result from changing contexts, such as the observed increased price volatility and instability in weather conditions as a consequence of climate change. Moreover, there have been changes with respect to the interactions with regard to the wider economy, for example due to biofuels (intensifying agriculture's linkage to energy markets) and innovations in the bio economy. Not only the EU, but also its trading partners either have reformed, are reforming or will reform their agricultural policies for similar reasons. Milestones include:

² Definitions are provided in Box 'OECD indicators of agricultural support used in this report' in section 2.2.

- **1958:** On the basis of the Treaty of Rome, it was decided to create a common market for agricultural products within 12 years. The unity of the market would be supported by community preference (external protection) and by financial solidarity (common financing). The existing national market and price policies were gradually replaced by the CAP. The common market for agriculture was realised in 1968.
- **1968:** The first CAP (Mansholt) reform initially aimed at a strategic reorientation towards accelerating 'structural change' of the agricultural sector and supporting larger and more efficient farms. While these objectives were not realised, a system of market interventions was developed in order to counterbalance overproduction caused by the structure of the agricultural sector (Fritz and Sinabell 2006).
- **1988:** A range of reform measures was agreed on by the European Council, amongst others delimiting the CAP's share of the total EU budget (Fritz and Sinabell 2006).
- **1992 MacSharry reform:** Price supports for cereals and beef were reduced, and set-aside of agricultural land was implemented. This was compensated for by direct payments to farmers as the most important instrument in financial terms. Accompanying measures on extensification, afforestation and early retirement were introduced, and environmental issues were included (Bundesministerium für Ernährung und Landwirtschaft 2014).
- **Agenda 2000:** Since 2000, funding beyond mere agro-market regulations is being provided within a 'second pillar'. This means that rural development as a whole is being addressed. Measures refer to the provision of public goods, and maintenance of cultural landscape in less-favoured areas, farm modernization, innovation and diversification (Fritz and Sinabell 2006; Margarian 2013). Margarian (2013) states the establishment of a 'second pillar' and the decoupling of direct payments from production as the most relevant changes to the policy since the end-1990s. However, the author underlines that the sectoral focus of funding remains strong – with the agricultural budget still accounting for a large share of total EU funds, and a focus on multifunctional agriculture instead of cross-sectoral funding (Margarian 2013).
- **2003 reform:** Direct payments were decoupled from production (i.e. the direct payments introduced in 1992 were abolished), and cross-compliance was reinforced (payments were based on the maintenance of good agricultural practice and ecological condition).
- **2008 Health Check:** Further cuts in direct payments were implemented, new priorities included climate change, renewable energy, biodiversity, water management, research/innovation.
- **Post-2013 reform:** A stronger focus was put on the provision of environmental public goods / services to society, and a 'greening' component of direct payments was introduced (Bundesministerium für Ernährung und Landwirtschaft 2014; Fritz and Sinabell 2006).

Figure 1: Historical development of the Common Agricultural Policy

Source: European Commission 2015a.

Between 1980 and 2000, CAP expenditures accounted for more than half of the total joint EU budget. While direct payments increased, the agricultural budget's share as a whole decreased (Fritz and Sinabell 2006). While 'first-pillar' support is fully covered by EU funding, national co-financing rates are applied for 'second-pillar' funding, depending on Member States' economic situation (Fritz and Sinabell 2006).

2.1.2 Current CAP (2014-2020) structure and objectives

The current CAP encompasses joint market frameworks (CAP's 'first pillar') and the development of rural areas ('second pillar'). Basic principles include market unity, solidarity (ensuring the functioning of the domestic market) and community preference (through import duties).

The EU is strongly committed to action on the United Nations Framework Convention on Climate Change, 21st Conference of the Parties (COP21) Paris Agreement and the United Nations' Sustainable Development Goals (SDGs), although many other countries have also expressed their commitments in this regard. For climate, this calls upon the farming sector to contribute to economy-wide emission reduction targets. The embeddedness of agriculture in the ecosystem has led to a growing awareness about the importance of agriculture in the preservation of (agro-)biodiversity as well as its sometimes unique linkages with regions and landscapes (e.g. domestic-origin protected products). In the EU as well in other regions, agriculture is expected to contribute to a 'better life in rural areas' (e.g. Cork 2.0 Declaration 2016), which requires investments in skills, public services, infrastructure and capacity building in order to generate vibrant rural communities.

Table 1: Domains of policy interest as defined in the EU's general and specific CAP objectives

GENERAL OBJECTIVES	VIABLE FOOD PRODUCTION	SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES AND CLIMATE ACTION	BALANCED TERRITORIAL DEVELOPMENT
Policy area	Pillar I	Pillar II	
Specific objectives	Maintain market stability Meet consumer expectations	Enhance farm income Improve agricultural competitiveness Provide environmental public goods Pursue climate change mitigation and adaptation Maintain agricultural diversity across the EU	Promote socioeconomic development of rural areas Foster innovation

Source: European Commission 2015b.

2.1.3 The CAP ideas outlined in the Commission's 'Future of food and farming'

In November 2017 the European Commission published the communication *The Future of food and farming* (European Commission 2017), which outlines the ideas of the European Commission on the future of the CAP. These ideas were further outlined in the Commission's new legislative proposals communicated in June 2018 (European Commission 2018a).

In the November document, the European Commission sets out the general and specific objectives for the CAP after 2020. The overarching principles are to make the CAP smarter, modern and sustainable, while simplifying its implementation and improving delivery on EU objectives. With this approach the EU recognizes the importance of tailoring and targeting the CAP and its adherence to local needs, rather than aiming for a one-size-fits-all approach.

The general objectives of the future CAP according to the European Commission are:

1. to foster a smart, resilient and diversified agricultural sector ensuring food security;
2. to bolster environmental care and climate action and to contribute to the environmental and climate objectives of the EU; and
3. to strengthen the socio-economic fabric of rural areas.

These general objectives will be complemented by the cross-cutting objective of modernising the sector by fostering and sharing of knowledge, innovation and digitalisation in agriculture and rural areas.

Both the first pillar, agricultural income and market support, and the second pillar, rural development, have instruments that will contribute to these general objectives. The general objectives are broken down into specific objectives (see Table 2).

Table 2: Summary of proposed objectives and related instruments of the CAP post 2020

GENERAL OBJECTIVES	FOSTER A SMART AND RESILIENT AGRICULTURAL SECTOR	BOLSTER ENVIRONMENTAL CARE AND CLIMATE ACTION	STRENGTHEN THE SOCIO-ECONOMIC FABRIC OF RURAL AREAS
Policy area	Pillar I	Pillar II	
Specific objectives	Support viable farm income and resilience Enhance market orientation and increase competitiveness Improve the farmers' position in the value chain Foster knowledge, innovation, digitalisation in agriculture and rural areas	Contribute to climate action and sustainable energy Sustainable development management of natural resources Contribute to the protection of biodiversity, preserve habitats and landscapes	Promote employment, growth, social inclusion and local development Attract young farmers and facilitate business development Improve response of agriculture to societal demands on food and health, including safe, nutritious and sustainable food, as well as animal welfare

Source: European Commission 2017.

In addition to these general and specific objectives, further simplification of the CAP is considered necessary. The regulatory burden of the CAP needs to be reduced, the delivery on its objectives should be improved.

2.2 Evolution of global agricultural policy support

Agriculture and food policy is characterized by significant government interventions in nearly all countries of the world and as such set this sector apart from most other sectors in the economy. Recently agricultural policy received additional attention with the global food price crisis of 2008 and 2010 and the depressed prices for animal products during the period 2015-2016. The attention for agriculture and food policy reforms is driven by the special role agriculture and food play in society: providing food security, responding to changing consumer preferences and impacting the physical environment. Especially the challenge to meet a rapidly increasing food demand in the face of increasing resource constraints (land, water) and environmental concerns (including climate) is a contributing factor. Another factor, which has been even more important in the observed policy formation, is the role of distributional objectives, be it between consumers and producers or between domestic and foreign stakeholders. As such agriculture and food policies are subject to lobbying and pressure of interest groups and highly political.

Globalisation and market orientation are an important factor that co-shape agricultural policies, as is reflected in international economic and environmental agreements. Aside from the World Trade Organization (WTO) and its disciplining pressure on agricultural trade relations these include the regular UNFCCC Conference of the Parties (COP) and the corresponding UN agreements on the Millennium and, since 2015, the Sustainable Development Goals (SDGs) (see also section 2.1.2). Decisions made here will be incorporated into the policies of the countries in subsequent years and will also have an impact on the (increasing) signing of free trade agreements (e.g. the Comprehensive

Economic and Trade Agreement – CETA, and the Trans-Pacific Partnership – TPP, both signed in 2016) and world trade.

At the same time, it must be taken into account that, depending on their history, structure and economic situation, countries pursue different approaches and objectives in their agricultural policies, whether with regard to national food self-sufficiency, strengthening agricultural income and the agricultural sector in general, protecting the environment, nature and cultural landscapes, rural development or reducing the risks to which the agricultural sector is exposed. Clear differences in policy instrument mixes and priority-setting are observed between developed countries, emerging states and developing economies.

The ensuing remarks on the developments in international agricultural policy are summaries of the Organisation for Economic Co-operation and Development's (OECD) annual series of publications on agricultural policy development (OECD 1998-2010) (OECD 2011-2018) and an OECD report on rural development from 2006 (OECD 2006).

OECD indicators of agricultural support used in this report

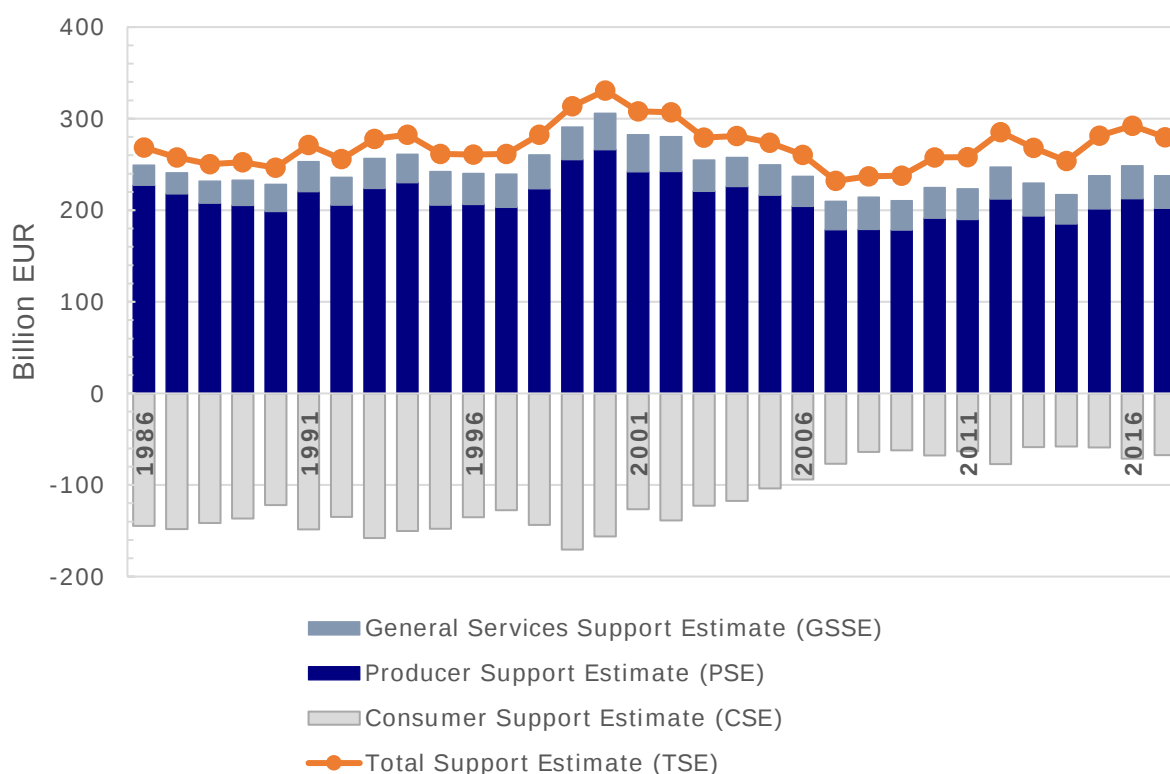
- **Total Support Estimate (TSE):** The annual monetary value of all gross transfers from taxpayers and consumers arising from policy measures that support agriculture. **Percentage TSE (% TSE):** TSE transfers as a percentage of Gross Domestic Product (GDP).
- **Producer Support Estimate (PSE):** The annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policy measures that support agriculture. It includes market price support, budgetary payments and budget revenue foregone. **Percentage PSE (% PSE):** PSE transfers as a share of gross farm receipts (including support in the denominator).
- **Market Price Support (MPS):** The annual monetary value of gross transfers from consumers and taxpayers to agricultural producers arising from policy measures that create a gap between domestic market prices and border prices of a specific agricultural commodity, measured at the farm gate level.
- **Consumer Support Estimate (CSE):** The annual monetary value of gross transfers from (to) consumers of agricultural commodities, measured at the farm gate level, arising from policy measures that support agriculture. If negative, the CSE measures the burden (implicit tax) on consumers through market price support (higher prices), that more than offsets consumer subsidies that lower prices to consumers. **Percentage CSE (% CSE):** CSE transfers as a share of consumption expenditure on agricultural commodities (at farm gate prices), net of taxpayer transfers to consumers.
- **General Services Support Estimate (GSSE):** The annual monetary value of gross transfers arising from policy measures that create enabling conditions for the primary agricultural sector through development of private or public services, institutions and infrastructure. **Percentage GSSE (% GSSE):** Share of expenditures on general services in the Total Support Estimate (TSE).

Figure 2 provides a summary graph on the evolution of total agricultural support (TSE) for the OECD countries (covering 51 countries³ and representing about 70 % of world agricultural production) and

³ 35 OECD member countries, 6 non-OECD EU Member States and 10 emerging and developing economies.

its main components (estimates of consumer support – CSE, general services support – GSSE, and producer support – PSE) during the last 30 years.

Figure 2: Evolution of Total Support Estimate to agriculture in OECD countries



Source: OECD (2018a).

The overall importance of agricultural support on the OECD countries' economies has declined since the mid-1990s, measured by total support as percentage of gross domestic product (GDP). In the OECD countries on average, total support to agriculture declined from 1.3 % of OECD aggregate GDP in 1995-1997 to 0.7 % in 2015-2017. This reduction in support was accompanied by a shift in the source of the underlying financial resources - away from consumers and towards the use of public funds. The TSE provided in OECD countries represented USD 317 billion per year on average in 2015-2017 of which 72 % was provided as support to farms (PSE). Support to farms represented 18 % of gross farm receipts (% PSE) in 2015-2017 across the OECD area, down from almost 30 % in 1995-1997. Payments based on historical entitlements (generally crop areas or livestock numbers of a given reference year in the past) have increased significantly in many OECD countries, representing 4 % of gross farm receipts and more than a fifth of the PSE across OECD countries during 2015-2017. Payments based on current crop areas and animal numbers were reduced slightly from 1995-1997 and represent currently around 15 % of total farm support.

The expenditures financing general services to the sector (GSSE) declined slightly in the OECD area from USD 44 billion per year in 1995-1997 to USD 40 billion in 2015-2017. Most of these expenditures in 2015-2017 go to the financing of infrastructures (USD 17.5 billion), despite a slight decline compared to 1995-1997, while the expenditures to Agricultural knowledge and innovation (USD 13 billion) have increased by half since 1995-1997. Expenditures for inspection and control services also increased while spending for marketing and promotion activities and on public stockholding declined in the same period, but all of these represented substantially smaller shares of the GSSE. The relative importance of general services in total support varies across countries.

Table 3: OECD Estimates of support to agriculture (million USD)⁴

	1986-1988	1995-1997	2015-2017
Total value of production (farm gate)	594 049	774 284	1 134 857
of which: share of MPS commodities (%)	71.9	70.4	68.2
Total value of consumption (farm gate)	549 065	747 128	1 027 650
Producer Support Estimate (PSE)	239 909	253 656	228 866
Market Price Support	184 304	171 008	105 285
Payments	55 605	82 648	123 581
Percentage PSE (% PSE)	36.9	29.6	18.2
General Services Support Estimate (GSSE)	25 570	43 997	40 009
Agricultural knowledge and innovation system	4 851	8 432	12 613
Inspection and control	1 073	1 508	3 719
Development and maintenance of infrastructure	10 223	23 273	17 445
Other services support	9 423	10 785	6 232
Percentage GSSE (% GSSE)	9.0	13.6	12.6
Consumer Support Estimate (CSE)	-160 010	-169 780	-73 443
Percentage CSE (% CSE)	-30.2	-23.5	-7.5
Total Support Estimate (TSE)	285 435	323 144	316 946
Transfers from consumers	191 386	197 267	122 077
Transfers from taxpayers	116 355	156 165	218 829
Budget revenues	-22 306	-30 289	-23 960
Percentage TSE (% of GDP)	2.0	1.3	0.7

Source: OECD 2018b.

⁴ See Box 'OECD indicators of agricultural support used in this report' in section 2.2.

2.2.1 Reforms and content of agricultural policies

Every few years, countries redefine the framework of their national agricultural policies. In 2000, for example, several countries adopted programmes that took a more holistic approach to agricultural and environmental development and support for rural areas. Since then, the economic development of rural areas, the supply of healthy food, agricultural income and ecological and social sustainability have become increasingly important. As customs barriers are gradually being removed and/or reduced, and international trade expands, regulatory issues in the areas of food safety, quality and production and the environment have also been increasingly included in agricultural policies (e.g. in the production and labelling of genetically modified plants and products or regarding animal welfare). In recent years, support for general services has become increasingly important, especially in marketing, infrastructure as well as Research and Development (R&D).

Good integrated policy approaches are therefore needed to cover all aspects of agriculture and related areas. Current agricultural policies generally include many different instruments to achieve the desired objectives. Six different, interlink-able approaches to international agricultural policy can currently be distinguished.

1. Focus on **market price support** through domestic policies and border measures.
2. Emphasis on policies supporting the **delivery of public goods** (including landscape) and reducing agricultural externalities.
3. Subsidies for **purchased inputs and capital**.
4. Focus on various measures that **reduce risks to revenue and yield** in the agricultural sector.
5. **Direct payments to farmers**.
6. Focus on creating a **better economic environment** for agriculture.

Although the characteristics of agriculture vary widely between countries, the main challenges facing the sector are broadly the same. First, the economic viability of the sector must be maintained or strengthened. Second, the production of sufficient and healthy food is an important issue and third the contribution of agriculture to environmental and social sustainability needs to be increased. Depending on situation (e.g. being net importer or net exporter) different policy instruments may be chosen to achieve the policy objectives.

Due to the diversity of the agricultural sector, agricultural policies cover different aspects of agricultural and food production: economic aspects, such as farm income, price volatility, management of natural resources (environment, climate) and rural areas (territorial balance, rural employment and poverty reduction).

The programmes and the system of national agricultural policies have generally become very well established, which means that most of the content-related changes relate to minor adjustments in the composition of measures. Drastic changes in the overall orientation are only possible within the framework of major reforms.

Countries usually select from a set of different instruments to create the most appropriate policy mix that best addresses their relevant aspects - political, economic, environmental and social. The following sections are intended to give a brief overview of the tools and instruments available and broadly used.

2.2.2 Market price support and border measures

The Total Support Estimate (TSE) provided in all countries covered in the OECD report (OECD 2018b) represented USD 620 billion (EUR 556 billion)⁵ per year on average in 2015-2017. More than three quarter of this (78 % or USD 484 billion [EUR 434 billion]) were provided as Producer Support Estimates (PSE). Expressed as a share of gross farm receipts (% PSE), support to farms represented 15.5 % in 2015-2017 on average for all countries covered, down from 21.4 % in 1995-1997. The changes in the structure of support related to all countries in the report in the period from 1995-1997 to 2015-2017, were relatively moderate.

Instruments supporting market prices (Market Price Support – MPS), other border measures and state intervention in the domestic market have been essential components of agricultural policies since the mid-1980s to promote production and increase agricultural incomes. As a result in 2015-2017 prices received by farmers were on average 11 % higher than world prices, while higher price gaps with world market price levels were recorded for rice, sugar, wheat and milk. Support under MPS instruments is closely linked to the world market situation: high world market prices generally lead to lower use of price-supporting measures. As an example in 2017, the level of support has decreased mainly due to lower MPS. The decrease in MPS resulted from a reduced price gap as world prices increased while domestic prices declined slightly.

Market price support, one of the most distorting forms of support (based on output or based on unconstrained use of variable inputs) has declined slightly, but these policies continue to represent almost two-thirds of the PSE across all countries. In the US and the EU market price support has significantly declined over time, whereas in China and other emerging economies, market price support shows an increasing trend.

The 2008/2009 global financial and economic crisis and the resulting market instability has led to a revival of the use of market distorting measures, such as tariff adjustments (reductions in case of high prices) and export barriers (e.g. export bans). In many countries, price support, e.g. through export subsidies, has been and continues to be an important part of agricultural policy – although a decline in market price support was observed in 2011. In contrast to fiscal support measures, the focus here is clearly on maintaining domestic prices above world market levels. High domestic prices are most often supported by border measures. Measures include tariffs, tariff quotas, state trade, import licence requirements and export subsidies. In some cases, export taxes and controls exist to reduce trade and increase budget revenues. Several countries also use countercyclical payment schemes to stabilise incomes in the agricultural sector. These schemes include, for example, compensation payments that are triggered when market prices fall below a certain value. Within the framework of the Sustainable Development Goals (SDGs), some countries pursue the explicit goal of food self-sufficiency. These are mostly still dependent on distorting domestic and trade policy frameworks to stimulate domestic production.

In recent years, subsidies for variable inputs, reduced-price loans and tax support measures have been increasingly used, especially in emerging countries. The TSE provided in the emerging economies represented USD 297 billion (EUR 266 billion) per year on average in 2015-2017 of which 84 % was provided as PSE. In parallel with the increase of support, the share of payments based on output (including the MPS) and input use in total support to farms has also increased. The average share of the potentially most production and trade distorting MPS has substantially increased in the emerging economies and its share (80 % of total support) stays well above the OECD average. Among the remaining forms of support to farms, the most important are payments based on input use (mainly

⁵ All exchange rates in the study are based on the respective average for the year 2017 by the European Central Bank (www.ecb.europa.eu).

fixed capital formation) and payments to areas planted and animal numbers. Across the emerging economies, the payments based on areas and animal numbers were almost non-existent in 1995-1997 but reached close to 10 % of total support to farms in 2015-2017.

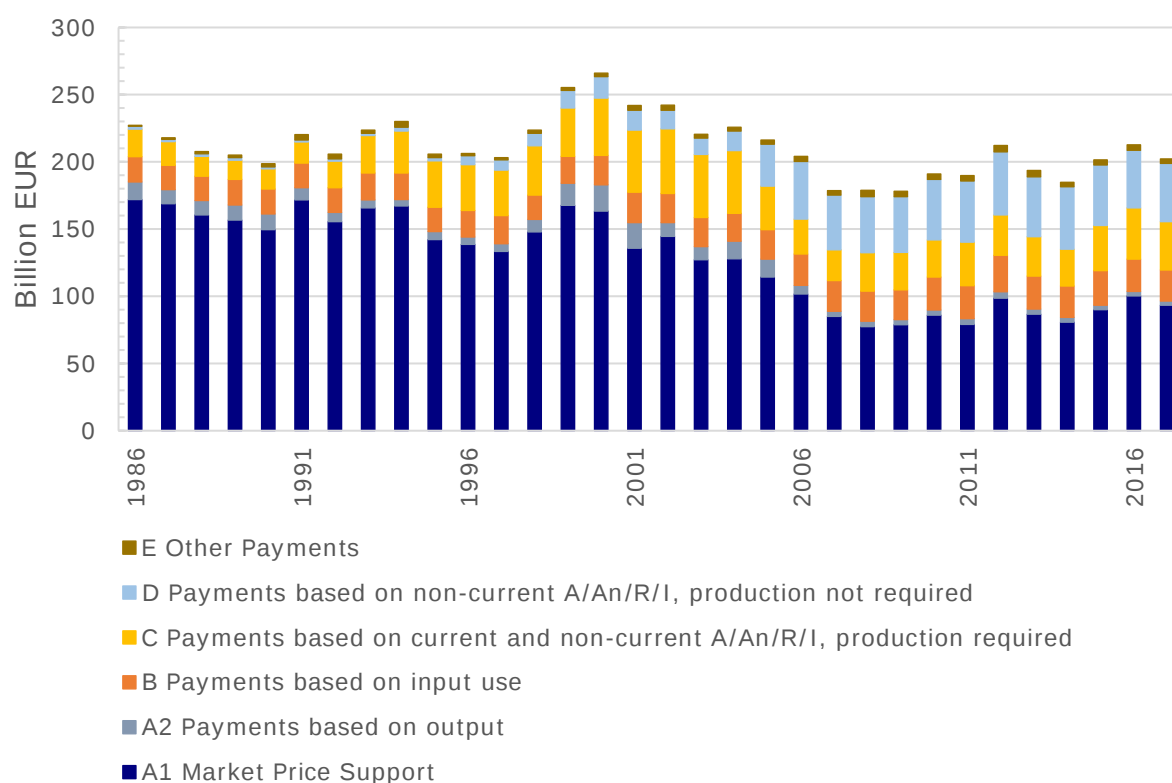
Other countries are moving towards supporting producers through policy instruments that have no direct influence on decisions regarding agricultural production (decoupled payments). At the same time, individual market interventions and trade-distorting instruments were gradually phased out. For example, the end of controlled prices for rice and wheat in Japan or pork in the EU and the elimination of milk quotas in the EU and Switzerland. In contrast to the 1990s, a slow trend towards open competition and markets can be observed globally. The composition of policies is also improving, with less emphasis on production-related support.

2.2.3 Payment schemes

In the 1990s, the main instruments used were Market Price Support (MPS) instruments, but in the course of the new millennium the focus was increasingly on direct payments (notably in the US and the EU). As a result payments based on historical entitlements (generally crop areas or livestock numbers of a given reference year in the past) have increased significantly in many OECD countries, representing 4 % of gross farm receipts and more than a fifth of the PSE across OECD countries during 2015-2017.

Subsidies for inputs (fertilisers and pesticides) have tended to decrease, while investment incentives have come more into the spotlight. As an example, at the beginning of the millennium, the product-specific payment scheme in the EU was replaced by the single payment scheme. Overall, there was a general trend towards greater flexibility of farmers in terms of their production targets. By 2009, payments were increasingly linked to conditions (which became equally more comprehensive) – in particular the support for cross-compliance or special investments in farms were addressed. The EU's cross-compliance is a variant of the more classical use of cross-compliance in the US' agricultural policy.

In addition, important non-production-related goods, such as biodiversity, wetlands and landscape elements, have increasingly been taken into account in agricultural policies. However, programmes to support agricultural incomes also continued to be an important component. In this respect, direct payments have been decoupled from production requirements, thereby reducing market distortions (area and number of livestock payments have less distorting effects on production decisions) and improving efficiency in the transfer of income to farmers. As the focus on market price support has decreased since 2000, direct payment-forms of support have gained in importance, while subsidies for variable inputs are more prevalent, especially in emerging countries.

Figure 3: Evolution of specific types of producer support (PSE) in OECD countries.

A/An/R/I: Area planted/Animal numbers/Receipts/Income.

Source: OECD

In the long term, a shift away from trade and production-distorting subsidies towards policies that do not directly influence agricultural production decisions and support long-term priorities such as environmental sustainability (see environmental schemes) and innovation (see innovation) can be observed (see Figure 3, especially the increase in decoupled direct payments since 2006).

2.2.4 Risk management and disaster control

Price fluctuations on the world market, economic crises and, to an increasing extent, climate change are leading to a growing focus on risk-related support policies. In the event of climate disasters such as floods, droughts or storms, regulatory exemptions and compensation payments have been used for many years to mitigate the consequences of such events.

Particularly due to the increasing number of extreme weather events, it is not surprising that risk management has been seen as a new focus since around 2010, which has to be addressed by means of agricultural policies, among other things. The focus is on the extension and simplification of existing instruments. In the case of disaster aid, the post-event action and political pressure poses a particular challenge, and the mechanisms for such programmes need to be optimised.

Public funds are used to develop and implement (stabilising) market instruments. There are numerous instruments that enable countries to intervene in the event of exceptional circumstances or natural disasters, in particular various types of subsidised insurance schemes (with the US by far being the country that is most 'advanced' in its development of risk insurance). Meanwhile, programmes have been implemented in many countries for simple and fast support after such events.

In 2017, risk management in agricultural policies encompasses a wide variety of fields. Especially the US and Canada offer many instruments, which will be explained in Chapter 3. Australia recently

expanded its concessional loan programme and developed strategies to improve risk management, Brazil modernised its livestock control system to better prevent animal pests and diseases and Turkey extended subsidised insurance schemes to cover more products and risks. Another recent focus is on adaptation strategies to climate change, e.g. investments in water-saving irrigation systems, increased cultivation of drought-tolerant crops and trees.

2.2.5 Environmental schemes

Agri-environmental payments have been an integral part of international agricultural policies for many years. In the 1990s, these were often scarcely related to the environmental results and the effects could only be evaluated with difficulty. In the meantime, major changes have been made to the content of agricultural policies with regard to environmental aspects.

Since the early 2000s, many programmes have been reformed and revised. Notable developments include the introduction of minimum standards to be complied with in land management and animal husbandry. There has also been an increased interest in organic farming and the promotion of biofuels and bio-materials. With regard to biofuels, however, some countries are intervening massively in the respective market (as this is not part of agricultural policy, this issue will not be further discussed in the context of this study focusing on agricultural policy). In addition, the aspects of resource management have increasingly come into focus – first and foremost, programmes and measures on water availability and quality are to be mentioned here. Since then, regulations and requirements for land management have been further expanded and anchored in more programmes. Increasingly, ecological sustainability is being addressed, especially with regard to the expected climate change. Programmes and measures that specifically address climate mitigation and adaptation are being expanded in almost all countries (see section 2.2.4). Furthermore, some countries are implementing national and cross-sectoral climate change policies and programmes and establishing specialised institutions. Difficulties exist in particular with regard to the uncertainties of the climate change to be expected. Currently, agricultural policies prioritise adaptation to climate change, sustainable use of resources and support for farmers in the event of extreme events (see risk management).

Nevertheless, it should be noted that the interaction between agriculture and the environment continues to present some challenges. In recent years there has been a slight trend towards the use of results-oriented instruments. More attention is paid to measures that promote the expected environmental effect rather than payments for certain goods and means of production. Although these approaches have received increased support, they continue to account for only a minimal proportion of the funds used.

Conservation or improved use of water, soil and air resources is clearly the main focus of the environmental instruments used. Not forgetting that the aspects of animal health and welfare, renewable energies and also organic farming play similarly important roles in agricultural policies and are often supported with their own measures and programmes. It should also be noted here that the importance and interpretation of agri-environmental policies within the agricultural policies of the countries differ greatly.

Although efforts are generally made at national level to reduce greenhouse gas emissions and thus also the carbon footprint of the agricultural sector, there are hardly any specific targets. Various initiatives are therefore taking place at the multinational and bilateral level.

2.2.6 Rural development

Rural development has a variety of definitions around the world, following the different understandings of what rural areas are. However, there seems to be some agreement that the objective

of rural development is to improve 'the quality of life and economic well-being of people living in rural areas' (Moseley, 2003). The multi-dimensional characteristics of rural development are also taken up in the recently stated objective stated in the OECD's Rural Policy 3.0 publication of achieving 'Well-being considering multiple dimensions of: i) the economy, ii) society and iii) the environment' (OECD 2018b). As agriculture is in many areas no longer the main economic sector in rural areas, new aspects have become central in rural development like tourism, basic services and recreation.

The evolution of rural development policies and paradigms is mostly discussed in literature in the context of developing economies and are rather specific to this context, but some observed trends are valid globally. Integrated rural development first appeared in the 1970s and constitute territorial rather than sectoral policy approaches. This multi-sectoral concept has been taken up in Europe in the 1980s and marks a shift away from a solely agriculture-driven development paradigm. Underlying reasoning for this shift is the fact that agricultural policies are increasingly not seen as the most effective instrument of public policy for rural areas, as it generally refers more to farmers and agricultural enterprises than to communities and regions as a whole (Calatrava-Requena 2018). In the further evolution of rural development policies a shift from government towards decentralised, multi-level governance have been taking place (Shucksmith 2010). Environmental issues have become more integrated into rural development as part of sustainability objectives that were introduced in the 1990s.

In the light of the changes in policy approaches for rural development, a new range of instruments is covered under rural development programmes. However, infrastructure support (e.g. for roads and irrigation infrastructure) to ensure a viable and competitive agriculture remains a main policy instrument. In recent years many OECD countries emphasise the importance of agriculture as a factor for jobs and economic growth in rural areas, despite the recognition that agriculture is often no longer the most important sector of rural areas, either in terms of economic output or the jobs created.

The variations in rural development approaches and instruments across the world is also reflected in the fact that there are no comparable statistical indicators on financial support estimates for rural development available at a global level.

2.2.7 Innovation and knowledge

Since about the second decade of the millennium, innovation has increasingly been promoted as an important approach in meeting the increased and more diverse demands on agricultural products. The long-term goals are to increase the productivity and sustainability of the agricultural sector. In particular, support is given to policies that specifically promote innovation and knowledge in the agricultural sector and its sub-sectors and thus bring new approaches and technologies into practice. This includes Research & Development (R&D), but in particular information and training measures as well as general services in the agricultural sector. Especially in R&D, progress and innovation has been and continues to be driven largely by the private sector (e.g. developments in biotechnology, precision farming, etc.). Still, innovation is increasingly prioritised in international policies, with the trend towards national cross-sectoral innovation strategies, i.e. the strategies do not usually relate directly to agriculture.

According to the OECD's classification, innovation affecting support is captured in the general services to the sector (GSSE) support. Support for general services accounts for a much smaller share of total support than support provided directly to producers, averaging 14 % of the TSE for all countries covered in the OECD report in 2015-2017 (OECD 2018b). The GSSE expenditures declined slightly in the OECD area from USD 44 billion per year in 1995-1997 to USD 40 billion in 2015-2017 – most significantly in China (from almost 45 % of total support in the mid-1990s to 15 % in 2015-2017). Most of these expenditures in 2015-2017 go to the financing of infrastructures (USD 17.5 billion), despite a

slight decline compared to 1995-1997, while the expenditures to agricultural knowledge and innovation (USD 13 billion) have increased by half since 1995-1997. Expenditures for inspection and control services also increased while spending for marketing and promotion activities and on public stockholding declined in the same period, but all of these represented substantially smaller shares of the GSSE.

2.3 Conclusions regarding the global agriculture policy development

The EU's CAP reforms show a shift from distortive policy measures (price support) to direct payments, where the latter are increasingly linked to specific targets. This movement reflects on the one hand the increasing market orientation and the increasing emphasis on environmental and sustainability objectives. The newly proposed CAP 2021-2027 is another step in this direction with a proposed revised green architecture, including an extended baseline (enhanced conditionality) and additional options to reward farmers for public goods (more emphasis on climate action).

Although the characteristics of the agricultural sector vary widely between countries, the main challenges are broadly the same. The classical objective of supporting lagging incomes in agriculture stays still to be important in several countries. At the same time agriculture faces increasing resource constraints (land, water) and environmental concerns (including climate), while the sector has to meet a rapidly increasing (future) food demand. In order to meet these challenges, the economic viability of the sector and resource use-efficiency requires continuing attention.

On the whole, the level of policy support in global agriculture has not changed very much from 1995-1997 to 2015-2017. The share of the potentially most distorting forms of support (market price support, payments based on output, and payments based on unconstrained variable input use) has declined, but these policies continue to represent almost two-thirds of the producer support across all countries.

In emerging economies, support to agriculture has increased substantially over the long term. In 2015-2017, support has been around 14 % of gross farm receipts. This is still below OECD average, but the gap has been narrowed. The dominant part of support is market price support. In contrast, (developed) OECD countries have gradually reduced the total support to agriculture. Support to farms represented 18 % of gross farm receipts (% PSE) in 2015-2017 across the OECD area, a decline from almost 30 % in 1995-1997. The development in support to agriculture in the OECD area is characterised by the long-term decline of support based on commodity output (including market price support and output payments).

Major changes have been made over time to the content of agricultural policies with regard to environmental aspects, especially by regulations and requirements for land management. Increasingly, ecological sustainability is being addressed, especially with regard to the expected climate change. Innovation is generally considered as an important approach in meeting the demands on agricultural products. The goals are to increase the productivity and sustainability of the agricultural sector.

3 DETAILED COUNTRY STUDIES

KEY FINDINGS

- Agricultural policy in Australia moved toward an encouragement of free market adaptation and market orientation over three decades ago. The challenge for Australian agriculture are multiple year sequences of low returns through droughts. The majority of support remaining for agriculture is funding of rural research and development, support for farm financing and drought relief.
- In Canada, the most important objective of its agricultural policies is protection of agricultural incomes from the vagaries of markets and nature. Canada aims to keep costs to the Treasury as low as possible. Main mechanisms of policy support are Supply Management and Business risk management.
- Japan strives for self-sufficiency in rice as a staple food through market price support and investments support. For risk management, an insurance scheme is available for a wide range of products.
- Switzerland aims at a reliable provision of foodstuff and conservation of natural resources. It maintains price levels, both for agricultural raw product and for food prices, considerably above the ones of neighbouring countries. The current agricultural policy mainly relies on direct payments and market price support.
- The main objective of US farm policy remains support for farm income and stabilization of farm commodity markets. The main form of support is recently shifted from direct payments to insurance type products.

3.1 Introduction

In the selection process of countries for detailed studies it has been taken into account that for learning it is often an advantage to compare 'contrasting cases', which show variation with respect to policy approaches and applied policy.

Five countries are chosen on the basis of different characteristics that set them apart from other countries: (1) global-level competitor of the EU in one or more sectors; (2) the level of support provided (ranging from very low/almost non-existent to very high); (3) type of support programme; (4) extent to which agricultural policies are similar to those of the EU; and (5) food security reasons (i.e. would import most commodities without high levels of support). As a result, the choice is made to focus on Australia, Canada, Japan, Switzerland and the United States of America (all G10 members). This set of countries includes both food exporting countries (Australia, Canada and the United States of America) and net food importing countries (Switzerland, Japan).

The information presented is based on a series of in depth country case studies (with extensive references), which were pursued by selected experienced country experts. The descriptions provided in this chapter are focussed on the main approaches and instruments that are most interesting when viewed from an EU-learning perspective. Further analysis of the selected instruments is the subject of the next chapter.

3.2 Australia

Australia has a large land mass of some 7.7 million hectares (> 10 times the area of France) with around 58 % of the area dedicated to agriculture. Though a large portion of production area is very extensive

grazing in low yield dry areas, total output relative to population food demand is large with a result that a large proportion of Australian agricultural production is exported. Agricultural products represented 15 per cent of total Australia's export value in 2015/2016. The top five export destinations for agricultural exports in that year were China, US, Japan, the Republic of Korea and Indonesia and the five most valuable commodities exports for 2015/2016 were beef and veal, wheat, wool, dairy and wine. The vast majority of intensive production, cropping and total output by value is produced in the temperate and relatively high rainfall southern and eastern perimeter of the continent with little production in the arid centre and tropical north.

Agricultural policy moved toward an encouragement of free market adaptation and market orientation over three decades ago. Agriculture has largely adjusted and discovered production adaptation leading to similar returns to capital in agriculture as are experienced in other economic sectors.

The biggest challenge in Australian agriculture are protracted multiple year droughts that result in multiple year sequences of low returns. These droughts produce financial challenges at farm household and agri-business level requiring adaptations to maintain viability for recovery.

Selected instruments

- **Farm Management Deposit Scheme (FMDS):** The Farm Management Deposit Scheme (FMDS) is widely adopted as a risk management tool with 46 000 accounts in 2014 and total deposits of over AUD 4 billion (EUR 2.7 billion). FMD allows eligible primary producers to deposit income in years of high income on a pre-tax basis with an AUD 800 000 (EUR 543 036) cap on deposits. FDMS deposits can be accessed subsequently in years of low income and becomes taxable in the financial year that it is withdrawn. As a form of in-drought support, farmers will be able to access their Farm Management Deposits when in a drought, without losing tax concessions.
- **Private sector index style drought insurances:** Uptake of unsubsidised multi-peril insurance is very limited in agriculture. This is due to high auditing and administrative costs to establish historic yield and to adverse selection for farmers to enrol with sub-optimal marketing and input management strategies. Accordingly, there has been very little commercial insurance offering or uptake of insurance against this risk historically. At this point in time this instrument remains only a niche product compared to the very widely used Farm Management Deposit scheme. For example, the Independent Pricing and Regulatory Tribunal of New South Wales (IPART-NSW) reported limited uptake of around 150 policies across some 20,000 grain farms in Australia in 2016.
- **Carbon emissions offset payments for land use change:** The Emissions Reduction Fund (ERF) first implemented in 2014 is a carbon abatement subsidy scheme rather than an agricultural policy per se with a main objective of helping Australian Government to meet UN global climate agreement emissions goals. ERF projects are awarded through reverse auction rounds. Australian Carbon Credit Units (ACCUs) are granted for avoided carbon loss and sequestered carbon. In a discriminate price auction land holders express an interest to can take action to increase carbon sequestration on their land by changing management such as by planting trees or removing stock to allow natural regeneration of trees. The land holder offers a price and the government choose lowest cost per unit carbon projects up to their budget limit for an auction round. Around AUD 2.5 billion (EUR 1.7 billion) were spent over the last three years in 7 auction rounds. Most of the offsets in the programme (64 %) were for avoided clearing and removal of stock to allow natural regeneration. It is one of the few payment schemes to farmers in Australia that isn't a form of natural disaster (flood, drought) payments.

3.2.1 Policy objectives

Australia follows a free trade policy, with a relatively low public budget expenditure on agriculture. Its main agricultural policy objectives are:

- Enhancement of competitiveness
- Disaster relief support (drought)
- Productivity support via Research and Development (R&D)

Australia's strong orientation toward encouraging individual farm and agricultural sector adaptation to increase international competitiveness, involves minimizing policy interventions and regulations. Orientation is very much toward supporting farms working in a highly competitive market system with assistance for autonomous adaptation but with very little price support or supply management. As such a key theme of Australian agricultural policy has been the liberalisation of the market contexts in which farmers operate in order to drive production efficiencies and improve export competitiveness. Increasing exposure to open market forces has been used to enhance farm efficiencies. Domestic agricultural policies have been complementary to Australia's international agricultural trade policy stance, which has been to advocate for global free trade in agricultural commodities.

The focus of Australian agricultural policy on efficiency and competitiveness is further highlighted by the recent Agriculture Competitiveness White Paper. From the priorities outlined in this paper, there is only a little shift from the productivity status quo, towards the integration of environmental sustainability or multi-functionality objectives. Farm aid is oriented toward helping farmers and agri-business through short periods of financial challenge such as droughts.

3.2.2 Main mechanisms of policy support

The majority of support remaining for Australian agriculture is through broad-based policies such as significant funding for rural R&D, support for farm financing, drought relief, tax concessions and through the benefits obtained indirectly from quarantine regulations.

- **Research and development:** Rural Research and Development Corporations (RDCs) are the primary vehicle for co-investment in R&D. The RDCs are funded by statutory (mandatory) levies on various commodities with funds being primarily used for marketing and R&D, with the Australian Government matching investment in eligible R&D. In addition to the RDCs, significant Australian Government funds have been dedicated to agri-centric Cooperative Research Centres (CRCs).
- **Farm financing:** Government intervention in farm financing includes income smoothing tax programmes such as the Income Equalisation Deposits Scheme and, more recently, the Farm Management Deposits Scheme and concessional loans. Concessional loan schemes in particular are increasingly generous with the recent Agriculture Competitiveness White Paper extending the concessional loans scheme for drought-affected farmers from the originally time limited scheme to one extending over 11 years at a cost of up to AUD 250 million (EUR 170 million) per year.
- **Drought relief:** In recent years the federal government has become increasingly involved in drought assistance to the farm sector: debt relief or concessional loans, farm household support payments, rural financial counselling, access to social welfare (despite significant assets) and family and community support services. In response to recent and persistent drought events, the federal government has expanded assistance measures to include

AUD 35 million (EUR 24 million) drought infrastructure fund and AUD 26 million (EUR 18 million) to manage pests and weeds in drought affected areas. In addition to federal assistance, State jurisdictions offer their own supports.

- **Environmental protection:** Some policies have been developed to address the negative externalities (particularly environmental) of earlier policy decisions and address broader environmental aims. For example, the Landcare Programme aims to ameliorate a range of environmental issues beyond agriculture to other natural resource management issues like conserving biodiversity, repairing coastal and marine ecosystems and devising integrated catchment plans. According to the Government ‘the programme continues to focus on practical, on-the-ground ways to improve issues like soil health, erosion management and water quality’.
- **Water market reform:** The Australian Government plays a central role in water policy reforms through the application of broader competition policy to water markets with explicit reference to addressing environmental and natural resource degradation concerns. Water market reforms have the potential to significantly affect irrigation dependent agriculture. Recent governments have been sensitive to this, and while not dismantling water market reforms, have looked at other policy interventions to appease the agriculture lobby.
- **Quarantine measures:** Indirectly, Australia’s quarantine regime provides something of a *de facto* form of import protection for agricultural producers. Australia is a signatory to the Sanitary and Phytosanitary Agreement of the World Trade Organization, which prohibits the use of quarantine measures as a barrier to trade. In reality overly onerous quarantine measures can act as an import barrier and provide benefit to Australian agricultural industries.

3.2.3 Trends in agricultural policy support

As explained in Section 3.2, Australia’s Producer Support (% Producer Support Estimate – PSE) is one of the lowest in the OECD area at 1.7 % of gross farm receipts for the period 2015-2017, with Total Support Estimate (TSE) representing around 0.1 % of Gross Domestic Product (GDP). Support to Australian agriculture is roughly equally split between PSE and General Services Support Estimate (GSSE). Australia no longer uses any policy measures that convey market price support to its producers, meaning that domestic prices for its main agricultural outputs are at parity with world prices.

In 2017, of the support that is provided directly to producers, around 46 % was provided in the form of subsidies to input use. Much of this relates to measures that provide subsidies for upgrading on-farm water infrastructure to help reduce negative environmental externalities, and payments that seek to help producers deal better with droughts and other natural events through concessional loans at concessional interest rates. Much of the remaining producer support is directed towards risk and environmental management, with income tax averaging arrangements, farm management deposits and other environmental programmes accounting for 47 % of the PSE (those payments are based on non-current area with production not required).

3.3 Canada

Canada’s constitution requires the federal government to act in conjunction with provinces in planning agricultural policies and programmes. Included in this policy-setting framework is the issue of equalization payments, which amount to a transfer of monies from ‘have’ to ‘have-not’ provinces so

that there are no fiscal disparities across provinces⁶. Agricultural payments are one means to make such income transfers.

Agriculture is a 'shared jurisdiction' with the federal government's power originating with its responsibility over trade and through its spending power. Because provinces are also responsible for agriculture, with the rural constituency carrying significant clout in provincial legislatures, agricultural policies differ across provinces – a farmer in one province might receive more support than a similarly situated farmer in another.

Canada's agricultural programmes began with statutory freight rates and was followed by single-desk buying and selling of barley and wheat through the Canadian Wheat Board (CWB). With the 'Agricultural Stabilization Act' (ASA) of 1958 price and income risk was addressed, while the 'Crop Insurance Act' (1959) addressed production (yield) risk. Protection of agricultural incomes from the vagaries of markets and nature has been the single most important objective of Canada's agricultural policies. However, many policies have also provided income support through subsidies.

Selected instruments

- **AgrilInvest:** AgrilInvest is a self-managed producer-government savings account that allows producers to set money aside which can be used to recover from small income shortfalls, or to make investments to reduce on-farm risks. AgrilInvest was created as part of the original Growing Forward BRM suite of programmes. It follows decades of similar programmes that sought to stabilize farm incomes. AgrilInvest helps farmers to manage small income declines, and provides support for investments to mitigate risks or improve market income. The AgrilInvest account builds as the farmer makes annual deposits based on a percentage of his Allowable Net Sales and receives matching contributions from federal, provincial, and territorial governments. Starting with the 2013 programme year, the farmer can deposit up to 100 % of his Allowable Net Sales annually, with the first 1 % matched by governments. The limit on matching government contributions is CAD 15 000 (EUR 10 241) per year. Deposits are made to the AgrilInvest account held at a participating financial institution.
- **AgriMarketing Programme:** National Industry Association Component: Eligible applicants are not-for-profit organizations that operate solely for social welfare, civic improvement, pleasure or recreation, or any other purpose except profit. Regional associations must demonstrate they represent significant Canadian production within their sector and have the ability to deliver a project from a national perspective. The programme is designed to support industry-led promotional activities that highlight Canadian products and producers, and boost Canada's reputation for high quality and safe food. An association must demonstrate an ability to provide a minimum of 50 % of the funding towards eligible costs. An association is then eligible to receive CAD 2.5 million (EUR 1.7 million) annually for a period of 5-years, or maximum of CAD 10 million (EUR 6.8 million) to promote the commodity the association represents.

⁶ The size and makeup of the agricultural sector varies greatly across provinces. The grain producing provinces – Alberta, Saskatchewan, Manitoba and NE British Columbia – face similar risks so these provinces bargain for similar programmes.

Selected instruments – continued

- **Agricultural Greenhouse Gases Programme (AGGP):** This programme supports projects that will create technologies, practices and processes that can be adopted by farmers to mitigate greenhouse gas emissions. These projects will also help farmers increase their understanding of GHG emissions. Individual projects could receive up to CAD 2 million (EUR 1.4 million) of support. Eligible projects focus on the four priority areas: Livestock systems, Cropping systems, Agricultural water use efficiency, and Agroforestry. Eligible applicants are restricted to: not-for-profit organizations, including farm co-operatives (if applicable); academic institutions; other levels of government (provincial / territorial / municipal); and aboriginal groups. At this time (27 September 2018), no more applications for funding are being accepted. To date, 16 projects have been funded. Of these, 13 are for university-based research, one is to demonstrate the carbon uptake potential of farmlands, and two to demonstrate the carbon benefits of planting trees on farmland. Many projects look to increase carbon uptake potential through various cropping systems or by identifying best management practices for livestock and crop production.
- **Pesticide Risk Reduction Programme (PRRP):** This programme is part of Agriculture and Agri-Food Canada's (AAFC) Pest Management Centre. It focuses on developing and implementing reduced risk solutions for pest management issues that have been identified by growers. Risk reduction involves helping growers to adopt an integrated approach to managing pests and by doing so reducing reliance on traditional pesticides. The objective is to reduce the risks to the environment and to human health posed by the use of pesticides in agriculture. The programme creates a framework through which stakeholders, including growers, grower organizations, pest management experts and others, develop and implement pesticide risk reduction strategies. Through the Pest Management Centre, the PRRP works with grower groups, industry, provinces, and researchers to identify gaps in pest management and opportunities for pesticide risk reduction, and to develop and implement strategies to address these gaps.

3.3.1 Policy objectives

The stated objectives of Canadian policy are:

- Protect farmers' incomes from the vagaries of markets and nature (weather, pests and disease).
- Help farmers manage significant risks that threaten the viability of their farm and are beyond their capacity to manage.
- Simplify and streamline agricultural programmes and services so that they are easy to access.
- Reduce fiscal disparities (at least, fiscal capacity) across provinces.
- Facilitate agricultural competitiveness and encourage greater innovation.
- Protect farmland from development, encourage soil conservation, prevent loss of wetlands, and reduce greenhouse gas emissions from the agricultural sector.

Canadian agricultural policy aims to keep costs to the Treasury as low as possible and, with the notable exception of the supply-managed sectors, to rely on market forces. Other objectives are to ensure that programmes are relevant at the regional level, result in equitable transfers from the federal government to the provinces and are locally administered, with costs shared across levels of government and agricultural producers having some 'skin in the game' (e.g. co-insurance in risk management programmes, matching funds required to access many programmes). The same is true of

rural development programmes – they require provincial agreement, participation and, often, initiation.

3.3.2 Main mechanisms of policy support

Supply management

The most ‘sacred’ agricultural programme in Canada is Supply Management (SM). The most pernicious is the dairy programme, which has been targeted by the US as a major obstacle to the North American Free Trade Association (NAFTA) trade negotiations. In addition to the price protection SM provides, dairy programmes provided subsidies of over CAD 200 million (EUR 137 million) annually over the period 1981-2002 and subsidies continue in the form of the Dairy Farm Investment Programme and Dairy Processing Investment Fund. Exports of dairy products are prohibited with the exception of skim milk powder (because quota is measured in butter fat, excess skim milk is produced), although such exports will be prohibited under World Trade Organization (WTO) rules after 2020. Under WTO rules, Canada employs tariff-rate quotas (TRQs), with imports above quotas facing tariffs averaging more than 270 %. As a result of recent trade agreements with the EU (CETA), certain Pacific-Rim countries (but not China or the US) under the Trans Pacific Partnership, and, as of September 30, 2018, with the US under the US-Mexico-Canada (USMCA) Free Trade Agreement; these regions now have free access to 3.25 %, 3.25 % and 3.59 %, respectively, of Canadian dairy markets. Additionally, the EU and US have tariff-free access to the market for milk protein isolates, although the implications for Canada’s dairy SM regime are not clear at this time.

Business risk management

In 2008, the federal and provincial governments coordinated to produce a new suite of agricultural programmes with particular focus on business risk management. Business risk management spending now accounts for roughly 75 % of government spending on farm programmes, and about half of the budget of Agriculture and Agri-Food Canada (AAFC). The business risk management suite consists of four programmes:

- **AgriInvest** is a government-matched savings account that is intended to address ‘shallow’ reductions in net farm income – to help producers protect their margin from small declines. Each year, producers could deposit up to 100 % of their Allowable Net Sales (ANS) into an AgriInvest account, but only 1 % of producers’ contributions would be matched by a government contribution to an annual maximum of CAD 10 000 (EUR 6 827).
- **AgriStability** is a margin-based, whole-farm programme that protects against larger income losses than under AgriInvest – it is meant to provide ‘deep’ protection. Indemnities under AgriStability are based on the difference between the realized gross margin in any year and a reference historical margin, with payments triggered when a producer’s realized gross margin falls 70 % (85 % under GF) or more below the reference margin. Funds from AgriInvest are meant to cover the first 30 % (15 % under GF) by which the realized margin falls below the reference margin. After that, the coinsurance (what the farmer pays) is 30 % when the realized margin is less than 70 %.
- **AgriRecovery** provides relief in the case of disasters, permitting governments to fill risk gaps not covered by other government programmes. This disaster-relief programme is offered by the federal, provincial and territorial governments to assist producers with extraordinary costs of recovering from natural disasters.

- **AgriInsurance** provides protection to producers from production (i.e. yield) losses for specified perils, including economic losses arising from natural hazards, such as drought, flood, wind, frost, excessive rain or heat, snow, losses from uncontrollable disease, insect infestations and wildlife – it is production insurance. AgriInsurance is an extension of subsidized multi-peril crop insurance that has been available to Canadian farmers since 1959, although the range of products covered increased over time. AgriInsurance does not cover livestock producers although they can insure their on-farm feed production.

Environmental protection

Environmental and regional development objectives that affect the agricultural sector are not solely based in the ministry Agriculture and Agri-Food Canada's (AAFC). Agri-environmental policies are directed at greenhouse gas emissions, while agricultural experimental farms address issues such as soil and wetlands conservation, but many environmental programmes affecting farmers are available through the ministry Environment & Climate Change Canada (ECCC). For agriculture, the National Wetland Conservation Fund and the Habitat Stewardship Programme for Species at Risk are most important. Farmland protection (e.g. British Columbia's Agricultural Land Reserve), the allocation of wetland protection funds and habitat stewardship programmes not on federal lands are the responsibility of provinces. While rural development is addressed through federal equalization payments and federal agencies such as the Western Economic Diversification Agency, provincial governments generally have final control over how funds are targeted and may also design programmes of various sorts to encourage rural development.

3.3.3 Trends in agricultural policy support

Canada has significantly reduced its agricultural support since the late 1980s (see section 4.2). Producer support as a share of gross farm receipts fell sharply between 1986-1988 and 1995-1997, in large part because Market Price Support (MPS) to the grains industry was discontinued in 1995. The decline in the level of support since then has been more gradual because there have not been any significant policy changes to MPS measures for dairy, poultry, and eggs. Lower levels of disaster payments in recent years and a shift of budgetary expenditures towards general service support to the sector since the mid-1990s have resulted in lower farm income support overall. The GSSE measured relative to agriculture value added were above the OECD average. Total support to agriculture as a share of GDP has declined significantly over time. More than 70 % of the total support is provided to individual farmers (PSE).

The Government of Canada has declared that changes to SM are non-negotiable, but international pressure for Canada to open its markets, especially dairy, is quite strong.

Since business risk management (BRM) was introduced in 2008, no changes have been made to the AgriInsurance and AgriRecovery components. AgriInvest and AgriStability have seen the greatest modifications as governments sought to limit benefits going to the largest farms while helping smaller ones. Initially, farmers received an indemnity from AgriStability that covered 70 % of their revenue loss when the realized gross margin was between 70 % and 85 % of the reference margin, but 80 % of their loss when it was less than 70 %; participants paid no premiums. Later, farmers were not covered until their loss exceeded 30 % (smaller losses were to be covered by AgriInvest) and they had to pay premiums. A reference margin limit was also imposed for calculating indemnities – the reference margin was set at the lesser of the historic average programme margin and the historical average of allowable expenses used to calculate the reference margin. Under the present programme a late participation mechanism was introduced to ensure that all producers could access AgriStability support should a significant decrease in revenue threatened the viability of their farm, although there

would be a 20 % reduction in the payout. A final trend in business risk management is the desire for greater participation by the private sector and the development of new insurance products, particularly index-based insurance.

3.4 Japan

Most regions in Japan are in the Asian monsoonal zone and receive abundant precipitation favourable to paddy farming. Intensive rainfall and a steep topography are characteristics of Japan, with the result that heavy rains can lead to rapid water flows in rivers and serious flooding. More than half of farmland is paddy fields and paddy farming and its main product, rice, are important economically, socially, culturally and environmentally. The Japanese have expended considerable resources to develop and maintain paddy fields. Agri-environmental public goods have largely developed within an environment influenced by humans (e.g. farmland and irrigation/drainage facilities).

Because Japan is a mountainous island and a densely populated country, land scarcity is a challenge for agriculture. Japanese agriculture generally uses land intensively to generate very high yields. Of 4.5 million hectare of farmland, 41 % is situated in hilly and mountainous farming area in 2015. The proportion of abandoned land in total farmland increased to 9.4 % in 2015, which is relatively higher in hilly and mountainous areas due to ageing and depopulation and low profitability of farmland.

Farm size expansion has been slow, especially in the rice sector. The average size of rice farms remains 1.2 hectares in 2015. Rice is produced by a wide range of farm operators as a business, part-time business and non-commercial activity. The ageing of rice farmers is very significant, with an average age of over 70-years-old. Farm business succession to the next generation is a pressing challenge. Many small-scale rice operations form part of a web of interdependencies at the community level and help preserve them. The historically strong bonds between farmers help sustain rural communities.

The consumption of rice and cereals has declined substantially over the last decades while demand for meat and dairy products has increased strongly as a result of both affordability and Westernisation of the Japanese diet. Such changes in food consumption have resulted in decreased paddy-field area, rice production and food self-sufficiency rate nationally.

Selected instruments

- **Land Improvement Projects (LIP):** The Land Improvement Projects (LIPs) are aimed to increase overall Japanese agricultural productivity through supporting major irrigation/drainage facilities and for implementing land consolidation. For the construction costs this instrument employs cost-sharing arrangements among the national government, local governments and farmers with long-term loan arrangements. The budget for these projects constitutes more than 20 % of MAFF's annual budget in 2017.

Selected instruments – continued

- Mutual insurance scheme:** The mutual insurance scheme provides farmers with multiple-risk coverage against natural yield risks such as windstorms, floods and cool summers. Japan has had a heavily subsidised rice insurance programme since 1947. General reasons for the government to subsidise agricultural insurances is that a multiple-risk coverage would be too wide regionally to pool risks; private insurance for agriculture would be too difficult to avoid moral hazard and adverse selection among farmers. The mutual insurance scheme aims to contribute to the stabilisation of farm businesses and, ultimately, to develop sound agriculture by compensating for yield losses mainly due to natural disasters. This scheme employs the cost-sharing arrangement for the premium of insurance between the government (50 %) and participating farmers (50 %). The government also bears the administrative cost and reinsurance fund of the mutual insurance scheme. Participation is almost compulsory for farmers who cultivate major crops (e.g. rice) to avoid adverse selection problems and to decrease the monitoring cost. Participating farmers nonetheless have flexibility in how insurance cover to buy in order to meet different preferences among them. For instance, the indemnity value can be selected as 50 %, 60 % or 70 % of losses in individual plots of rice farming.
- Direct Payment to farmers in Hilly and Mountainous Areas (DPFHMA):** The DPFHMA aims to keep agricultural production in these less-favoured areas and, consequently, preserve multifunctional aspects associated with agricultural production. The DPFHMA is based solely on communal contracts, in which each rural community in the respected areas would have contra-cts with municipal governments. This contractual arrangement would naturally lead to encouraging collective action based on historically developed communities. The payment rate is based on the difference in production costs between these areas and flat areas, which is the same as the case of payments for less-favoured areas in many countries and is consistent with the green box requirements under the World Trade Organization (WTO) agricultural agreement. The payment rate is set at JPY 210 000 (EUR 1 657) per hectare for paddy fields in steep areas, for example. In 2017, there were around 26 000 contracts and the area receiving the payments amounted to 663 000 hectare, which is about 15 % of the total cultivated area in Japan. The budget from the Ministry of Agriculture, Forestry and Fisheries (MAFF) allocated to this measure is JPY 26.3 billion (EUR 208 million; around 1.3 % of the total the MAFF's budget) in 2017 and the same amount was added from the local government budgets.
- Multifunctionality payments (MP):** The government supports communal activities that conserve and improve the quality of local resources by multifunctionality payments. These payments are categorised into two types: farmland maintenance and resource improvement. The former is aimed at the cleaning and maintenance of irrigation/drainage channels and roads at the community level. The latter is aimed at minor rehabilitation work for irrigation/drainage channels, ponds, roads and the creation of softscapes and biotopes at the community level. As for the direct payments to farmers in hilly and mountainous areas, the payments are made to groups of farmers and/or non-farmers rather than to individual farmers. The payment rate is based on 66.7 % of the average cost associated with implementing these maintenance activities. The total budget allocated from the MAFF was JPY 48.4 billion (EUR 382 million) in 2017 (around 2.4 % of the total the MAFF's budget). In principle, the same amount was added from the local government budget.

3.4.1 Policy objectives

Under the Basic Law on Food, Agriculture and Rural Areas (enacted in 1999), the principles of Japanese agricultural policies are four-fold:

- to secure stable food supply through enhancing domestic production as a basis with an appropriate combination of imports and stockholding;
- to fulfil the multifunctional role of agriculture such as conservation of national land, water resources and natural environment and the maintenance of desirable landscapes and cultural traditions;
- to sustain agricultural development by maintaining agricultural production basis including farmland, irrigation/drainage and a workforce, promoting the natural cyclical function of agriculture and establishing a desirable agricultural structure where efficient and stable farm operators play a major role; and
- to develop rural areas through improvements in agricultural production conditions and rural welfare including living infrastructure.

There are no serious conflicts among these four objectives. The objective of sustaining agricultural development always supports the objectives of securing a stable food supply and also supports, rather than trades off, the objectives of fulfilling the multifunctional role of agriculture. Furthermore, the objective of sustaining agricultural development is seen to resonate with the objective of developing rural areas.

The basic law stipulates that the government should establish a Basic Plan for Food, Agriculture and Rural Areas and revise it approximately every five years. The first basic plan was established in 2000 and has so far been revised in 2005, 2010 and 2015. Agricultural policy measurements gradually changed following several revisions of the Plan while food self-sufficiency is repeatedly emphasised and the target rate of self-sufficiency was set as 45-50 % on a calorie basis in every plan.

3.4.2 Main mechanisms of policy support

The major approaches to agricultural policy have involved maintaining self-sufficiency in rice as a staple food through the control of imports, a production reduction programme of rice that leads to a higher domestic rice price and the maintenance of paddy areas through infrastructure investments.

Market Price Support (MPS)

Tariff-rate quota systems with high out-of-quota tariffs are applied to rice. In 2018, the out-of-quota tariff-rate of rice is JPY 341 per kg (EUR 2.69). Rice import is conducted through state trading under Japan's World Trade Organisation (WTO) Agreement on Agriculture minimum-access commitment. The production reduction programme of rice is associated with direct payments that compensate for the lower revenue earned from the production of alternative, less profitable, crops. More specifically, the crop diversification payment for paddy field farming, which is conditioned to conserve a favourable environment of paddy fields, is paid to farmers who switch their use of paddy fields from table rice to other crops (e.g. wheat, soybean and feed rice). Tariff-rate quota systems with high out-of-quota tariffs have been also applied to wheat, barley and dairy products. Administered prices were applied to pig meat, beef and calves, together with an import tariff. Some of these measures would distort the product markets.

Direct payments

Income support: There are some direct payments to support farm income and agricultural production. The income support payment aims to preserve farm income by bridging the gap between international prices and domestic production costs for major upland crops (wheat and barley, soybean, sugar beet, starch potato, buckwheat and rapeseed). This payment is provided through area and output-based payments. The area-based payments are based on the current year's area planted while the output-based payments are based on the volume of sales; however, the subsidy rate varies by quality and variety. The income support payment could be a measure that is coupled with agricultural production. The income stabilisation payment compensates farmers when their revenue is lower than the historical average. Specifically, when the total revenue of programme crops (rice, wheat and barley, soybean, sugar beet and starch potato) falls, the programme compensates 90 % of the reduction in revenue suffered to the extent this exceeds a mutual insurance scheme. To both income support payment and income stabilisation payment, participation is voluntary for three types of business farmers: certified farmers, certified new farmers and community-based farm cooperatives.

Rural development: There are some direct payments to support a mixture of environmental and rural development. Japanese agri-environmental policies target the driving forces (input-based instruments) and not performance-based instruments. The Direct Payment to Farmers in Hilly and Mountainous Areas (DPFHMA) provides rural communities with payments to prevent the abandonment of agricultural land and to ensure the role of agriculture including environmental protection and landscape preservation. The payment rates are designed to compensate for 80 % of the average difference in production cost between less-favoured and flat areas. The government supports communal activities that conserve and improve the quality of local resources through the multifunctionality payments. The multifunctionality payments are categorised into two types: farmland maintenance payment and resource improvement payment. The government pays groups of farmers and/or non-farmers rather than to individual farmers both for DPFHMA and multifunctionality payments. The direct payment for environmentally friendly agriculture is provided to farmers who reduce chemical fertilisers and pesticides, and to those who adopt farming practices that contribute to reduce global warming and/or conserve biodiversity. The payment rate is based on additional costs or income foregone associated with the farmers implementing these practices.

Risk management and structural adjustment

For risk management, the mutual insurance scheme is available for a wide range of products. It mainly covers yield losses due to natural disaster (e.g. windstorms, floods and cool summers), but also insures the deterioration of crop quality and input losses for some products (e.g. livestock or agricultural greenhouse). Participation in the mutual insurance scheme is basically voluntary, but compulsory for those who cultivate rice, wheat and barley above certain scales to avoid adverse selection problem and to decrease the monitoring cost. Nonetheless, participating farmers have flexibility in determining their insurance coverage in order to meet different preferences among them. The government support covers around 50 % of the premium. The government also bears the administrative cost and reinsurance fund of the mutual insurance scheme.

Small-scale farms are still very popular in Japan and are generally less competitive. Thus, achieving positive adjustment in land markets is a key challenge and successfully meeting this challenge is central to the overall objectives for the agricultural sector. The government has promoted structural adjustment through land markets, such as the farmland banks. The farmland banks, Public Corporations for Farmland Consolidation to Core Farmers through Renting and Subleasing, improve farmland conditions and infrastructure, if necessary, and then lease the consolidated farmland to

business farmers. With the land policy development, the government encourages the incorporation of family farms with a business mind as well as private companies from the non-agricultural sector entering into the farming sector.

3.4.3 Trends in agricultural policy support

Japan has gradually reduced its support to agriculture but the change has been relatively moderate (see Section 4.2). The TSE represents 1.0 % of Japan's GDP in 2015–2017. PSE represents 82 % of TSE in 2015–2017 and another 18 % is the GSSE provided to agriculture. Producer support as a percentage of gross farm receipts (% PSE) is about 46 % in 2015–2017, down from 63 % in 1986–1988, but still much higher than the OECD average. Market Price Support (MPS) remains the main element of PSE and is primarily sustained by trade barriers. Prices received by producers are, on average, 72 % above world market prices. The share of potentially most distorting support (MPS, support based on output and variable input use—without input constraints) has declined, but still accounts for 85 % of producer support. The share of direct payments in the PSE increased in recent years, particularly in the form of area- and income-based payments. The share of area and income-based payments in PSE has increased 0 % in 1995–1997 to 6 % in 2017. Around 85 % of the GSSE is directed to the development and maintenance of infrastructure, such as irrigation/drainage facilities and disaster prevention, and 11 % of the GSSE finances the agricultural knowledge and innovation system.

3.5 Switzerland

In Switzerland, agriculture – although its small share of 0.7 % in GDP – is of high societal relevance. Regular referenda highlight the society's interest in farm and food issues. The financial support to agriculture is mostly accepted and linked with high trust in the quality of Swiss food products. Price levels, both for agricultural raw product and for food prices, are considerably above the ones of neighbouring countries.

In September 2017, Swiss electorate accepted the article on food security (German: *Ernährungssicherheit*) to be added to the constitution. This article goes back to a popular initiative instigated by the Swiss Farmers' Union intending to foster Swiss agricultural production.

Important pending initiatives consider the prohibition of pesticides and abstaining from pesticides and, partly from antibiotics if farms claim direct payments. The Federal Council rejects both initiatives and refers to the national action plan on plant protection products. These two initiatives will not be put to the vote before 2020.

In this general framework, the future agricultural policy from 2022 onwards (AP22+) is currently developed. A public consultation on this policy will be held in autumn 2018.

Selected instruments

- **Resources Programme:** The resources programme intends to support technical, organisational and structural innovation with positive effects on natural resources (sustainability) during the start-up phase. Projects are financed for 6 years and co-financed by the Federal budget (maximum 80 % of costs). From 2008 to 2016, 27 projects covering the issues ammoniac, soil, biodiversity, energy, air, water, greenhouse gases and antibiotics were initiated. Resources Programme require scientific monitoring of the impacts as integrative part of a project. The design of this measure is open to any suggestion providing to the stated objective. Each project must address two objectives: (1) impact on natural resources, (2) learning (knowledge transfer) beyond the project region. Swiss government (Bund) bears 50-80 % of the project costs. The organising institution and other supporters and funders (often the cantons) bear the other costs.
- **Biodiversity payments:** Swiss agricultural policy has developed various instruments to promote biodiversity in grasslands and croplands. The Agricultural Policy 2014–2017 increased incentives for high-quality areas reserved for promoting biodiversity in valleys. Additionally, the list of eligible items for a contribution to promote biodiversity has been expanded to include summering pastures. The Swiss Federal Council published a draft on its future agricultural policy, which proposes a new concept to foster biodiversity within this instrument (Bundesamt für Landwirtschaft 2018). For now, biodiversity subsidies are paid in order to promote and maintain biodiversity. The measure covers several payment categories: Meadows (extensive meadows, low intensity pastures), wooded formation (hedges, field and riparian woods), fallow land (field edge), flower strips on fields (low intensity cropping strips), low meadow, species-rich summering areas (alps), species-rich vineyards, single trees (walnut, fruit trees or traditional orchards), regional biodiversity areas. Swiss farmers are required to set aside part of their agricultural land for extensive cultivation in order to receive government subsidies. These so-called ecological compensation areas create habitats for plants and wildlife. Three types of payments are implemented: Ecological Compensation Areas are supported for their quality (two levels of quality, QI and QII) and cross-linking. The share of Ecological Compensation Areas must be at least 3.5 % of the area planted with specialized crops and 7.0 % of the other agricultural area.
- **Farmland payments to maintain open landscape:** This measure compensates difficulties of agricultural production in higher areas and secures the farming continuation in mountain areas; the utilizable agricultural area in CH is categorized in to so-called zones according to the criteria: climatic situation, transport infrastructure/accessibility, relief (surface, steepness). All farms (which are eligible for direct payments) in the hill and mountain zones benefit from this general payment; no further actions are required. The per hectare payments range from CHF 0 (EUR 0) in valley zones to CHF 390 (EUR 351) in the mountain IV zone. The proposals for Swiss agricultural policy starting in 2022 envisage transforming this instrument into a uniform farm payment and a per-hectare payment differentiated according to production zones (Bundesamt für Landwirtschaft 2018).

3.5.1 Policy objectives

According to article 104 of the Swiss federal constitution agriculture requires a 'sustainable and market oriented production policy' that contributes towards the following objectives:

- the reliable provision of the population with foodstuffs;
- the conservation of natural resources and the upkeep of the countryside;
- decentralised population settlement of the country.

In September 2017, the following objectives on food security were added (article 104a):

- safeguarding the basis for agricultural production, and agricultural land in particular;
- food production that is adapted to local conditions and which uses natural resources efficiently;
- an agriculture and food sector that responds to market requirements;
- cross-border trade relations that contribute to the sustainable development of the agriculture and food sector;
- using food in a way that conserves natural resources.

These objectives correspond with the recently introduced policy for rural areas and mountain areas:

- support liveability;
- safeguard and value natural resources;
- foster competitiveness;
- shape cultural diversity.

Swiss agricultural policy faces challenges due to conflicting objectives regarding the supply of food (ideally of Swiss origin, this often involves high production intensities), the conservation of natural resources (support of extensive production systems, refrain from plant protection products) and the international competitiveness of the agricultural and food sector.

3.5.2 Main mechanisms of policy support

The current agricultural policy relies on the following instruments: direct payments; market price support; programmes on resources and water protection; labelling (mountain, organic, origin, *Swissness* labels); rural development and structural improvement; quality and promotion campaigns; land laws and tenancy legislation.

Direct payments

The most important instrument are direct payments, accounting for 76.5 % of governmental spending in the agricultural and food sector. There are different kinds of direct payments:

- payments for ensuring food supplies including payments for production in difficult conditions;
- farmland payments;
- biodiversity payments;
- payments for landscape quality;
- payments for environment/animal-friendly production system;
- resource-efficiency payments;
- transitional payments (to balance the effects of the last agricultural policy reform introduced in 2014).

Farmers receive direct payments if the requirements of Proof for Ecological Performance (PEP) are fulfilled, if they are younger than 65 years and if they hold a professional education. A minimum workload of 0.2 standard workforce must be required on a farm and at least 50 % of the farm work must be performed by farm-own labour force. Furthermore, receipt of direct payments is bound to

compliance with maximum livestock numbers on a farm (such as max. 18 000 laying hens or 1 500 fattening pigs per farm, and limited to CHF 70 000 (EUR 62 967) per standard work force.

Market price support

Next to direct payments, market price support is also of high relevance. This support is reflected in the price gap between domestic and world prices resulting from market protection measures. This system remained largely unchanged the last 20 years. Border protection is implemented via single tariffs or via a system of tariff-rate quota (TRQ). TRQ regulate imports of most agricultural products which are produced in Switzerland. This system serves to supplement domestic production in case of supply shortage. The Federal Office for Agriculture execute TRQ and releases import quotas. The level of price support differs across commodities between 20 % and is highest for poultry meat with 81 % commodity transfer measured as share of receipts. Export subsidies for processed products (*Schoggigesetz*) was recently revised per 2019 and replaced by allowances for cereals and milk.

3.5.3 Trends in agricultural policy support

Switzerland has reduced its support to agriculture but the change in the level of support is relatively moderate, while the changes in the structure of support are more pronounced. PSE remains high in terms of its share on gross farm receipts and is three times above the OECD average. Total TSE was around 1 % of GDP in 2015-2017 and is dominated by direct support to farms (PSE). Support based on output (including market price support) is the most important element of the support although its share in the total support to farms has been reduced over time in favour of area payments and other, less coupled forms of support. The main element of the GSSE is to finance the agricultural knowledge and innovation system, which represents almost half of the GSSE expenditures.

The present system of direct payments was introduced with the agricultural policy framework 2014-2017. The guiding principle of this reform was to link payments to specific objectives. The objectives and the overall budget did not change considerably, but the payment system was reshaped: general area payments and general headage payments to ruminants were abolished.

In September 2017, the Federal Council published its 'Action plan on risk reduction and sustainable use of plant protection products'. Given two popular initiatives which turn against the use of pesticides in agriculture, this topic and the action plan will be highly relevant on the future political agenda.

3.6 United States of America

Farm policy in the United States is mainly formed and funded by the national government. The US Congress is the main focus for farm policy debates, while the United States Department of Agriculture (USDA) is implementing policies through a physical presence in most counties in the country. Formal US farm policy started in the middle of the Great Depression of the 1930s, when conditions facing farmers, due to bad weather and low prices, caused massive financial, environmental and social problems.

The first Farm Bill, the Agricultural Adjustment Act of 1933, set in place a package of programmes or instruments that addressed important economic, environmental and social dimensions of farming. Many of these original programmes remain in a recognizable form in current farm bills, demonstrating both the persistence of farm problems and the relative stability US agricultural policy. While the Farm Bill is now the central element of US agricultural policy it was not the first element of US farm policy (e.g. Land Grant System of Education, Research and Extension) and various other significant policies both within USDA and other federal agencies continue to have important policy influences on

American agriculture (e.g. US Interior Department: Irrigation and grazing on public land; US Environmental Protection Agency: Pesticide regulation and water quality).

The various titles of each farm bill address key current policy issues that face US agriculture. While each farm bill updates US agricultural policy to address both current policy concerns and new underlying conditions, the main way this is done is by amending various individual pieces of legislation that each focus on a specific issue. Importantly, each farm bill has a relatively short life of 4 to 6 years and its provisions expire at the end of this period. Should a farm bill expire without a replacement, the so-called permanent legislation of the Agricultural Adjustment Act of 1938 and the Agricultural Act of 1949 would replace current legislation. The expected effects of this are seen as so negative for farmers, consumers and the government that it creates a strong incentive to complete a new farm bill or extend the existing one.

Selected instruments

- **Crop Insurance Programmes:** Crop insurance has been available in parts of the United States for most of the last century, but it only became a major part of national agricultural policy in the last 30 years. By 2014 insurance type products had become the main form of support for farmers. The expansion of crop insurance reflects several forces. One is clearly greater restrictions on traditional price supports as a result of international trade agreements. A second was the growing complexity, expense and rigidity of traditional price supports and acreage reduction programmes. A third was the difficulty of expanding the traditional programme structure from a relatively small number of commodities that were once produced by most farms to a new environment where farms are more specialized. A fourth factor was the increased ability of farmers to manage price risk through forward contracting, hedging and other strategies, but less ability to manage yield risk. Finally, crop insurance was seen as a way to avoid the government having to fund emergency disaster assistance programmes for farmers whenever natural disasters struck.
- **New risk management instruments – ARC and PLC:** To move the US to a mainly risk management approach to farm support, direct payments were eliminated and replaced with a government funded shallow loss⁷ insurance programme. Multiple versions of the programme exist allowing producers to choose the format most suitable to their conditions. The main variations are Agricultural Risk Coverage (ARC) that provides revenue insurance, and Price Loss Coverage (PLC) that provides price insurance. Authority is found in Title I of the 2014 Farm Bill. Both ARC and PLC replace previous counter-cyclical price supports. While traditional market price support remains authorized in the 2014 Farm Bill the triggering prices were set low enough that ARC and PLC take over this function. The two programmes provide support to those commodities that are eligible for traditional price support programmes. Initially cotton had a separate programme (STAX) but this was eliminated in 2017 and cotton now uses PLC.

⁷ See section 5.2.1 for an explanation of the term.

Selected instruments – continued

- **US direct loans and loan guarantees:** Original motivation in the 1930s was to slow farm bankruptcies by providing a new source of credit to those unable to borrow from banks. The 2014 Farm Bill (Title V) provides the current legislative authority. Since the 1930s USDA has made direct loans to farmers who were rejected by banks for having too weak repayment capacity. USDA now mainly guarantees the repayment of loans made by banks to these individuals, although some direct lending remains. This programme allows new entrants into agriculture and helps people with limited resources expand a farm into a more viable production unit. Young and beginning farmers, socially disadvantaged individuals and veterans are given preference for direct loans and loan guarantees.
- **Conservation Reserve Program (CRP):** Original motivation in the 1985 Farm Bill was to reduce the environmental damage on environmentally sensitive land by taking it out of production for an extended period. Payments are provided to participating farmers to compensate them for lost income. A secondary motivation in 1985 was to reduce farm output to stabilize prices and incomes. Current authority is found in Title II of the 2014 Farm Bill. The Conservation Reserve Program (CRP) is a voluntary programme that removes environmentally sensitive land from production for 10 to 15 years. Only land meeting a high enough degree of potential damage is eligible. Farmers submit specific parcels of land and indicate how much they will accept per acre to retire their land. USDA then balances cost and degree of environmental benefit in selecting parcels for contract. Total amount of land in CRP is capped by Congress and there is a limited budget appropriated in each year to fund the programme. In addition there are limits on how much land can be taken out of production in any county. Farmers are penalized if they break their contracts before they expire.

3.6.1 Policy objectives

The main objective of US farm policy remains support for farm income and stabilization of farm commodity markets (see list below). Income support programmes in the US are mainly commodity specific. A number of secondary objectives are now associated with the core goal of providing commodity support. Many of these policies are included to attract support for the passage of Farm Bills even though they contribute little to the core objective. The US agricultural policy objectives are:

Primary objectives:

- Farm income support.
- Commodity markets stabilization.

Secondary objectives:

- Food security for the economically disadvantaged.
- Support for Rural Development.
- Mitigating the Impacts of Agriculture on the Environment.
- Expanding US Farm Exports.
- Targeted Aid for Specific Groups - Support for: minorities (black farmers and indigenous farmers), young and beginning farmers, and for veterans.
- Research and Extension.

3.6.2 Main mechanisms of policy support

The 2014 Farm Bill terminated direct payments and shifted the main form of support to insurance type products. Essentially the US now provides free shallow loss insurance and free catastrophic loss insurance for most commodities. Farmers can buy either price, yield or revenue insurance to cover intermediate losses. Traditional price support programmes (loan deficiency payments) remain available should commodity prices decline to unusually low levels, but there is no indication that direct payments will be reintroduced.

The 2014 Farm Bill introduced two new insurance-type products: Price Loss Coverage (PLC) and Agricultural Risk Coverage (ARC). PLC provides guaranteed minimum prices for specific commodities and essentially sets a price floor. ARC provides a revenue guarantee based on levels of output determined by a portion of a farm's traditional planting of that commodity (base acres) and historic average yields, with prices based on an 'Olympic moving average' of the prior 5 years. Each participating farm had to choose one of the two options in 2014 and their choice was fixed for the life of the 2104 Farm Bill. Both products provide insurance against price declines, but ARC incorporates yield effects as well. In this sense they are a close substitute for previous counter-cyclical price supports, and since there is no premium paid by farmers for either programme they have a high level of subsidy. Commodity prices declined significantly since 2014 increasing the cost of the programmes to the government, as was the case after 1996; but unlike what happened in the 2002 Farm Bill, there is no intent to return to traditional price supports in the 2018 Farm Bill.

Cross-compliance is an important policy mechanism in the US. Cross-compliance can take several forms with the link to crop insurance being one main aspect and environmental programmes being another. Starting in 1994 farms were required to purchase crop insurance in order to be eligible for deficiency payments and some other support programmes. This was seen as a way to reduce the need for emergency disaster payments. In the 1996 farm bill new restrictions on land use conversions were strengthened by making farmers who converted grasslands or wetlands to cropland ineligible for income support. More recently, the 2014 Farm Bill restored a prohibition on crop insurance subsidies for farmers who violate environmental restrictions on land conversion.

Young and beginning farmers are supported through preferred access to USDA direct lending and loan guarantee programmes. Congress has also required that the Farm Credit System (FCS) implement programmes to young and beginning farmers. USDA credit programmes are targeted to those who are unable to obtain credit from commercial lenders, making USDA a 'lender of last resort'. The FCS is congressionally chartered, which places it directly under the supervision of the Congress and is the largest commercial lender to farmers in the country. Its charter allows it to borrow money at low interest rates and its co-operative structure and restriction on only serving farmers, ranchers and fishermen makes it a focused lender.

3.6.3 Trends in agricultural policy support

The level of support provided to agricultural producers in the United States has been consistently below the OECD average. Market Price Support (MPS) has become a progressively smaller share of US support to agriculture. Payments have increased in importance over time, mainly due to increases in payments that require production and, to a lesser extent, increases in input payments. Reflecting the fact that many agricultural policies are counter-cyclical to market prices, the level of budgetary support is inversely related to market price developments. As a result, support has peaked when world commodity prices were depressed (in terms of USD), while high commodity prices after 2007-2008 contributed to lower levels of support.

The United States' PSE declined from 12 % of gross farm receipts in 1995-1997 to below 10 % in 2015-2017. The share of potentially most distorting support has fallen to 32 % in 2015-2017, and is well below the OECD average. On average, prices received by farmers in 2015-2017 were 3 % higher than those observed in world markets, largely as a result of MPS for milk, sugar, and to a lesser extent sheep meat. Producer prices of other commodities are mostly aligned with border prices. Payments requiring production are important because of the emphasis on farm insurance and risk management. Among OECD countries the US is relatively unique in having a positive Consumer Support Estimate (CSE) due to the large expenditure on feeding programmes, particularly the Supplement Nutrition Assistance Program (SNAP).

While traditional market price support remains intact, even in the 2014 Farm Bill and the 2018 Farm bill proposals, there is no desire to rely on it. While insurance based approaches have both better political optics than direct payments and are largely compliant with trade obligations they too have problems. Subsidy levels are now so high that the programmes can be income augmenting. In addition, there are concerns about the adverse consequences insurance has on behaviour, with farmers taking on excessive risk because losses are covered.

The 2018 Farm Bill

On December 20, 2018 the Agricultural Improvement Act of 2018 (AIA) became law just days before the end of the 115th Congress.

The AIA essentially extends the approach of the previous farm bill in supporting farmers. Crop insurance and "insurance type" shallow loss programs (Price Loss Coverage and Agricultural Risk Coverage) introduced in the Agricultural Act of 2014 (AA) remain the main means of supporting farm incomes.

Continuing the mechanisms of the AA suggests that Congress and US farmers are satisfied that this concept remains desirable, even though economic conditions facing farmers today are very different than they were in 2013. The AIA is projected to cost only slightly more than extending the AA for another 5 years. However, actual outlays could be considerably higher for farm programs if, commodity prices remain low, crop yields revert to more normal levels and trade conflicts continue. Finally, while there was some controversy over the Conservation Title, ultimately AIA retains most of the programs that support environmental improvements on working lands and authorized modest increases in enrollment in the Conservation Reserve Program.

For further information:

<https://www.usda.gov/sites/default/files/documents/2018-farm-bill-and-legislative-principles.pdf>

<https://fas.org/sgp/crs/misc/R45210.pdf>

<https://www.congress.gov/bill/115th-congress/house-bill/2/text>

3.7 Conclusions regarding the detailed country studies

Australia moved its agricultural policy toward an encouragement of free market adaptation and market orientation over three decades ago. The main objective of agricultural policy is efficiency and competitiveness of the farming sector while minimize policy intervention and regulations. Environmental sustainability or multifunctionality objectives are not or only insignificantly integrated into the framework. One subtle change that is noteworthy however, is a change in focus from simply market access to premium market access, reflecting Australian agricultural sector ambition to increasingly target potentially lucrative growing middle class demographics in developing countries, specifically in Asia. The greatest issue in Australian agricultural policy are protracted multiple year droughts that result in multiple year sequences of low returns. The majority of support remaining for Australian agriculture is through broad-based policies such as significant funding for rural R&D, support for farm financing and drought relief.

In Canada, protection of agricultural incomes from the vagaries of markets and nature has been the single most important objective of its agricultural policies. Many policies have also provided income support through subsidies. Canada also includes in its policy framework an objective to make programmes more consistent and to simplify them in order to ease accessibility for beneficiaries with the aim to keep costs to the Treasury as low as possible. Main mechanisms of policy support are Supply Management and Business risk management.

The Japanese agricultural policy framework formulates a strong interrelation between economic, environmental, and rural development in its objectives, where e.g. rural development is clearly linked to the improvement of agricultural production conditions, or conservation of natural resources is linked to maintenance of desirable landscapes and cultural traditions. The major approaches to agricultural policy in Japan have involved maintaining self-sufficiency in rice as a staple food through the control of imports, a production reduction programme of rice that leads to a higher domestic rice price and the maintenance of paddy areas through infrastructure investments. There are some direct payments to support farm income and agricultural production and some to support a mixture of environmental and rural development. For risk management, the mutual insurance scheme is available for a wide range of products.

Environmental, and food security and consumer demands are a clear focus of Swiss agricultural policies. They aim also at a sustainable development of the agriculture and food sector by safeguarding agricultural land and natural resources and by production that is adapted to local conditions. Regular referenda highlight the Swiss society's interest in farm and food issues. The financial support to agriculture is mostly accepted and linked with high trust in the quality of Swiss food products. Price levels, both for agricultural raw product and for food prices, are considerably above the ones of neighbouring countries. Swiss agricultural policy faces challenges due to conflicting objectives regarding the supply of food, the conservation of natural resources and the international competitiveness of the agricultural and food sector. The current agricultural policy mainly relies on direct payments and market price support.

Farm policy in the United States is mainly formed and funded by the national government. The US Congress is the main focus for farm policy debates, while the USDA is implementing policies. The main objective of US farm policy remains support for farm income and stabilization of farm commodity markets. Income support programmes in the US are mainly commodity specific. The 2014 Farm Bill shifted the main form of support to insurance type products. Essentially the US now provides close to free shallow loss insurance and free catastrophic loss insurance for most commodities. Other economic objectives are linked to this core objective, such as increasing farm exports and support for specific farmer groups such as minorities, young farmers and new entrants. The US is the only one of the five

countries that pursues a specific food security and poverty reduction objective. Environmental objectives are included that aim to mitigate the (negative) impacts of agriculture on the environment. Rural development objectives are targeted on infrastructure.

Relative to the other countries the EU has an ambitious agricultural policy, which pursues a wide set of specific objectives, where there is always an overlap with respect to objectives of the studied countries.

4 COMPARATIVE ANALYSIS OF AGRICULTURAL POLICY OBJECTIVES AND INSTRUMENTS AND LEVEL OF SUPPORT

KEY FINDINGS

- The range of objectives formulated in agricultural policies vary substantially. Australia has a clear focus on economic objectives, while Canada pursues a broader framework that combines economic with a few environmental and rural development objectives. The agricultural policy of the US also has clear economic objectives and combines these with food security and general rural development aims. Japan and Switzerland are (similar to the EU) following a much broader set of objectives combining economic, environmental, rural development and food security objectives.
- The key variations are to be found in the design of the policy mix and in which programmes and instruments are ultimately used for implementation. Core economic objectives of the countries' agricultural policies are to ensure a viable farm income and to maintain a competitive farming sector. The instrument mixes applied vary from risk management and insurance support to a combination of supply management and direct payments. Environmental goals are mainly addressed via sustainable use of natural resources and to a lesser extent via adaptation to climate change. The concept and objectives of rural development varies broadly between the countries, which is also reflected in the instrument mixes. Innovation and support services play a less-pronounced role in the countries under consideration. In part, policies to ensure food supply and to address consumer concerns are increasingly applied.
- The European Union and the five selected countries in this study have all reduced their support to agriculture since the mid-1990s. The level of support provided to agricultural producers in Australia, Canada and the United States has been consistently below the level in the European Union, but the gap has narrowed. The support for agriculture in Japan and Switzerland is structurally higher than that in the EU, both countries provide the majority of producer support through measures that are most distorting for production and trade (market price support). In general, there is a trend towards payments that are less coupled with production decisions.

4.1 Comparative analysis of agricultural policy objectives and instruments

The policy objectives pursued in the five countries studied can be broadly grouped into the categories that are consistent with the EU Common Agricultural Policy (CAP) objectives – economic (including farm income), environmental, and rural development – but also cover other aspects that are not that explicit in the CAP: food security and consumer demands, poverty reduction/social welfare, as well as administrative and budgetary objectives.

Conflict between economic (competitiveness), food security (supply of food), and environmental objectives are noted in Switzerland and can be assumed also in other countries. Notable inconsistencies also exist between the expressed objectives, and the types of programmes or instruments offered in the countries.

These objectives are translated into a broad range of instruments that are combined to different sets of programmes in each of the five studied countries. There are however, some inconsistencies between the expressed priorities in the policy objectives, and the range and mix of instruments applied. Australia, Canada and the US share similar strategies to pursue farm income stability by focussing on a

set of instruments to manage risks and relief in times of crisis. Research and Development (R&D) funding as a tool to support competitiveness of the agricultural sector is important in Australia and Canada, but not in the US. Opposed to that and more similar to the EU – Japan and Switzerland use different direct payment instruments and market price support to stabilise farm income.

Table 4: Key instruments to pursue agricultural policy objectives

	AUSTRALIA	CANADA	JAPAN	SWITZERLAND	US
Market price support and border measures		Supply management through quotas, Tariff-Rate Quota	Tariff-Rate Quota, stockholding	Export subsidies (to be replaced)	Export subsidies, tax advantages
Payment schemes				Basic payments; payments for high energy plants, extensive production, decoupled payments for areas with natural constraints	Farmland maintenance (part of multifunctionality payments), crop diversification payment, income stabilisation payment
Risk management / disaster control	Subsidised premia for income loss insurance, tax advantaged savings, disaster recovery (farm household allowance), concessional loan schemes, rural financial counselling, family and community support services, tax deduction and depreciating costs	Disaster Recovery (AgriRecovery), subsidised premia for income loss insurance, supported savings (AgriInvest), cash advances on value of products	Subsidised premia for income loss insurance, mutual insurance programme	Disaster recovery	Subsidised premia for income loss insurance
Environmental schemes	Emission Reduction Fund, carbon payments for land use change	Carbon taxes (in some provinces)	Payments for environmentally friendly agriculture, resource improvement (as part of multifunctionality payment)	Payments for biodiversity, animal welfare, resource efficiency landscape, organic farming practices; cross-compliance	Conservation Reserve Program for long-term contracts taking out of production environmentally sensitive areas; cross-compliance, cost-sharing improvements on working lands
Rural development	Investment support for irrigation infrastructure (National Water	Income diversification	Farmland banks, support to private companies entering the farming sector; Land Improvement Projects		Community and business development

	AUSTRALIA	CANADA	JAPAN	SWITZERLAND	US
	Infrastructure Development Fund),		(irrigation infrastructure, land improvement)		
Innovation and knowledge	Rural Research and Development Corporations; agri-centric Cooperative Research Centres; farm insurance advice and risk assessment grants (Managing Farm Risk Programme), frequent seasonal weather forecasts	Research and innovation in insurance and risk instruments (AgriRisk), Pesticide Risk Reduction Programme, Agricultural Greenhouse Gases Programme, AgriScience, AgriInnovate	Trainers advising how farmers can obtain Promotion of GAP (Good Agricultural Practices) certifications	Innovation at farm level funded by Resources Programme	Agricultural Research Service and Co-operative Extension Service
other relevant instruments		AgriMarketing		Regulations on labelling and standards	Renewable Fuel Standard, food or cash-like benefits for economically disadvantaged, long-term loans and interest subsidy

The most prominent objectives that are pursued in all 5 countries are to ensure a viable farm income and maintain a competitive farming sector. Stability of commodity markets and non-distorting trade arrangement are pronounced objectives of the EU as well as Switzerland and the US. Strengthening the market position by increasing the share in the food chain is an objective pursued in the EU – of the five countries studies only the US follows a similar objective to ‘expand the US farm exports’.

A range of **market price support and border interventions** are applied to achieve mainly income and market stabilisation objectives, at times combined with stable food supply objectives.

- Quota systems as a supply management instrument is only continued in Canada for dairy, poultry and egg producers. Switzerland abolished the milk quota system in 2009, and Japan abolished its rice quota system in 2018.
- Market price support is of high relevance in Switzerland through tariff-rate quota (TRQ) for most agricultural products and allowances for cereals and milk. Despite being a trade obstacle under the North American Free Trade Association (NAFTA) agreement, Canada maintains tariffs in the dairy and other sectors that enables it to keep domestic prices above world market. Also Japan controls rice imports through TRQ with high out-of-quota tariffs.
- The US has a long history in export subsidies for surplus commodity supply as food aid, and also promotes market expansion through subsidies since the 1980s. In Switzerland export support for processed products will be replaced by allowances for cereals and milk in 2019.
- In the US the shallow loss programme compensates for low prices (when yields are normal) and serves as an income stabilisation rather than a risk management instrument. In Japan, stockholding is implemented as a tool to secure stable food supply (in combination with instruments enhancing domestic production and imports).
- Subsidies for farming inputs are provided in Australia in form of a fodder transport subsidy (in New South Wales).

Different types of **direct payments** are used to pursue a mix of income stabilisation, environmental but also food security objectives. They build the largest group of instruments covered in the studied countries but with very varying roles. In consequence of its liberalisation objectives, Australia does not provide direct payments at all. The 2014 Farm Bill in the US also has terminated direct payments and shifted support to insurance type products.

- To ensure food production, Switzerland implements a basic payment, and a payment for cultures with high energy content (e.g. oilseeds, legumes, sugar beet) in lowland areas, farmland payments to maintain access to farmland through extensive production (e.g. alpine pastures) and decoupled payments for areas with natural constraints, i.e. in mountain areas, and on steep slopes. Similarly, the farmland maintenance payment element of Japanese multifunctionality payment is aimed at preserving agricultural production basis through maintaining irrigation infrastructure and roads.
- Farm income stability is pursued in Japan by a crop diversification payment, which is conditioned to conserve a favourable environment of paddy fields. It is paid to farmers who switch their use of paddy fields from table rice to others (e.g. wheat, soybean and feed rice). It is a mix of area and output-based payments. The income stabilisation payment compensates farmers when their revenue is lower than the historical average. Japan also aims at generational renewal of farmers through financial support.

Risk management instruments are increasingly being used to pursue income stabilisation objective.

- Disaster recovery funds are provided in Australia (farm household allowance), Canada (AgriRecovery), and in Japan (disaster recovery projects targeted to farmland and agricultural facilities). US has converted the emergency disaster relief programme to subsidies to insurance premium.
- Various insurance type instruments are offered in all studied countries except for Switzerland. Government subsidized premia for income losses insurance are offered by Australia, Canada, Japan and the US. Japan also implements a publicly supported mutual insurance programme for a wide range of products. It mainly covers yield losses due to natural disaster (e.g. windstorms, floods and cool summers), but also insures the deterioration of crop quality and input losses for some products (e.g. livestock or agricultural greenhouse).
- Supported savings are offered by Canada (AgrilInvest), while Australia subsidizes tax advantaged savings (income Equalisation Deposits Scheme and, more recently, the Farm Management Deposits Scheme). Concessional loan schemes for drought-affected farmers in Australia are becoming more generous from the originally time limited scheme to one extending over 11 years. Direct lending and loan guarantee is also offered in the US, however beneficiaries are those who tend to be less addressed by commercial lenders, including young and beginning farmers. Cash advances on the value of agricultural products are programmed in Canada.
- Tax advantages for farmers are provided in Australia for farm savings for risk management, i.e. farmers can immediately tax deduct the cost of new water facilities and depreciate the cost of capital expenditure on fodder storage assets over three years. In the US tax burden of farmers are reduced by use of cash accounting, accelerated depreciation of investments, exclusion from inheritance tax, reduced property taxes and aiming to preserve transfer of farms between generations
- In Australia risk management tools are complemented by advisory services and counselling (rural financial counselling, family and community support services for farms affected by drought, farm insurance advice and risk assessment grants), and social benefits Australia: farm household support payments, access to social welfare (despite significant assets).

Fostering the **sustainable use of natural (and particularly farmland) resources** is formulated by all countries except for Australia. Japan and Switzerland, like the EU, combine this with objectives towards provision of environmental public goods (landscapes in Japan, countryside in Switzerland). Climate change mitigation objectives are only else formulated in Canada (and none of the five countries formulate an explicit objective for the adaptation to climate change). Japan and Switzerland implement **environmental schemes** with elements similar to the European Union's agri-environment-climate measures. Environmental objectives play a much more limited role in Australia, Canada and the US and are only pursued by few instruments.

- Environmental benefits of agriculture are supported by **payments for biodiversity, animal welfare, resource efficiency, landscape, organic farming practices** in Switzerland. In a similar manner, direct payments for environmentally friendly agriculture in Japan aim to reduce global warming and/or conserve biodiversity. Resource improvement as part of the Japanese multifunctionality payment also aims at creating softscapes and biotopes.
- The Japanese instruments are paid to group of farmers and/or non-farmers rather than to individual farmers both for Direct Payment to Farmers in Hilly and Mountainous Areas (DPFHMA) and multifunctionality payments.

- Although not a classical direct payment, the Conservation Reserve Program (CRP) in the US provides payments for **long-term contracts** to take environmentally sensitive areas out of production.
- **Cross-compliance** is used in different forms in Switzerland and the US. Switzerland aims to foster environmental objectives by requiring a PEP to be eligible for general direct payments. The US makes it mandatory to purchase crop insurance to be eligible for deficiency payments and other support programmes; and prohibits the conversion of grassland or wetlands to cropland in order to be eligible for income support. More recently the environmental restriction on land conversion was introduced as an eligibility criteria to receive crop insurance subsidies.
- Besides instruments (mainly direct payments but also R&D funding) that aim directly at reducing the impact of agriculture on climate through changing practices and protecting soils and wetlands, **carbon emission offset payment and trading schemes** are implemented in Australia and Japan. Also the federal government of Canada aimed to implement a carbon tax but was opposed by several provinces. Still a couple of provinces implement their own carbon tax schemes.

A broad general **rural development** objective is formulated by the US, Japan and Switzerland – the latter two also aiming at territorial cohesion. Specific objectives linked to rural development are provision of social benefits (social inclusion and poverty reduction in the EU, rural welfare in Japan, aid for disadvantaged in the US). Cultural benefits are aimed at by Japan (maintaining cultural traditions) and Switzerland (shape cultural diversity). The provision of basic service provision is likewise formulated by Japan (living infrastructure), Switzerland (support liveability) and the US (support for firms and infrastructure in small rural communities). That the connotation of rural development is quite different in the five studied countries becomes evident in the specific wording of objectives and arguments. In the Japanese context, rural communities and activities seems to be closely related to agricultural activities. Switzerland also has territorial objectives (decentralised population settlement of the country) embedded in its' agricultural policy. In the US, in contrast, rural development policy has moved away from a farmer focus to 'underserved small rural communities'.

Investment support in form of grants or subsidies to loans is applied to a range of farm competitiveness, risk management (income stability) and rural development objectives and as indicated above these objectives are often intertwined.

- Major irrigation infrastructure construction is financed in Japan (Land Improvement Projects) and in Australia (National Water Infrastructure Development Fund). Japan also funds smaller rehabilitation on water infrastructure. This support is quite interesting as it is paid to group of farmers and/or non-farmers rather than to individual farmers both for Direct Payment to Farmers in Hilly and Mountainous Areas (DPFHMA) and multifunctionality payments.
- Agri-food processing is another key investment support area that aims at integrated farm and rural business development. Canada offers the Dairy Processing Investment Fund and the Saint-Hyacinthe Research and Development Centre's Industrial Programme; both supporting processing infrastructure. The Japanese Initiatives for Value Added Agriculture with Public-Private Investment Fund provides up to 50 % of investment costs to increase added value in rural areas.
- Rural development objectives are pursued by investment support to diversify the economy of western Canada by focusing on business development, innovation and community development (Western Economic Diversification Canada). The US provide support for

community and business development in rural areas with the aim to improve conditions for rural residents, and social inclusion through their Rural Development Title.

In some of the studied countries **ensuring the supply of food** by enhancing domestic production and stockholding (Japan), and securing imports / trade relations (Japan and Switzerland) appears as a main objective. The US is the only country studied with an explicit objective to ensure food security to the economically disadvantaged. A third aspect to mention here are **consumer expectations** in terms of food quality and safety – which is an outstanding element of the Swiss agricultural policy framework (besides also being covered in the European Union's Common Agricultural Policy).

Innovation and support services are rather secondary and cross-cutting objective that are only formulated by Canada and (innovation) and the US (Research and extension). Still **research and development (R&D) funding** makes up the majority of Australian agricultural support and is an important instrument in the Canadian policy Framework.

- In Australia, Rural Research and Development Corporations (RDCs) are the primary vehicle for co-investment in R&D. The RDCs are funded by statutory (mandatory) levies on various commodities with funds being primarily used for marketing and R&D, with the Australian Government matching investment in eligible R&D (DoAWR 2018). In addition to the RDCs, significant Australian Government funds have been dedicated to agri-centric Cooperative Research Centres (CRCs).
- Also the Canadian policy framework contains several R&D funding instruments with specific thematic objectives: AgriRisk Initiatives promote – besides administrative capacity building and microgrants – research and innovation pertaining to insurance and other risk instruments. The Pesticide Risk Reduction Programme (PRRP) supports the development of pesticide risk reduction strategies and associated tools, practices and technologies to reduce the risk to human health and the environment. In a similar manner, the Agricultural Greenhouse Gases Programme (AGGP) funds projects that develop management practices that reduce GHG emissions in the areas of livestock systems, cropping systems agricultural water use efficiency and agro-forestry. The Canadian AgriScience Programme promotes scientific research to the benefit of agriculture, directed at academic and not-for-profit entities, but also farmers and farm cooperatives. The 'projects' element of the scheme supports shorter-term research that helps industry overcome challenges and address fiscal barriers facing small and emerging sectors. They also seek to mitigate high risk opportunities with potential to yield significant returns. As of April 2018 the Clusters initiatives element of the scheme is replaced by AgrilInnovate.
- Switzerland also offers the Resources Programme that aims at innovation at farm level by supporting technical, organisational and structural innovation with positive effects on natural resources (sustainability) during the start-up phase.

Technical support and advisory services are instruments which are often linked to other support options and aimed at increasing effectiveness of the latter.

- In the US, advisory services (Co-operative Extension Service) are a publicly funded technical assistance programme for farmers and other rural residents. Agents provide technical support to farmers through individuals and group meetings. They receive support through the university that also conducts research in conjunction with other members of the College of Agriculture on specific issues raised by farmers. Agents form regional work groups to share knowledge, and state specialists work through multi-state committees.

- In Australia, the Managing Farm Risk Programme encourages farm businesses to consider insurance options to cover against drought and other production risks. The programme provides one-off rebates for advice and assessments to help farmers prepare and apply for a new insurance policy. Rebates will be for half of the costs incurred by eligible farm businesses up to AUD 2 500 (EUR 1 697; Goods and Service Tax exclusive). Debt relief is augmented with rural financial counselling. Another part of technical assistance is substantial funds for more frequent seasonal weather forecasts. Also community mental health advice is provided
- Japan promotes good agricultural practices (GAP) by supporting prefectural governments to increase the number of trainers advising how farmers could obtain certification from an international-standard GAP.

In addition to the above described instrument types, some of the studied countries also implement **other instruments** such as regulatory (legislation and standards), food or cash-like benefits, social welfare and land consolidation like instruments aiming at a broad range of objectives.

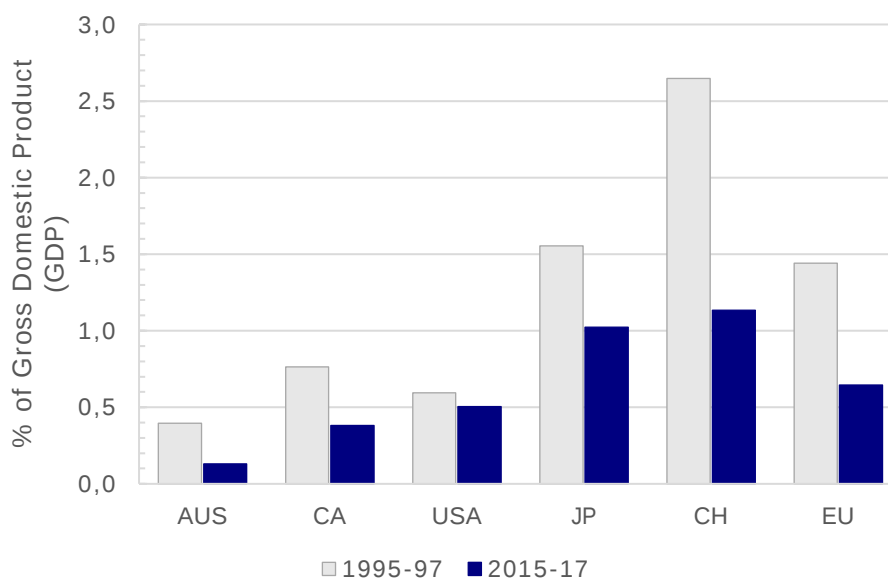
- Japan supports private companies from the non-agricultural sector entering the farming sector (Agricultural Land Law) mainly by allowing them to rent farmland. The government have promoted structural adjustment through land markets, such as the farmland banks. These improve farmland conditions and infrastructure, if necessary, and then lease the consolidated farmland to business farmers. With the land policy development, the government encourages the incorporation of family farms with a business mind as well as private companies from the non-agricultural sector entering into the farming sector.
- The Renewable Fuel Standard 2007 in the US mandated that an increasing amount of biofuels be blended into gasoline. While it was mainly intended to reduce the dependency on fossil fuels and improve air quality the main effect has been to create a massive new demand for corn based ethanol that oil refiners have to buy. The effect has been to increase the demand for corn and stimulate an increase in the amount corn produced. Now that the quantity of corn based ethanol has reached its maximum level the question is what this will mean for corn production, and whether the blend requirements will be increased, left stable or decreased. Switzerland applies a set of regulations on the labelling (such as organic or mountain/alp) to protect consumers and to support these markets by preventing fraudulent use. The recently revised *Swissness* ordinance fosters the unique selling proposition of Swiss food. A second instrument is the labelling of mountain products, organic products, and of protected designation of origin and geographic indication. The organic sector regulations in Switzerland are harmonised with the EU standards.

4.2 Comparative agricultural support

4.2.1 Level of support

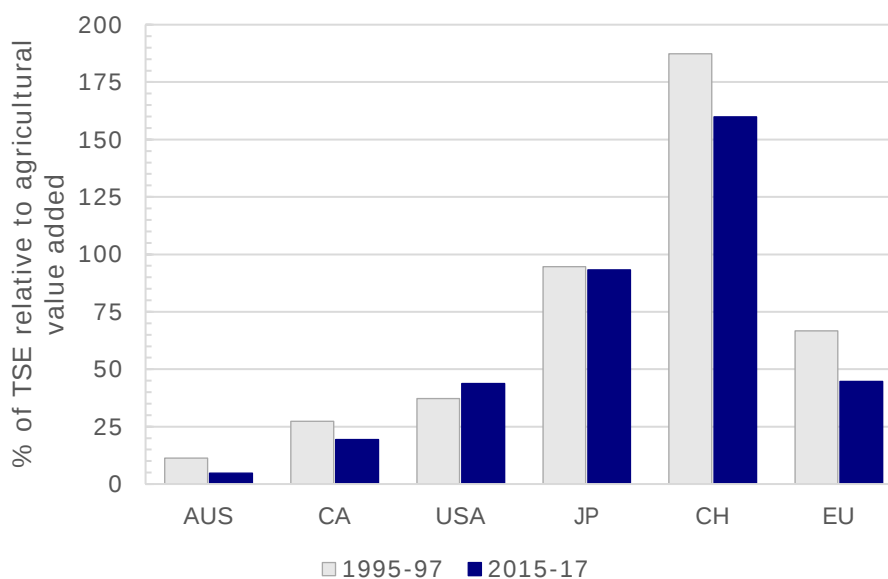
The selected countries in this study have all reduced their support to agriculture since the mid-1990s (Figure 4). Australia, with the lowest Total Support Estimate (TSE) at 0.1 % of Gross Domestic Product (GDP) in 2015-2017, has reduced its support to its agricultural producers continuously from already relatively low levels before 1995-1997. The level of support provided to agricultural producers in Canada and the United States has also been consistently below the level in the European Union, but the gap has narrowed. The support for agriculture in Japan and Switzerland is structurally higher than that in the EU. Japan has gradually reduced its support to agriculture but the change has been relatively moderate. Switzerland has progressively reduced its support to agriculture. Its TSE was around 1 % of GDP in 2015-2017, compared to more than 2.5 % in the mid-1990s.

Figure 4: Total Support Estimate as % of GDP by country, 1995-1997 (EU-15) and 2015-2017 (EU-28)



Source: OECD 2018a.

Figure 5: Total Support Estimate as Ratio (%) of TSE relative to agricultural value added by country, 1995-1997 (EU-15) and 2015-2017 (EU-28)



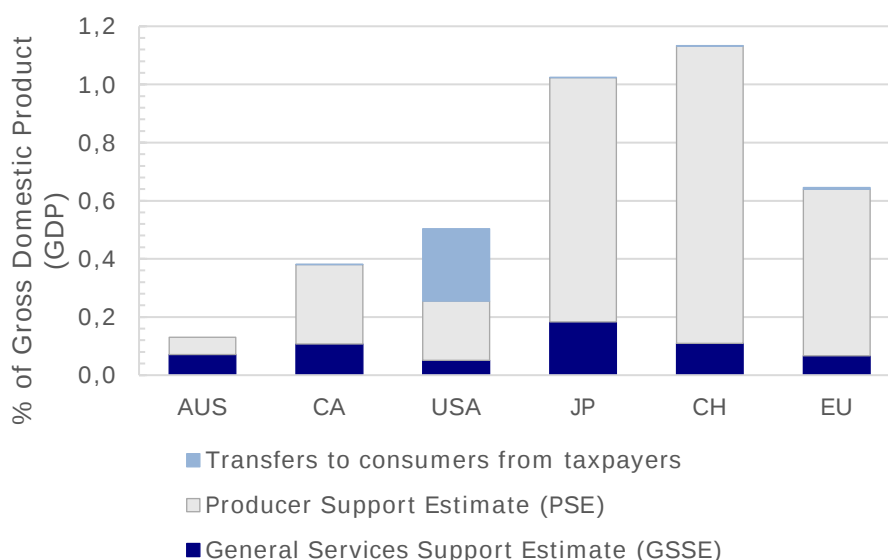
Source: OECD 2018a.

The reduction of total support relative to the size of countries' agricultural sectors has been much smaller than in terms of GDP. This is because of the declining share of agriculture in the GDP. In 2015-2017 the share of support varied from less than 15 % of agricultural value added in Australia to 93 % in Japan and 160 % of agricultural value added in Switzerland (Figure 6). In the US, TSE relative to agricultural value added was close to that of the EU at 44 %.

4.2.2 Composition of support

In most countries, the TSE mainly consists of Producer Support Estimate (PSE) (Figure 6). Australia and the US are exceptions to the rule. Support to Australian agriculture is roughly equally split between PSE and General Services Support Estimate (GSSE). In the US close to half of total support to US agriculture consists of transfers from taxpayers to consumers (Consumer Support Estimate – CSE) as a result of domestic food assistance programmes. This support has increased since the mid-1990s, as a result of declining market price support and the expansion of the nutrition programmes.

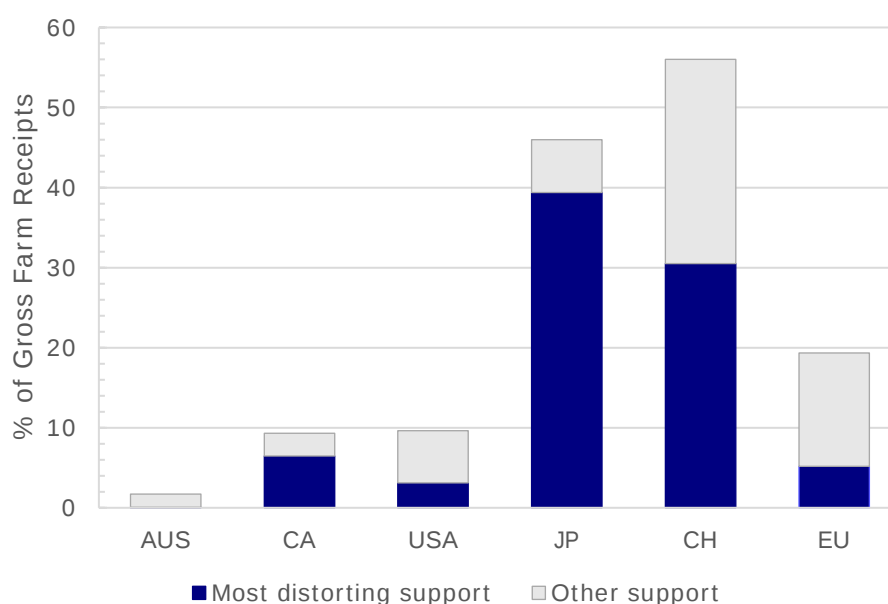
Figure 6: Composition of Total Support Estimate (% GDP) by country, 2015-2017



Source: OECD 2018a.

4.2.3 Trade distortionary support

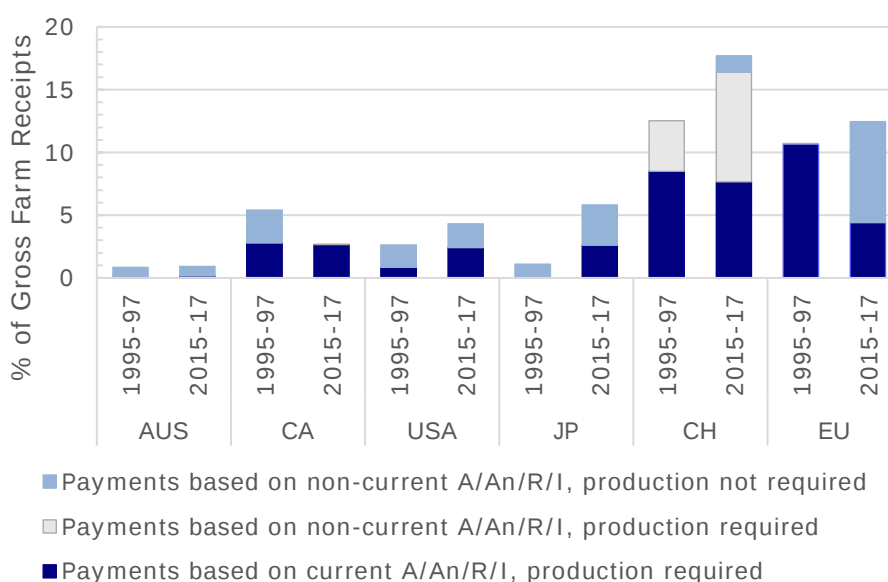
Market Price Support (MPS), payments based on output, and payments based on unconstrained variable input use have a significantly higher potential to distort agricultural production and trade than payments based on other criteria (OECD 2001). Japan, Switzerland and Canada provide the majority of producer support through measures that are most distorting for production and trade (Figure 7). On the other hand, a larger share of producer support is provided through less-distorting measures in Australia, the European Union and the United States.

Figure 7: Composition of the Producer Support Estimate by country, 2015-2017

Source: OECD 2018a.

4.2.4 Conditions for payments

There is a trend towards payments that are less coupled with production decisions (Figure 8). Increasingly, payments are provided on the basis of historical criteria, in some cases without the need for recipient farmers to produce. In the European Union and Switzerland, such payments accounted for between 6 % and 10 % of gross farm receipts in 2015-2017.

Figure 8: Use and composition of support based on area, animal numbers, receipts and income, by country, 1995-1997 (EU15) and 2015-2017 (EU 28)

A/An/R/I: Area planted/Animal numbers/Receipts/Income.

Source: OECD 2018a.

In the European Union, payments based on current area, animal numbers, farm receipts or incomes have been cut by almost two-thirds since the mid-1990s in favour of direct payments based on non-current criteria without production requirements. Similar programmes also exist in Australia, Japan and the United States, although their importance as a share of producer support varies between those countries.

5 PROMISING POLICY INSTRUMENTS AND IMPLEMENTATION MODES

KEY FINDINGS

- New and promising approaches of instruments and measures were identified, particularly in the areas of risk management and environment and climate.
- The promising policy instruments and implementation strategies have been reviewed against the following criteria: effectiveness and efficiency, coherence, farm compatibility and potential contribution to CAP objectives.
- As regards risk management there are interesting new risk retention and risk transfer instruments. It is important to distinguish two objectives, namely protecting against shallow losses and protecting against deep losses.
- The selected environmental and climate instruments are already available to a large extent in the context of the CAP, and adaptations to their implementation would be required primarily.
- Particularly interesting and noteworthy implementation modes include payments to communities and groups of farmers (JP), joint risk management funds (JP), competitive bidding on long-term contracts (US) and auctions for emission reduction measures (AUS).

5.1 Thematic clusters and applied evaluation criteria

Given that not all of the instruments can be reviewed in detail, the country studies were also used to identify promising policy instruments. The selection was made in order to highlight instruments which are either not currently included in the policy mix of the EU agricultural policy or which differ significantly in their design and in particular in their implementation mode from the approaches currently used in the EU. This has resulted in a selection of instruments which are available options for the future Common Agricultural Policy (CAP) and can close existing gaps in CAP funding policy and/or extend the range of application of CAP instruments and implementation. Structured according to thematic clusters, the following section takes a more detailed look on these selected promising policy instruments.

Table 5: Selected promising policy instruments per new CAP objective and country

THEMATIC CLUSTER	COUNTRY	INSTRUMENT
Risk management	AUS	Private sector index style drought insurances
	AUS	Farm Management Deposit Scheme (FMDS)
	CA	AgriInvest
	JP	Mutual insurance scheme
	US	Crop insurance
Environment and climate	CA	Agricultural Greenhouse Gases Programme (AGGP)
	CA	Pesticide Risk Reduction Programme (PRRP)
	CH	Resources Programme
	CH	Biodiversity payments
	AUS	Emissions Reduction Fund (ERF)
	US	Conservation Reserve Program (CRP)
Rural development	JP	Multifunctionality payments
	JP	Land Improvement Projects (LIPs)
Knowledge, innovation and farm advice	CH	Resources Programme
	CA	Pesticide Risk Reduction Programme (PRRP)
Support instruments for regions with natural handicaps	CH	Farmland payments
	JP	Direct Payment to Farmers in Hilly and Mountainous Areas (DPFHMA)
Other measures	CA	AgriMarketing
	US	Loans and loan guarantees

Judgement Criteria

The promising policy instruments and implementation strategies were reviewed against the EU's standard evaluation criteria (**effectiveness**, **efficiency** and **coherence**). Also the **farm compatibility**, i.e. the extent to which an instrument resp. the implementation of an instrument can be embedded in the regular operating procedures of farms and other businesses, was reviewed. The potential contribution of the selected instruments and their **link to CAP objectives** was assessed as well.

5.2 Risk management

Risk management instruments can broadly be classified in two types: risk retention and risk transfer. Of the instruments under study, the **Farm Management Deposit Scheme (FMDS) in Australia** as well as **AgriInvest in Canada** are typical on-farm financial approaches whereby the risk is retained on the

farm. On the other hand, **index-based drought insurance in Australia**, **mutual rice insurance in Japan**, and the **crop insurance programmes in the US** are typical instruments involving a contractual agreement which transfers (or shares) risks. The multiple versions of crop insurance in the US are mainly designed to cover losses from natural disaster. The **Agricultural Risk Coverage (ARC)** provides revenue insurance, and the **Price Loss Coverage (PLC)** provides price insurance.

In general, the implementation mechanisms differ substantially between risk retention and risk transfer instruments. In Table 6 a summary of the findings is presented which will be elaborated in the following sections.

Table 6: Mapping risk management instruments

MODUS	RISK RETENTION		RISK TRANSFER		
Country	Australia	Canada	Australia	Japan	US
Measure	Farm Management Deposit Scheme (FMDS)	AgrilInvest	Private sector index style drought insurances	Mutual rice insurance	ARC and PLC; Federal crop insurance
Effectiveness / efficiency	Shallow risk / low cost	Shallow risk / low cost	Deep risk / higher cost	Deep risk / higher cost	Shallow risk; deep risk / higher cost
Farm compatibility	Easy	Easy	Easy	Easy	Easy
Coherence and compliance	Complement	Complement	Complement	Complement	Complement
Link to CAP secondary objectives	Limited	Limited	Limited	Limited	Limited

5.2.1 Effectiveness and Efficiency

In analysing the risk management instruments it is important to distinguish two objectives, namely protecting against shallow losses and protecting against deep losses.

Protecting against shallow losses

The precautionary savings account approaches in **Australia (FMDS)** and **Canada (AgrilInvest)** aim to manage risks relating to significant but not extreme losses in income, that is, the programmes are designed mainly to address 'shallow' losses. Substantial outreach is achieved in both countries. Precautionary savings accounts are likely the largest single policy farm support initiative in Australia, while also many farmers in Canada save money by making annual deposits for a rainy day. Both are effective in doing so since farmers have deposited adequate amounts (encouraged by pre-tax income set aside in Australia or matched contributions in Canada) and meaningful withdrawals in adverse events. In Australia farmers can deposit up to AUD 800 000 (EUR 533 036), while the maximum account balance is limited to 400 % of a farmer's average allowable net sales in Canada.

The on-farm financial approach is relative easy to understand and leaves complete control with the farmer. Therefore transaction costs to administer these accounts are low. Also public support is limited. In Australia farmers can access their precautionary savings account early without losing their claimed taxation concessions (if they are affected by drought) to offset the interest costs on primary production

business debt. In Canada deposits are 1 % matched by a government contribution up to CAD 15 000 (EUR 10 241).

To move the US to a mainly risk management approach the direct payments were eliminated and replaced with a government funded shallow loss insurance programme. Multiple versions of the programme exist allowing producers to choose the format most suitable to their conditions: the main variations are **Agricultural Risk Coverage (ARC)** and **Price Loss Coverage (PLC)**. These new programmes are designed to provide counter-cyclical support for farmers. By smoothing out income this should create a more stable financial situation that will encourage investment and increase productivity. To the extent that large farms are both the main beneficiary of such support and the main source of productivity increases, the shift should move the structure of agriculture further to more output coming from larger commercial farms thereby increasing competitiveness.

Protecting against deep losses

When yield (or revenue) falls by more than a certain threshold level (and/or deductible level), farmers may rely on agricultural (mutual) insurance to safeguard against 'deep losses', as is the case in schemes under investigation in **Australia, Japan and the US**. As such, agricultural (mutual) insurances are effective if indemnity pay-outs are received for insured adverse events.

The **Japanese mutual insurance scheme** compensates yield losses mainly due to natural disasters. Participation rate is over 90 % of all planted area for rice in Japan. However, each year only a small percentage of participating rice farmers actually receive an indemnity, and the average value of the indemnity is generally small to those farmers. The insurance premiums paid by the farmers are fully tax deductible. The insurance stabilizes farm income in case of yield losses, but does not protect income shortfalls as a result of market price volatility. Subsidies for the Japanese rice insurance programme reinforce the large income transfers already embodied in the price support policy for rice. Furthermore, given that they increase rice production, while Japanese rice is already in oversupply, the rice insurance programme aggravates the cost to the government regarding the surplus disposal and production reduction programme of rice.

The Federal Crop Insurance Act in the **US** enables a broad range of **crop insurance** products for many commodities. At present, participation rates exceed 80 %, favouring revenue insurance over traditional yield insurance. Crop revenue (or yield) insurance only protects farmers if they suffer 'deep losses' amounting to 25 % or more of their expected revenue (or yield). As an example, the 2012 drought established that wide-scale adoption of crop insurance was effective in safeguarding income when a natural disaster strikes farming.

Traditionally, claims of yield losses as a consequence of an adverse climatic event are indemnified after loss appraisal (i.e. indemnity-based). The **drought insurance in Australia** is a typical example of a weather index-based insurance. Several advantages over traditional insurance with respect to effectiveness include a fast and transparent settlement. Moreover, the individual loss characteristics of the producer cannot influence the underlying index, so adverse selection and moral hazard no longer apply. However, the effectiveness of a weather index-based insurance hinges on the condition that basis risk is limited (i.e. index is triggering pay-outs when actual losses are incurred, but if basis risks are substantial pay-outs are not necessarily triggered while actual losses are incurred). The experiment in Australia without public support (i.e. absence of premium subsidies) has a low uptake, revealing that it serves likely a niche market.

In contrast, in the **US** complex **yield index-based or weather index-based insurance schemes** are more common. Yield index insurances marketed in the US are either individual-based (pay-outs are

triggered when individual yields fall below a pre-determined trigger value based on historic yields) or area-based (payment if the area yield in the region falls below an established trigger yield).

Risk transfer instruments are technically more complex, and therefore inherently have relative higher transaction costs than on-farm financial instruments. Transaction costs include mainly commercial expenditures for risk assessment, underwriting and claim handling, retention, reinsurance and profits. Moreover to increase outreach premium subsidies are generally essential to incentivise farmers to participate in (mutual) insurance.

To improve participation and reduce the need for emergency disaster outlays large premium subsidies are provided in the US by subsidising crop insurance premiums heavily at a current rate that exceeds 60 %. In addition, the government finances also administrative and operating expenses and underwriting losses. Crop revenue (and, to a much lesser degree, crop yield) insurance subsidies have become the principal means that the US uses to support farmers. As such, there is a large income transfer via subsidies to crop insurance (Kooten 2017).

5.2.2 Farm Compatibility

Risk management measures may change farm practices (i.e. operational, tactical and strategic). Yet the initial hurdle are demand-side obstacles relating to a lack of knowledge on availability, a low risk awareness, limited understanding of the costs and benefits associated with different risk management tools and inexperience. For example, limitations are related to the fact that advanced financial contracts are (too) complicated for farmers in terms of detailed expert knowledge required.

On-farm strategies, such as diversification, are often an effective and traditional way of coping with yield and price risks. Risk transfer enables farmers to increase efficiency of scale by means of farm specialisation (favouring to cultivate high margin crops). As a result, the advantage of non-specialised farming will decline (mixed crops and animal products, or mixed within either one of these).

Ill designed risk management tools, which is less likely for on-farm financial arrangements than risk transfer instruments, may cause too many undesirable production decisions taken by farmers (making the programme unsustainable in the long run). If, for example, the insurance coverage does not account for the impact of the farm manager this may result in moral hazard. With moral hazard, insured entities change their behaviour after having purchased insurance in a manner not predicted and anticipated by the insurer (e.g. by becoming more careless). Mitigating actions to prevent or reduce these risks are therefore applying strict underwriting criteria, closely monitoring of insured, and detailed terms and conditions.

5.2.3 Coherence and Compliance

With respect to coherence with international obligations the room for manoeuvre is limited by strict World Trade Organization (WTO) conditions, as long as one wants to qualify the support to such schemes as green box support. It can be further noted that there is a binding limit (de minimis) on the level of amber box support which can be provided to farmers as given by the measurable subsidy (for premiums), referred to as the Aggregate Measurement of Support (AMS). When staying within the AMS limits, a political choice could be to provide part of the support for risk management instruments as amber box support. This would then allow to use less strict trigger and loss compensation criteria.

In general, the savings account complements traditional non-financial on-farm risk management strategies (e.g. agronomic practices such as diversification) and risk transfer strategies (mainly insurance and price contracts). These two financial risk management approaches complement each other.

Australia (along with New Zealand) follows a laissez-faire agricultural policy, manifesting itself in the lowest rate of subsidy as a fraction of farm revenue of any OECD country. The rhetoric is around providing information to facilitate private choices. The private sector development of risk management tools, such as precautionary savings accounts and **index insurance**, can be seen as a result of a less interventionist government policy.

The rice **mutual insurance scheme in Japan** stabilises farm income against shocks by natural causes. In fiscal year 2019, a new revenue insurance will be launched. At least 70 % of Japanese rice farmers do not keep the required book following the Blue return tax system, therefore, the majority of those farmers will continue to need the rice insurance programme. The income stabilisation payment programme also stabilises farm income directly against yield and price risks. Duplicate payments are avoided since pay-outs from the income stabilisation payment programme is always reduced by as much as the indemnity pay-out from the rice insurance programme.

In the **US**, **crop insurance** is currently one of the core building blocks in US farm programmes to protect farmers against deep losses. The business risk management programmes provide a farmer a large degree of flexibility to choose a particular programme, or even some combination of programmes, to cover shallow losses.

5.2.4 Link to CAP objectives

The previous analysis focussed on the primary link of these risk management instruments and the CAP farm economic objectives (i.e. agricultural income, agricultural production, and price stability), and specifically on the sub-objective of income smoothing. The instruments imply some net support to farmers and thus farmers are likely to have some positive impact on their income and welfare. All the analysed instruments help farmers to better cope with the consequences of non-stable output, while precautionary savings, revenue insurance and guarantees provide an opportunity to cope with price volatility.

Regarding environment and climate objectives (i.e. climate action, habitats and landscapes, and management natural resources) these instruments do not cause substantial distortions. For example, it is unlikely that greenhouse gas emissions are affected. Unintended effects are limited and can be dealt with by means of cross-compliance restrictions. For example, in the US the eligibility criteria for crop insurance subsidies were restored in the 2014 Farm Bill making it less likely that farmers will bring new (marginal) land into production or violate existing environmental regulations.

With respect to the rural or social objectives (i.e. rural employment, growth, and poverty in rural areas) the marginal effectiveness of a net support was already raised. By encouraging precautionary savings or uptake of guaranteed loans, growth of farm operations will be stimulated, while precautionary savings also provide a buffer against losses in income and therefore reduce potential poverty to some extent. This also holds for insurance related instruments enabling farmers to specialise and expand, which would otherwise become too risky.

5.3 Environment and climate instruments

Environment and climate is a wide-ranging and elusive field, hence there is a very diverse range of instruments available. The instruments under consideration in this study differ considerably.

Support within the context of individual projects often refers to the development of new technologies, approaches and the creation of cooperatives. For instance, **Switzerland** supports within its **Resources Programme** specific projects that address the topic of sustainable use of (agricultural) resources with innovative and new ideas; **Canada's Agricultural Greenhouse-Gases Programme (AGGP)** promotes

individual environment-related projects to develop new technologies and practices in the agricultural sector and its **Pesticide Risk Reduction Programme (PRRP)** provides a framework for the development and coordinated implementation of new strategies and concepts for pesticide use and management. To cover the environmental aspects of agricultural policies, different types of area payments are used in particular. In the **US**, areas of agricultural land that are (potentially) environmentally endangered can be taken out of cultivation for a longer period of time with the **Conservation Reserve Program (CRP)**. A **Swiss** instrument, based on area-related **biodiversity payments**, is used to extensively cultivate areas and thus maintain and increase biodiversity on cropland and grassland. Within the framework of the **Australian Emissions Reduction Fund (ERF)**, auctions are used to support the large-scale promotion of carbon storage and the regeneration of ecosystems and landscapes.

Due to the different contexts and implementation mechanisms of the individual instruments, a comprehensive consideration of the aspects of effectiveness, efficiency, etc. is hardly possible. Therefore, the comparison is made within the framework of the measure groups. The table shows summarised results, which will be discussed in more detail in the following sections.

Table 7: Mapping Environment and climate instruments

MODUS	PROJECT-BASED			AREA PAYMENTS		
Country	Canada		Switzerland	Australia	Switzerland	US
Measure	AGGP	PRRP	Resources Programme	ERF	Biodiversity payments	CRP
Effectiveness	High	(indirect)	Low	Medium	Medium	Medium
Efficiency			Medium / high	Medium	Medium	High, depending on external factors
Compatibility		High	High	High	High	Depending on external factors
Coherence	High	High	High	High	High	Medium
Link to CAP secondary objectives	Limited	Limited / high	Limited / high	Limited	Limited	Limited

5.3.1 Effectiveness and Efficiency

The effectiveness of **Canada's Agricultural Greenhouse-Gases Programme (AGGP)** is considered to be very high, as small but very effective projects are supported. The overall effect, though, is limited until the knowledge gained is implemented in general practice. Tillage and related soil management have been identified as the main source of Canada's agricultural CO₂ emissions and with the introduction of the AGGP, the shift to non-tillage agriculture has been supported and is now being implemented in many areas.

Alongside the AGGP, **Canada** supports the **Pesticide Risk Reduction Programme (PRRP)**. It is specifically meant to support in-house activities (e.g. government scientists) and its main aim is to connect relevant stakeholders, identify gaps in pesticide management and develop pesticide risk

reduction strategies. Key aspects of the instrument are the coordination of stakeholders and the distribution of information. With regard to effectiveness, assessment is limited as no direct interventions are made. For a comprehensive assessment of effectiveness, it is necessary to include the end-user level.

The effectiveness of the **Resources Programme in Switzerland** has not yet been evaluated in detail and is difficult to assess. The programme is designed to implement technical and structural innovations related to natural resources, so the effectiveness of these projects is considered to be very high. Based on this methodological design including a mandatory scientific monitoring, both effectiveness and efficiency are ensured. Ultimately, as with the AGGP, the overall effectiveness depends on the implementation in practice. So far new methods have been developed which are now being disseminated in order to unfold the corresponding effect. Particularly noteworthy are the possible overlaps between the projects and other funding schemes (e.g. extensive agriculture), which eventually result in double funding and deadweight effects. Especially in the case of deadweight effects, the actually innovative character of the measure can be questioned. The current high demand for such projects therefore indicates either increased interest or very attractive financial conditions within the framework of the measure.

The **Australian Emissions Reduction Fund (ERF)** may incur some effectiveness problems of non-additional carbon sequestration, as at the inception no estimate can be made of how the farmer would have operated without the financial support. The auction mechanism used to distribute funds within the ERF is highly efficient compared to many agri-payment schemes internationally. This efficiency arises because bids to provide carbon sequestration by farmers are ranked on the basis of value (AUD/tonne expected CO₂ abatement), whereas the least cost bids are funded within the budget of each auction round.

Recently the **biodiversity payments in Switzerland** have been used much more effectively, as the proportion of higher-quality areas supported has risen significantly. Admittedly, the actual conservation and promotion of biodiversity cannot be deduced from the area target value achieved and the mere effect on biodiversity can rarely be isolated and quantified. Official sources confirm that considerable challenges remain for agriculture (FOEN 2017) – especially with regard to biodiversity in intensively farmed regions. The conditions were therefore adjusted to such an extent that support is increasingly provided in areas with a higher impact potential (quality level II and cross-linking areas), in order to improve the cost efficiency of the instrument. Within the framework of the instrument, price fluctuations must also be taken into account, which lead to reduced opportunity costs for the beneficiaries. A problem that can possibly be addressed with dynamic payments, i.e. correspondingly adjusted funding rates.

Under the **US Conservation Reserve Program (CRP)**, environmentally endangered land is taken out of production for an extended period of time. The instrument has contributed to some extent to preserving the environment and reducing environmental degradation, further eligibility criteria might lead to better results. In the current context, there is only a limited financial volume available and the maximum area of land under CRP is determined by Congress and counties. The efficiency of the CRP is robust and ensured by a methodological approach leading to farmers being in competition (for the best value for money) to offer land for registration under the programme. Payments under the instrument are dependent on commodity prices and due to opportunity costs, the instrument attracts more bids from farmers in low-price phases than in periods of high commodity prices.

5.3.2 Farm Compatibility

If applicable to the farms, the application techniques and management methods identified in the **Canadian Pesticide Risk Reduction Programme (PRRP)** can be implemented on a broad scale and without major changes to the operational process – either to reduce the overall use of pesticides or to promote a switch to environmentally friendly alternatives. A high level of compatibility at the operational level is also guaranteed under the **Canadian Agricultural Greenhouse-Gases Programme (AGGP)**, especially if knowledge transfer takes place beyond the individual farm or region-specific projects.

The projects of the **Swiss Resources Programme** differ greatly in their contexts and contents, above all because they can be directed exclusively to certain branches of agriculture (e.g. wineries, sheep farms), which ultimately benefits farm compatibility. Conversely, the projects cannot be easily transferred to other enterprises. Due to the high social effect and the generally good financial incentives of the instrument, it should be borne in mind that projects with reduced farm compatibility may possibly be implemented nevertheless.

The **Australian Emissions Reduction Fund (ERF)** was primarily used to fund projects in two regions (New South Wales, Queensland) and there were concerns that this might adversely affect regional farm compatibility. On the other hand, there is evidence that the payments received allow the beneficiaries to invest in new capital and improve efficiency and returns.

The farm compatibility of area-based **biodiversity instruments**, as in **Switzerland**, depends to a large extent on the natural spatial structure of a region. For example, Switzerland is dominated by grassland (60 % of the Utilized Agricultural Area) and a number of disadvantaged areas due to natural constraints. Since grassland in disadvantaged areas often requires extensive farming anyway, there is a high degree of farm compatibility. Furthermore, the farm compatibility of this instrument is influenced by other external factors - in particular the social pressure to reduce the use of pesticides and to ensure self-sufficiency with high-quality food.

The main advantage of beneficiaries under the **US Conservation Reserve Program (CRP)** is the ability to use (fragile) land as a source of income through support. The instrument also offers the farmer external social benefits, for instance in terms of corporate responsibility. As already described, however, the instrument is strongly dependent on the prevailing economic market situation and is therefore more profitable in low-price phases, thus also affecting farm compatibility. Market fluctuations within the long contract terms of 10 to 15 years, which make sense from an environmental point of view, cannot be compensated for.

5.3.3 Coherence and Compliance

The **Canadian AGGP** is used as a tool to achieve the objectives of the Paris Agreement. Coherence in the policy mix is ensured by focusing the programme on individual aspects (here carbon storage in soil) that are not yet covered by other instruments and measures. Side effects of the AGGP serve synergies with other objectives and aspects of environmental and agricultural policies. The **Pesticide Risk Reduction Programme's (PRRP)** low-cost dissemination approach addresses environmental and agricultural production-related tasks, in particular the promotion of innovative approaches. Like the AGGP, the PRRP is also strongly addressed to one topic and thus has no direct overlaps with other subject areas, though synergies, e.g. for water protection, are also used here.

The projects of the **Swiss Resources Programme** support other measures and instruments that address natural resources. Although this may be detrimental in terms of effectiveness and efficiency, it

benefits the instrument in terms of coherence, thus making the instrument coherent with the existing policy mix and international obligations.

The **Emissions Reduction Fund (ERF)** is coherent within the framework of the **Australian** agricultural policy mix as autonomous decisions of the farmers are encouraged, which is the major emphasis of Australian farm policy. Adjustments as the production-reducing effect and reduction of agriculture in drought-prone areas is consistent with the national disaster management objectives.

Regarding the **Swiss** area-related **biodiversity payments**, the internal coherence and coherence with more comprehensive national and international policy frameworks such as environmental policy (biodiversity, water and soil protection) is generally high. Since the agricultural sector covers about one third of the Swiss territory, it is also of great importance for the conservation of biodiversity.

The **Conservation Reserve Program**'s somewhat outdated structure has reduced its coherence with the other instruments of **US** agricultural policy. The level of consideration of agro-ecological policy has in the meantime increasingly shifted to agricultural land. This shift has been driven by the steadily growing demand for agricultural products, as a result of which the focus is no longer on taking land out of production but on environmentally friendly and sustainable farming.

5.3.4 Link to CAP objectives

The previous analyses focused on the direct relation of the instruments to the EU CAP objectives in the context of environment and climate (i.e. climate action, habitats and landscapes, management of natural resources). Depending on the respective instrument and its content, individual objectives are addressed. The **Australian Emissions Reduction Fund** is directly oriented towards the objective of the Climate Action and the **Swiss Resources Programme** has so far largely supported projects with the potential to reduce greenhouse gas emissions from agriculture. **Switzerland's area payments** are designed directly to promote habitats and the landscape, and thus biodiversity. In the mix of instruments considered here, there is no other instrument that directly targets biodiversity, but it can be assumed that the other measures also have positive secondary effects in the area of biodiversity. Instruments aiming on sequestering CO₂ in the soil can also be expected to have a positive effect on soil and water aspects - in particular the abandonment of use leads to the restoration of natural soil properties. Altogether, the environmental and climate instruments considered here cannot for the most part be clearly assigned to one of the impact paths climate, biodiversity, water and soil, which is ultimately due to the manifold design options of the instruments and the complex relationships between the impact paths.

The instruments of the thematic cluster Environment and Climate show only minor links to farm economic objectives (i.e. agricultural income, agricultural production, and price stability). Area payments and approaches, techniques and methods developed within the framework of projects and collaborations can be linked to income and the production of agricultural products.

In some of the instruments presented here, knowledge transfer and innovation are clear focal points which directly link to the EU's cross-cutting objective of knowledge, innovation and digitalisation in agriculture and rural areas.

5.4 Rural development

The issue of rural development is not dealt with as strongly as in the EU CAP in the countries under consideration. **Japan** focuses partly on highlighting the multifunctional aspect of agricultural production. In the framework of **multifunctionality payments**, local groups of farmers and non-farmers are financially supported as long as agricultural and public resources are preserved (e.g. paddy

fields, irrigation canals and agricultural roads). **Land Improvement Projects (LIPs)** are a (financially) very important instrument used in Japan to invest in agricultural infrastructure (e.g. irrigation and drainage) and support land consolidation. Thereby, the infrastructure investments are jointly financed by national and local authorities and relevant farmers.

Table 8: Mapping Rural Development instruments

COUNTRY	JAPAN	
Measure	Multifunctionality payments	Land Improvement Projects (LIPS)
Effectiveness and efficiency	Low	high
Compatibility	High	medium
Coherence	Medium	medium
Link to CAP secondary objectives	Limited	limited / medium

5.4.1 Effectiveness and Efficiency

The effectiveness of the **multifunctionality payments** must be viewed somewhat critically as payments are ultimately used to subsidise maintenance activities that were in place before. To date, there is no evidence that the payments can actually lead to an improvement in maintenance. However, the payments allow space taken out of production to be reclaimed and the service life of individual facilities to be extended. The maintenance work of irrigation systems and agricultural roads must be carried out regardless of multifunctionality payment funding; in the case of funding, the instrument merely covers the costs incurred. The establishment of new infrastructure within the framework of the **Land Improvement Projects (LIP)** has been shown to lead to a substantial increase in agricultural productivity and to a reduction in the rate of land abandonment in the respective area. Financial sustainability is additionally supported by a compulsory cost-benefit analysis.

5.4.2 Farm Compatibility

The farm compatibility of the **multifunctionality payments** is generally assured to a high degree, as solely existing infrastructure and production areas are maintained. In contrast, **LIP** may have effects on production and cultivation conditions, for instance through the use of irrigation techniques on previously non-irrigated land. Advisory services must therefore be provided to accompany the investments subsidised here.

5.4.3 Coherence and Compliance

The **multifunctionality payments** stand between two Japanese policy areas. On the one hand, support for maintenance within the framework of the irrigation and drainage policy should be limited, on the other hand, the structural policy should support large-scale farmers. The instrument supports large-scale farmers by ensuring that the maintenance of agricultural infrastructure takes place within the communities. With regard to the World Trade Organization (WTO) Agricultural Agreement, the instrument is to be classified in the Green Box. Irrigation and drainage measures, such as the **LIPs**, are beneficial in the case of natural weather events such as floods and droughts. There are potential synergies between this instrument and the Mutual Insurance Scheme offered in Japan; as in theory the LIP could reduce risks associated with droughts and floods and should therefore have impacts on the premium payment. So far there are no regulations in the insurance programme in this regard yet. The

LIPs of large-scale irrigation and drainage projects are to be assigned to the Blue Box according to the WTO.

5.4.4 Link to CAP objectives

The instruments clearly refer to the objectives of rural development, e.g. as they impact the rural employment rate. While the **LIPs** do not address the objectives of social inclusion and poverty in rural areas directly, the **multifunctionality payments** are based on municipal contracts and are therefore linked to social inclusion, especially social capital.

The assessed instruments show a link to the EU's farm economic objectives (i.e. agricultural income, agricultural production, and price stability). The **multifunctionality payments** might be considered a production subsidy, as the production costs of farmers are reduced. The **LIPs** resulted in increased agricultural productivity and have contributed to increasing farmers' incomes. Both instruments might reduce the influence of floods and droughts on the price of irrigation-intensive agricultural products.

The instruments are also directly linked to the EU CAP objectives of environment and climate, especially the management of natural resources. The instruments address water balance, soil and resilience to climate events such as floods and droughts, whereas they can entail both positive and negative effects.

In addition, indirect links to the EU's cross-cutting objective of digitalisation in agriculture and innovation in rural areas exist, as the demand for automated systems and innovative technical solutions is expected to increase.

5.5 Support instruments for regions with natural handicaps

The **Swiss Farmland Payments** compensates difficulties of agricultural production in high-lying areas and aims to secure continuation of farming in mountain areas. In Japan, the **direct payments to farmers in mountain and hilly areas (DPFMHA)** provides rural communities with payments to prevent the abandonment of agricultural land, which should also ensure the role of agriculture in environmental protection and landscape preservation. These measures were shortly described in the country sections of Chapter 3.

Table 9 provides a summary of the mapping of the two instruments with respect to the pre-defined EU evaluation criteria, assessed in the national context that they are implemented in. The measures are evaluated here from the angle of their contribution to farm income support. Both payments are targeted to help farmers and compensate them for adverse production conditions. As such they have a multipurpose nature: supporting farm incomes and farm viability, and contributing to territorial balance and environmental issues.

Table 9: Mapping support instruments for regions with natural handicaps

MODUS	AREA PAYMENT	COMMUNITY PAYMENT
Country	Switzerland	Japan
Measure	Area specific farmland payment	Direct payments to farmers in mountain and hilly areas (DPFMHA)
Effectiveness / efficiency	High / high	Medium
Farm compatibility	Medium	High
Coherence and compliance	High	High
Link to CAP objectives	High, especially linkage to environmental and sustainability	High, especially to risk management objectives

5.5.1 Effectiveness and Efficiency

The **Swiss Farmland Payments** compensate for difficulties agricultural producers may face due to natural handicaps and supports farms in higher-lying areas. Agricultural income differs with regard to production conditions. In zones with difficult production conditions (mountainous and hilly zones), agricultural income typically is considerably lower than in the valley-areas, even though the landscape payments are included:

- Agricultural income (CHF/Farm, 2015-2017 mean): Italian valley region (valley zone): 79 306 (EUR 71 338); Hill region (hill zone and mountain I): 55 966 (EUR 50 343); Mountain region (mountain zones II-IV): 51 576 (EUR 46 394).
- Income per Farm Work Unit (CHF/FWU, 2015-2017 mean): Italian valley region (valley zone): 59 038 (EUR 53 106); Hill region (hill zone and mountain I): 41 688 (EUR 37 499); Mountain region (mountain zones II-IV): 36 386 (EUR 32 730).

Due to lower incomes in areas with difficult production conditions and general considerations, this payment on average is covering the disadvantages of the zones. Agricultural production is supported by this measure, since this payment directly affects farm profitability. The contribution to maintain an open landscape can – mostly – be combined with biodiversity payments. In Switzerland, scrub encroachment is a relevant topic, especially in areas with difficult production conditions. The area covered with wood and scrub, increased in 11 of the 13 cantons for which data is available. An evaluation, however, of the effectiveness based on these data is currently hardly possible, since the data was collected mostly before the introduction of this measure.

The direct payment, of the amount per hectare is quite high, may significantly contribute to farm income and to the stated income support objective. The payment to maintain an open landscape as such supports farming in mountain areas. However, the measure is not targeted to critical areas of agricultural production with high risk of scrub encroachment; which is of high relevance, especially in mountain areas.

The implementation costs of the present **Swiss Farmland Payments** are small. At the same time the transfer efficiency of direct payments with respect to income, is known to be high - relative to any alternative instrument. So the efficiency is assessed with a high score. On the other hand, the payment only differentiates zones of production in which differing risks of scrub encroachment would be expected, depending on the specific site conditions. Better targeted payments could contribute to increased results in terms of reducing scrub encroachment.

The **Japanese direct payments to farmers in mountain and hilly areas (DPFMHA)** is not easy to assess in terms of farm income. The community approach leads to an integrated/holistic approach, which has a consensus from stakeholders and leads to communal support from all stakeholders (creates ownership and tailoring to local needs), where they also have some 'social control' on each other. It is not clear which part of the funding contributes to the level of income of farmers or to the reduction of their income variability. So in that sense it is difficult to make any serious claims here since detailed information is lacking.

The Direct Payment to Farmers in Hilly and Mountainous Areas (DPFHMA) aims to keep agricultural production in these less-favoured areas and, consequently, preserve multifunctional aspects associated with agricultural production. The DPFHMA is based solely on communal contracts, in which each rural community in the respected areas would have contracts with municipal governments. This contractual arrangement would naturally lead to encouraging collective action based on historically developed communities. The payment rate is based on the difference in production costs between the less favoured areas and flat areas. The land abandonment rate in areas that are receiving the direct payment is less than that in the other areas, showing the substantial effectiveness. For example, a MAFF's study on the outcome of this measure showed that the land abandonment rate in areas receiving the payment only increased by 0.71 % between 2010 and 2015, whereas the abandonment rate increased by 1.31 % in the other hilly and mountainous areas. The direct payment impacts farmers' income in these areas because this is considered to be additional income. However, considering the fact that the average farm size is very small in hilly and mountainous areas and that this payment is based on planted area, it has a limited impact on the overall income of farmers in less-favoured areas. The payment could, however, narrow the gap in (per unit) production cost between hilly and mountainous areas and flat areas to strengthen the competitiveness of agriculture in less-favoured areas.

The payment rate of the **Japanese measure** is based on the difference in production cost between hilly and mountainous areas and flat areas and, in this sense, efficiency is preserved (e.g. the compensation formula avoids over compensation). Because the Japanese measure is based on communal contracts, which local governments and groups of farmers and/or non-farmers have, it could have both positive and negative impacts on social inclusion and, more generally, the volume of social capital. More generally, agri-environmental effects (whether positive or negative) could be boosted if activities are spatially intensive and well-coordinated among participants committing to payment agreements as most of agri-environmental public goods can have economies of scale to be provided and form a complementary relationship among those goods. In other words, the cost-benefit efficiency (agri-environmental impact to financial inputs) of payments could be superior in a communal approach than in an individual and disparate approach (e.g. Westerink et al. 2017). While the communal approach employed in the payment measures always needs, at least, social costs associated with the organisation of collective actions of participants, countries and regions like Japan, where reliable communal activities are already workable in rural societies, could reduce such social costs by exploiting the social capital.

5.5.2 Farm Compatibility

The **Swiss Farmland Payments** to maintain an open landscape are open to all farmland in hill and mountain zones. Moreover, the payment covers the majority of crops, grassland and specialised crops. Only a few exclusions apply, e.g. for Christmas trees, hedges, tree and vineyard nurseries. The payment requires some land management activities by farm labour, but does not require an adaptation of farming practices and therefore can easily be embedded in existing farming practices.

In rural areas of **Japan**, reliable communal activities have traditionally sustained and generally play a role in supporting social capital (defined as the networks of relationships among people who live and work in a particular society, thus enabling that society to function effectively); therefore, there are social and economic reasons why the Japanese government chooses to pay to groups that implement practices in their communities rather than individual farmers.

5.5.3 Coherence and Compliance

The **Swiss Farmland Payments** is a specific payment scheme since 2014. In the former agricultural policy, what is now the open landscape payment, was part of an overall area payment. As such the considered measure complements other income support measures. It is targeted at a specific disadvantaged group and the implementation of the scheme allows for tailored and differentiated payments. This contributes to the coherence of the measure.

The implementation of the **Japanese payment** aims to contribute to multiple objectives (multifunctional agriculture). This makes that reflection on 'embedding' the measure implementation in the local situation (including farming systems and practices) is part of the implementation process, which should help to achieve coherence. It needs to be consistent with the multifunctionality payments and should avoid overlapping with these payments. The measure needs to be accompanied with a comprehensive rural development policy for hilly areas, which is more or less in place in Japan. The policy design addresses this issue. It belongs to the green box under the World Trade Organization (WTO) agricultural agreement.

5.5.4 Link to CAP objectives

In this study the selected payments of **Switzerland** and **Japan** are classified as income support, which is closely linked to the farm income objectives of the CAP. Moreover, it is clear that the measures have other important objectives such as environmental protection and territorial balance, which are also among the CAP objectives. The considered measures have similarities with Payments to areas facing natural or other specific constraints (measure M13) under the Pillar II of the current CAP. Especially the Japanese scheme shows some interaction with the EU's cross-cutting objectives knowledge and innovation (including cooperation of farmers and stakeholders) and sustainability.

5.6 Knowledge, innovation and farm advice

One of the instruments matching this cluster is the **Swiss Resources Programme**, which promotes technical, organisational and structural innovations (in the start-up phase). The individual projects must demonstrate a clear link to the objectives of sustainable use of natural resources and the transfer of knowledge beyond the project area, and the project effects must be scientifically proven. The instrument is mainly focused on the domain of natural resources, while innovation represents virtually a secondary effect. Therefore, this instrument is presented in more detail under the thematic cluster Environment and Climate and no further information is provided here.

The clear focus of the **Canadian Pesticide Risk Reduction Programme** is on pesticide management, thus the programme is primarily assigned to the environmental sector in this study. Nonetheless, it is broadly diversified and includes not only the environmental but also the various cross-sectional aspects of development and innovation, as well as advisory services and knowledge transfer. In particular, the programme is also aimed at implementing solutions to reduce the risk of pesticide use by creating an exchange and innovation platform for all stakeholders. On the one hand, the Pest Management Centre supports farmers in implementing integrated approaches to pest control, including the use of

pesticides. On the other hand, the stakeholders reflect existing problems and identify opportunities for a better management of pesticide use.

In summary, any instrument that supports the development or application of new or emerging techniques and practices can be expected to contribute to a horizontal objective such as knowledge, innovation and farm advice.

5.7 Other instruments

The **Canadian AgriMarketing Programme**: National Industry Association Component is designed to highlight the quality of Canadian agricultural products through promotional activities. The programme is targeted at non-profit organizations, including associations active in the agriculture and fishery sectors as well as secondary industries. These (regional) associations must represent an important Canadian commodity and be able to deliver it from a national perspective. An association must guarantee a contribution of 50 % of the eligible costs and can be funded with up to CAD 2.5 million (EUR 1.7 million) annually (with a maximum of CAD 10 million (EUR 6.8 million) over 5 years) for the promotion of its respective commodities. The aim of the programme is clearly to increase and diversify Canadian exports in international trade and to strengthen the domestic market, although the effectiveness of the instrument can hardly be determined. Given the high own contribution of 50 %, however, it can be assumed that the beneficiaries seek to use the funds with the best possible effectiveness and efficiency. In return, negative effects on coherence might occur as the high proportion of own funding might only be generated by larger, financially well-situated cooperations and associations. Direct impacts on farm economic objectives are not expected from this programme. However, if the promotional measures are highly successful, certain impacts on agricultural production and income should be expected, particularly with regard to special and quality products. Further feedback could be an increased adoption of higher environmental and production standards in manufacturing companies and secondary industries.

The specific **US direct loans and loan guarantees programme** addresses financing and is focused on those who are underserved by conventional lenders. Eligibility is explicitly restricted to a specific category of individuals. Most farm policy favours large commercial farms but these specific lending programs are focused on small limited resource farms that may not exist without this support. As such it operates as a farm entry support measure. Specific priorities are given to young farmers, socially excluded individuals, and veterans. Since these loans have an interest subsidy component they reduce borrowing costs for recipients which should improve profitability on these farms. However, there is not enough technical support provided to borrowers to help them survive. The programme can be argued to provide some protection to risks, but that is a secondary objective as the main aim is to support farm entry. The impact on the sector as a whole is not large because loan amounts are small and the total budget for the program is limited. In this sense they are considered an irregularity in the farm policy environment, but one that has wide popular support. The transaction costs for the lending programme are in general low after the initial year when the loan request is processed. In the specific US lending programs the total annual interest subsidy is limited. The programme has good political connotations when the loans are made, but bad ones if the guaranteed loans have to be foreclosed. The downside is that the programme may encourage people to become farmers when they could be better off in another career.

6 PROPOSALS FOR ADAPTATION OF THE POLICY MIX AND TRANSFERABLE INSTRUMENTS

KEY FINDINGS

- **General:** The EU has in several respects obtained an advanced position in agricultural policy covered by the two pillars of the CAP by pursuing a comprehensive set of policy goals and the availability of a rich set of instruments. The EU could still learn from other countries, particularly (1) to enhance farm income resilience through risk management tools, (2) to better achieve climate and other environmental objectives by expanding the range of instruments and through long-term commitments and (3) to foster social capital for rural development and knowledge and innovation through communal approaches.
- **Risk management:** The studied insurance measures aimed at risk transfer are not new to the CAP, as the CAP's risk management toolkit contains similar measures. The main lessons for the EU probably are that a higher uptake of risk management measures is feasible, but that this is likely to require high rates of (subsidized) support. Other factors contributing to the uptake of risk measures are threshold levels that already become operational at relatively low yield, price or income fall-backs related to risk events (shallow risk). Another lesson from this exercise for the EU is that specific implementation criteria of risk management measures (modalities) are important to explain farm uptake rates. In context of the EU, its risk management measures have to be analysed within the context of its full policy setting, which include also safety nets for several products, and a crisis risk management intervention, which is unique and goes beyond what has been observed in other countries (e.g. Australia, US, Canada).
- **Environmental aspects** will be increasingly pursued in the new CAP. Although the CAP's existing range of measures already encompasses the instruments examined, at least theoretically, this study was also able to draw some main lessons from instruments in other countries. Effects on biotic and abiotic environmental aspects can usually only be assessed after longer periods of time; for this reason, long-term support and contracts for environmental measures should also be made available. Furthermore, innovative project-related approaches must be increasingly introduced on an area-wide basis via advisory services and knowledge transfer. Hence, a stronger link between project, action and area-related interventions should be established. Finally, the efficient approach of auctioning subsidies used in the US and Australia should also be given a more detailed consideration.
- **Rural development:** Given the broad range of rural development instruments and the increasing efforts in innovation programmed in Pillar II of the CAP, the considered instruments are not filling a missing gap in the CAP. However, the multifunctionality payment implemented in Japan is interesting in terms of its implementation arrangement as it provides local groups with financial assistance for the costs incurred to actors preserving agricultural and commonly managed resources. It is a suitable mechanism fostering the provision of social and environmental benefits related to agriculture and simultaneously building social capital in rural areas.

KEY FINDINGS – continued

- **Support instruments in regions with natural handicaps:** The considered Swiss Farmland Payments and the Japanese direct payments to farmers in mountain and hilly areas (DPFMHA) income instruments are hybrid measures as they combine income support with helping farmers in less-favoured areas. The current and the proposed future CAP have measures which are to a large degree similar, The Direct Payment to Farmers in Hilly and Mountainous Areas (DPFHMA-measure is unique in that it combines a communal approach to habitat and landscape management with income support. This offers interesting opportunities to combine a local tailoring of conditionalities (baseline adjusted to local needs) with income support. The latter creates a flexibility which the proposed CAP not yet has, even though it promotes collaboration between farmers and other stakeholders.
- **Research and innovation:** The assessed instruments have the potential to provide applicable solutions to specific issues, as they are thematically focussed, and demand integrated R&D and dissemination activities. The integration of networking and dissemination of information with research and development activities is part of both the Canadian Pesticide Risk Reduction Programme and the Swiss Resources Programme, from which the current implementation of the EIP-AGRI could learn from.

6.1 Introduction

The primary aim of this study is to support the legislative process towards a new Common Agricultural Policy (CAP) by providing an analysis of agricultural policy support in key food-producing or food-importing countries. With this aim in view, the question is how the future CAP can in the medium to long term learn from the level and nature of assistance to agriculture across the selected countries, notably by providing highlights on the main trends in agricultural support as well as recent changes and new initiatives in global agricultural policies.

Although the characteristics of the agricultural sector vary widely between countries, the main challenges are broadly the same. The classical objective of supporting lagging incomes in agriculture stays still to be important in several countries. At the same time agriculture faces increasing resource constraints (land, water) and environmental concerns (including climate), while at the same time the sector has to meet a rapidly increasing (future) food demand. In order to meet these challenges, the economic viability of the sector and resource use-efficiency requires continuing attention. Major changes have also been made over time to the content of agricultural policies with regard to environmental aspects, especially by regulations and requirements for land management. Increasingly, ecological sustainability is being addressed, especially with regard to the expected climate change. Innovation is generally considered as an important approach in meeting the demands on agricultural products. The goals are to increase the productivity and sustainability of the agricultural sector

In Emerging Economies, support to agriculture has increased substantially over the long term. Especially net importing countries combine price support with protecting border measures. The dominant part of support is market price support. In contrast, the development in support to agriculture in the OECD area is characterised by the long-term decline of support based on commodity output. There is a general trend towards payments that are less coupled with production decisions.

The level of support provided to agricultural producers in Australia, Canada and the United States has been consistently below the level in the European Union, but the gap has narrowed. Australia moved its agricultural policy toward an encouragement of free market adaptation and market orientation over

three decades ago. The majority of support remaining for Australian agriculture is through broad-based policies such as significant funding for rural research and development, support for farm financing and drought relief. In Canada, protection of agricultural incomes from the vagaries of markets and nature has been the single most important objective of its agricultural policies. Many policies have also provided income support through subsidies. Main mechanisms of policy support are supply management and business risk management. The main objective of US farm policy remains support for farm income and stabilization of farm commodity markets. The 2014 Farm Bill shifted the main form of support to insurance type products. Essentially the US now provides close to free shallow loss insurance and free catastrophic loss insurance for most commodities.

The support for agriculture in Japan and Switzerland is structurally higher than that in the EU. Japan and Switzerland provide the majority of producer support through measures that are most distorting for production and trade (market price support). The major approaches to agricultural policy in Japan have involved maintaining self-sufficiency in rice as a staple food through the control of imports, a production reduction programme of rice that leads to a higher domestic rice price and the maintenance of paddy areas through infrastructure investments. There are some direct payments to support farm income and agricultural production and some to support a mixture of environmental and rural development. For risk management, the mutual insurance scheme is available for a wide range of products. In Switzerland, the financial support to agriculture is mostly accepted. Price levels, both for agricultural raw product and for food prices, are considerably above the ones of neighbouring countries. Swiss agricultural policy faces challenges due to conflicting objectives regarding the supply of food, the conservation of natural resources and the international competitiveness of the agricultural and food sector.

The following sections reflect upon the necessity of an adaption of the policy mix, assesses the transferability of the instruments analysed in detail in the light of the proposals for the CAP post 2020, and provides policy recommendations. We provide for each type of instrument a reflection on the use and effectiveness of such instruments in current EU context, and in the context of the proposals for the coming funding period. We discuss for each type which aspects should be considered to be taken up in the future CAP.

6.2 Adaption of the policy mix

Relative to the studied countries the EU has an ambitious agricultural policy, which pursues a wide set of specific objectives. The EU's CAP reforms show a shift from distortive policy measures (price support) to direct payments, where the latter are increasingly linked to specific targets. This movement reflects on the one hand the market orientation and on the other hand the environmental and other sustainability objectives. The increase in market orientation, which strengthened interaction with world markets, as well as the impacts of climate change on weather variability, is leading to a priority given to risk management measures (e.g. US, Canada, Australia). The newly proposed CAP 2021-2027, with a revised green architecture, including an extended baseline (enhanced conditionality), additional options to reward farmers for public goods (eco-schemes), and more emphasis on climate action, adds another step to a more sustainable agriculture.

Whereas the EU could learn from other countries, especially from those that have ambitious policies which they combine with market orientation, the EU has in several respects obtained an advanced position: pursuing a comprehensive set of policy goals and the availability of a rich set of instruments, covered by the two pillars of the CAP. Taking this into consideration, the key points for improving the policy mix of the CAP are:

- to strengthen risk management (and other) instruments supporting the resilience of farm income,
- to develop (additional) instruments that address climate action and also biodiversity conservation measures,
- to increase the effectiveness of measures through innovative implementation modes such as result-based schemes, long-term contracts, competitive awards, and by combining complementary knowledge and advice measures.

However, in assessing the balance between the expressed CAP objectives, and the set of measures available to pursue them, there are differences in the way and the degree in which objectives are covered. 'Strengthening farmers' position in the food chain' is a key objective but so far cooperation measures have not been very effective. Other means to support farmer organisations could be important (e.g. organisational development support, legislative) but no interesting examples could be identified in the five countries studied. The objective to 'support generational renewal' is shared with Japan, but this country favours a rather 'un-European' approach by supporting large farms and business involvement in agricultural activities.

A key challenge that has to be taken into account here is the fact that the next CAP will face substantial cuts in the budget as proposed in the MFF 2012/2017 (Massot et al. 2018). A particularly large cut is expected for the EAFRD, which the European Commission aims to counterveil by increasing the co-funding rates of Member States that would result in a largely unchanged budget. MS would also have the option to transfer funds from Pillar I to Pillar II.

6.3 Transferable policy instruments

6.3.1 Risk management

6.3.1.1 EU context

The increasing market orientation of the CAP and the increasing impact of climate change contribute to volatility of yields and prices and to income risks. In this context risk management is an important priority to contribute to the objective of a smart and resilient agricultural sector. Similar to the current agricultural policy of the EU, in the new CAP, also under the new CAP Member States will have to support risk management tools to help genuine farmers manage production and income risks related to their agricultural activity, which are outside their control. This type of support, namely financial contributions to premiums for insurance schemes and mutual funds, will be mandatory for Member States, with a view to strengthen the adoption of tools at the disposal of farmers. As regards the available instruments, the risk management toolkit proposed under the new framework is quite similar to the set of instruments available under the current CAP 2014-2020. As compared to the current CAP, in the proposed new CAP no explicit reference has been made to income stabilisation tools, but Member States have the opportunity to use mutual funds to support income stabilisation measures. What is new under the proposed future CAP is that it will be mandatory for the Farm Advisory System to cover, among others, the topic of risk management, with a view to strengthen farmers' capacity to prevent risks or deal with their consequences.

According to a recent study on EU risk management tools, the availability, access, and adoption of risk management instruments lag behind expectations. Insurance remains the most commonly used instrument, while both availability and uptake of other instruments such as mutual funds and contractual price agreements (including futures) is more limited (Ecorys and WR 2017).

In the proposed new CAP, Member States will have to decide on the definition of specific conditions and eligibility rules. Both simplification and flexibility aim to allow addressing different types of risks and needs across the EU, while enabling Member States to combine, in a complementary way, EU-level, national and private interventions.

Beyond the interventions that are specifically labelled as risk management tools, many more types of CAP support directly or indirectly address the risk management strategy of farmers. Direct payments and market safety-nets for serious market imbalances, will continue to be an essential element of the new CAP. Moreover, the current crisis reserve will be renewed and renamed 'agricultural reserve' and will be 'filled' beyond its current level via a rolling over the crisis reserve from 2020 into 2021, and as of then all unused funds.

6.3.1.2 Proposed instruments for risk management

Risk retention instruments

Risk management instruments can broadly be classified as risk retention (risk is retained on farm) or risk transfer (risk is transferred to or shared with a third party) instruments. Of the instruments under study, the risk retention group comprises the **Farm Management Deposit Scheme (FMDS) in Australia** and **AgrilInvest in Canada**. Both risk retention measures address shallow risks. The Australian government provides farmers with the opportunity to use a savings deposit (which is then offered by the private sector). Canada has a deposit scheme in which farmers that adopt the scheme get their savings matched by public support. The two measures have a precautionary savings nature and have been identified as being effective measures that are easily compatible within current farming practices. They could be effective to address liquidity preservation needs related to shallow risks. They are also popular with farmers (low transaction costs, being not complex, easy to understand in their functioning, and leave control to farmers) and high uptake rates were observed. These measures are interesting risk management instruments as they complement the currently available measures and the proposed instruments for the future CAP. Adding such measures to the EU's risk management toolkit would strengthen the on-farm financial approach.

A complication in adopting precautionary savings instruments in the CAP would be that they may interfere with the own competences of Member States, which includes taxation and savings issues, and as such go beyond the mandate of the EU Commission and exceed the CAP policy domain. Precautionary savings schemes could be subsidized by Pillar II funds (see Asseldonk et al. forthcoming).

Risk transfer instruments

The risk transfer type of measures are represented by **index-based drought insurance in Australia**, **mutual rice insurance in Japan**, and **insurance measures in the US**. The multiple versions of insurance in the US comprise crop insurance which is mainly designed to cover losses from natural disasters, the Agriculture Risk Coverage (ARC) that provides revenue insurance, and the Price Loss Coverage (PLC) that provides price insurance. These instruments cover various types of insurances. In all cases they address deep risk, while one measure (**US insurance scheme**) also addresses shallow risk. As the risk measures (see the **US ARC and PLC measures**) provide some kind of countercyclical support to farmers, they contribute to income stabilisation and reduce business uncertainty. The studied examples show that without government subsidies (e.g. **Australian index based drought insurance scheme**) the uptake of risk measures can be low. On the other hand, heavily subsidized insurance schemes (e.g. the **Japanese rice mutual insurance scheme**), may lead to substantial costs and transform risk management tools partly into hidden income support instruments. Making risk

instruments index-based can help to reduce the transaction costs and contribute to fast and transparent settlement, relative to insurances relying on non-index based trigger criteria. A drawback of index-measures may be that they easily create a tendency to an increase in the base risk, which may reduce the attractiveness of the instrument to farmers.

6.3.2 Environment and Climate

6.3.2.1 EU context

With respect to this thematic cluster the EU is currently primarily using area-related instruments (particularly agri-environment-climate measures – AEEM) supplemented by investment measures (e.g. non-productive investments). In the first pillar of the CAP a baseline is established by a set of cross-compliance (CC) regulations, and since 2014 extended by the greening. The second pillar of the CAP included area and investment related measures targeted at environmental and climate objectives (e.g. AEEM, organic farming and non-productive investments).

The legislative proposals for the CAP post-2020 include enhanced conditionalities in the years to come. In addition, eco-schemes will be introduced, which are one-year environmental measures (mostly area-based) setting conditions which go beyond the conditionalities. Although implementation of the eco-schemes will be compulsory for the Member States, participation of farmers will be voluntary. While the range of measures offered within the second pillar will hardly change and continue to be based on the principle of voluntariness, its measures may not overlap with the eco-schemes, and should allow only compensations for efforts which go beyond the baseline of the first pillar (as included in the enhanced conditionalities) and eco-schemes. The proposals for the CAP post-2020 imply that (as in the current CAP) a fixed proportion of the available budget will have to be utilised for environmental and climate purposes. In contrast to previous funding periods the EU Commission will not define a range of measures and instruments that might be applied and it will be up to the Member States to offer appropriate measures in order to adequately meet the environmental objectives. The eco-schemes will be specific examples of the design and implementation of such measures.

The instruments selected from the other countries are not per se new to the EU policy mix, but are already embedded in one form or another in the context of the current measures – these would however have to be revised in order to be able to implement the selected promising instruments.

6.3.2.2 Proposed instruments for environment and climate

Project-based instruments

The basic framework for the project-related instruments described in the previous chapter (**Canadian Programmes on Agricultural Greenhouse Gases and Pesticide Risk Reduction, Resources Programme in Switzerland**) is certainly in place in the EU. Regarding implementation, however, the individual approaches of actions might be adapted and certain preconditions for project implementation should to be applied. Currently the European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI) is used to develop new ideas and practical approaches – with regard to the environment and climate, a stronger ecological focus might be anchored in the selection criteria of the projects. As corresponding projects tend to have a certain exemplary character, the insights and findings gained in these projects must be made available by means of publicity measures (see **Canadian Programmes on Agricultural Greenhouse Gases and Pesticide Risk Reduction**). The effectiveness of such projects depends to a large extent on whether the dissemination measures are successful and hence the circulation of the findings would have to be a mandatory element of the funding scheme. The results from supported projects (e.g. technologies and management methods)

could be used in such a way as to enhance the performance of other measures. For instance, results could be used, to optimise existing agri-environment-climate measures (AECM) with regard to ecological effects or to implement corresponding additional modules. Furthermore, scientific supervision of the projects has to be provided and the results evaluated accordingly (as in the **Swiss Resources Programme**). Altogether, the considered measures show that a strong(er) combination of project, action and area-related interventions as could enhance policy performance. Such an approach would fit well in the context of the proposed new CAP, with its increased priority put on cooperation and learning through interaction and information sharing. Such an integrated approach over several measures is not expected to lead to problems regarding farm compatibility and coherence between the different measures is automatically fostered. Other thematic areas of the EU policy (farm economics, social objectives and innovation) are expected to be influenced only marginally, while it is likely to positively contribute to achieving the cross-cutting objective of innovation in agriculture.

Area-based instruments

Area-payment based approaches are applied in particular in order to implement forms of (extensive) land management with a positive impact on the environment. Although a measure can usually be ascribed a certain focus on a particular environmental domain, its effects are generally manifold. In the CAP, areas under contract are in general used as a result indicator. As the interrelation between results (supported area) and environmental impact is often complex, the proposed fine-tuning may increase the effectiveness and efficiency, and thus strengthening the intervention of the agricultural policy in the respective ecological domain.

As the basic instrument to implement an area-payment-measure alike the **Resources Programme of Switzerland** is already given in the context of the EU CAP by the AECM, the focus here will be on opportunities for increasing effectiveness, efficiency and adjustments in implementation. The application of area-related measures can be addressed mainly through the aspects of target areas and premium levels. Ideally measures should be offered in target areas where the best possible results can be expected. Moreover, acceptance of a measure might be increased by means of differentiating premiums according to regions and/or farm types. As the Swiss example showed, production costs in intensively and extensively used areas may differ considerably, which ought to be reflected in the premiums as well (e.g. income forgone compensation principle). While both these principles are currently already available within the framework of the EU, Member States often apply compensation rules based on averages and refrain from implementation at a sufficient spatially disaggregated way due to the high level of associated administrative burden. In view of the fact that the Member States are expected to be given more flexibility in the forthcoming CAP, the increased implementation of these approaches should therefore be encouraged. Eventually, links to specific target areas with a high potential impact bolster the measures' effectiveness and (cost) efficiency. In turn, varying premiums within one measure (e.g. based on the yield index) might ensure that area-related measures are taken up more often, even in intensively used areas. In any case, both aspects facilitate better regional control regarding the utilisation of environmentally relevant area-payments. In particular, the regional or farm type-specific adjustment of premiums improves farm compatibility and reduces possible effects in the farm-economic sector (e.g. agricultural income, agricultural production).

In contrast to the other instruments, the approach of the **US Conservation Reserve Program** and **Australian Emissions Reductions Fund (ERF)** is not yet offered in the CAP. Such measures could be interesting to be considered in the new CAP as they further contribute to the preservation of biodiversity and climate mitigation by especially favouring long-term choices and investments. Moreover, their financial allocation mechanism is of interest to ensure a cost-efficient selection of

priority areas. In the US example, farmland is taken out of production for 15-20 years, albeit that other implementations are likewise possible (e.g. certain cultivation conditions or species protection measures). The Australian ERF is basically a carbon abatement subsidy scheme, which is currently mainly used in forest management, i.e. in terms of afforestation, reforestation and preservation. Given its main objective of carbon sequestration, however, it can also be used in the agricultural sector. Effects on biotic and abiotic environmental aspects generally only become apparent after an extended period of time (e.g. carbon sequestration, species richness). For the two instruments considered, the long-term nature of contracts goes beyond what is currently offered in the EU (e.g. agri-environment-climate commitments are usually no longer than 6 years). It has been argued, that a 6-year period may be too short to achieve certain (biodiversity) objectives and to build-up 'ecological capital'. As such the considered instruments could provide a solution to the need for longer-term investments towards the ecological objectives of the EU. In addition to the ecological advantages, such long-term support also offers long-term planning security to farmers. In order to account for fluctuating commodity prices, a temporal adjustment of the premiums according to inflation or as dynamic payments should be considered. As regards the selection of beneficiaries, the considered instruments apply a specific selection procedure: in both instruments, interested farmers declare financial amounts or bid for what they would be willing to take land under contract. Via this tendering or auction system competition for the best value for money is created. After having obtained all the bids, as subsequent step the relevant authorities select appropriate areas according to the best cost-benefit impact on the targeted environmental services (e.g. AUD per tonne CO₂ sequestered). Concluding, this allocation approach ensures the most efficient and effective utilisation of the available budget. Farmers will eventually only commit to the long-term contractual period, if it provides an attractive and financially stable alternative to regular management – especially in intensively managed or, in this case, most promising areas.

6.3.3 Rural Development

6.3.3.1 EU context

The instruments for rural development will largely be retained in the coming funding period post-2020 and centre on the following priorities: a) Environmental, climate and other management commitments; b) Natural or other area-specific constraints; c) Area-specific disadvantages resulting from certain mandatory requirements; d) Investments; d) Installation of young farmers and rural business start-up; e) Risk management tools; f) Cooperation; and g) Knowledge exchange and information. Thus – besides the rural development objectives implicit in these themes – a substantial part of the agricultural-sector related objectives will be addressed through Pillar II (EAFRD) funds. A major concern is, however, that the Multiannual Financial Framework (MFF) proposal foresees a substantial reduction in the EAFRD budget (Massot et al. 2018), which puts into question how agricultural and rural development objectives can be met with a reduced budget.

6.3.3.2 Proposed instruments to support rural development

Many of the instruments assessed in detail as part of the country studies contribute to rural development objectives, e.g. by ensuring rural jobs, or by preventing rural poverty (of farming households e.g. affected by natural or market crises), and they are thus relevant to the EU Rural Development policy. The previous sections on direct payments, risk management and environment and climate instruments discuss in detail their transferability into the EU context. The detailed assessment of the **Japanese multifunctionality payments**, and the **Land Improvement Projects (LIP)** lead us to the following perspectives for these two instruments in the future CAP implementation:

Given the rich set of rural development instruments available in the EU, the considered instruments, evaluated in terms of the aspects they address are not really new and as such not filling a missing instrument-gap in the current CAP's policy. There are, however, specific elements that could be interesting from an EU perspective. The **multifunctionality payment** is interesting in terms of its implementation arrangement as it provides local groups with financial assistance for the costs incurred to actors preserving agricultural and commonly managed resources. It is a suitable mechanisms for efforts ensuring the provision of social and environmental benefits related to agriculture, e.g. cultural landscapes, habitats, education, or recreation. Payments to local groups for a common effort could strengthen the building of social capital, particularly in areas where agricultural activities are less integrated with other rural activities. It shares some similarities with the Leader approach, but does not require an elaborated institutional setup. Still, the measure could be integrated into local development strategies. There are also common elements with the proposed contractual arrangements for agri-environmental schemes for groups of farmers, but focusses on common resources and could involve a wider range of local actors.

Land Improvement Projects (LIPs) aim to provide producers with agricultural infrastructure, such as main irrigation/drainage facilities, and also for implementing land consolidation – with the aim to increase productivity. This employs the cost-sharing arrangements for construction costs of major irrigation/drainage facilities among the national government, local governments and farmers with long-term loan arrangements. The cost-sharing approach for infrastructure that increases agricultural productivity could be interesting particularly in the light of climate change adaptation needs, structural change and generational renewal (access to land).

6.3.4 Support instruments for regions with natural handicaps

6.3.4.1 EU context

In the EU farmers receive support in the form of direct payments but on the condition that they respect strict rules on human and animal health and welfare, plant health and the environment (cross-compliance). Also under the proposed new CAP this is not expected to change as the basic instruments that are currently there are proposed to be also part of the new agricultural policy. The amount of support EU farmers receive is for the dominant part not linked to the quantities they produce (decoupled payments). Direct payments include a basic payment and additional premiums such as payments targeted at specific beneficiaries (e.g. young farmers, small farmers) or aimed at redistribution of the income support (redistributive payment & capping).

Alongside the direct payments instrument in the (first pillar of the) CAP), the current as well as the proposed new CAP comprises targeted support under the Rural Development Policy (second pillar of the CAP). The key example is the 'Payments to areas facing natural or other specific constraints' under the current CAP.

6.3.4.2 Proposed support instruments for regions with natural handicaps

Based on a detailed assessment of the policy instruments (**Swiss Farmland Payments, Japanese Direct Payment to Farmers in Hilly and Mountainous Areas – DPFHMA**), we see the following perspective for application of these measures in a future CAP context. The Swiss Farmland Payments compensate farmers for difficulties with respect to agricultural production in mountainous areas and aims to secure continuation of farming in these areas. The Japanese DPFHMA-instrument provides rural communities with payments to prevent the abandonment of agricultural land and which should also ensure the role of agriculture in environmental protection and landscape preservation.

Given the rich set of direct payments and the availability of additional targeted payments to areas with natural handicaps or facing policy-related constraints, the considered instruments and the mechanisms they make use of are not really new, and as such not filling a missing instrument-gap in the current or proposed CAP's policy amalgam. There are, however, specific elements that could be interesting from an EU perspective.

As regards the **Swiss Farmland Payments**, this measure is specific in its targeting of farmers as well as its payment scheme. With respect to its targeting it aims at supporting farmer in regions where land abandonments might be a threat and/or areas where scrub encroachment is threatening the preservation of an open landscape (suitable for animal grazing). Scrub encroachment due to a lack of agricultural activity is also an issue in several EU regions (e.g. the Aran Islands of Ireland, Black forest in Germany). Past agri-environmental schemes partly benefited farmers in providing economic support as an unintended side-effect, while they failed to adequately address a number of conservation issues including the maintenance of habitats (Smith et al. 2010). The EU is experimenting with new approaches combining economic support with successful habitat management through an EU LIFE Nature programme (with BurrenLIFE and AranLIFE as specific examples). Farmers then carry out the required works and supply livestock and expertise to graze the fields to a required level, determined through a simultaneous monitoring programme, whereas the costs involved are covered by the project if the work meets the required standard. Just like the EU's LIFE approach, the Swiss Farmland Payments instrument adds an example that could be helpful and inspire Member States to develop newly targeted measures (e.g. the development of a results-based agri-environment scheme or less favoured areas compensation measure). As regards its payment scheme, the Swiss instrument links the payment to the income differences between disadvantaged and non-disadvantaged regions. As such its focus is on contributing to restore income parity and farm viability, rather than to compensate for the costs related to efforts that are made (which was the reason to classify the Farmland Payments measure as an income support measures rather than an environmental payment measures, although it combines aspects of both objectives).

The **Japanese Direct Payment to Farmers in Hilly and Mountainous Areas (DPFHMA)** instrument is unique in the way it combines farm income support with a communal approach. In the current CAP there is no such a direct payment option. Member States have, however, the possibility to support a farmer group approach in agri-environmental and climate-schemes, although the uptake up of this measure has been low (only one Member State, The Netherlands, actively utilizes this option). Moreover the European Innovation Partnership for Agricultural productivity and Sustainability (EIP-AGRI) scheme, which is focused on fostering innovation, allows for operational groups of various stakeholders to solve common problems. As regards innovation and agri-environmental management the usefulness of applying collaborative approaches has been supported by the literature (Détang-Dessendre et al. 2017). The Japanese DPFHMA measure presents a hybrid of income support and a broad array of other objectives (e.g. preserve multifunctionality, preventing land abandonment, support agriculture in less-favoured areas). The communal approach could contribute to tailor the support to meet existing local needs. In addition, this communal approach could contribute to a shared ownership for the actions as these will be agreed on by a collective of stakeholders. The 'added value' of the communal approach has to be weighed against the increase in transaction costs that has to be faced in applying such measures and whether an adequate compensation is added to overcome transaction costs barriers.

As the payment for the DPFHMA is based on differences in the cost of production between the less-favoured and normal flat areas, the Japanese measure has a clear farm income support focus, improving farm viability and competitiveness in less favoured areas. In that respect the main

contribution of the communal approach can be argued to be that it attaches conditionality requirements to farm income support that are tailored to local needs.

6.3.5 Knowledge and innovation instruments

6.3.5.1 EU context

Knowledge and innovation instruments are currently programmed under the second pillar of the CAP (see section 6.3.3). The three focus areas ‘fostering innovation, cooperation and the development of the knowledge base in rural areas’; ‘strengthening the links between agriculture, food production and forestry and research and innovation’; and ‘fostering lifelong learning and vocational training in the agricultural and forestry sectors’ maintain a strong focus on the agricultural sector but also offers support for the non-agricultural sector. A key instrument is the European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI) measure that also builds on synergies with the EU Horizon 2020 research programme. Other instruments offered are funding for vocational training and information exchange actions, and demonstration activities. While the multi-actor approach fostered in the EIP-AGRI has been already judged as successful in directing research and development efforts towards solving practical issues; it has been noted that it is not clear how and who would organise dissemination efforts that would be needed ‘to ensure the high theoretical relevance of the EIP translates into practical usefulness.’ (European Commission 2017b). In the coming CAP funding period, research and innovation remain a key area of support, as has already been outlined in the rural development section above. The EIP-AGRI will be maintained as promising instruments.

6.3.5.2 Proposed instruments for knowledge and innovation

The two instruments assessed in detail in the country study – the **Canadian Pesticide Risk Reduction Programme (PRRP)** and the **Swiss Resources Programme** – are interesting in the way they combine environmental with innovation and knowledge objectives. They both share in common, that networking and dissemination of information are integral parts of their implementation. The scientific monitoring of the impacts is an integral part of each project funded under the Swiss Resources Programme. Ensuring practice-relevance and research-based impact assessments is also important in the context of the EU, which only increases with the increasing focus on local tailoring, the enlarged flexibilities offered to Member States with respect to implementation modes, and the need to do evidence based self-assessments on (expected) impacts of such implemented measures. This is also reflected in the efforts made to involve actors in EU-funded research through multi-actor approaches, and by attempts to transform the agricultural research-culture towards impact orientation through new science-based evaluation approaches. Another interesting element of both programmes is their rather narrow thematic focus, which has the potential to better harmonise research efforts, and to have strong role in creating a community of practice. The research coordination processes in the European Union have similar objectives but act at a quite high level (the Joint Programming Initiative on Agriculture, Food Security and Climate Change – FACCE-JPI), or are particularly focussed on the exploitation of research results. A narrow thematic focus of a research and innovation programme as in the two assessed instruments could be more effective and efficient in providing applied solutions for specific issues. They appear suitable for matters of political priority (e.g. climate change mitigation) or urgency (e.g. diseases outbreaks or food risks).

6.3.5.3 Other measures

As regard the other instruments the **Canadian AgriMarketing Programme** is designed to highlight the quality of Canadian agricultural products through promotional activities and promote national and foreign demand for Canadian agricultural products. The EU has similar measures. No clear lessons for the EU emerged from assessing the Canadian programme.

The other measure in this category, the **US direct loans and loan guarantees programme** has a very specific nature as eligibility is explicitly restricted to a specific category of individuals. The measure could best be compared with EU measures aimed at young farmers and supporting family farms. However, due to the specific nature of the US programme its value as an example of which the EU could learn from is limited. The lesson could even be a negative one: the US programme could attract people into agriculture that are not the ones with the best qualifications to become a farmer.

6.4 Policy recommendations

The study confirms that the EU's policy strategy, aiming at market orientation, a limited use of market distorting support and increasing emphasis on sustainability is in line with the general trend observed for the OECD countries, even though there are differences in policy objectives reflecting differences in political orientation and differences in structure (net trade situation).

Relative to the five case study countries (Australia, Canada, Japan, Switzerland and the US), the EU has a broad range of specific policy objectives, which cover farm income (viability and resilience), management of natural resources and climate action (environment and sustainability), and rural areas (territorial balance). The current and proposed CAP contain a large set of policy instruments (direct payments, rural development policy) to achieve these multiple objectives.

The main areas where the EU can learn from other countries are risk management and sustainable management of natural resources (environment and climate action) regarding both the instruments used and their implementation modes. Some of the studied instruments to support rural development, regions with natural handicaps as well as knowledge and innovation provide lessons on interesting implementation modes.

As requested, and based on the comparative analysis of five non-EU countries provided in this study, the following recommendations that are worthwhile to be discussed and reflected on by the AGRI Committee are made:

Risk management instruments

- The risk retention measures (**Farm Management Deposit Scheme Australia, AgriInvest Canada**) represent savings deposits that are interesting to be further considered for adoption in the CAP, as both in the current and the proposed CAP precautionary savings measures are missing. They were found to be popular with farmers and are potential effective measures to address shallow risks.
- The EU could learn from the way other countries (US and Australia) have implemented risk management measures, However care should be taken that risk management measure implementations are put in the context of the EU's full policy setting, which include safety nets for several products, a crisis risk management scheme, which is unique and goes beyond what has been observed from some other countries.

Environment and climate instruments

- The **US Conservation Reserve Program (CRP)** and the **Emissions Reductions Fund in Australia** are interesting measures to provide long-term support to nature conservation and climate action. As there is a need for the EU to increase its performance with respect to biodiversity and climate action, and the CAP is currently missing such long-term measures, these two measures presented here deserve consideration for adoption in the CAP policy mix. Also the specific application mode in combination with the allocation of funds needs attention since it entails attractive properties in terms of effectiveness and cost-efficiency.
- Innovative, but thematically broadly applicable approaches, as used in the instruments under review (**Agricultural Greenhouse Gases Programme and Pesticide Risk Reduction Programme (both Canada), Resources Programme (Switzerland)**), indicate strategies which should also be increasingly implemented in the EU. For example, with regard to CO₂ emissions from agricultural land use.

Rural development instruments

- Only limited lessons can be learned from the implementation of rural development instruments in the five countries studied. Still, the **multifunctionality payments (Japan)** pursues an interesting implementation mode as payments are made to local groups consisting of farmers and other rural actors. This implementation mode has the potential to strengthen the rural fabric while also addressing e.g. landscapes and habitats or agricultural productivity objectives in a coordinated way. Pillar II measures with similar implementation arrangements have in the past not been taken up to a large extent due to administrative burden for beneficiaries. Obligations for beneficiaries need to be reduced to increase the uptake and effectiveness of instruments in future CAPs.

Support instruments for regions with natural handicaps

- The **Japanese direct payments to farmers in mountain and hilly areas**, providing direct payments to farmers in hilly and mountainous areas provides interesting opportunities to combine a local tailoring of conditionalities (baseline adjusted to local needs) with income support, which may be interesting for further consideration by the EU as it could create a flexibility that is not yet included in the proposed CAP and has relevance given the heterogeneity in agricultural conditions in the EU.

Knowledge and innovation

- The assessed research and innovation instruments have the potential to provide applicable solutions to specific issues, as they are thematically focussed, and demand integrated R&D and dissemination activities. The integration of networking and dissemination of information with research and development activities is part of both the **Canadian Pesticide Risk Reduction Programme** and the **Swiss Resources Programme**, of which the implementation of the EIP-AGRI could learn from.

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ANNEX

Methodology and approach

Country study approach

The detailed country studies focus on main mechanisms of support and were carried out by local experts in the field of the respective national agricultural policies. Although a brief general overview of each country's agricultural policy was provided, the focus was on the **main approaches, promising measures and implementation modes**.

Key points of attention in the detailed country analysis were:

- Identification and description of the main mechanisms of policy support.
- Description and analysis of the main trends in the composition and nature of agricultural policy support.
- Assessment of recent changes and new initiatives and the respective reasons.
- Identification and analysis of promising measures and implementation modes worth considering in the context of the EU's ongoing CAP reform.

The identification and highlighting of **main mechanisms** of support based on a policy review, including an assessment of relevant policy documents as well as a scrutiny analysis of a set of indicators, characterizing agricultural support policies (based on the OECD framework). Recent changes and new initiatives in agricultural policies were identified and described in a separate section of the reports. In addition, an assessment of the motivational and explanatory factors behind these changes was made. The evaluation was based on knowledge about country-specific policy reform agendas as well as formal and informal documents, policy papers, vision and white papers, ex-post impact assessments, etc.

The country studies also provided valuable information for the identification, description and analysis of specific **policy measures**, which are (currently) not used in the EU, or differ in their **specific modes of implementation** from existing elements. Based on a broad list of country-specific policy measures related to EU objectives, a selection of (potentially) in the EU context applicable promising measures was made. These promising measures were analysed in a more detailed way (e.g. by means of the instrument-objective-impact (IOI) matrix, see below), taking into account the standard EU impact evaluation questions (effectiveness, efficiency, coherence) and farm compatibility (the extent to which the measures can be fitted into regular farming practices).

The case study process was divided in measure identification, information collection, analysis, and reporting. The main responsibility for providing and reporting the required information lay with the country experts, but work was conducted in close collaboration with the research team. In addition, the country experts provided feedback on the comparative analysis and development of policy recommendations.

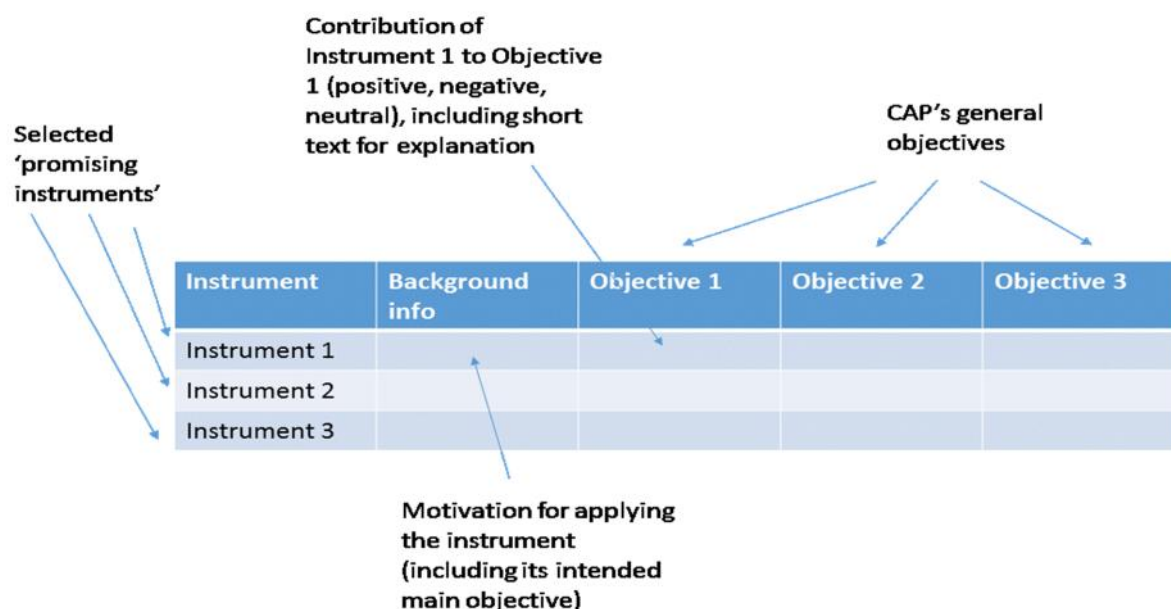
Method of the instrument-objective-impact (IOI) matrix

Basic idea behind the IOI-matrix

Because the selected promising instruments are somewhat new to the EU, an ex-ante perspective had to be chosen for their assessment. This step was crucial in capturing the potential impacts of the selected measures on the three proposed general objectives of the future CAP. The IOI-method

(developed by Chartier et al. 2016) establishes a matrix which links instruments to their likely impact on the three general CAP objectives (see Figure 9). The background in Annex 2 of Chartier et al. (2016) helped experts to make an assessments of local measures, as an Excel-file with an example of an IOI-evaluation of the instruments currently used in the EU CAP was provided to the local experts. The file also contained a new worksheet to fill for the selected promising measures, while considering their similarities and differences with respect by to the current EU instruments.

Figure 9: Matrix of instruments, objectives and impact (IOI-matrix)



Compared to the intervention logic, the IOI-matrix provided a more detailed elaboration at the level of measures and allowed the determination of the direction in which a measure is likely to impact on the objectives. Furthermore, the IOI-matrix enabled a comparison of measures and their effects on similar objectives and the identification of potential synergies and side effects between the promising instruments. The rules and delegated acts of each promising instrument have also been taken into account under the IOI-approach in order to reflect the objectives of the action itself (general, specific, etc.).

Eventually, the hypotheses on the likely effect of the measures on the objectives were derived based on (a) Agricultural economic theory, (b) Empirical studies from economics and ecology literature, and (c) Experts in the respective field.

The detailed country studies focus on the main mechanisms of support (e.g. direct payments, market measures, risk management, agri-environmental and climate action measures, investment support, generational renewal). Although a brief general overview of each country's agricultural policy will be provided, the focus will not be on the overall policies, but rather on the **main approaches** and **'promising measures'**, with a special focus on those that are the most interesting when viewed from an EU-learning perspective.

Key points of attention in the detailed country analysis are:

- Identification and description of the **main mechanisms** of policy support.
- Description and analysis of the **main trends in the composition and nature** of agricultural policy support.

- Assessment of **recent changes** and the reasons for these changes.
- Assessment of **new initiatives** and the reasons for these 'reforms'.
- Identification and analysis of **promising measures** or interesting measure **implementation modes** that are worth considering in the context of the EU's ongoing CAP reform.

The identification and highlighting of main mechanisms of support will be based on a **policy review**, which includes the assessment of relevant policy documents as well as a scrutiny analysis of a set of indicators, characterizing agricultural support policies. For this we will strongly rely on the framework as this is provided by the OECD. **Recent changes** in agricultural policies will be captured by the discussed indicators and the accompanying analysis and described in a separate section of the country reports. In addition to identifying and describing recent changes an assessment will be made on **motivational and explanatory factors** behind these changes. The assessment of **new initiatives** will be based on knowledge about country-specific policy reform agendas. For this assessment alongside **formal documents** it is especially important to also screen **informal documents**, policy papers, documents about stakeholder positions, vision and white papers, ex-post impact assessments, etc.

A second important output of the detailed country studies will be the identification, description and analysis of specific **policy measures** not used by the EU, or specific **modes of implementation** for measures that are also existent in the EU but could be interesting to learn more about alternative uses or improvements relative to its current use. A planned output from the EU country analysis is to have a broad list of EU policy measures related to **specific domains or sectors**. In the promising policy measure-identification assessment of the detailed country analyses, firstly it will be explored to what extent the country assessed applies measures that are not available in the EU policy toolkit. Secondly, for measures which are available both in the EU and the selected non-EU country that is analysed an explorative analysis will be made to what extent the implementation modes in the comparison countries will be similar or different. Based on these two assessments and **lists of measures** that could be interesting for EU learning, a selection will be made of those measures that are relevant and have potential to be applied in the EU context. This results in a list of 'promising measures'. The promising measures are analysed in a more detailed way, taking into account the standard EU impact evaluation questions (effectiveness, efficiency, coherence) and **farm compatibility** (the extent to which the measures can be fitted into regular farming practices).

The case study process is divided in a measures identification phase, and an information collection, analysis and reporting phase. **Case study experts are the main responsible to collect the required information and to report on it**, but the work is conducted in close exchange with the research team. In addition, country experts' feedback on the comparative analysis and development of policy recommendations is provided.

This study provides a comparative analysis of global agricultural policies aimed at drawing lessons for the future of the CAP. Against the background of the main trends in agricultural support as well as recent changes and new initiatives in global agricultural policies, an in depth analysis is made of selected instruments in five countries (Australia, Canada, Japan, Switzerland, US). Recommendations are made on how current instruments and the policy mix can be improved to better address challenges for agriculture and rural development in the European Union.
